



SAN MIGUEL COUNTY PLANNING COMMISSION

PLANNING COMMISSION MEETING AGENDA WEDNESDAY, MARCH 27, 2024 – 9:30 AM

Online & 333 W. Colorado Ave, Telluride & The Sheriff's Annex in Norwood

MEETING INFORMATION - This meeting will be held online and in person. Join a Meeting, Zoom.us, Meeting, Zoom.us, Meeting ID #534.180.495, Password 014764, audio 1-301-715-8592 or 1-253-215-8782

1. 9:30 A.M. CALL TO ORDER

2. WORKSESSION:

- a. Joint Work Session of the Board of County Commissioners and the County Planning Commission to discuss the Draft Solar Regulations.
[BOCC CPC WS Solar Regs 032724.pdf](#)
[Public Comments Before 3/22](#)
[After Packet Comments 3/22 - 3/26 .pdf](#)

3. ADJOURN

NOTE: All times are approximate; items may begin earlier (except public hearings) or later than scheduled. For more information contact Planning Department at (970) 728-3083.

If special accommodations are necessary per ADA, contact 970-728-3844, via email at bocc@sanmiguelcountyco.gov prior to the meeting.

The official, designated posting place for all meeting notices will be online at <https://www.sanmiguelcountyco.gov/liveagenda>. Use this link to view the live agenda with any last-minute changes. To be automatically notified, please sign up at www.sanmiguelcountyco.gov, sign up for alerts, and follow the prompts.



AGENDA ITEM 2.a

TITLE:

Joint Work Session of the Board of County Commissioners and the County Planning Commission to discuss the Draft Solar Regulations.

Presented by:

Time needed:

PREPARED BY:

Nicola Kerr, Planning

RECOMMENDED ACTION/MOTION:

INTRODUCTION/BACKGROUND:

FISCAL IMPACT:

ATTACHMENTS:

[BOCC CPC WS Solar Regs 032724.pdf](#)

[Public Comments Before 3/22](#)

[After Packet Comments 3/22 - 3/26 .pdf](#)

Description:

MEMORANDUM

TO: San Miguel County Board of County Commissioners and Planning Commission
FROM: Kaye Simonson, AICP, Planning Director
RE: Draft Regulations for Solar Energy Systems
DATE: March 27, 2024

Background

In the past year, the Planning Department has had inquiries regarding significant utility-scale solar projects. In order to provide thorough and adequate review that is responsive to today's energy needs and technology, and address the concerns of the community, a moratorium was put in place to allow the preparation of draft regulations on May 24, 2023, and extended on November 15, 2023 to May 15, 2024. At the time of the moratorium, the County was in the process of contracting with Sullivan Green Seavy LLC to prepare Land Use Code amendments related to natural resources (mining, oil and gas, logging). Solar regulations were added to the scope of work and prioritized.

On October 10, 2023, a community open house was held in Norwood to gather public input on solar energy and natural resources. Approximately 80 people attended. Participants were asked to identify specific issues and concerns regarding both solar and natural resources, and also asked to provide written feedback with other issues and concerns. A summary of the community feedback, as well as the display posters, are available on the "Renewable Energy and Natural Resources" webpage at <https://www.sanmiguelcountyco.gov/781/Renewable-Energy-and-Natural-Resources>.

A work session was held to discuss the regulations on January 24. Due to the complexity of the draft regulations, the CPC and BOCC asked for revisions and requested another work session prior to any hearings. The draft amendment is anticipated to be on the May 9 Planning Commission meeting, and is tentatively scheduled for the June 26 BOCC meeting. Prior to May 15, the BOCC will need to consider whether to extend the moratorium.

Current Code

Land Use Code (LUC) Article 5, Standards, contains the various zone district standards that identify where specific uses are permitted, as well as development review standards for uses subject to Special Use Permit. Within the specific zone districts, there are enumerated a number of uses related to construction of utilities and infrastructure. However, the listed uses vary between the zone districts. The Code does not specifically identify solar generation (commercial or small-scale) as a permitted use. Under basic planning principles, applications for solar developments have been classified as permitted based on the most similar use in the Code, e.g. "Public Utility Structure."

LUC Section 5-709 provides standards for the consideration of "Public Utilities Structures and Electricity Transmission and Distribution Lines." Other sections of the Code used in past review of solar and utility projects include LUC Section 5-10 Special Uses, as well as Article 2, Land Use Policies, and Section 5-4, Areas of State and Local Interest.

Regulatory Approach to Mitigating Impacts

The intent of the solar regulations is to facilitate the development of solar energy systems while mitigating the impacts of such development. The regulations are structured to achieve this goal. The regulations require an applicant for development of a large-scale or medium-scale solar energy system to provide reports, plans, and studies that analyze impacts of the project and to

explain in the application materials how the applicant will mitigate those impacts. Review standards align with application materials. The burden of proof is on the applicant to demonstrate through the application materials how the review standards are met.

In addition to projects on private and state lands, these regulations apply to private activity on federal land because the regulations are focused on mitigating impacts of the activity, not on dictating whether or not solar development may occur on federal land.

Proposed Code Amendment

The draft “Regulations for Solar Energy Systems” are intended to be a self-contained, stand-alone Article of the Land Use Code. In the future, other sections related to natural resources would be added to the new Article. Corresponding changes will be made to the Two-Step reviews listed in Article 3 (page 3-4).

As a stand-alone section, all zone districts where solar energy systems may be permitted are listed, rather than amending each zone district section in Article 5. It also contains all application requirements, and provides all review standards, except where referenced (e.g. lighting). This reduces the number of cross-references within the LUC and minimizes potential omissions and errors. The application requirements (Sections 103, Large-Scale and 105, Medium-Scale) are very specific and are directly connected to corresponding review standards (Sections 104, Large-Scale and 106, Medium Scale).

Notable changes to the draft include:

Definitions (Section 101 G):

It is proposed that the threshold between Large and Medium-Scale Solar Energy Systems be reduced from 20 acres to 10 acres. Based on industry averages, solar facilities on 8 to 10 acres produce about 1 megawatt of energy. Actual output would depend on site conditions, design, and layout of arrays.

The definition for “Solar Energy System” has been changed to describe it as “A photovoltaic or low temperature thermal system...” There was concern regarding large concentrating arrays that use mirrors. The definition as proposed effectively eliminates concentrating systems from consideration.

Definitions have also been added for “Microgrid,” “Grid,” “Adverse,” and “Substantial.”

Proposed Review Processes (Section 101 F):

Based on the direction at the previous work session, Medium-Scale and Large-Scale Solar projects are both proposed to be subject to Two-Step Review (CPC and BOCC review).

Small-Scale systems are subject to administrative review (a development permit), aligning with the current process for solar energy systems that are primarily intended to provide power to the use on the site.

Zone Districts (Section 101 E):

The zoning map can be viewed online (Interactive Map or PDF) through the Geographic Information Systems page at <https://www.sanmiguelcountycogov/185/MappingGIS>.

As proposed, zone districts where Large-Scale Solar Energy Systems (Section 101 E.I) may be permitted are:

- Forestry, Agriculture and Open (F)
- Heavy Commercial (HC)
- Low Intensity Industrial (I)
- Public (PUB)
- Wright's Mesa Rural Agriculture (WMRA) (may require rezoning from Wright's Mesa (WM) to WMRA)
- West End (WE)

There was some discussion regarding removing Large-Scale Solar from the Wright's Mesa Rural Agriculture (WMRA) zone district. Staff has chosen to keep the WM zone district in the draft, due to the need to locate facilities in close proximity to transmission lines (see attached map). Additionally, with the proposed reduction to 10 acres for the largest medium-scale solar project, there may be large-scale projects that can be located and designed to adequately mitigate impacts within the WMRA zone district. In the WMRA zone district, additional restrictions apply to development within Gunnison Sage-grouse habitat, and within the Wright's Mesa Source Water Protection Area. It should be noted that the majority of the West End (WE) zone district is BLM land. The BLM's draft Updated Western Solar Plan (currently in the public comment period) show limited opportunity for solar development on public lands in the WE zone, due to constraints and resource considerations. If the BLM plan is adopted largely as drafted, this will leave a small number of BLM parcels and a few private parcels available for solar development in the WE zone.

Zone districts where Medium-Scale Solar Energy Systems (Section 101 E.II) may be permitted are:

- Forestry, Agriculture and Open (F)
- Heavy Commercial (HC)
- Low Intensity Industrial (I)
- Wright's Mesa Light Industrial (WMLI) (may require rezoning from Wright's Mesa (WM) to WMLI)
- Public (PUB)
- Wright's Mesa Rural Agriculture (WMRA) (may require rezoning from Wright's Mesa (WM) to WMRA)
- West End (WE)
- ~~Community Housing (CH)~~

A second classification of Medium-Scale systems for Microgrids is proposed. Microgrids are intended to provide service to a specific use (such as exists at the Sheriff's Office) or to a neighborhood. The intent of this section is to allow Microgrids that would serve subdivisions and neighborhoods, as opposed to commercial Medium-Scale projects, i.e. those that sell power to subscribers. This would facilitate net-zero development, and provide for community resiliency. The Community Housing (CH) zone is proposed to be moved to this category, since the intent of inclusion in medium-scale was to help meet net-zero goals rather than encourage commercial development.

Proposed zone districts where Microgrid Medium-Scale Solar Energy Systems (Section 101 E.III) may be permitted are:

- High Density (HD)
- Medium Density (MD)
- Low Density (LD)
- Affordable Housing PUD (AHPUD)
- Low Density Residential (LDR)

- Mixed Use Development (MXD)
- Community Housing (CH)

Small-Scale Solar Energy Systems would be permitted by right in all zone districts as accessory uses.

Due to lot sizes, permitted uses, and zone district purposes, zone districts where Medium- and Large-Scale Solar Energy Systems, including microgrids, would not be permitted are:

- | | |
|---|--|
| ▪ High Density (HD) | (PUDR) |
| ▪ Medium Density (MD) | ▪ Rangeland Grazing (RG) |
| ▪ Low Density (LD) | ▪ Wright's Mesa (WM) |
| ▪ Affordable Housing PUD (AHPUD) | ▪ Wright's Mesa Town Residential (WMTR) |
| ▪ Single-Family Residential (R) | ▪ Wrights Mesa Rural Residential (WMRR) |
| ▪ Placerville Residential (PR) | ▪ High Country Area (HCA) |
| ▪ Placerville Commercial (PC) | ▪ Low Density Residential (LDR) |
| ▪ Mobile Home (MH) | ▪ Mixed Use Development (MXD) |
| ▪ Park (P) | |
| ▪ Open Space (OS) | |
| ▪ Planned Unit Development Reserve | |

Term of Permit and Transfer of Permit:

Section 101 G, Term of Permit, has been added. It allows 3 years to commence construction. This is in line with statute regarding vesting of site-specific development plans, and with LUC Section 3-1402, Vested Property Rights Term, and Section 5-1003, Commencement of Approved Special Uses.

Section 101 H, Transfer of Permits, stipulates that transfer to another company can only occur following a public hearing, to ensure that the new operator will comply with all terms and conditions of the permit, and that adequate financial security can be made. Small-scale solar systems transfer with the sale of property; no county approval would be required.

Enforcement and Penalties:

Section 110, Enforcement and Penalties, has been revised to add clarity regarding actions the County may take to abate a violation, and to provide better guidance regarding right of inspection.

Application Materials and Standards:

A number of edits were made to the application requirements and the review standards. While many of the edits are clarifying, several are in response to input received at the last work session. Notably, for Large-Scale facilities, Section 103 P, Visual Quality and Impact Assessment, and 104 S, Visual Quality, the distance at which visual impacts must be described and assessed are proposed to be increased from ½ mile to 1 mile.

For Large-Scale facilities, Sections 103 Y, Agricultural Resources Impact Assessment, and 104 BB, Agricultural Resources, are proposed to be amended to include irrigation and agricultural drainage ditches and systems, in response to concerns expressed by the public.

For Medium-Scale facilities, Section 105 E, Water Resource Impact Assessment expands on the description of hydrologic features and impacts that must be described. This includes agricultural drainage ditches and irrigation systems. The corresponding review standard in Section 106 H has also been revised.

The reference to the existing lighting standards of Section 5-710 remains. This addresses concerns regarding compliance with Dark Sky standards.

The setback standard has been changed to state that it is a minimum of 50 feet to the property lines. This allows the Commission and Board more latitude to require greater setbacks when necessary to mitigate impacts.

Section 104 B, Utility Interconnection Agreement, has been amended to allow the County to defer making a final decision until a “letter of intent to interconnect” or an interconnection agreement is received, or to make receipt of those documents a condition of approval. This was in response to comments from industry representatives, who noted they most likely would not be able to obtain those guarantees at the land use application stage. Rather, that generally comes after they have obtained the land use entitlements and are preparing actual development plans. (A similar change should be made to Section 106, which refers to Medium-Scale facilities.) Utilities, wholesale suppliers and power marketers such as SMPA, Tri-State and WAPA would be referral agencies throughout the review process, providing an opportunity to them to raise any concerns they might have regarding interconnection.

Next Steps

BOCC and CPC recommendations will be incorporated into the final draft, which will be sent out to review agencies for the 21-day referral period in April. The target meeting dates are May 9 for Planning Commission review and recommendation and June 26 for BOCC adoption. Consideration of an extension of the moratorium will be put before the BOCC prior to May 15.

Attachments:

- Draft Solar Regulations
- Transmission lines map
- Zoning Map
- Wright’s Mesa Future Land Use Plan

DRAFT REGULATIONS FOR SOLAR ENERGY SYSTEMS

Section 101 General Provisions

101 A. Purpose

The purpose of these Regulations is to facilitate the development of Solar Energy Systems in appropriate locations while balancing the County's sustainability-related goals and policies with its scenic, agricultural, environmental, ~~and~~ recreational, and cultural values.

101 B. Authority

These Regulations are adopted pursuant to, *inter alia*, C.R.S. § 29-20-101, *et seq.* and C.R.S. § 30-28-101, *et seq.*

101 C. Applicability

- I. These Regulations apply to the proposed development of Solar Energy Systems located partially or wholly in unincorporated San Miguel County.
- II. If any provisions of these Regulations conflict with the San Miguel County Land Use Code ("County Land Use Code" or "LUC"), these Regulations shall control.

101 D. Permit Required

A permit issued pursuant to these Regulations is required prior to the development of Solar Energy Systems located wholly or partially in unincorporated San Miguel County.

101 E. Solar Energy Systems Permitted in Certain Zone Districts

Solar Energy Systems may be permitted only in certain zone districts as follows:

- I. Large-Scale Solar Energy Systems
 - a. Forestry, Agriculture and Open
 - b. Heavy Commercial
 - c. Low Intensity Industrial
 - d. Public
 - e. Wright's Mesa Rural Agriculture
 - f. West End
- II. Medium-Scale Solar Energy Systems
 - a. Forestry, Agriculture and Open
 - b. Heavy Commercial
 - c. Low Intensity Industrial

- d. Public
- e. Wright's Mesa Light Industrial
- f. Wright's Mesa Rural Agriculture
- g. West End
- h. Community Housing

III. Microgrid Medium-Scale Solar Energy Systems. Medium-Scale Solar Energy Systems that are also microgrids may be permitted in the following zone districts in addition to zones where all Medium-Scale Solar Energy Systems may be permitted pursuant to 101.E.II.:

- a. High Density
- b. Medium Density
- c. Low Density
- d. Affordable Housing Planned Unit Development
- e. Low Density Residential
- f. Mixed Use Development
- g. Community Housing

~~III~~.IV. Small-Scale Solar Energy Systems may be permitted in all zone districts.

101 F. Permit Review Procedures

A permit application for the development of Solar Energy Systems is subject to the following levels of review:

- I. Large-Scale and Medium-Scale Solar Energy Systems, including Microgrid Medium-Scale Solar Energy Systems, are subject to Two-Step Review (Planning Commission and Board of County Commissioners review) as set forth in Section 3-6 of Article 3 of the County Land Use Code.

~~H.~~ ~~Medium-Scale Solar Energy Systems:~~

- ~~a. Medium-Scale Solar Energy Systems in Community Housing Zone are subject to Two-Step Review (Planning Commission and BOCC review) as set forth in Section 3-6 of Article 3 of the County Land Use Code.~~
- ~~b. All other Medium-Scale Solar Energy systems are subject to One-Step Review (Planning Commission review) as set forth in Section 3-5 of Article 3 of the County Land Use Code.~~

~~III~~.II. Small-Scale Solar Energy Systems are subject to Administrative Review procedures as set forth in Section 3-4 of Article 3 of the County Land Use Code.

- III. Amendments to permit applications are subject to review as set forth in Article 3 of the County Land Use Code.

101.G. Term of Permit and Commencement of Project

- I. The permit may be issued for an indefinite term, or for a specified period, depending upon the size and complexity of the Solar Energy System Project (“Project”).
- II. If construction of a permitted Project has not been initiated within 3 years of permit issuance, or if construction of a permitted Project is delayed for more than 3 years from the schedule approved in the permit, the permit shall be void and of no force and effect. The Board of County Commissioners may grant extension(s) of the approval for good cause shown.

101.H. Transfer of Permits

- I. Permits for Large-Scale and Medium-Scale Solar Energy Systems approved by the County may only be transferred to another owner/operator after a public hearing. The County must ensure, in approving any transfer, that:
- a. The proposed transferee can and will comply with all the requirements, terms, and conditions contained in the permit and these Regulations;
- b. That such requirements, terms, and conditions remain sufficient to protect the health, welfare, and safety of the public; and
- c. That an adequate guarantee of financial security can be made.
- II. Permits for Small-Scale Solar Energy Systems may be transferred to another property owner at any time. Upon transfer or sale, any conditions of the permit shall transfer to the new owner.

101 GI. Definitions

Adverse

Unfavorable, harmful, or negative.

Grid

The interconnected group of power lines and associated equipment for moving electric energy at high voltage between points of supply and points at which it is delivered to other electric systems or transformed to a lower voltage delivery to customers.

Interconnection

The technical and practical link between the Solar Energy System and the power grid.

Large-Scale Solar Energy System

A Solar Energy System consisting of ground-mounted solar arrays occupying ~~20~~ ten (10) acres or more of land.

Medium-Scale Solar Energy System

A Solar Energy System consisting of roof-mounted solar arrays with a rated capacity of greater than 250 kW or ground-mounted solar arrays occupying more than one-half (1/2) acre and less than ~~20~~ ten (10) acres of land.

Microgrid

A Solar Energy System within clearly defined electrical boundaries that acts as a single controllable system with respect to the grid. A microgrid can connect and disconnect from the grid to enable it to operate in both grid-connected or “island-mode,” where the system is transmittingtransmits and distributingdistributes energy within the defined electrical boundaries while not connected to the grid. A remote microgrid is a variation of a microgrid that operatedoperates in islanded conditions.

Significant

Deserving to be considered important, notable, worthy of consideration, and not trifling or trivial.

Small-Scale Solar Energy System

A Solar Energy System consisting of roof-mounted solar arrays with a rated capacity of less than 250 kW or ground-mounted solar arrays occupying no more than one-half (1/2) acre of land that primarily will be used to produce electric power to onsite principal uses.

Solar Energy System

A photovoltaic or low temperature thermal system composed of arrays, panels, or devices that convert sunlight into thermal, chemical, mechanical, or electric energy, which may include an energy storage facility and components for the transmission and distribution of transformed energy including without limitation all mounting structures, modules or panels, batteries, inverters, transformers, structures, trenches, conduits, tanks, pumps, and other elements of the system.

Wetlands

An area or areas inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances support, a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation, whether or not such areas are subject to the jurisdiction of the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act.

Section 102 Permit Requirements for All Solar Energy Systems

102 A. Application Fee

All applications for the development of Solar Energy Systems must include the application fee pursuant to the applicable Board of County Commissioner Resolution for Fee Schedule. Pursuant to C.R.S. § 24-48.5-113, application fees will be no more than the actual costs of issuing the permit. Fees shall be as set by the Board of County Commissioners pursuant to Section 3-1410 of the County Land Use Code and as set forth in the adopted fee schedule.

102 B. Consultants and Referral Agency Costs

The costs of consultant and referral agency reviews are the responsibility of the applicant. The Planning Director may authorize all or a portion of the review of any phase of the application to be performed by an outside consultant and sent to referral agencies that the jurisdiction deems appropriate for the application. Copies of any such referral agency comments received must be forwarded to the applicant for its response.

102 C. Use of Materials from Other Permit Applications

If an applicant has prepared or submitted materials for a federal, state, or local permit that are substantially the same as required herein, a copy of those materials may be submitted to satisfy the corresponding application requirements herein.

102 D. Consolidated Applications

The Planning Director may determine whether the applicant may consolidate multiple requisite permits including the application for development of a Solar Energy System.

102 E. Waiver of Application Materials

The Planning Director may waive one or more of the application materials when the information would not be relevant to a determination as to whether the Solar Energy System complies with the review criteria that apply to the application.

Section 103 Application Materials for Large-Scale Solar Energy Systems

The applicant shall submit an application for the development of a Large-Scale Solar Energy System (“Large-Scale Solar Development”) to the Planning Director. The application shall include, at a minimum, the information and materials specified in this Section of these Regulations. All detailed plans and specifications must be prepared by a Colorado-licensed Professional Engineer (“P.E.”) or as otherwise approved by the Planning Director. The applicant shall provide shapefiles or other GIS data for any mapping created for this applicant at the request of County staff.

103 A. Information Describing the Applicant

- I. The names, addresses, including email address, organizational form, and business of the applicant and, if different, the owner of the Large-Scale Solar Development.
- II. The names, addresses, and qualifications of the firm or individuals responsible for managing the ~~constructing~~ construction and operating operation of the Large-Scale Solar Development, including areas of expertise and experience with Large-Scale Solar Developments directly related or similar to the Large-Scale Solar Development.
- III. Authorization of the application package by the owner of the Large-Scale Solar Development, if different than the applicant.
- IV. ~~Authorization~~Written authorization of the application package by the owner of the property on which any feature or component of the Large-Scale Solar Development is located.
- V. Documentation of the applicant's financial and technical capability to develop, operate, and decommission the Large-Scale Solar Development, including a description of the applicant's experience with similar Large-Scale Solar Developments.
- VI. Written qualifications of those preparing the reports, plans, and studies in this application.

103 B. Information Describing the Large-Scale Solar Development

Maps, plans, specifications, and description of the Large-Scale Solar Development in sufficient detail to evaluate the application against applicable permit approval review criteria in Section 104, including without limitation:

- I. Location and extent of disturbed areas.
- II. Access route(s) to the Large-Scale Solar Development including adequate emergency access.
- III. Structures, fencing, equipment, and other improvements related to the facility.
- IV. Setbacks from roads and adjacent residential properties.
- V. Method, design, and necessary upgrades to accommodate interconnection.
- VI. Security measures to prevent uninvited access to or trespass upon any of the facilities.
- VII. Estimated life span of the Large-Scale Solar Development.
- VIII. Other proposed uses for property, if any.
- IX. Proposed end use of the property following decommissioning.

103 C. Technical and Financial Feasibility of the Large-Scale Solar Development

A description of the technical and financial feasibility of the Large-Scale Solar Development, including:

- I. The estimated construction costs and period of construction for each phase of the Large-Scale Solar Development.
- II. Estimated cost of proposed mitigation measures.
- III. Revenues and operating expenses.
- IV. The amount of any proposed debt and the method and estimated cost of debt service.

103 D. Property Rights, Permits, and Approvals

- I. A list of the federal, state, and local permits or approvals that have been or will be required for the Large-Scale Solar Development, together with any proposal for coordinating these permits or approvals with the County permitting process.
 - a. Copies of draft permit applications or draft permits as available.
 - b. Copies of approved permits and approvals.
- II. The applicant's right to use any water necessary for the construction and operation of the Large-Scale Solar Development, including adjudicated decrees, applications for decrees, and judicially decreed augmentation plans.
- III. Copies of any consultation correspondence with official federal, state, and local authorities prepared for the Large-Scale Solar Development.
- IV. Copies of any draft or final environmental assessments or impact statements prepared for the Large-Scale Solar Development.
- V. Description and documentation of property rights, easements, and rights-of-way agreements that are necessary for or that will be affected by the Large-Scale Solar Development.
- VI. Copies of agreements to interconnect, if applicable. If proposing to interconnect to a utility, a copy of a "letter of intent to interconnect" or interconnection agreement signed by the utility.

103 E. Vicinity Map

Map and description of the location of the Large-Scale Solar Development including surrounding topographic and cultural features and federal and state-owned lands, including ownership and specific designations, shown in a form acceptable to the Planning Director.

103 F. Alternative Analysis

Map and description of the alternative locations and configurations that could serve

the same purposes as the proposed project that the applicant considered and rejected for the Large-Scale Solar Development, including without limitation, the advantages and disadvantages of each alternative and how the proposed Large-Scale Solar Development is the least detrimental practicable alternative. Alternatives must be technically and economically feasible (“practicable”) and similar in purpose, design, and effects as the proposed location and configuration.

103 G. Water Quality Conditions Impact Assessment

- I. Map and description of the hydrologic features including intermittent and ephemeral water features, wetlands, riparian areas, natural and artificial drainageways, ditches, wells, reservoirs, stock ponds, and the 100-year floodplain boundaries in the area affected by the Large-Scale Solar Development.
- II. Description of existing conditions for surface water quality affected by the Large-Scale Solar Development, including without limitation current water quality data, water body classifications, and water quality standards adopted by the Colorado Water Quality Control Commission.
- III. Description of the impacts that the Large-Scale Solar Development would have on surface water and groundwater quality, including without limitation, increases in impervious surfaces, stormwater runoff, and concentrations of pollutants.
- IV. Description of proposed techniques that will be used to mitigate impacts to water quality.

103 H. Floodplains, Wetlands, Riparian Areas, and Fens Impact Assessment

- I. Map and description of existing conditions for floodplains, wetlands, riparian areas, and fens affected by the Large-Scale Solar Development. The description must include without limitation:
 - a. Structure, function, and aerial extent of floodplains, wetlands, riparian areas, and fens.
 - b. Flood attenuation, sediment capture, and ecosystem services provided by wetlands and riparian areas.
 - c. Floodplains, wetlands, riparian areas, and fen species composition and diversity.
 - d. Transition from wetland to upland species.
 - e. Aerial extent, function, and channel connectivity of floodplains.
 - f. Alteration in hydrology that would allow succession to upland species.
- II. Description of the impacts that the Large-Scale Solar Development would have on floodplains, wetlands, riparian areas, and fens.
- III. Describe proposed techniques that will be used to mitigate impacts to

floodplains, wetlands, riparian areas, and fens.

103 I. Stormwater Management Plan

A plan for the management of stormwater, drainage, and runoff for construction and operation of the Large-Scale Solar Development. The applicant may submit the stormwater management plan approved by the Colorado Water Quality Control Division and best management practices including, without limitation:

- I. Adequate permeable space between rows of solar panels so that runoff from the panels does not adversely impact nearby surface flows.
- II. Maintenance of aquifer recharge rates, groundwater levels, and aquifer capacity, including seepage losses through aquifer boundaries and at aquifer-stream interfaces.
- III. Grading the site to a slope of less than 5%, or terracing the site to maintain sheet flow conditions.
- IV. Minimizing site compaction during construction or tilling and amending soil following construction to maintain the natural infiltration capacity of the soil.
- V. Limiting the vertical distance between the ground and the panel drip edge to limit soil erosion.
- VI. Establishing native ground cover that will help prevent erosion, promote infiltration, and support ecological function.

103 J. Wildlife and Wildlife Habitat Impact Assessment

The applicant shall consult with Colorado Parks and Wildlife (“CPW”) in developing the Wildlife and Wildlife Habitat Impact Assessment required by this Section.

- I. Map and description of existing wildlife and wildlife habitat conditions affected by the construction and operation of the Large-Scale Solar Development, including without limitation:
 - a. Wildlife including the status and relative importance of game and non-game wildlife and other animals.
 - b. Animal, bird, and insect species listed as threatened or endangered under the Endangered Species Act or listed by CPW as Species of Special Concern or Species of Greatest Conservation Need.
 - c. Critical wildlife habitat including migration routes, calving areas, summer and winter range, mating grounds, nesting grounds, and endangered species habitat including all occupied and unoccupied Gunnison Sage-Grouse habitat according to the most recent CPW, Bureau of Land Management (“BLM”), and U.S. Fish and Wildlife Service (“USFWS”) maps.

- II. Description of the impacts that the construction and operation of the Large-Scale Solar Development will have on wildlife and wildlife habitat including without limitation:
- a. Changes to wildlife species composition or density.
 - b. Changes in the number of and habitat of threatened or endangered species.
 - c. Changes in extent, quality, and fragmentation of wildlife habitat such as changes to migration routes, calving areas, summer and winter range, mating grounds, nesting grounds, or any other habitat features necessary for the protection and propagation of wildlife species.
 - d. How the siting, construction, and operation of the Large-Scale Solar Development will allow for species movement among panels and continued access to forage and habitat.
 - e. The potential to attract waterfowl and other bird species to the Large-Scale Solar Development.
 - f. Consistency with or impacts to plans addressing the protection and preservation of the Gunnison Sage-Grouse, such as the BLM *Gunnison Sage-Grouse Resource Management Plan ("RMP") and RMP Amendment(s)*, the USFWS *Recovery Implementation Strategy for the Gunnison Sage-Grouse* and the CPW *Gunnison Sage-Grouse Rangewide Conservation Plan* as these plans may be amended in the future.
- III. Description of proposed techniques that will be used to mitigate impacts to wildlife and wildlife habitat during construction and operation of the Large-Scale Solar Development, including plans for avoidance of impacts to wildlife and habitat during construction and maintenance activities, specifically including occupied and unoccupied Gunnison Sage-Grouse Habitat, and wildlife-friendly fencing in accordance with the best management practices in Section 104 L. of this Article.

103 K. Terrestrial Plants Impact Assessment and Mitigation

- I. Map and description of terrestrial plant life sufficient to evaluate the Project impacts and ensure the adequacy of proposed monitoring and mitigation, including:
- a. The type and density of terrestrial plants in the area impacted by the Project;
 - b. Plant species listed as threatened or endangered under the Endangered Species Act, listed on the Rare Plant List from the Colorado Natural Heritage Program, or otherwise listed as species of concern by a federal or state agency.

- II. Assessment of adverse impacts of the Project to terrestrial plant life that includes without limitation:
 - a. Changes to habitat of threatened or endangered plant species or species of concern.
 - b. Changes to the structure and function of vegetation, including species composition, diversity, biomass, and productivity.
 - c. Changes in advancement or succession of desirable and less desirable plant species, including noxious weeds.
- III. Description of proposed techniques that will be used to mitigate impacts to terrestrial plant life during construction and operation of the Large-Scale Solar Development.

103 L. Grading, Erosion, and Sediment Control Plan

A plan for grading, erosion, and sediment control for construction and operation of the Large-Scale Solar Development, including without limitation:

- I. Existing (solid lines) and proposed (dashed lines) contours at two-foot intervals or other contour intervals approved by staff.
- II. Narrative description and scaled drawings of specific measures to avoid soil disturbance, when possible, and to minimize erosion and control sediment. Narrative description and drawing will include approximate locations of any proposed drainage facilities and drainage patterns and wetlands or other water bodies receiving storm runoff from the site. Typical erosion control measures should be depicted using standard map symbols.
- III. Construction schedule indicating the anticipated starting and completion time periods of the site grading and/or construction phases including the installation and removal of erosion and sediment control measures, and the estimated duration of exposure of each area prior to the completion of temporary erosion and sediment control measures.
- IV. Estimated total cost of the required soil erosion and sediment control measures.
- V. Calculations made for determining rainfall runoff and sizing of any sediment basins, diversions, conveyance, or detention/ retention facilities.
- VI. Copies of any required CDPHE or Colorado Division of Water Resources permits, including without limitation general permits for stormwater discharges or dewatering activities.

103 M. Revegetation and Weed Management Plan

A plan for revegetation and weed control for construction and operation of the Large-Scale Solar Development, including without limitation:

- I. Description of the species, character, and density of existing vegetation within areas disturbed by the Large-Scale Solar Development.

- II. Soil test with baseline soil conditions prior to construction of the Large-Scale Solar Development. Soil test samples will be representative of the overall area through a minimum of five (5) sample spots in the area. Areas that have a clear difference in soil type, drainage, or plant growth will be avoided for sample collection.
 - III. Summary of potential impacts to vegetation as a result of the Large-Scale Solar Development.
 - IV. Plan for revegetation and weed management that provides for:
 - a. Removal of existing vegetation no more than 30 calendar days prior to commencement of initial site grading.
 - b. Revegetation of areas that have been filled, covered, or graded as soon as practicable after construction of the Large-Scale Solar Development.
 - c. Use of site-specific native plant and seed mix and mulching to support vegetation growth in coordination with the San Miguel County Manager of Vegetation Control Management.
 - d. Incorporation of pollinator plants or agrivoltaic uses that include browse crops to the greatest extent practicable.
 - e. Topsoil from disturbed areas that is stripped and stockpiled on-site for redistribution over the completed final grade; stockpiling that conforms to best management practices and ensures that soil organisms in stockpiled soil remain viable until completion of the redistribution process.
 - f. Weed control and monitoring at all locations disturbed by the Large-Scale Solar Development and along access roads during the life of the Project.
- 103 N. Noise, Dust, Fumes, Vibration, and Odor Impact Assessment
- I. Description of the impact of noise, dust, fumes, vibration, and odor caused by construction or operation of the Large-Scale Solar Development.
 - II. Description of proposed techniques that will be used to mitigate nuisance impacts caused by the construction or operation of the Large-Scale Solar Development.
- 103 O. Glare, Glint, and Lighting Impact Assessment
- I. Map and description of the existing highways, designated scenic byways, public roads, trails, driveways, scenic vistas, unique land formations, recreational sites, airplane landing strips, and adjacent residential lots that could be affected by glare, glint, or lighting, including lighting at night, from construction or operation of the Large-Scale Solar Development.

- II. Site plan identifying the location and type of outdoor lighting in the Large-Scale Solar Development and a description of how that lighting complies with the requirements in Section 5-710 of the County Land Use Code.
- III. Description of the impacts that the glare, glint, or lighting of the construction or operations of the Large-Scale Solar Development would have on existing highways, designated scenic byways, public roads, trails, driveways, scenic vistas, unique land formations, recreational sites, airplane landing strips, and adjacent residential lots, considering daily and annual differences in sun and solar array positioning, and to light pollution and any applicable Dark Sky Places designation(s).
- IV. Description of proposed techniques that will be used to mitigate impacts of glare, glint, and lighting during construction and operation of the Large-Scale Solar Development.

103 P. Visual Quality Impact Assessment

- I. Map and describe the existing scenic rural landscape within one-half (1/2) mile of the Large-Scale Solar Development, including without limitation adjacent lots, towns, highways, designated scenic byways, public roads, trails, recreational sites, scenic vistas, and unique land formations. Provide at least four (4) visual renderings of the proposed development from key vantage points, to be determined in consultation with the Planning Department.
- II. Describe the impacts of the Large-Scale Solar Development on the visual quality of the scenic rural landscape within one-half (1/2) mile of the Large-Scale Solar Development.
- III. Description of proposed techniques that will be used to mitigate impacts to the visual quality of the scenic rural landscape within one-half (1/2) mile of the Large-Scale Solar Development such as proposed visual buffering, natural topography, plantings, earth berms, or fencing. Proposed visual buffering should utilize existing vegetation and natural topography wherever possible.

103 Q. Natural Hazards Impact Assessment

- I. Map and description of geological characteristics and hazardous conditions affected by the Large-Scale Solar Development including without limitation:
 - a. Description of drainage areas, floodplains, slopes, avalanche areas, debris fans, mudflows, rockslide areas, faults and fissures, seismic history, and wildfire hazard areas.
 - b. Geotechnical assessment of all geologic hazards that have the potential to affect the Large-Scale Solar Development and which may be de-stabilized or exacerbated by the siting, construction, and operation of the Large-Scale Solar Development.

- II. Description of the impacts of the Large-Scale Solar Development on natural hazards, and the impacts created by natural hazards on the siting, construction, and operation of the Large-Scale Solar Development.
- III. Description of proposed techniques that will be used to mitigate impacts of the Large-Scale Solar Development on natural hazards and a description of proposed techniques to mitigate the impacts of natural hazards on the Large-Scale Solar Development.

103 R. Local Government Services Impact Assessment

- I. Map and description of the existing capacity and demand for services provided by the County and other special districts and other local entities, including roads, emergency services, schools, water and wastewater treatment, water supply, transportation, infrastructure, and other services necessary to accommodate Large-Scale Solar Development.
- II. Description of the impacts of the Large-Scale Solar Development on the capacity of the districts and infrastructure for delivering services~~delivery systems~~.
- III. Description of proposed techniques that will be used to mitigate impacts on local government services from the construction and operation of the Large-Scale Solar Development.

103 S. Housing Impact Assessment

- I. Description of the existing conditions of short- and long-term housing availability and an estimate of the number of workers associated with the construction and operational phase of the Large-Scale Development.
- II. Description of the impacts of construction and operation of the Large-Scale Solar Development on housing availability, including without limitation the workforce associated with construction and operations of the Large-Scale Solar Development, estimated salary ranges of workers, an analysis of whether there are sufficient numbers of dwelling units at an appropriate cost to house workers, and the potential to displace existing residents.
- III. Description of the proposed techniques that will be used to mitigate impacts on housing during the construction and operation of the Large-Scale Solar Development.

103 T. Water Services Availability

If the proposed Large-Scale Solar Development includes the provision of water, the application must include a description of the source and capacity of the water supply sufficient to evaluate the water source and its consistency with the corresponding review criteria, including location and size of well(s) and/or water lines to serve the proposed Large-Scale Solar Development. The applicant must provide proof of adequate physical and legal supply to serve the Large-Scale Solar Development, including a letter of approval from the Office of the State Engineer

| documenting that ~~the~~any proposed well water used for the supply is adequate to serve the proposed use.

103 U. Construction Traffic Route Plan

In addition to access or road use permits required from the County Road and Bridge Department, a plan for control of traffic during construction of the Large-Scale Solar Development, including without limitation:

- I. Map indicating proposed trip routes for all traffic serving the Large-Scale Solar Development.
- II. Description of vehicular traffic associated with the Large-Scale Solar Development including vehicle types, sizes, weight, and numbers of axles; the traffic volume, frequency (daily, weekly, total), and timing (times of day).
- III. Routes that are designed to avoid to the greatest extent possible residential areas, commercial areas, environmentally and visually sensitive areas, schools and other civic buildings, and already congested locations.
- IV. Limitation of traffic on public roads during seasons when heavy vehicle use, weather conditions, or water saturation may result in significant damage.
- V. Restriction on the weight of trucks so that they do not exceed County road or bridge weight capacity requirements.
- VI. Operational measures to minimize impacts on the public such as limitations on time of day and week; vehicle fuel and emissions reduction technology; noise minimization; and traffic control safety measures.
- VII. Proposed phasing of construction to minimize interference with traffic movement.
- VIII. Reduction in the use of single-occupancy vehicles accessing the site, such as by using shuttles or van pools for workers.

103 V. Road and Rights-of-Way Improvements and Maintenance Plan

In addition to access or road use permits required from the County Road and Bridge Department, a plan for improvements and maintenance of roads, sidewalks, curbs, gutters, alleys, or other County rights-of-way or infrastructure impacted by the construction and operation of the Large-Scale Solar Development, including without limitation:

- I. A plan for the maintenance practices on the proposed travel route(s) during construction and operation of the Large-Scale Solar Development, including dust suppression, snow and ice management, prevention of tracking of dirt and mud off-site onto roads and highways, sweeping of paved roads/shoulders, pothole patching, repaving, crack sealing, and chip sealing necessary to maintain an adequate surface of paved roads.

- II. A plan for the maintenance practices for any County rights-of-way or infrastructure such as sidewalks, curbs, gutters, or alleys impacted by the construction and operation of the Large-Scale Solar Development.
- III. The applicant will enter into a Maintenance Agreement with the County whereby the applicant provides for private maintenance or reimburses the County for such increased costs or provides a bond or other financial security in an amount acceptable to the County to cover the costs of mitigating impacts to public roads, rights-of-way and/or infrastructure.

103 W. Emergency Preparedness and Response Plan

Emergency preparedness and response plan that addresses events such as explosions, fires and wildfires, toxic emissions, transportation of hazardous material, vehicle accidents, or spills. The plan must include proof of adequate personnel, supplies, procedures, and infrastructure such as water supply, and funding to immediately implement the emergency response during both construction and operation of the Large-Scale Solar Development and to repair damage caused by emergencies.

103 X. Hazardous Materials Management Plan

A plan that describes all hazardous, toxic, and explosive substances to be used, stored, transported, disturbed, or produced in connection with the construction and operation of the Large-Scale Solar Development, including:

- I. The type and amount of such substances, their location, and the practices and procedures to be implemented to avoid accidental release and exposure.
- II. Measures, procedures, and protocols for handling, spill prevention, storage, and containment.
- III. Measures, procedures, and protocols for reporting spills and storage to local, state, and federal officials.
- IV. Measures, procedures, and protocols for clean-up and description of the financial security for these provisions. Impacts resulting from spills and releases will be investigated and cleaned up as soon as practicable.
- V. The County Emergency Manager, or its designee, may undertake prevention, control, countermeasure, containment, and clean-up measures if the applicant fails to comply with its obligations under the *Hazardous Materials Management Plan*. Applicant will pay all costs incurred by the County for any such measures.

103 Y. Agricultural Resources Impact Assessment

- I. Map and description of existing agricultural resources, including livestock and lands in the area affected by the Large-Scale Solar Development.

- II. Description of the agricultural productivity of the land affected by the Large-Scale Solar Development using Natural Resource Conservation Service/NRCS classifications.
 - III. Description of the impacts of the Large-Scale Solar Development on agricultural resources including changes in the amount or productivity of agricultural lands; changes in soil productivity; ~~and~~ increased susceptibility to noxious weed invasion; and changes to irrigation and agricultural drainage ditches and systems.
 - IV. Description of proposed techniques that will be used to mitigate impacts to agricultural resources.
 - V. Description of proposed agricultural activities on the site after construction.
- 103 Z. Recreational Resources Impact Assessment
- I. Map and description of existing recreational resources and uses in the area affected by the Large-Scale Solar Development.
 - II. Description of the impacts of the Large-Scale Solar Development on recreational resources and uses.
 - III. Description of proposed techniques that will be used to mitigate impacts to recreational resources and uses.
- 103 AA. Areas of Paleontological, Historical, or Archaeological Importance Impact Assessment
- I. Map and description of all sites of paleontological, historical, or archaeological importance affected by the Large-Scale Solar Development, including without limitation:
 - a. Historical or archaeological landscape, features, structures, and artifacts historical and archaeological features, including purposes, functions, and use(s) of those features such as agricultural, grazing, recreation, or religious purposes.
 - b. State historic site survey and inventory form(s) completed by a qualified professional acceptable to the State Historic Preservation Officer for all paleontological, historical, or archaeological resources affected by the Large-Scale Solar Development.
 - c. List of properties, structures, objects, districts, and sites listed on the National Register of Historic Places, eligible for inclusion on the National Register of Historic Places, listed on the State Register of Historic Properties, or listed on the San Miguel County Historic Register in the area affected by the Large-Scale Solar Development.
 - d. Confidential information may be redacted in consultation with the County Attorney.
 - II. Description of the impacts of the Large-Scale Solar Development on sites of paleontological, historical, or archaeological importance and proof of

compliance with the procedures for notification to the State Historical Preservation Office, Office of the State Archaeologist, San Miguel County Historical Commission, and to applicable local historical societies/organizations upon discovery of historical or archaeological resources during the construction and operation of the Large-Scale Solar Development.

- III. Description of the proposed techniques that will be used to mitigate impacts on sites of paleontological, historical, or archaeological importance.

103 BB. Decommissioning and Restoration Plan

A plan for decommissioning and restoring the Large-Scale Solar Development that will begin no later than twelve (12) months after power production has permanently ceased. The *Decommissioning and Restoration Plan* must be updated every five (5) years or more frequently upon request by the County based on changed circumstances. The Plan must include:

- I. The name, address, telephone number, and e-mail address of the person(s) or entity(ies) responsible for implementing the plan.
- II. Timeline and Process. The projected lifespan of the Large-Scale Solar Development and a description of the timeline and process for decommissioning the Large-Scale Solar Development and reclaiming the site.
- III. Reasonably Similar Condition. Description of how the land will be restored to a condition similar to or better than its condition prior to development and how it will remain available for productive use.
- IV. Removal of Components. Provisions for removal or conversion of all components of the Solar Energy System, including without limitation panels, structures, fencing, foundations, equipment, conduit, gravel areas, access roads, and erosion and sediment control infrastructure, regardless of whether such components are above or below the surface of the site. Materials should be recycled or otherwise reused to the extent reasonably practicable. Where features will be left on site, an agreement with the landowner on the placement and maintenance of those features is required.
- V. Site Restoration. Restoration of soil and vegetation on the site after decommissioning in cooperation with the San Miguel County Manager of Vegetation Control Management.
 - a. Land disturbed as part of the decommissioning process must be reseeded or re-vegetated with crops or vegetative species that provide ecological services, such as carbon sequestration, increased soil health, habitat preservation, or water quality improvements, such as those recommended in the CPW's "Colorado Seed Mix Tool."
 - b. Revegetation and other land disturbance mitigation must occur within twelve (12) months of removal of the solar facility.

- c. Restoration must include soil tests after the system ceases production but before any equipment is removed, and if needed a second set of tests after decommissioning and restoration. Soil test samples will be representative of the overall area through a minimum of five (5) sample spots in the area. Sample collection must avoid areas that have a clear difference in soil type, drainage, or plant growth.
- VI. Monitoring Plan. A plan to monitor the site after decommissioning and restoration for a minimum of three (3) years and a schedule for reporting monitoring results to the County. Groundwater and surface water monitoring may be required on a case-by-case basis where an adverse impact on groundwater or surface water quality may reasonably be expected. Monitoring shall be extended for an additional period of three (3) years if the site is not decommissioned and restored consistent with the *Decommissioning and Restoration Plan*.
- VII. Cost of Decommissioning and Restoration. Decommissioning and restoration cost estimates, which must be updated every five (5) years from the establishment and submittal of the Financial Security pursuant to Section 109, including the following costs:
 - a. Labor, equipment, transportation, and disposal costs associated with the removal of all facility components from the facility site.
 - b. Restoration.
 - d. Decommissioning and restoration activity management, monitoring, site supervision, and site safety costs.
 - e. Any other costs, including administrative costs, associated with the decommissioning and restoration of the facility site.
 - f. Costs of outside technical and legal experts to assist with any phase of inspection and determination of compliance with the *Decommissioning and Restoration Plan*.
- VIII. Process for Updating Plan. A plan for updating the *Decommissioning and Restoration Plan* and submitting any necessary updates to the County for review and approval at minimum every five (5) years or more often as warranted.

Section 104 Review Criteria for Large-Scale Solar Energy Systems

The following review criteria apply to the review of a permit application for Large-Scale Solar Development. These review criteria replace the review criteria in Article 5 of the County Land Use Code except where Article 5 is explicitly referenced herein.

104 A. Applicant Expertise

The applicant has the necessary expertise to develop and operate the Large-Scale

Solar Development consistent with all requirements and conditions.

104 B. Utility Interconnection Agreement

If proposing to interconnect to a utility, the utility has entered into a “letter of intent to interconnect” or interconnection agreement with the applicant. The County may defer making a final decision on the Application until a “letter of intent to interconnect” or interconnection agreement is obtained or may condition the permit on the issuance of a “letter of intent to interconnect” or interconnection agreement.

104 C. Site Design Review Criteria

- I. Underground Utility Connection. Electrical collection lines within the Large-Scale Solar Development shall be placed underground unless placing them underground would have significant adverse environmental impacts.
- II. Setbacks. Solar panels, equipment, and structures shall be set back a minimum of fifty (50) feet from all property lines.
- III. Access. Road access to the Large-Scale Solar Development must be adequate for emergency and fire response access.
- IV. Safety and Security. The Large-Scale Solar Development must be protected by fencing or other barriers to prevent unauthorized access to the Large-Scale Solar Development.

104 D. Signage

All signage must comply with Section 5-704 of the County Land Use Code. The operator of the Large-Scale Solar Development shall post and maintain in legible condition warning signs at all entrances identifying emergency contact information.

104 E. Technical and Financial Feasibility

The Large-Scale Solar Development is technically and financially feasible. In determining whether this criterion is satisfied, the Board of County Commissioners may take into account, without limitation, the following considerations:

- I. Amount of debt associated with the Large-Scale Solar Development.
- II. Debt retirement schedule and sources of funding to retire the debt.
- III. Estimated construction costs and construction schedule.
- IV. Estimated annual operation, maintenance, mitigation, and monitoring costs.
- V. Market conditions.

104 F. Facility Maintenance

The Large-Scale Solar Development shall be maintained in good condition for the life of the Project.

104 G. Necessary Property Rights, Permits, and Approvals

The Applicant will obtain all necessary property rights and federal, state, and local permits or approvals for the Project prior to any site disturbance. The County may defer making a final decision on the Application until outstanding property rights, permits, and approvals are obtained.

104 H. Best Alternative

The location and configuration of the Large-Scale Solar Development is the least detrimental practicable alternative.

104 I. Water Quality

The Large-Scale Solar Development will not have an adverse impact on surface water or groundwater quality during construction or operation. In determining whether this criterion is satisfied, the Board of County Commissioners may take into account, without limitation, changes to the amount of impervious surfaces, increases in stormwater runoff, and concentrations of pollutants.

104 J. Drainage/Stormwater Runoff

Runoff will be kept on the site in a stormwater detention system, and waters in excess of historic run-off will be prevented from leaving the site during the construction and operation of the Large-Scale Solar Development in conformance with the approved *Stormwater Management Plan*.

104 K. Floodplains, Wetlands, Riparian Areas, and Fens

The Large-Scale Solar Development will not have an adverse impact on floodplains, wetlands, riparian areas, and fens. This criterion applies whether or not the U.S. Army Corps of Engineers or U.S. Environmental Protection Agency have jurisdiction over the wetlands. In determining whether this criterion is satisfied, the Board of County Commissioners may take into account, without limitation:

- I. Changes to the naturally-mediated energy transfer in the channel and floodplain.
- II. Changes to the structure, function, and aerial extent of wetlands, fens, and the floodplain.
- III. Disturbance to wetlands or fens during construction or operation.
- IV. Replacement of wetland species with upland species.
- V. Where wetlands mitigation is proposed, off-site mitigation may be allowed in the same watershed as the Large-Scale Solar Development if on-site mitigation is not feasible or when greater benefits may be realized.

104 L. Wildlife and Wildlife Habitat

- I. The Large-Scale Solar Development will not have an adverse impact on wildlife or wildlife habitat. In determining whether this criterion is

satisfied, the Board of County Commissioners may take into account, without limitation:

- a. Changes in species composition, density, or diversity.
 - b. Changes to the number of and habitat of animal, bird, and insect species.
 - c. Changes to on-site activity that may disturb wildlife or habitats at critical times or locations.
 - d. The potential for the Large-Scale Solar Development to attract waterfowl and other bird species.
 - e. Changes to wildlife habitat, including migration routes, calving areas, summer and winter range, mating grounds, nesting grounds, or any other habitat features necessary for the protection and propagation of wildlife species.
- II. No components of the Large-Scale Solar Development shall be located in occupied and unoccupied Gunnison Sage-Grouse Habitat as identified in the most recent habitat maps from CPW, BLM, or USFWS.
- III. Proposed fencing shall be wildlife-friendly to the maximum extent possible. The following best practices or alternatives proposed by the Applicant that achieve the same or better results shall be employed.
- a. Minimize the footprint of the fenced area(s). Consolidate facilities and roads to the greatest extent possible to minimize the amount of land that is fragmented.
 - b. During operation, inspect for the presence of wildlife trapped in the fenced area regularly and install temporary structures to allow animals to escape if necessary.
 - c. Install wildlife permeable fencing that has larger spacing than a chain-link fence to allow safe passage of small and medium-sized animals.
 - d. Construct the fence with at least 7 inches of vertical space between the ground and vertical fencing to allow safe passage of small and medium-sized animals.
 - e. Construct unfenced wildlife passageways through large facilities to allow big mammals like deer, coyotes, and bears to traverse the area. Such passageways should include appropriate, high-quality wildlife habitat, be shorter and wider instead of longer and thinner, and connect to potential wildlife habitat on either side.
 - f. Any non-security fencing shall be wildlife-friendly fencing pursuant to CPW's "Fencing with Wildlife in Mind" guidance, or as updated in the future, consistent with Section 5-407(A)(IX) of the County Land Use Code.

104 M. Terrestrial Plants

The Large-Scale Solar Development will not have an adverse impact on terrestrial plants.

104 N. Erosion and Sediment Control

Erosion and sedimentation control measures will be implemented in conformance with the approved *Grading, Erosion, and Sediment Control Plan* to prevent erosion and sediment runoff and ensure that disturbed areas and soil stockpiles are stabilized.

104 O. Revegetation and Weed Management

Areas disturbed by the construction and operation of the Large-Scale Solar Development will be adequately revegetated within two (2) growing seasons and maintained for the life of the Project in conformance with the approved *Revegetation and Weed Management Plan*.

104 P. Noise, Dust, Fumes, Vibration, and Odor

- I. The Large-Scale Solar Development will not interfere with the use and enjoyment of property, cause a risk to public health and safety, nor create an unreasonable attractive nuisance for birds, wildlife, or persons.
- II. Sound emissions shall be less than fifty decibels (50 dB) at all property lines.

104 Q. Glare and Glint

- I. The glare and glint from the Large-Scale Solar Development will not unreasonably interfere with the use and enjoyment of existing highways, designated scenic byways, public roads, trails, driveways, scenic vistas, unique land formations, recreational sites, airplane landing strips, and adjacent residential lots nor result in a risk to public health and safety.
- II. Glint and glare produced by the Large-Scale Solar Development will not create an unreasonable attractive nuisance for birds, wildlife, or persons.

104 R. Exterior Lighting

The Large-Scale Solar Development will not cause light trespass nor light pollution and will comply with Section 5-710 of the County Land Use Code.

104 S. Visual Quality

The Large-Scale Solar Development will not cause a significant adverse impact to the visual quality of the scenic rural landscape within one-half (1/2) mile of the Large-Scale Solar Development, including without limitation views from adjacent lots, towns, highways, designated scenic byways, public roads, trails, recreational sites, scenic vistas, and unique land formations.

104 T. Risk from Natural Hazards

The Large-Scale Solar Development will not be subject to risk from natural hazards and will not exacerbate natural hazards.

104 U. Impact to Local Government Services

The Large-Scale Solar Development will not have an adverse impact to the current or future capability of local districts to provide services or on the capacity of their ~~service delivery systems~~infrastructure for delivering services.

104 V. Housing

The Large-Scale Solar Development will not reduce the availability of housing during construction or operation of the Large-Scale Solar Development.

104 W. Water Services Availability

If the Large-Scale Solar Development will be served by water, the water supply facilities must:

- I. Be adequate to serve the Large-Scale Solar Development.
- II. Be non-consumptive in total water use.
- III. Have no adverse impact on water resources in the area impacted by the Large-Scale Solar Development.
- IV. Comply with state standards.

104 X. Construction Traffic

Construction traffic associated with the Large-Scale Solar Development will not cause an adverse impact on local traffic conditions.

104 Y. Road and Rights-of-Way Improvements and Maintenance

- I. All roads, sidewalks, curbs, gutters, alleys, or other County rights-of-way or infrastructure impacted by the Large-Scale Solar Development will be maintained in accordance with the *Improvements and Maintenance Plan*.
- II. The applicant has obtained access and/or road use permits required from the County Road and Bridge Department, and easements have been established where necessary.
- III. The owner will bear the cost of all repairs and maintenance to roads, sidewalks, curbs, gutters, alleys, or other County rights-of-way or infrastructure necessitated by the construction and operation of the Large-Scale Solar Development.
- IV. If the use of public roads, sidewalks, curbs, gutters, alleys, or other County rights-of-way or infrastructure results in a need for increased maintenance, the owner will enter into an agreement with the County whereby the owner

assumes responsibility for the repairs and additional maintenance or reimburses the County for repairs and maintenance.

- V. The owner will maintain financial security to secure the maintenance and repair obligation in an amount and form approved by the County.
- VI. Staging activities and parking of equipment and vehicles will occur on-site and on private rights-of-way and are prohibited on maintained County roads, except for temporary road closures during construction with prior notice to the road manager.

104 Z. Emergency Preparedness and Response

The construction and operation of the Large-Scale Solar Development will be in compliance with the *Emergency Preparedness and Response Plan*, which shall be approved by the local fire district, County Sheriff, and Emergency Manager.

104 AA. Hazardous Materials Management

The handling, spill prevention, storage, and containment of hazardous materials will be conducted in accordance with the *Hazardous Materials Management Plan*.

104 BB. Agricultural Resources

The Large-Scale Solar Development will not have an adverse impact on the productivity of agricultural lands, ~~or~~ the conduct of agricultural operations, the delivery of irrigation water, or irrigation drainage systems.

104 CC. Recreational Resources

The Large-Scale Solar Development will not have an adverse impact on the quality or quantity of recreational experiences and opportunities.

104 DD. Areas of Paleontological, Historical, or Archaeological Importance

The Large-Scale Solar Development will not have an adverse impact on areas of paleontological, historical, or archaeological importance.

104 EE. Decommissioning and Restoration

The Large-Scale Solar Development will be decommissioned, and the site will be restored, consistent with the approved *Decommissioning and Restoration Plan*.

104 FF. Compliance with Required Plans/Studies/Reports

The Large-Scale Solar Development will be constructed, operated, maintained, and decommissioned/reclaimed in compliance with all plans and reports required under Section 103 of these Regulations and as approved by the Board of County Commissioners.

Section 105 Application Materials for Medium-Scale Solar Energy Systems

The applicant shall submit an application for the development of a Medium-Scale

Solar Energy Systems (“Medium-Scale Solar Development”) to the Planning Director. The application shall include, at a minimum, the information and materials specified in this Section of these Regulations. All detailed plans and specifications must be prepared by a Colorado-licensed Professional Engineer (“P.E.”) or as otherwise approved by the Planning Director. The applicant shall provide shapefiles or other GIS data for any mapping created for this applicant at the request of County staff.

105 A. Information Describing the Applicant

- I. The names, addresses, including email address, organizational form, and business of the applicant and, if different, the owner of the Medium-Scale Solar Development.
- II. The names, addresses, and qualifications of individuals responsible for constructing and operating the Medium-Scale Solar Development, including areas of expertise and experience with solar energy systems directly related or similar to the Medium-Scale Solar Development.
- III. Authorization of the application package by the owner of the Medium-Scale Solar Development, if different than the applicant.
- IV. Authorization of the application package by the owner of the property on which any feature or component of the Medium-Scale Solar Development is located.
- V. Documentation of the applicant’s financial and technical capability to develop, operate, and decommission the Medium-Scale Solar Development, including a description of the applicant’s experience with similar solar energy systems.
- VI. Written qualifications of those preparing the reports, plans, and studies in this application.

105 B. Information Describing the Medium-Scale Solar Development

- I. Maps, plans, specifications, and description of the Medium-Scale Solar Development in sufficient detail to evaluate the application against applicable permit approval review criteria in Section 106, including:
 - a. Location and extent of disturbed areas.
 - b. Access route(s) to the Medium-Scale Solar Development including adequate emergency access.
 - c. Structures, fencing, equipment, and other improvements related to the facility.
 - d. Setbacks from roads and adjacent residential properties.
 - e. Method, design, and necessary upgrades to accommodate interconnection.

- f. Security measures to prevent uninvited access to or trespass upon any of the facilities.
 - g. Estimated life span of the Medium-Scale Solar Development.
 - h. Other proposed uses for the property, if any.
 - i. Expected end use of the property following decommissioning.
- II. Vicinity map showing the location of the Medium-Scale Solar Development on a USGS quadrangle map.

105 C. Technical and Financial Feasibility of the Medium-Scale Solar Development

Description of the technical and financial feasibility of the Medium-Scale Solar Development, including the estimated construction costs, period of construction, revenues, operating expenses, and estimated cost of proposed mitigation measures.

105 D. Property Rights, Permits, and Approvals

- I. Federal, state, and local permits or approvals that have been or will be required for the Medium-Scale Solar Development, together with any proposal for coordinating these permits or approvals with the permitting process, and copies of approved permits.
- II. Description and documentation of property rights, easements, and rights-of-way agreements that are necessary for or that will be affected by the Medium-Scale Solar Development.
- III. If proposing to interconnect to a utility, a copy of a "letter of intent to interconnect" or interconnection agreement signed by the utility.

105 E. Water Resource Impact Assessment

- I. Map and description of the existing hydrologic features including intermittent and ephemeral water features, wetlands, riparian areas, floodplains, fens, natural and artificial drainageways, ditches, wells, reservoirs, stock ponds, and the 100-year floodplain boundaries in the area affected by the Medium-Scale Solar Development.
- II. Description of the existing conditions for surface water quality or groundwater quality affected by the Medium-Scale Solar Development.
- III. Description of the impacts that the Medium-Scale Solar Development would have on water resources, including without limitation ~~existing hydrologic features and~~ surface water and groundwater quality and existing hydrologic features including without limitation wetlands, fens, floodplains, riparian areas, or agricultural water features such as drainage ditches and irrigation systems. Water resource impacts ~~may~~ include but are not limited to increases in impervious surfaces, stormwater runoff, and concentrations of pollutants and adverse impacts to floodplains, wetlands, riparian areas, and fens.

- IV. Description of the proposed techniques that will be used to mitigate impacts to water resources.

105 F. Stormwater Management Plan

A plan for the management of stormwater, drainage, and runoff for construction and operation of the Medium-Scale Solar Development. The applicant may submit the stormwater management plan approved by the Colorado Water Quality Control Division and best management practices including, without limitation:

- I. Adequate permeable space between rows of solar panels so that runoff from the panels does not adversely impact nearby surface flows.
- II. Maintenance of aquifer recharge rates, groundwater levels, and aquifer capacity, including seepage losses through aquifer boundaries and at aquifer-stream interfaces.
- III. Grading the site to a slope of less than 5%, or terracing the site to maintain sheet flow conditions.
- IV. Minimizing site compaction during construction or tilling and amending soil following construction to maintain the natural infiltration capacity of the soil.
- V. Limiting the vertical distance between the ground and the panel drip edge to limit soil erosion.
- VI. Establishing native ground cover that will help prevent erosion, promote infiltration, and support ecological function.

105 G. Wildlife, Wildlife Habitat, and Terrestrial Plant Impact Assessment

- I. Map and description of the existing wildlife, including any threatened or endangered species, in the area affected by the Medium-Scale Solar Development.
- II. Map and description of existing wildlife habitat in the area affected by the Medium-Scale Solar Development, including without limitation migration routes, calving areas, summer and winter range, mating grounds, nesting grounds, and endangered species habitat including all occupied and unoccupied Gunnison Sage-Grouse habitat according to the most recent CPW, Bureau of Land Management (“BLM”), and U.S. Fish and Wildlife Service (“USFWS”) maps.
- III. Map and description of existing terrestrial plant life, including any threatened or endangered species, in the area affected by the Medium-Scale Solar Development.
- IV. Description of the impacts that the Medium-Scale Solar Development will have on wildlife, wildlife habitat, and terrestrial plants that includes without limitation:
 - a. Changes to wildlife and plant species composition or density.

- b. Changes in the number of and habitat of threatened or endangered species.
 - c. Changes in extent, quality, and fragmentation of wildlife habitat, including migration routes, calving areas, summer and winter range, mating grounds, nesting grounds, or any other habitat features necessary for the protection and propagation of wildlife species.
 - d. How the siting, construction, and operation of the Medium-Scale Solar Development will allow for species movement among panels and continued access to forage and habitat.
 - e. The potential to attract waterfowl and other bird species to the Medium-Scale Solar Development.
 - f. Changes to the structure and function of vegetation.
 - g. Consistency with or impacts to plans addressing the protection and preservation of the Gunnison Sage-Grouse, such as the BLM *Gunnison Sage-Grouse Resource Management Plan ("RMP")* and *RMP Amendment(s)*, the USFWS *Recovery Implementation Strategy for the Gunnison Sage-Grouse* and the CPW *Gunnison Sage-Grouse Rangewide Conservation Plan* as these plans may be amended in the future.
- V. Description of the proposed techniques that will be used to mitigate impacts to wildlife and wildlife habitat, including wildlife-friendly fencing and plans for avoidance of impacts to wildlife and habitat during construction and maintenance activities.

105 H. Grading, Erosion, and Sediment Control Plan

A plan for grading, erosion, and sediment control for construction and operation of the Medium-Scale Solar Development.

105 I. Revegetation and Weed Management Plan

A plan for revegetation and weed control for construction and operation of the Medium-Scale Solar Development, including without limitation:

- I. Removal of existing vegetation no more than 30 calendar days prior to commencement of initial site grading.
- II. Revegetation of areas that have been filled, covered, or graded as soon as practicable after construction of the Medium-Scale Solar Development.
- III. Use of site-specific native plant and seed mix and mulching to support vegetation growth in coordination with the San Miguel County Manager of Vegetation Control Management.
- IV. Incorporation of pollinator plants or agrivoltaic uses that include browse crops to the greatest extent practicable.

- V. Topsoil from disturbed areas that is stripped and stockpiled on-site for redistribution over the completed final grade; stockpiling that conforms to best management practices and ensures that soil organisms in stockpiled soil remain viable until completion of the redistribution process.
 - VI. Weed control and monitoring at all locations disturbed by the Medium-Scale Solar Development and along access roads during the life of the Project.
- 105 J. Noise, Dust, Fumes, Vibration, and Odor Impact Assessment
- I. Description of the noise, dust, fumes, vibration, and odor caused by the construction or operation of the Medium-Scale Solar Development. (Glare and glint are analyzed in the following Section 105 K.)
 - II. Description of the proposed techniques that will be used to mitigate nuisance impacts caused by the construction or operation of the Medium-Scale Solar Development.
- 105 K. Glare, Glint, and Lighting Impact Assessment
- I. Map and description of the existing highways, designated scenic byways, public roads, trails, driveways, scenic vistas, unique land formations, recreational sites, airplane landing strips, and adjacent residential lots that could be susceptible to glare, glint, or lighting, including lighting at night, from construction and operation of the Medium-Scale Solar Development.
 - II. Site plan identifying the location and type of outdoor lighting in the Medium-Scale Solar Development and a description of how that lighting complies with the requirements in Section 5-710 of the County Land Use Code.
 - III. Description of the impacts that the glare, glint, or lighting of the construction or operation of the Medium-Scale Solar Development would have to existing highways, designated scenic byways, public roads, trails, driveways, scenic vistas, unique land formations, recreational sites, airplane landing strips, and adjacent residential lots, considering daily and annual differences in sun and solar array positioning, and to light pollution and any applicable Dark Sky Places designation(s).
 - IV. Description of the proposed techniques that will be used to mitigate impacts of glare, glint, and lighting during construction and operation of the Medium-Scale Solar Development.
- 105 L. Visual Quality Impact Assessment
- I. Map and description of the existing roads and properties adjacent to the Medium-Scale Solar Development including adjacent lots, towns, highways, designated scenic byways, public roads, trails, recreational sites, scenic vistas, and unique land formations. Provide at least two (2) visual renderings of the proposed development from key vantage points, to be

determined in consultation with the Planning Department.

- II. Description of the impacts of the Medium-Scale Solar Development to the visual quality of the adjacent roads and properties.
- III. Description of the proposed techniques that will be used to mitigate impacts to the visual quality of adjacent roads and properties, such as proposed visual buffering, natural topography, plantings, earth berms, or fencing. Proposed visual buffering should utilize existing vegetation and natural topography wherever possible.

105 M. Natural Hazards Impact Assessment

- I. Map and description of the existing geological characteristics and hazardous conditions affected by the Medium-Scale Solar Development including without limitation drainage areas, floodplains, slopes, avalanche areas, debris fans, mudflows, rockslide areas, faults and fissures, seismic history, and wildfire hazard areas.
- II. Description of the impacts of the Medium-Scale Solar Development to natural hazards and the impacts created by natural hazards on the siting, construction, and operation of the Medium-Scale Solar Development.
- III. Description of the proposed techniques that will be used to mitigate impacts of the Medium-Scale Solar Development to natural hazards and a description of proposed techniques to mitigate the impacts of natural hazards on the Medium-Scale Solar Development.

105 N. Local Government Services Impact Assessment

- I. Map and description of the existing capacity and demand for services provided by the County and other special districts and other local entities, including roads, emergency services, transportation, infrastructure, and other services necessary to accommodate Medium-Scale Solar Development.
- II. Description of the impacts of the Medium-Scale Solar Development on the capacity of the districts and infrastructure for delivering services ~~delivery systems~~.
- III. Description of the proposed techniques that will be used to mitigate impacts on local government services from the construction and operation of the Medium-Scale Solar Development.

105 O. Water Services Availability

If the proposed Medium-Scale Solar Development includes the provision of water, the application must include a description of the source and capacity of the water supply sufficient to evaluate the corresponding review criteria.

105 P. Construction Traffic Route Plan

In addition to access or road use permits required from the County Road and Bridge

Department, a plan for control of traffic during construction of the Medium-Scale Solar Development, including without limitation:

- I. Map indicating proposed trip routes for all traffic serving the Medium-Scale Solar Development.
- II. Routes designed to avoid to the greatest extent possible residential areas, commercial areas, environmentally and visually sensitive areas, schools and other civic buildings, and already congested locations.
- III. Restriction on the weight of trucks so that they do not exceed County road or bridge weight capacity requirements.
- IV. Proposed phasing of construction to minimize interference with traffic movement.

105 Q. Road and Rights-of-Way Improvements and Maintenance Plan

In addition to access or road use permits required from the County Road and Bridge Department, a plan for improvements and maintenance of roads, sidewalks, curbs, gutters, alleys, or other County rights-of-way or infrastructure impacted by the construction and operation of the Medium-Scale Solar Development, including without limitation dust suppression, snow and ice management, sweeping of paved roads/shoulders, pothole patching, repaving, crack sealing, and chip sealing necessary to maintain an adequate surface of paved roads.

If determined necessary, the applicant will enter into a Maintenance Agreement with the County whereby the applicant provides for private maintenance or reimburses the County for such increased costs or provides a bond or other financial security in an amount acceptable to the County to cover the costs of mitigating impacts to public roads, rights-of-way, or infrastructure.

105 R. Emergency Preparedness and Response Plan

Emergency preparedness and response plan that addresses events such as explosions, fires, toxic emissions, transportation of hazardous material, and vehicle accidents, or spills. The plan must include proof of adequate personnel, supplies, procedures, and infrastructure such as water supply, and funding to immediately implement the emergency response during both construction and operation of the Medium-Scale Solar Development and to repair damage caused by emergencies.

105 S. Hazardous Materials Management Plan

A plan that describes all hazardous, toxic, and explosive substances to be used, stored, transported, disturbed, or produced in connection with the construction and operation of the Medium-Scale Solar Development.

The County Emergency Manager, or its designee, may undertake prevention, control, countermeasure, containment, and clean-up measures if the applicant fails to comply with its obligations under the *Hazardous Materials Management Plan*. The applicant will pay all costs incurred by the County for any such measures.

105 T. Areas of Paleontological, Historical, or Archaeological Importance Impact Assessment

- I. Map and description of all sites of paleontological, historical, or archaeological importance affected by the Medium-Scale Solar Development.
- II. Description of the impacts of the Medium-Scale Solar Development on sites of paleontological, historical, or archaeological importance.
- III. Description of the proposed mitigation techniques that will be used to mitigate sites of paleontological, historical, or archaeological importance.

105 U. Decommissioning and Restoration Plan

A plan for decommissioning and restoring the Medium-Scale Solar Development commencing no later than twelve (12) months after power production has permanently ceased. The Plan must include:

- I. The projected lifespan of the Medium-Scale Solar Development and a description of the timeline and process for decommissioning the Medium-Scale Solar Development and restoring the site.
- II. Description of how the land will be restored to a condition similar to its condition prior to development and how it will be available for productive use.
- III. Provisions for removal or conversion of all components of the Solar Energy System, including without limitation solar panels, structures, fencing, foundations, equipment, conduit, gravel areas, access roads, and erosion and sediment control infrastructure regardless of whether such components are above or below the surface of the site.
- IV. Description of restoration of soil and vegetation, conducted in cooperation with the San Miguel County Manager of Vegetation Control Management.
 - a. Land disturbed as part of the decommissioning process must be reseeded or re-vegetated with vegetative species that provide ecological services, such as carbon sequestration, increased soil health, habitat preservation, or water quality improvements, such as those recommended in the CPW “Colorado Seed Mix Tool.”
 - b. Revegetation and other land disturbance mitigation must occur within twelve (12) months of removal of the solar facility.
- V. Decommissioning and restoration cost estimates as part of the Financial Security pursuant to Section 109, including all costs associated with the dismantlement, recycling, and safe disposal of facility components and site restoration activities, and the process for updating those estimates every five (5) years.

Section 106 Review Criteria for Medium-Scale Solar Energy Systems

The following review criteria apply to the review of a permit application for Medium-Scale Solar Development. These review criteria replace the review criteria in Article 5 of the County Land Use Code except where Article 5 is explicitly referenced herein.

106 A. Applicant Expertise

The applicant has the necessary expertise to develop and operate the Medium-Scale Solar Development consistent with all requirements and conditions.

106 B. Utility Interconnection Agreement

If proposing to interconnect to a utility, the utility has entered into a “letter of intent to interconnect” or interconnection agreement with the applicant.

106 C. Site Design Review Criteria

- I. Underground Utility Connection. Electrical collection lines within the Medium-Scale Solar Development must be placed underground unless placing them underground would have significant adverse environmental impacts.
- II. Setbacks. Solar panels, equipment, and structures shall be set back fifty (50) feet from all property lines. Setbacks for Medium-Scale Solar Development do not include landscaping and berming.
- III. Access. Road access to the Medium-Scale Solar Development must be adequate for emergency and fire response access.
- IV. Safety and Security. The Medium-Scale Solar Development must be protected by fencing or other barriers to prevent unauthorized access to the Medium-Scale Solar Development.

106 D. Signage

All signage must comply with Section 5-704 of the County Land Use Code. The operator shall post and maintain in legible condition warning signs at all entrances identifying emergency contact information.

106 E. Technical and Financial Feasibility

The Medium-Scale Solar Development must be technically and financially feasible.

106 F. Facility Maintenance

The Medium-Scale Solar Development shall be maintained in good condition.

106 G. Necessary Property Rights, Permits, and Approvals

The Applicant will obtain all necessary property rights and federal, state, and local permits or approvals for the Project prior to any site disturbance. The County may defer making a final decision on the Application until outstanding property rights, permits, and approvals are obtained.

106 H. Water ~~Quality~~Resources

The Medium-Scale Solar Development will not have an adverse impact on surface water or groundwater quality or the quality of hydrologic features including without limitation wetlands, fens, floodplains, ~~or~~ riparian areas, or agricultural water features such as drainage ditches and irrigation systems. The following considerations may be taken into account in determining whether this criterion is satisfied, without limitation: changes to the amount of impervious surfaces, increases in stormwater runoff and concentrations of pollutants and adverse impacts to wetlands, fens, floodplains, or riparian areas.

106 I. Drainage/Stormwater Runoff

Runoff will be kept on the site in a stormwater detention system, and waters in excess of historic run-off will be prevented from leaving the site during the construction and operation of the Medium-Scale Solar Development in conformance with the approved *Stormwater Management Plan*.

106 J. Wildlife, Wildlife Habitat, and Terrestrial Plants

I. The Medium-Scale Solar Development will not have an adverse impact on wildlife, wildlife habitat, or terrestrial plants. The following considerations may be taken into account in determining whether this criterion is satisfied, without limitation:

- a. Changes in species composition, density, or diversity.
- b. Changes to the number of and habitat of animal, bird, insect, and plant species.
- c. Changes to on-site activity at critical times or locations.
- d. The potential for the Medium-Scale Solar Development to attract waterfowl and other bird species.
- e. Changes to wildlife habitat, including migration routes, calving areas, summer and winter range, mating grounds, nesting grounds, or any other habitat features necessary for the protection and propagation of wildlife species.
- f. Changes to the structure and function of vegetation.

II. No components of the Medium-Scale Solar Development shall be located in occupied and unoccupied Gunnison Sage-Grouse Habitat as identified in the most recent habitat maps from CPW, BLM, or USFWS.

III. Proposed fencing shall be wildlife-friendly to the maximum extent possible. The following best practices or alternatives proposed by the Applicant that achieve the same or better results shall be employed.

- a. Minimize the footprint of the fenced area(s). Consolidate facilities and roads to the greatest extent possible to minimize the amount of land that is fragmented.

- b. Install wildlife permeable fencing that has larger spacing than a chain-link fence to allow safe passage of small and medium-sized animals.
- c. Construct the fence with at least 7 inches of vertical space between the ground and vertical fencing to allow safe passage of small and medium-sized animals.
- d. Any non-security fencing shall be wildlife-friendly fencing pursuant to CPW's "Fencing with Wildlife in Mind" guidance, or as updated in the future, consistent with Section 5-407(A)(IX) of the County Land Use Code.

106 K. Erosion and Sediment Control

Erosion and sedimentation control measures will be implemented in conformance with the approved *Grading, Erosion, and Sediment Control Plan* to prevent erosion and sediment runoff and ensure that disturbed areas and soil stockpiles are stabilized.

106 L. Revegetation and Weed Management

Areas disturbed by the construction and operation of the Medium-Scale Solar Development will be adequately revegetated within two (2) growing seasons and maintained for the life of the Project in conformance with the approved *Revegetation and Weed Management Plan*.

106 M. Noise, Dust, Fumes, Vibration, and Odor

- I. The Medium-Scale Solar Development will not interfere with the use and enjoyment of property, cause a risk to public health and safety, nor create an unreasonable attractive nuisance for birds, wildlife, or persons.
- II. Sound emissions shall be less than fifty decibels (50 dB) at all property lines.

106 N. Glare and Glint

- I. The Medium-Scale Solar Development will not unreasonably interfere with the use and enjoyment of existing highways, designated scenic byways, public roads, trails, driveways, scenic vistas, unique land formations, recreational sites, airplane landing strips, and adjacent residential lots nor result in a risk to public health and safety from glare or glint.
- II. Glint and glare produced by the Medium-Scale Solar Development will not create an unreasonable attractive nuisance for birds, wildlife, or persons.

106 O. Exterior Lighting

The Medium-Scale Solar Development will not cause light trespass nor light

pollution and will comply with Section 5-710 of the County Land Use Code.

106 P. Visual Quality

The Medium-Scale Solar Development will not cause a significant adverse impact to the visual quality of adjacent roads and properties.

106 Q. Risk from Natural Hazards

The Medium-Scale Solar Development will not be subject to risk from natural hazards and will not exacerbate natural hazards.

106 R. Impact to Local Government Services

The Medium-Scale Solar Development will not have an adverse impact to the current or future capability of local districts to provide services or on the capacity of their ~~service delivery systems~~ infrastructure for delivering services.

106 S. Water Services Availability

If the Medium-Scale Solar Development will be served by water, any facilities associated with the Medium-Scale Solar Development must:

- I. Be adequate to serve the Medium-Scale Solar Development.
- II. Be non-consumptive in total water use.
- III. Have no adverse impact on water resources in the area impacted by the Medium-Scale Solar Development.
- IV. Comply with state standards.

106 T. Construction Traffic

Construction traffic associated with the Medium-Scale Solar Development will not cause an adverse impact on local traffic conditions.

106 U. Road and Rights-of-Way Improvements and Maintenance

- I. All roads, sidewalks, curbs, gutters, alleys, or other County rights-of-way or infrastructure impacted by the Medium-Scale Solar Development must be maintained in accordance with the *Improvements and Maintenance Plan*.
- II. The applicant has obtained access and/or road use permits required from the County Road and Bridge Department, and easements have been established where necessary.
- III. The owner will bear the cost of all repairs and maintenance to roads, sidewalks, curbs, gutters, alleys, County rights-of-way, or infrastructure necessitated by the construction and operation of the Medium-Scale Solar Development.
- IV. If the use of public roads, sidewalks, curbs, gutters, alleys, other County rights-of-way, or infrastructure results in a need for increased maintenance,

the owner will enter into an agreement with the County whereby the owner assumes responsibility for the repairs and additional maintenance or reimburses the County for repairs and maintenance.

- V. The owner will maintain financial security to secure the maintenance and repair obligation in an amount and form approved by the County.

106 V. Emergency Preparedness and Response

The construction and operation of the Medium-Scale Solar Development will be in compliance with the *Emergency Preparedness and Response Plan*, which shall be approved by the local fire district, County Sheriff, and emergency manager.

106 W. Hazardous Materials Management

The handling, spill prevention, storage, and containment of hazardous materials will be conducted in accordance with the *Hazardous Materials Management Plan*.

106 X. Areas of Paleontological, Historical, or Archaeological Importance

The Medium-Scale Solar Development will not have an adverse impact on areas of paleontological, historical, or archaeological importance.

106 Y. Decommissioning and Restoration

The Medium-Scale Solar Development will be decommissioned and restored consistent with the approved *Decommissioning and Restoration Plan*.

106 Z. Compliance with Required Plans/Studies/Reports

The Medium-Scale Solar Development will be constructed, operated, maintained, and decommissioned/ reclaimed in compliance with all plans and reports required under Section 105 of these Regulations.

Section 107 Application Materials for Small-Scale Solar Energy Systems

The applicant shall submit a development permit application for the development of a Small-Scale Solar Energy Systems (“Small-Scale Solar Development”) to the Planning Director. In addition to all requirements for the development permit, the application will include the following information:

107 A. Disposal of Components

Description of disposal procedures and costs associated with the removal of all components from the site.

Section 108 Review Criteria for Small-Scale Solar Energy Systems

In addition to the review criteria for a development permit, the following review criteria apply to the review of a permit application for Small-Scale Solar Development. These review criteria are in addition to applicable review criteria in Article 5 of the County Land Use Code.

108 A. Disposal of Components

All components of the Solar Energy System must be dismantled and properly disposed of within twelve (12) months after power production has ceased.

Section 109 Financial Security

109 A. Financial Security Required

- I. The County will require the applicant for a permit for a Large-Scale Solar Energy System to file a guarantee of financial security (“guarantee”), in a form and amount acceptable to the County.
- II. The County in its sole discretion may require the applicant for a permit for a Medium-Scale Solar Energy System to file a guarantee, in a form and amount acceptable to the County.
- III. The guarantee must be adequate to bring in personnel and equipment to accomplish any unperformed obligations under the guarantee, based on the Applicant’s submitted cost estimate and the County’s estimate of any additional costs. In determining the amount of the guarantee, the County may also consider, without limitation:
 - a. Faithful performance of the requirements of the permit and these Regulations.
 - b. Solar Energy System is decommissioned or removed from the site and the impacted area is properly reclaimed.
 - c. Permittee performs all mitigation requirements and permit conditions.

109 B. Amount of Guarantee

- I. The amount of the guarantee must be based on the applicant’s submitted cost estimate and the County’s estimate of any additional costs to bring in personnel and equipment to accomplish any unperformed obligations under the guarantee.
- II. In determining the amount of the guarantee, the County will also consider:
 - a. Estimated cost of reclaiming any impacted areas to their original condition or a condition acceptable to the County.
 - b. Estimated cost of decommissioning the Solar Energy System.
 - c. Estimated cost of performing all mitigation requirements and permit conditions.
- III. The guarantee will be set forth as a permit condition and shall specify as follows:
 - a. The guarantee may be adjusted upon receipt of bids or other cost

estimates to perform the requirements of the permit and these Regulations.

- b. The guarantee may be increased at any time that the County determines that the guarantee is insufficient to cover the purposes of the guarantee.
- IV. The County may review the guarantee for adequacy at any time. If the County determines that the guarantee is insufficient to perform the purpose of the guarantee, the County shall provide the permittee with written notice to increase the guarantee.
- a. The permittee shall post the additional guarantee within sixty (60) days from the date of the written notice. If the amount of the increased guarantee has not been provided within sixty (60) days from the date of the written notice, the County may schedule a duly noticed Public Hearing before the Board of County Commissioners for possible revocation of the permit.
 - b. If the permittee disagrees with the notice to increase the guarantee, the County shall schedule a duly noticed Public Hearing before the Board of County Commissioners on the matter and consider the permittee's rationale.

109 C. Release of Guarantee

The County may cause the guarantee to be released upon the request of the permittee, based on one or more of the following conditions:

- I. The permittee has surrendered the permit to the County before the commencement of any physical activity or disturbance associated with the Solar Energy System.
- II. The County determines that the Solar Energy System has been abandoned and areas impacted by the Solar Energy System have been returned to their original or other acceptable condition.
- III. The County determines that the Solar Energy System has been completed in compliance with the permit.
- IV. The County determines that a phase or phases of the Solar Energy System have been completed in compliance with the permit allowing for partial release of the guarantee consistent with Solar Energy System phasing.
- V. The County determines that applicable guaranteed conditions have been satisfied.

109 D. Forfeiture of Guarantee

- I. If the County determines that a guarantee should be forfeited because of any violation of the permit or these Regulations, the County shall provide written notice to the surety and the permittee that the guarantee will be forfeited unless the permittee requests a duly noticed Public Hearing before the Board of County Commissioners within thirty (30) calendar days after permittee's receipt of notice. If a request for a hearing is not made by the permittee, the County shall order the guarantee forfeited.
- II. If the permittee requests a duly noticed Public Hearing, the Board of County Commissioners shall hold a hearing after the receipt of the request. At the Public Hearing, the permittee may present statements, documents, and other information for the County's consideration with respect to the alleged violation. At the conclusion of the hearing, the County shall either withdraw the notice of violation or enter an order forfeiting the guarantee.
- III. If the forfeiture results in inadequate revenue to cover the costs of accomplishing the purposes of the guarantee, the County's Attorney shall take such steps as deemed proper to recover such costs where recovery is deemed possible including costs and attorney fees.

109 E. Substitute Guarantee

If the state-issued business license of the surety upon a guarantee filed pursuant to this Section is suspended or revoked, within ~~60~~30 calendar days after receiving notice thereof the permittee shall substitute a good and sufficient surety licensed to do business in Colorado. The County's Attorney may extend the period for receiving the substitute guarantee if the permittee submits a written request detailing the need for such extension. If the permittee fails to make a substitution in accordance with this Section, the County shall suspend the permit until proper substitution has been made.

Section 110 Enforcement and Penalties

110 A. General

- I. Any person constructing or operating a Solar Energy System who does not obtain a permit pursuant to these Regulations, who does not comply with permit requirements, or who acts outside the jurisdiction of the permit, shall be in violation of these Regulations. Such violations shall be deemed a violation of the County Land Use Code.
- II. The County will enforce and remedy violations of these Regulations consistent with Article 1 of the County Land Use Code.
- III. The County's authority to enforce or abate a violation of these Regulations and any other remedy shall be cumulative and in addition to any other remedy provided by law.

HH.IV. If the violation is not abated within the prescribed period, the County Attorney may cause the violation to be abated by San Miguel County employees or by private contract, or by any other means provided by Colorado law. The costs of abating the violation shall be the responsibility of the violating party. If the violating party fails to pay, the costs shall become a lien against the land.

110 B. Inspection

- I. The Planning Director or their designee may enter and inspect any property subject to these Regulations at reasonable hours for the purpose of determining compliance with these Regulations.
 - a. The Planning Director or their designee shall first make a reasonable effort to locate the owner or other person having charge or control of the premises, or portion thereof desired to be inspected, and request consent to enter and inspect the premises.
 - b. In the event the owner or other person having charge or control of the premises to be inspected fails to respond within 10 business days, or consent is unreasonably withheld, the Planning Director or their designee may enter the property to be inspected after providing 24-hour notice of the time and location of the inspection.
- II. If the Planning Director or their designee discovers a violation of these Regulations, the Planning Director or their designee may charge the violator for the actual cost to the County of any follow-up inspections and testing to determine the violation has been remedied.
- III. Persons performing such field inspections for the County will be deemed licensees for liability purposes pursuant to C.R.S. Section 13-21-115. Any Solar Energy System may be inspected by San Miguel County at any time to ensure compliance with the requirements of the permit, provided that at least one (1) hour's prior notice is given to the contact person at the telephone number supplied by the applicant. The applicant will provide the telephone number of a contact person who may be reached twenty-four (24) hours a day for purposes of being notified of any proposed County inspection under this Section or in case of emergency.

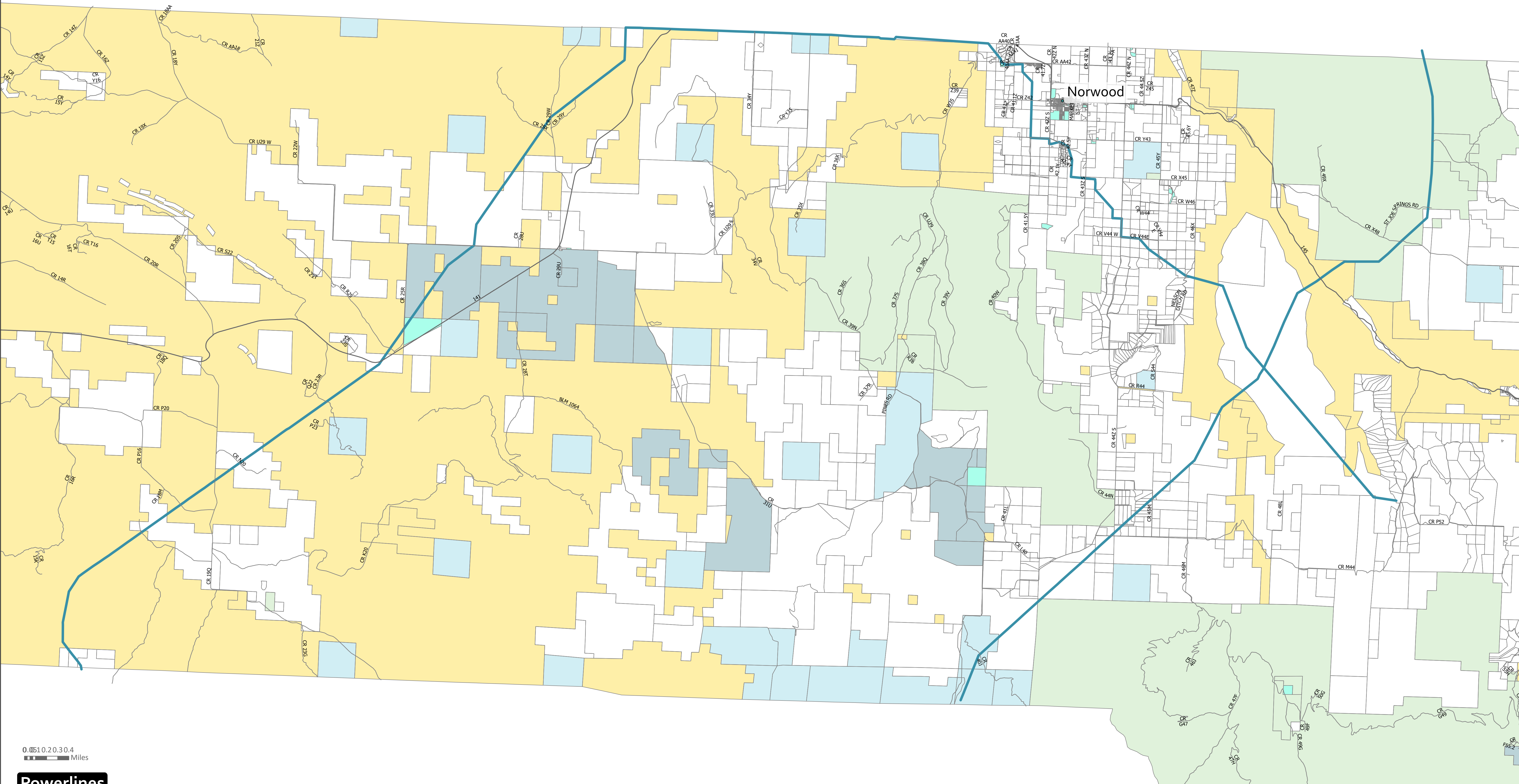
~~Persons performing such field inspections for the County will be deemed licensees for liability purposes pursuant to C.R.S. Section 13-21-115. Calling the number (or leaving a message on an available answering machine or voice mail service at the number) at least one (1) hour in advance of the proposed inspection will constitute sufficient prior notice if the contact person does not answer. By accepting an approved permit for the development of a Solar Energy System, the applicant grants its consent to such inspections. If a violation of the Code, the Building Code or a violation of a condition of approval is discovered, the County may charge the violator for the actual cost to the County of any follow-up inspections and testing to determine if the violation has been remedied, including costs of hiring outside technical experts.~~

110 C. Hazardous Materials

If the applicant fails to comply with its obligations under the Hazardous Materials Management Plan submitted as part of the Large-Scale or Medium-Scale Solor Development application, the County Emergency Manager or their designee may undertake prevention, control, countermeasure, containment, and clean-up measures. Applicant will pay all costs incurred by the County for any such measures.

- END -

Work Session Draft



0 0.5 1 2 3 4

Miles

Powerlines

- Power lines estimated from aerial photographs
- TaxParcels
- San Miguel County Land Status
- Bureau of Land Management
- Colorado Division of Parks and Wildlife
- Local Government
- Private or Other Exempt
- Colorado State Land Board
- United States Forest Service

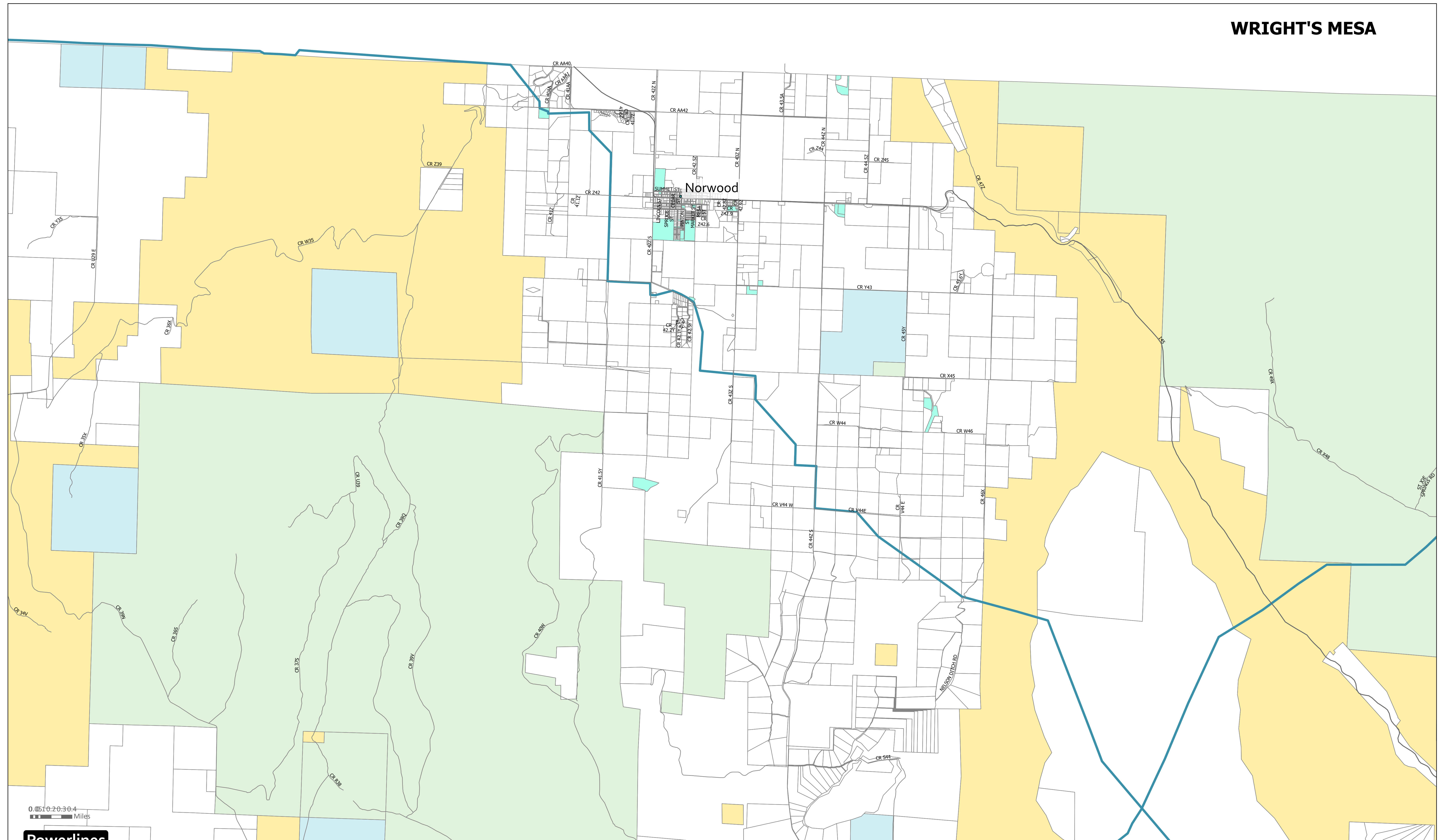


DISCLAIMER
This information is a product of the San Miguel County GIS Department and is intended for the display of relative positions and locations only. Users of this information agree that no assertion or warranty of any kind has been made by San Miguel County as to its accuracy. The presence on the map of a road feature does not indicate public access.

Path \\tridefs\gis\GIS\GISProjects\PLANNING\Planning\Planning.aprx 9/25/2023
Heather Widlund gis@sanmiguelcountyco.gov



WRIGHT'S MESA



Powerlines

- San Miguel County Land Status
- | | |
|---|------------------------------|
| Power lines estimated from aerial photographs | Local Government |
| TaxParcels | Private or Other Exempt |
| Bureau of Land Management | Colorado State Land Board |
| Colorado Division of Parks and Wildlife | United States Forest Service |

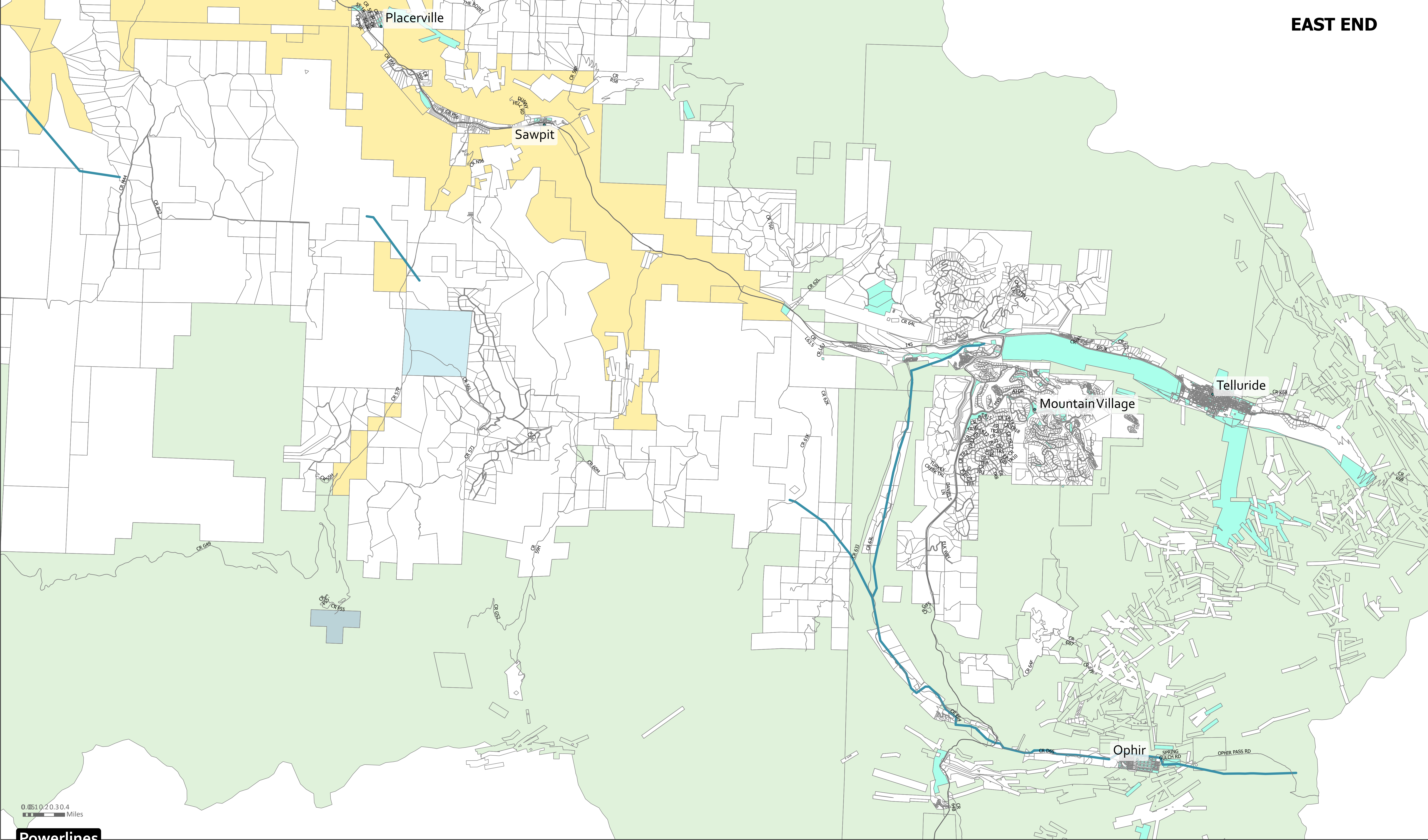


DISCLAIMER

This information is a product of the San Miguel County GIS Department and is intended for the display of relative positions and locations only. Users of this information agree that no assertion or warranty of any kind has been made by San Miguel County as to its accuracy. The presence on the map of a road feature does not indicate public access.

Path \\tridefs\gis\GIS\GISProjects\PLANNING\Planning\Planning.aprx 9/25/2023
Heather Widlund gis@sanmiguelcountycogov





Powerlines

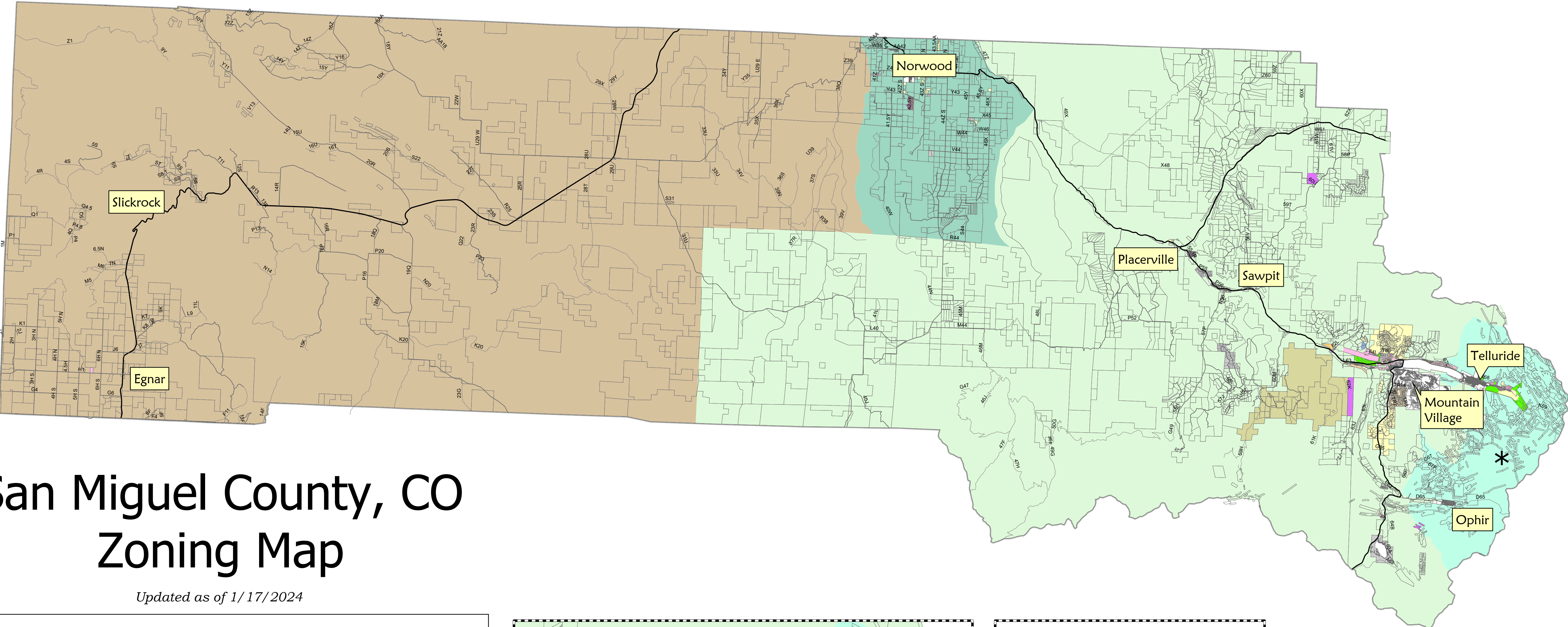
- Power lines estimated from aerial photographs
- TaxParcels
- San Miguel County Land Status
 - Bureau of Land Management
 - Colorado Division of Parks and Wildlife
- Local Government
- Private or Other Exempt
- Colorado State Land Board
- United States Forest Service



DISCLAIMER
This information is a product of the San Miguel County GIS Department and is intended for the display of relative positions and locations only. Users of this information agree that no assertion or warranty of any kind has been made by San Miguel County as to its accuracy. The presence on the map of a road feature does not indicate public access.

Path \\tridefs\gis\GIS\GISProjects\PLANNING\Planning\Planning.aprx 10/5/2023
Heather Widlund gis@sanmiguelcountyco.gov





San Miguel County, CO Zoning Map

Updated as of 1/17/2024

County Zone Districts

- ▬ Telluride Region Boundary

▬ Parcel outlines

ACCOMMODATIONS & RECREATION

AFFORDABLE HOUSING PUD

COMMUNITY HOUSING

FORESTRY/AGRICULTURE

HEAVY COMMERCIAL

HIGH COUNTRY AREA

INDUSTRIAL

LOW DENSITY

LOW DENSITY RESIDENTIAL

MEDIUM DENSITY
- MOBILE HOME

OPEN SPACE

PENDING

PLACERVILLE COMMERCIAL

PLACERVILLE RESIDENTIAL

PLANNED UNIT DEVELOPMENT

PUBLIC

RANGELAND/GRAZING

RESIDENTIAL

SPLIT SEE NOTES

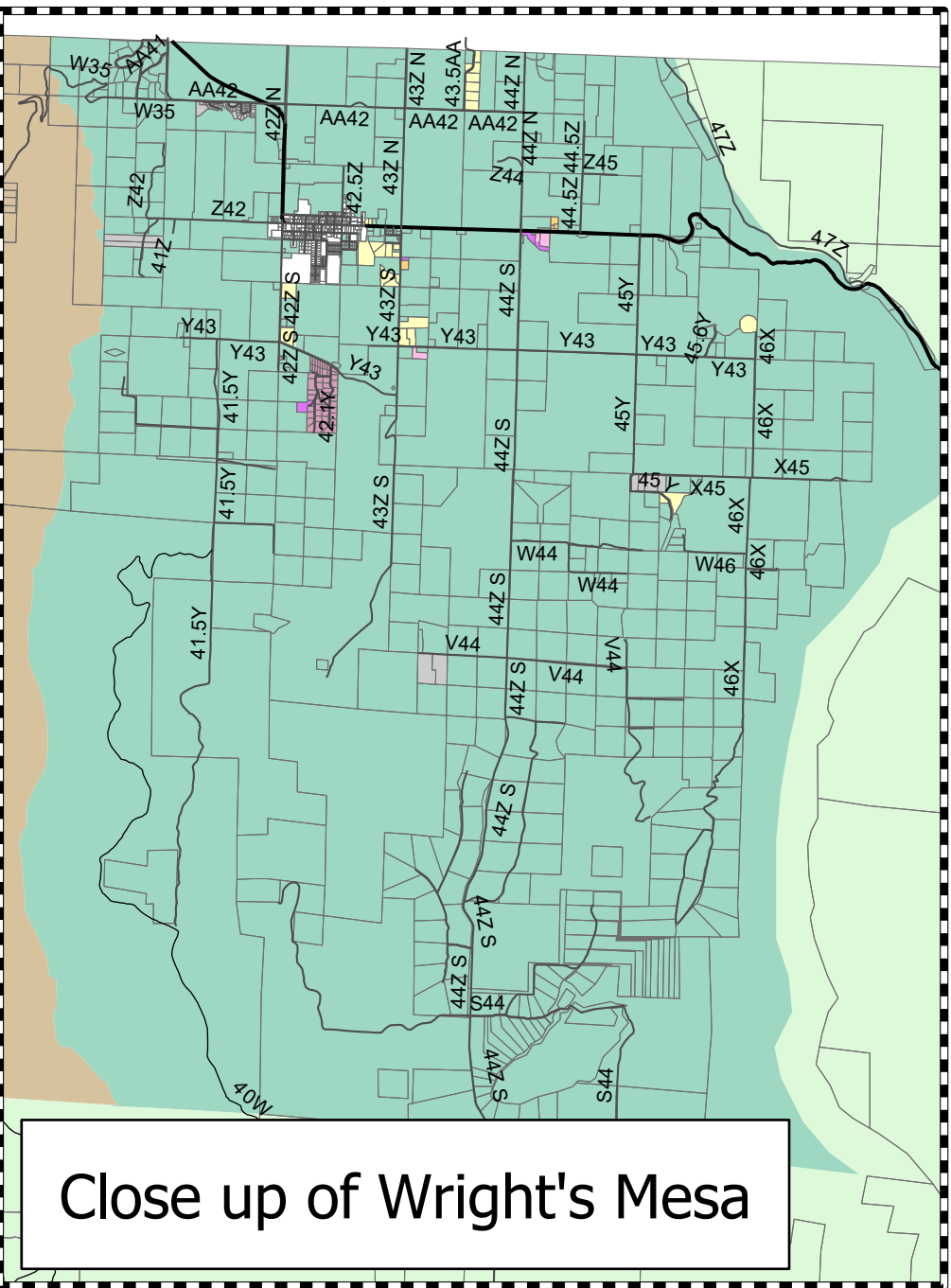
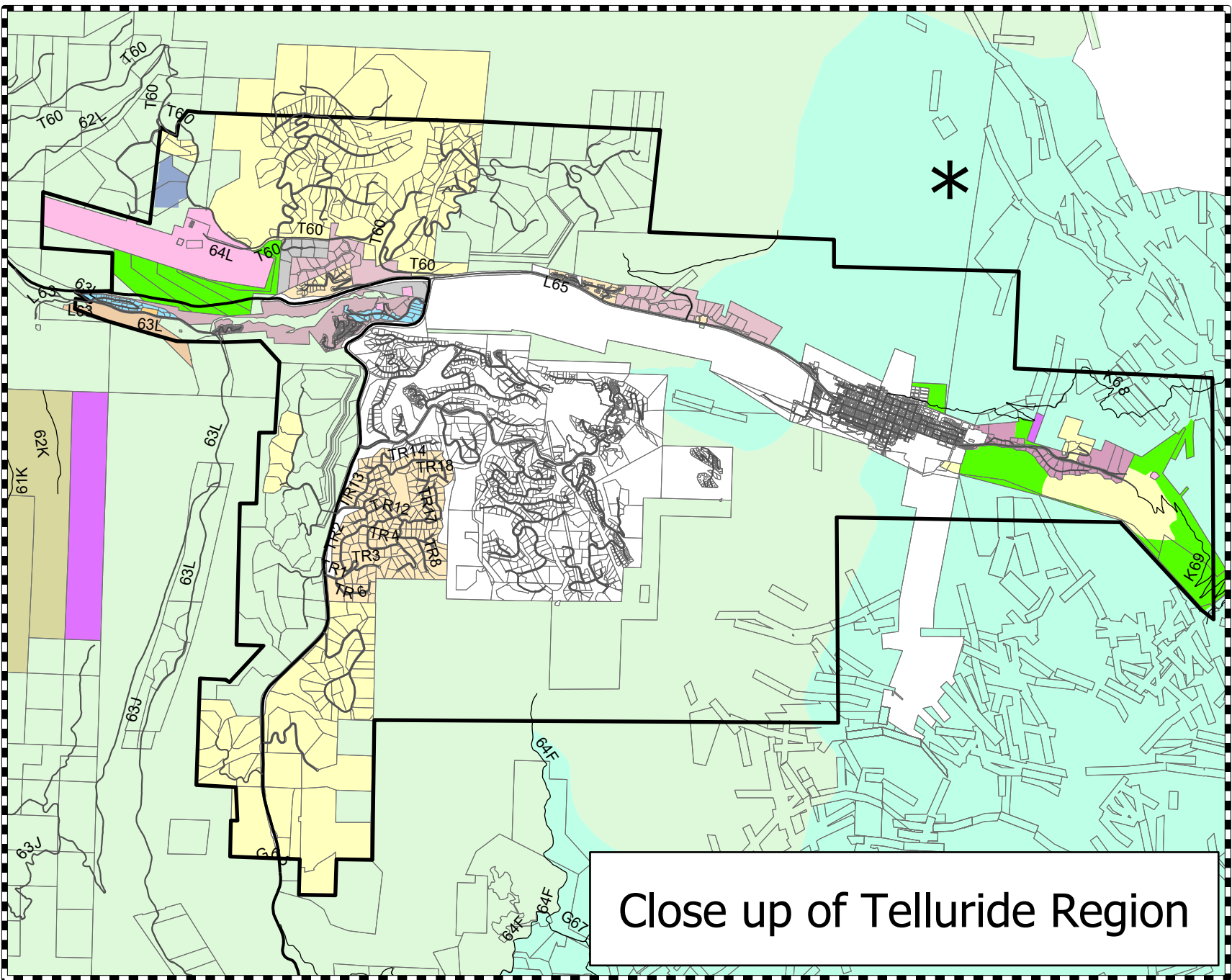
WEST END

WRIGHTS MESA

WRIGHTS MESA LIGHT INDUSTRIAL



* Certain properties in the HCA subject to TPL Options and Standstill Agreements are zoned "F"



DISCLAIMER
This information is a product of the San Miguel County GIS Department and is intended for the display of relative positions and locations only. Users of this information agree that no assertion or warranty of any kind has been made by San Miguel County as to its accuracy. The presence on the map of a road feature does not indicate public access.

Path \\tridefs\gis\GIS\GISProjects\PLANNING\Planning\Planning.aprx 1/17/2024
Heather Widlund gis@sanmiguelcountycolorado.gov

NOTE:
Zoning on all parcels **MUST** be verified by the Planning Department.

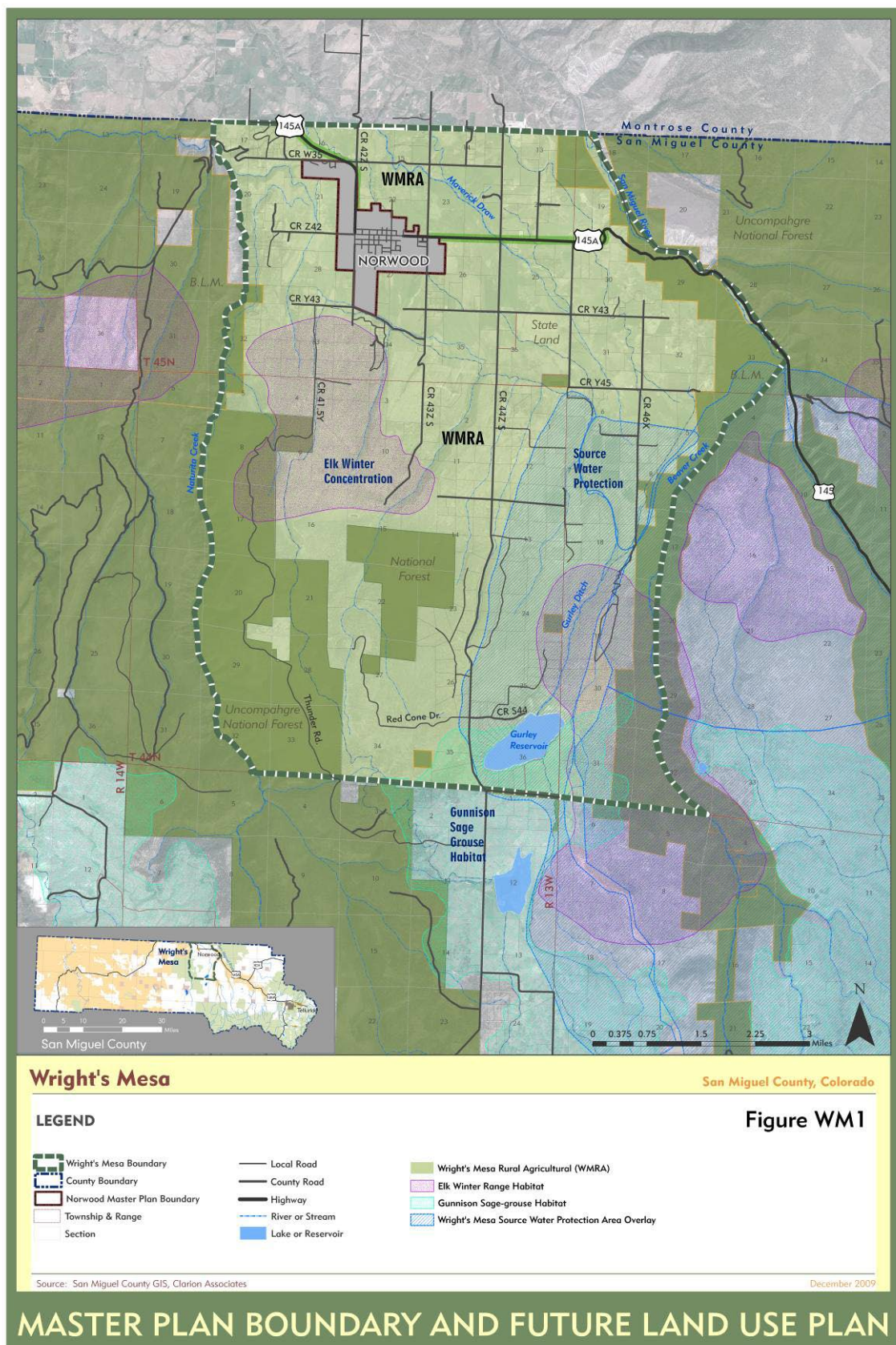


Figure WM-1

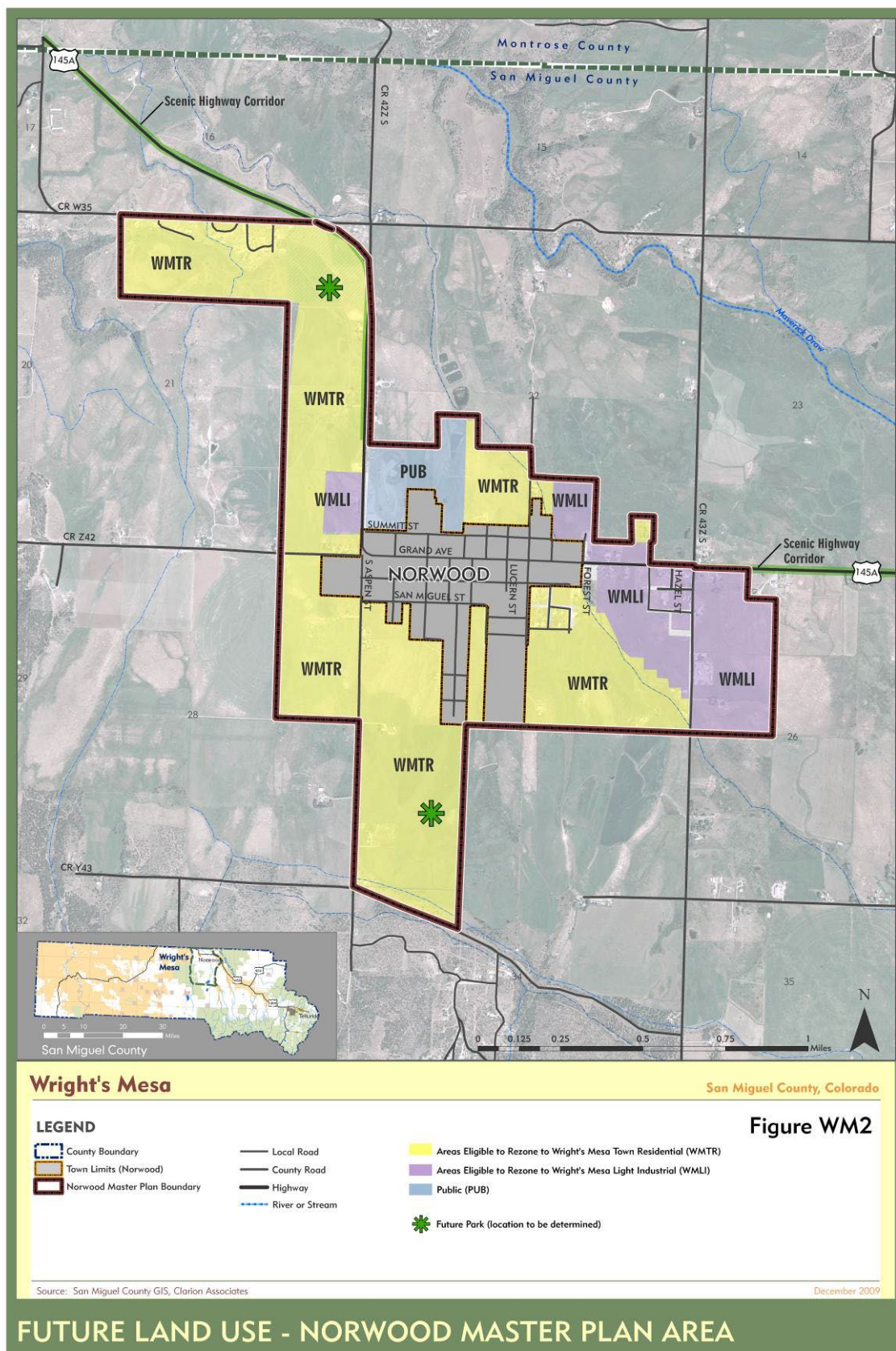


Figure WM2

Land Use Code Update; Solar Regulations

Public Comment

1. Allyn Svoboda, 3/20/2024
2. Amanda Shirley, 3/14/2024
3. Art Goodtimes, 3/17/2024
4. Candy Meehan, 3/19/2024
5. Colleen Gibbons, 3/19/2024
6. Colorado Solar & Storage Association, 1/25/2024
7. Karen Littlewood, 1/24/2024
8. Marty Schmalz, 3/20/2024
9. Michael and Kandi Malley, 3/17/2024
10. Phillip Schultz, 3/19/2024
11. Sepp Seitz, 3/20/2024
12. Shelley Donnellon, 3/14/2024
13. Tami Saint Germain, 3/19/2024, 3/20/2024
14. Tanya Narramore, 3/18/2024
15. Thomas Goralka, 3/19/2024, 3/20/2024
16. Valentine Farm and Jubilee Stables, 3/21/2024
17. Terri Lamers, 3/21/2024



Nicola Kerr <nicolak@sanmiguelcountyco.gov>

Fwd: Land Use Code revision for large-scale solar PV sites

Carmen Warfield <carmenw@sanmiguelcountyco.gov>

Wed, Mar 20, 2024 at 3:32 PM

To: Nicola Kerr <nicolak@sanmiguelcountyco.gov>

Carmen L. Warfield

Chief Deputy Clerk - BOCC

San Miguel County

[333 W. Colorado Ave, 3rd Floor](#)

PO Box 1170

Telluride, CO 81435

970-369-5429

970-708-8399 cell

E:carmenw@sanmiguelcountyco.govW:www.sanmiguelcountyco.gov

In painting, you have unlimited power. You have the ability to move mountains. You can bend rivers. But when I get home, the only thing I have power over is the garbage. Bob Ross



----- Forwarded message -----

From: **Allyn Svoboda** <allyn.svoboda@linecurrents.live>

Date: Wed, Mar 20, 2024 at 11:05 AM

Subject: Land Use Code revision for large-scale solar PV sites

To: johnh@sanmiguelcountyco.gov <johnh@sanmiguelcountyco.gov>Cc: bocc@sanmiguelcountyco.gov <bocc@sanmiguelcountyco.gov>

Below are my opinions regarding large renewable energy project siting in San Miguel County. These are based on 34 years experience as an electric cooperative distribution system engineer in Colorado, which included site selection for a community-scale renewable energy project in Huerfano County and design of a standalone monitoring control system installed in the nearby electric substation control house. I told the developer where to build the project. The result was 8 MegaWatts wind power. My electric co-op employer received the US Department of Energy "Wind Cooperative of the Year 2014 - Distribution Class" award for this project. (see attached PDF)

Appropriate maximum size of a ground-mounted solar PV installation in Wright's Mesa is about 200 KiloWatts. This is the capacity of the community solar array west of Norwood, which I understand is sited on a former landfill. The energy and capacity produced at this scale may be interconnected directly to existing 3-phase distribution primary voltage powerlines or underground cables through a standard 3-phase padmount transformer or pole-mounted transformer bank. Electric consumers taking service from the same distribution powerline (feeder) may absorb most or all of this PV array output. Any energy which is not consumed on the feeder will flow back to the secondary bus of the Norwood Substation and be consumed by electric services connected to other feeders. Construction of a new substation and connection to an electric grid transmission line are not needed.

Desirable qualities of a PV site location include no significant impact on:

1. productive agricultural land . . . San Miguel County has very little of this resource.
2. trees and bushes . . . these absorb carbon dioxide from the atmosphere and provide wildlife habitat.
3. water resources . . . natural waterways, wetlands, irrigation ditches, municipal water supplies.

San Miguel County is to be commended for its efforts to develop appropriate land use code provisions for commercial scale renewable energy projects.

Allyn Svoboda
909 Mountain View Lane
Norwood, CO



RADWIND-Case-Study-San-Isabel-Nov-2021.pdf
598K

DISTRIBUTED WIND CASE STUDY: SAN ISABEL ELECTRIC COOPERATIVE

How a southern Colorado distribution cooperative fulfills its state requirements and its mission with distributed wind.



RADWIND Project

This is the seventh in a series of case studies on distributed wind projects at electric cooperatives and other rural utilities for NRECA Research's *Rural Area Distributed Wind Integration Network Development* (RADWIND) project. RADWIND's goal is to understand, address, and reduce the technical risks and market barriers to the adoption of distributed wind technologies by rural utilities. Distributed wind projects can use any scale of turbine from small kilowatt-scale units up to large multi-megawatt units, as long as they are connected on the distribution side of the electric grid. Turbines may be connected on the customer side of the meter to serve a local load, directly to the distribution grid as a utility generating asset, or directly powering an off-grid load. For more information on the project and additional resources, please visit the project landing page at www.cooperative.com/radwind.

The distributed wind project profiled in this case study is part of a front-of-meter wind farm connected to the co-op's distribution grid.

This material is based on work supported by the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy (EERE) under the Wind Energy Technologies Office Award Number DE-EE0008958.

Project Snapshot

Cooperative	Project Ownership	Project Size	Turbine Size	Connection	Energy End Use
San Isabel Electric Association (SIEA)	SANY (owner and wind turbine manufacturer)	8 MW	2 MW	Front-of-meter, distribution grid	Reduces wholesale power purchase costs

Cooperative Profile

San Isabel Electric Association (San Isabel) is an electric distribution cooperative headquartered in Pueblo West, Colorado, 110 miles south of Denver. The co-op's territory extends another 110 miles south to the New Mexico border and covers an area larger than Connecticut, Rhode Island, and Vermont combined.

To serve its 24,000 members — 21,000 of whom are residential — the co-op owns and maintains 4,600 miles of power line. Commercial and industrial activities in this region are largely related to extractive industries, including cement manufacturing, quarries, mines, and numerous natural gas and carbon dioxide production facilities.

This sparsely-populated area experiences dynamic weather due to its location between the Rocky Mountains and the eastern plains. On one notable day, co-op line workers responded first to an outage caused by heavy snowfall and later to one resulting from a tornado.

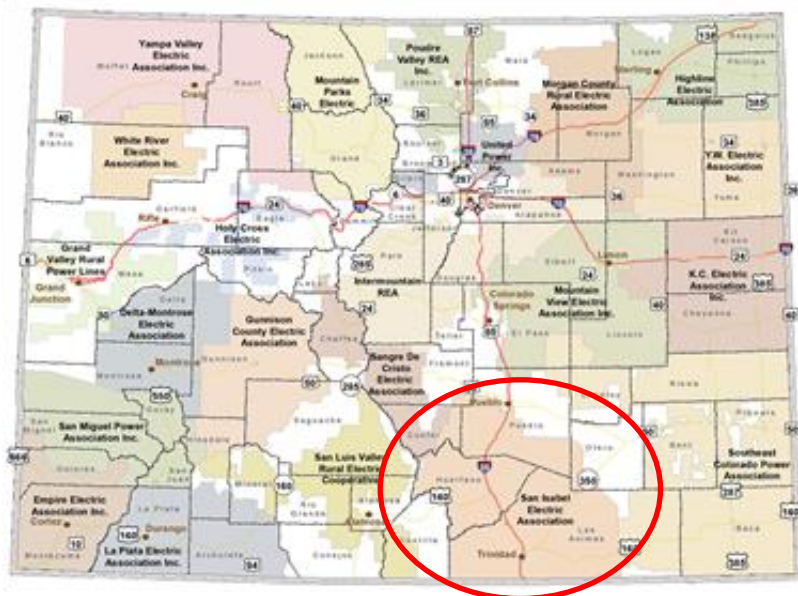


Figure 1. San Isabel Electric Association's Southern Colorado Territory

Tri-State Generation and Transmission Association (Tri-State),¹ headquartered in Westminster, Colorado, is San Isabel's power supplier. Currently, San Isabel has an all-requirements contract with Tri-State, which includes an allowance to generate up to 5% of its energy locally. In 2020, San Isabel purchased nearly 440,000 MWh from Tri-State to sell to its members. In a typical year, the co-op has a summer peak of 83 MW and a winter peak of 79 MW.

San Isabel offers several innovative programs and services to its rural southern Colorado membership through its Empower program.²

Empower helps members bundle upgrades to reduce their overall energy expenses through beneficial electrification. Program measures include home energy assessments, all-electric home certification and design support, rebates for energy-efficient appliances, education on electric vehicles and home charging, and on-bill financing. Further, the co-op identified a need to support members' interests in residential solar PV and now offers solar options, including on-bill financing, through a partnership with a local solar developer.



San Isabel is also a leader in distributed wind. Its 8 MW Huerfano River Wind Farm came online in 2013, becoming the largest distributed generation wind facility in Colorado, which still holds true. In recognition of this project, San Isabel was named "Wind Cooperative of the Year" for 2014 by the U.S. Department of Energy.

¹ <https://tristate.coop/>

² <http://siea.com/empower/>

Project Background

San Isabel began internal discussions about developing its own renewable generation around 2010. The co-op had a multi-faceted goal of helping members control their energy costs, improving local quality of life, and meeting the state's renewable portfolio standard (RPS), which was established by voters through a ballot initiative in 2004.³

San Isabel's territory has an abundance of wind and sun. Colorado is the sixth sunniest state in the country.⁴ The region also has impressive winds caused by air rushing down the eastern slope of the Rocky Mountains towards the plains. Around the time that San Isabel began investigating its renewable energy options, large renewable energy companies took notice of the region's resources. Vestas, a global wind turbine manufacturer, opened a tower manufacturing factory just north of the co-op's territory in Pueblo, Colorado. The area surrounding San Isabel's territory is now home to several large utility-scale wind and solar farms that are online or under construction.

Co-op staff evaluated the wind and solar options available to them and found that wind energy was the more attractive option. They also considered including battery storage, but at the time of project development, battery technology was not financially viable. Subsequently, a local developer approached San Isabel with a proposal to build an 8 MW wind farm within the co-op's territory, and the co-op decided to proceed.

The wind farm was sized to meet San Isabel's requirements under Colorado's RPS. Although the RPS has been updated since the time of San Isabel's project development, the initial goal was that 20% of investor-owned utilities' and 10% of rural electric distribution cooperatives' retail electricity sales in the state be made up of renewable sources, including wind and solar, by 2020.



Figure 2. Huerfano River Wind Farm. Source: Wikimedia⁵

³ <https://programs.dsireusa.org/system/program/detail/133>

⁴ <https://worldpopulationreview.com/state-rankings/sunniest-states>

⁵ Creative Commons license: https://commons.wikimedia.org/wiki/File:Huerfano_River_Wind_Farm.JPG

Technical Details

The four wind turbines that make up Huerfano River Wind Farm (see Figure 2) are 2 MW models made by SANY,⁶ a Shanghai-based manufacturer of industrial vehicles and energy sector equipment.

- Wind turbine model number: SE10020 DF
- Hub height: 80 meters/262 feet
- Rotor diameter: 102 meters/335 feet
- Blade length: 43 meters/141 feet
- Overall tip height (from the base of the turbine to the tip of a blade pointed straight up): 116 meters/380 feet⁷
- Cut-in speed (the lowest wind speed at which the wind turbines generate electricity): 2.5 meters per second (m/s) or 5.6 miles per hour (mph)
- Cut-out speed (the wind speed at which the wind turbines stop generating electricity to avoid overheating and other damage): 25 m/s or 60 mph⁸
- Average capacity factor: 23.85%

The developer selected wind turbines with double-fed (or doubly-fed) induction generators (DFIG),⁹ which increase overall wind turbine efficiency and reduce inverter and power factor control costs compared to direct-in-line models.¹⁰ According to Clinton Smith, system engineer at San Isabel, the DFIG configuration also improves outage response.

Siting and Interconnection

Huerfano River Wind Farm is centrally located in San Isabel's territory on land that had been divided into residential parcels, but was not developed. The co-op and the project developer, New Centennial Power, selected the site with help from the National Renewable Energy Laboratory (NREL) in Golden, CO, and Colorado State University in Fort Collins, because of its good to excellent wind speeds. In fact, the wind farm is located in a wide band on the eastern slope of the Rocky Mountains that is considered a "special wind region"¹¹ by the American Society of Civil Engineers,¹² meaning that it may have unusual wind characteristics caused by nearby mountain ranges, gorges, and other prominent topographic features.¹³ While the area does have a good wind resource, it can also have extreme winds on occasion, such as in 2017 when wind speeds reached 135 mph at the site.

⁶ <https://www.SANYgroup.com/>

⁷ <https://en.wind-turbine-models.com/turbines/2087-SANY-se10020> and <https://worldjournalnewspaper.com/huerfano-river-wind-project-is-a-go/>

⁸ [SANY SE10020 - 2,00 MW - Wind turbine \(wind-turbine-models.com\)](https://en.wind-turbine-models.com/turbines/2087-SANY-se10020)

⁹ For overviews, see: <https://www.elprocus.com/using-double-fed-induction-generator/> and <https://www.esig.energy/wiki-main-page/wind-turbine-technologies/>

¹⁰ <http://web.mit.edu/kirtley/bin/lustuff/literature/wind%20turbine%20sys/DFIGinWindTurbine.pdf>

¹¹ <https://www.cppwind.com/special-wind-regions/>

¹² *Minimum Design Loads for Buildings and Other Structures*, <https://ascelibrary.org/doi/book/10.1061/9780784412916>

¹³ <https://www.cppwind.com/special-wind-regions/>

The project is connected to San Isabel’s Huerfano Substation, an existing 69 kV, 15 MVA distribution substation that had been rebuilt in the early 2000s with a standardized, pre-packaged substation transformer kit that was available in one size only. This size was larger than needed at the location at the time, but SIEA installed it favoring construction and commissioning time over correct sizing. Therefore, prior to the wind farm, the substation was lightly loaded (5% - 7%) and had plenty of capacity for the interconnection. Even with the wind farm, Huerfano Substation stays below 50% of its full load capacity.

The co-op repurposed a 7.2/12.47 kV feeder line for the collection system that spans the approximately 1,000 feet from the closest wind turbine to the substation. From there, the wind energy is distributed to the primarily rural, residential members served by that substation. Any excess is further distributed to several other substations on the same 69 kV line, reaching about one-third of San Isabel’s members. This distribution plan ensures that all of the wind energy is used on the distribution side and does not backfeed onto the transmission system. The wind farm does not have the required communications infrastructure that the balancing authority requires for bulk transmission backfeed.

Metering

Three separate meters onsite record production. Tri-State owns the primary, definitive meter located at the substation delivery point. Both San Isabel and SANY also have meters on site for informational purposes.

Production

According to Smith, the project supplies around 4% of San Isabel’s annual energy needs and about 10% of its demand based on nameplate capacity. In 2018 and 2019, monthly production ranged from a low of 649,000 kWh in August 2018 to a high of 2,552,000 kWh in February 2019, as shown in Figure 3. In 2019, the best production year to date, the wind farm produced more than 19 million kWh resulting in an average capacity factor of 27% for that year.

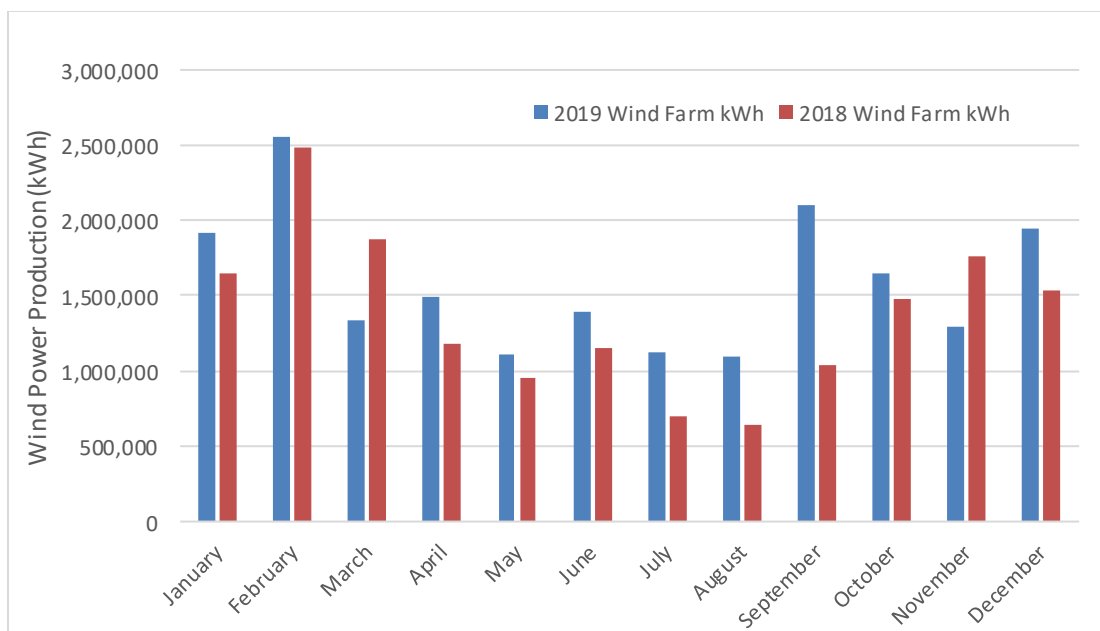


Figure 3. Huerfano River Wind Farm Monthly Production (kWh), 2018 and 2019.
Courtesy of San Isabel Electric Cooperative, 2020.

Often, the wind farm’s daily production aligns with the co-op’s demand. See Figure 4, where hourly data from a sample day of the wind farm’s production (blue line) and the co-op’s demand (red line) are both normalized to 100% (represented as 1 in the y-axis) for visual comparison. Note that on this day, the wind farm was producing at its maximum output at nearly the same time that San Isabel’s demand peaked. While the wind farm’s daily peak production in MW is much lower than San Isabel’s daily peak demand in MW, Figure 4 illustrates how both curves align on some days.

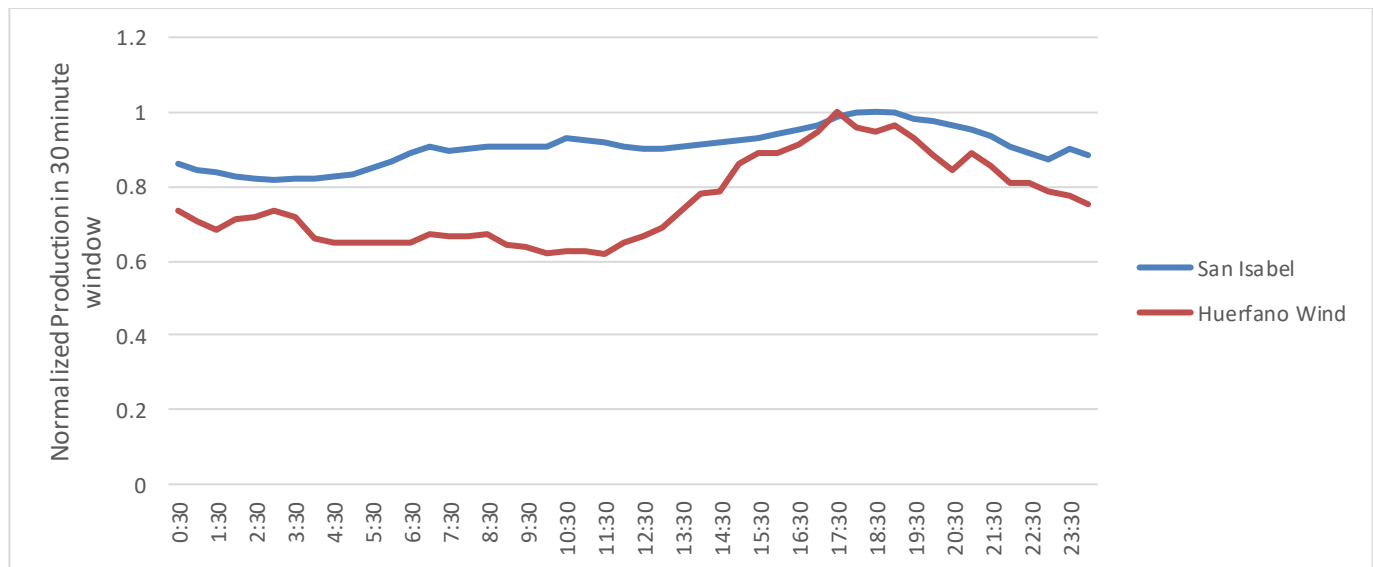


Figure 4. Huerfano Wind Production Curve Compared to San Isabel’s Daily Demand.
Courtesy of San Isabel Electric Cooperative, 2020.

Planning & Engineering

San Isabel worked with the project developer and Tri-State on the planning and engineering phase of the project. Because the Huerfano Substation was so lightly loaded prior to the wind farm, upgrades were not required on the transmission side of the system, other than the addition of SCADA to the substation where the project would be interconnected.

Operations & Maintenance

SANY, the wind turbine manufacturer and current wind farm owner, is responsible for all operations and maintenance (O&M). According to Smith, “Wear on the turbines is higher than we expected it to be.” For example, all turbines have needed gearbox replacements. Smith has observed that often one of the four turbines is offline for maintenance. SANY’s technicians, who are based in Texas, typically resolve O&M issues in a timely manner.

Economic Details

San Isabel chose to enter into a power purchase agreement (PPA) for the project instead of outright ownership. The project's total cost was approximately \$17 million,¹⁴ and the owner secured financing for the project.

San Isabel has a 25-year PPA with SANY America for the purchase of wind energy from the project. San Isabel's wholesale electric service contract with Tri-State allows for the purchase of up to 5% of San Isabel's total energy requirements from sources other than Tri-State. Additionally, through their Board Policy 115, Tri-State provides a bill credit to San Isabel for the electricity that San Isabel purchases from the project. Renewable energy credits (RECs) are assigned to San Isabel per the terms of the PPA. San Isabel in turn sells the RECs to Tri-State under the terms of Tri-State's Board Policy 117, which provides a Tri-State member the ability to sell RECs from local projects to Tri-State.

The negotiated PPA pricing along with the sale of RECs to Tri-State made the project financially viable by helping San Isabel meet its financial goal of reducing the co-op's wholesale power purchase costs and providing rate stability for San Isabel's members while also meeting its RPS requirements.



Figure 5. Huerfano River Wind Farm. Courtesy of San Isabel Electric Association, 2020.

Members and Community

Meeting the Colorado RPS was an important impetus for the project, but according to Smith, there was a “more significant” requirement for the wind farm – improving members’ quality of life. “Our board takes very seriously the impact that we have on the community.” Reflecting that, the co-op’s mission statement includes upholding social and ethical values in addition to providing electricity:

¹⁴ <https://www.chieftain.com/article/20120106/BUSINESS/301069891>

To provide our Membership with electric power and other needed products and services which will improve their quality of life. We will provide excellent service and maintain the highest social and ethical standards as we evaluate and utilize new technologies and resources to meet the needs of our Membership.¹⁵

San Isabel serves large portions of three counties—Huerfano, Las Animas, and Pueblo—where 16% to 20% of the population lives below the poverty level. This is twice as high as the statewide poverty level of 9% and well above the national rate of 12%.¹⁶ More than anything, San Isabel wanted to save their members money on their power bills and improve the quality of life through reduced emissions.

Smith noted how the clean energy aspect of the project is becoming increasingly important to members. The wind farm is located adjacent to I-25, Colorado's major north-south interstate. Members frequently drive past it and can clearly see the turbines from the highway. San Isabel's members are proud of the co-op's investment in this project, so much so that they often comment when the turbine blades are not spinning.

Project Experience, Opportunities, and Challenges

Huerfano River Wind Farm has contributed to the financial success and steady retail rates that San Isabel provides to their member-owners. At this point, San Isabel does not have plans to repower the turbines or upgrade them beyond routine O&M. However, the co-op has begun exploratory discussions with the Electric Power Research Institute (EPRI) about ways to store wind energy and dispatch it during peak load times to further reduce the co-op's expenses by lowering its peak power purchases and demand charges. In addition to a battery, another idea in discussion is to use grid-interactive residential water heaters to heat water when there is excess wind energy, thereby reducing water heater demand during peak times.¹⁷

Key Lessons and Insights

Smith encourages other co-ops to consider distributed wind projects, and offers the following practical suggestions based on San Isabel's project experience and lessons learned:

- Consider a PPA, since it can protect the co-op from liability and unanticipated maintenance costs;
- Get competitive bids and carefully evaluate performance history from potential developers and manufacturers;
- Keep in mind that the least expensive option upfront may not be the best long-term choice;
- Use local manufacturers, contractors, and maintenance technicians whenever possible;

¹⁵ <https://siea.com/mission-vision/>

¹⁶ Poverty level estimates based on 2019 American Community Survey data as reported by the U.S. Census: <https://data.census.gov/cedsci/>

¹⁷ <https://www.coloradocountrylife.coop/two-colorado-co-ops-win-with-wind/> For a similar pilot project at another cooperative, see: <https://www.cooperative.com/programs-services/bts/radwind/Documents/RADWIND-Case-Study-Lake-Region-May-2021.pdf>

- Even with a PPA, stay involved in all phases of the project, keeping a tight handle on specifications, because all of the equipment will ultimately connect to the co-op's grid;
- Ensure all contracts and agreements are compatible, and hire a third-party to conduct a thorough contract review on behalf of the co-op; and,
- Outline project performance and turbine availability minimums in the PPA.

San Isabel and Smith are proud of the wind farm and what it accomplishes for the ir state, the co-op, and its members. Going forward, staff and board members will look for more ways to leverage this asset to further the co-op's economic and social value-driven mission.

Contacts for Questions

Clinton Smith

System Engineer
San Isabel Electric Association
Clinton.Smith@siea.com
Ph: 719-647-6226

Michael Leitman (Project Manager)

Director, System Optimization
National Rural Electric Cooperative Association
Michael.Leitman@nreca.coop
Ph: 703.907.5864

Jon Beyer

Energy Solutions Manager
San Isabel Electric Association
Jon.Beyer@siea.com
Ph: 719-647-6209

This case study was researched and written by Laura Moorefield, Moorefield Research & Consulting, LLC, lmoorefield@gmail.com, Ph: 970.903.3044.

Additional Information on NRECA Research's RADWIND Project

For more information on the RADWIND project and additional resources, please visit the project landing page at www.cooperative.com/radwind.

Want to stay informed of our progress with the RADWIND project, and provide your input and feedback? We welcome all NRECA voting members to join the project as advisors. Contact our team at: RadwindProject@nreca.coop.



Kaye Simonson <kayes@sanmiguelcountyco.gov>

Wrights Mesa Solar

1 message

Mandee Shirley <mandeesetc@yahoo.com>

Thu, Mar 14, 2024 at 9:30 AM

Reply-To: Mandee Shirley <mandeesetc@yahoo.com>

To: "planning@sanmiguelcountyco.gov" <planning@sanmiguelcountyco.gov>, "kayes@sanmiguelcountyco.gov" <kayes@sanmiguelcountyco.gov>, "bocc@sanmiguelcountyco.gov" <bocc@sanmiguelcountyco.gov>, "krish@sanmiguelcountyco.gov" <krish@sanmiguelcountyco.gov>, "anneb@sanmiguelcountyco.gov" <anneb@sanmiguelcountyco.gov>, "lancew@sanmiguelcountyco.gov" <lancew@sanmiguelcountyco.gov>

Dear San Miguel County Planning Department, San Miguel County Commissioners:

I am writing on behalf of residents on Wrights Mesa to strongly oppose large scale development within the Wrights Mesa Agricultural zone. Overwhelmingly, the community members residing in this area have voiced their concerns and objections to such projects. This is why it is disheartening to see Wrights Mesa Ag still listed under the large scale umbrella.

Preserving the agricultural integrity of Wrights Mesa is not only essential for protecting the rural character, massively impressive viewshed and quality of life that residents cherish. Large scale development would irreversibly alter the landscape and disrupt the harmony of our community.

We urge the Planning Department to respect the wishes of the residents of Wrights Mesa and exclude large scale development from the Agricultural zone. Our collective voice must be heard and respected in decisions that shape the future of our community.

Thank you for considering our concerns and taking action to preserve the unique character of Wrights Mesa.

Sincerely,

Amanda Shirley
PO Box 214
Norwood, CO 81423
#970-570-6005



Carmen Warfield <carmenw@sanmiguelcountyco.gov>

Proposed Solar Land Use Code revisions

1 message

Art Goodtimes <shroompa@gmail.com>

Sun, Mar 17, 2024 at 5:34 PM

To: Carmen Warfield <carmenw@sanmiguelcountyco.gov>

Cc: Mike Bordogna <mikeb@sanmiguelcountyco.gov>, Kaye Simonson <kayes@sanmiguelcountyco.gov>

Carmen,
For the record. Thanks
AG

Dear County Commissioners and Planning Commission Members:

I am deeply committed to solar. I have supported strong solar policies as a member/consumer of our cooperative electrical service provider SMPA. I have advocated as a county commissioner for increased solar generation into our power grid on local, regional, state and national platforms. And I have worked to hold the electrical industry to its carbon neutral goals and have even testified before the Colorado PUC about electric infrastructure siting.

These proposed county revisions before us are not about being for or against solar. They are about balancing local citizen concerns with state and national directives.

The clear direction I heard from our elected officials at the last open public meeting on this issue in Norwood was that the Wrights Mesa Rural Agricultural zone district was to be exempted from large-scale solar. Why was that direction ignored by the CPC?

Further, the CPC has chosen to change the definition of large-scale solar, as if making a range between 10 and 100s of acres were a reasonable category.

Where did that idea of lowering the definition of large-scale and including WMRA in allowable zone districts for large-scale solar come from? Certainly not from the citizens of this County that I heard in public meetings.

Nor from our County Commissioners.

I would welcome industrial-scale solar operations in areas of the county where such a use might be compatible with existing uses. Wrights Mesa is NOT one of those areas.

San Miguel County, please reconsider your actions here:

1. Hoping that the County doesn't adopt the lowering of the large-scale solar category to 10 acres, exempt the Wrights Mesa Ag district from any "industrial scale" solar permitting larger than 20 acres.
2. If you're going to lower "large-scale" solar to 10 acres, then let's create an "industrial-scale" of 20 acres or larger.**
3. And again, if you're going to lower "large-scale" to 10 acres, then perhaps consider allowing solar operations on Wrights Mesa, limited to 10-20 acres, so that an individual landowner can set up a reasonable-sized, fully mitigated solar farm on existing acreage without unnecessary government red tape.**

If, in the future, we have URGENT need to do more industrial-scale solar -- even in ag/residential areas of our country -- we can change this zoning change through a future community process.

Respectfully,
Art Goodtimes
Dist. 3 Commissioner Emeritus

**roughly half a 35 parcel, of which there are many in the county (good for solar advocates) and for which a landowner can decide to implement without county subdivision approval (good for property rights advocates).



<https://goodtimespoet.blogspot.com>



Nicola Kerr <nicolak@sanmiguelcountyco.gov>

TON - SMC BOCC and P&Z Draft Regulations for Solar Energy Systems 03192024

ETW - Candy Meehan <candy@earthtechwest.com>

Tue, Mar 19, 2024 at 3:50 PM

To: "planningcommission@sanmiguelcountyco.gov" <planningcommission@sanmiguelcountyco.gov>

Cc: ETW - Candy Meehan <candy@earthtechwest.com>, Candy A Meehan <meehan@norwoodtown.com>, Kris Holstrom <krish@sanmiguelcountyco.gov>, Lance Waring <lancew@sanmiguelcountyco.gov>, Anne Brown <anneb@sanmiguelcountyco.gov>, Mike Bordogna <mikeb@sanmiguelcountyco.gov>, Terri Lamers <snyderranch56@yahoo.com>, "allyn.svoboda@linecurrents.live" <allyn.svoboda@linecurrents.live>, "tami.st.germain.5@gmail.com" <tami.st.germain.5@gmail.com>, "monetragsdale@gmail.com" <monetragsdale@gmail.com>

Dear Commissioners, Planning Board Representatives and County Staff,

I am writing to you today to specifically address one part of the proposed regulations that brings about serious concern and fosters distrust.

At our last joint work session that included the San Miguel County Board of County Commissioners, Planning Commission, County Staff and Community Members, directives were given to the Planning Department that the Wrights Mesa Rural Agriculture be removed from large scale and categorized as medium scale. That did not occur. My community and my constituents would like to see this corrected as soon as possible.

101 E. Solar Energy Systems Permitted in Certain Zone Districts

Solar Energy Systems may be permitted only in certain zone districts as follows:

I. Large-Scale Solar Energy Systems

- a. Forestry, Agriculture and Open
- b. Heavy Commercial
- c. Low Intensity Industrial
- d. Public
- e. Wright's Mesa Rural Agriculture
- f. West End

Thank you for your time and attention to this matter.

Candy A Meehan

Mayor for the Town of Norwood

3/19/24, 4:22 PM

San Miguel County Mail - TON - SMC BOCC and P&Z Draft Regulations for Solar Energy Systems 03192024

I'm using Adobe Acrobat.

Here's the [20240327 San Mig SOLAR REGS Work Session 2 with redline_202403131308562738.pdf](#) for you to review.



Nicola Kerr <nicolak@sanmiguelcountyco.gov>

Wrights Mesa

reddog155@gmail.com <reddog155@gmail.com>

Tue, Mar 19, 2024 at 9:58 AM

To: planning@sanmiguelcountyco.gov

I am very concerned that you have not removed the Wrights Mesa agricultural zone from consideration for Large Scale Solar Farms. I am sure given that the consensus is that it should be removed. This is just an oversight, right? Ok. Please remove it as soon as possible.
Thanks.

Colleen Gibbons
Norwood

Re: Comments on the Drafted Solar Land Use Code in San Miguel County

To: San Miguel County Board of County Commissioners and Staff

My name is Jeremiah Garrick and I am the Manager of Community Engagement with the Colorado Solar and Storage Association (COSSA). COSSA is extremely familiar with local land use codes and regulations that impact solar development, and actively tracks proposed changes that impact the industry. We appreciate that there has been a recent interest from counties in revisiting land use for renewable energy. Thank you for the public work session that was held on January 24th and the opportunity to submit comments. We hope that there will be additional work sessions and opportunity for comment before adoption, as there are many concerns from the solar industry that have been identified within the drafted solar regulations in San Miguel County.

We want to underscore some critical concerns that have become apparent through reviewing the proposed code and attending yesterday's Board of County Commissioners (BOCC) work session. The lack of clarity in the standards leaves no clear path for developers to meet the County's requirements for approval of a large-scale solar facility. In effect, the proposed code acts as cap on solar development without having to directly outlaw large-scale solar development. COSSA strongly encourages the BOCC and the County staff to revisit the proposed regulations and provide clarity on what impacts the County is looking to mitigate through the proposed code. As written, San Miguel County's drafted solar land use code far surpasses the level of stringency and discretion observed in any other county level solar land use code throughout the state of Colorado.

We understand the County is going to be updating land use codes for other types of land uses in the near future, however it is worth noting that as it stands in the event of these drafted regulations passing, solar will be the only land use that will have such onerous requirements for approval. This holds true when comparing solar development to other forms of large-scale development (such as oil and gas §5-26, mining §5-16, logging §5-27, etc.) which generally face less stringent criteria and have a clear path to approval by the County. Solar has less harmful impacts on both the community and the environment than these other forms of development. This incongruity raises concerns about fairness and equity in the regulatory framework and underscores the need for a more balanced and consistent approach to the drafted solar development land use code within San Miguel County.

Every community is different and has different priorities, however land use codes should be written in a manner that protects the rights of an individual to do what they choose with their private property, as long as they operate within reasonable and clear guidelines. As the mix of energy on the grid is changing and will continue to do so in the coming decades, there is a need for the development of renewable energy across the state to meet our energy demand, goals, and to protect Colorado's air, wildlife, and environment.

Additionally, at both the community open house in 2023 and at the BOCC work session on January 24th, there was a concerning amount of misinformation from community members regarding the real impacts of solar development. It would take multiple pages to address each point of misinformation that were publicly stated at the BOCC work session.

We have quickly addressed some of the misinformation below and provided sources, see Appendix 1 for source links and more details:

- Solar panels are not toxic and do not contain liquid. [\[1\]](#)
- Solar panels will not taint the groundwater. [\[2\]](#)
- Solar panels will not turn agricultural land into wasteland. [\[3\]](#)
- Solar panels use very little water once constructed. Washing the panels happens very infrequently, only as needed, as rain is usually enough for the majority of the year. [\[4\]](#)
- Solar panels create no noise. [5; see appendix]
- Solar panels are not an inherent fire hazard. [6; see appendix]
- Research is still being conducted, but as of now there is not consistent evidence that the “lake effect” exists, especially for birds in Colorado. It’s largely context dependent and not a concern in Colorado. Solar facilities have far less impact on avian populations compared to wind energy, fossil fuel, roadway vehicles, building collisions, and communication towers. [\[7\]](#)
- Concentrated solar (CSP) towers have not been built in a decade within the United States and no one is proposing or building them in Colorado. The most recent CSP project in the United States was completed in 2014, in the California desert. [\[8\]](#)
- It is not beneficial to put solar panels on a hill. [9; see appendix]
- Solar development will not cause San Miguel County to have to drop the International Dark Sky Community application. [10; see appendix]

We must ask, how is a developer to address and mitigate every perceived impact of large-scale solar development at the time of application when some of the negative impacts the community believes will happen are not based in facts? COSSA would be happy to meet with the County Commissioners and/or staff to discuss any and all of the above information and other misinformation that was brought up during public meetings in the County.

Outline of Main Concerns:

Technical and Financial Feasibility

1. The criteria pertaining to the technical and financial feasibility, as stipulated in §103.A and C and 104.E, raise notable concerns. These standards seemingly compel the divulgence of confidential financial information, encompassing project financing and debt management, in addition to requiring a thorough disclosure of the backgrounds of all team members. Of particular concern is the inclusion of technical and fiscal background as a criterion for approval, lacking specific benchmarks for making such determinations and thus relying on subjective discretion.

Alternative Location Analysis

2. In sections §103.F and 104.H, there's a call for a “map and description of the alternative locations and configurations”, and a show that the “proposed Large-Scale Solar Development is the least detrimental practicable alternative.” This phrasing raises questions about what exactly

this review should include. Are developers supposed to think about other designs and spots within the property, or are they talking about different properties altogether? If the goal is to consider “other property,” we're puzzled about how such a standard can balance with the basic property rights needed for any development.

- a. Realistically, a solar developer, similar to any other developer, can't think about an alternative on a property it doesn't have the right to develop. If this standard is meant for analyzing the overall development on the proposed site, it should be clearly stated to avoid confusion for the applicant and the public. Moreover, if we're talking about the actual site, how does this standard apply? The San Miguel County's existing land use code already has development and design standards, along with mitigation obligations such as setbacks, screening, landscaping, wetlands avoidance, etc.
- b. Additionally, this proposed alternative requirement is seen nowhere else in Colorado regarding solar development and is seen only in wireless and telecom communications requirements within San Miguel County.

Construction versus Operation

3. In the proposed regulations, there's a blending of the impacts related to solar project construction, such as noise, dust, odor, and traffic, with the impacts during operations (see, for example, §103.N). This is a significant concern as the impacts at each stage of the project are distinctly different in nature and duration.
 - a. During the construction of the project, there will inevitably be noise, disturbance, truck traffic, etc., similar to any other development. The construction stage will expectedly have less noise or dust, less traffic, and be completed faster than typical residential development, oil and gas, logging, or other intensive uses.
 - b. Importantly, the impacts during construction largely disappear once the solar project is operational. Solar facility operations involve minimal noise, no dust or odor, and virtually no traffic – especially no large truck traffic.
 - c. A solar facility doesn't require a large workforce onsite.
 - d. Therefore, an operational solar facility causes far fewer impacts than oil and gas operations, other intensive uses, and significantly less impact and traffic than a residential development.
 - i. The proposed regulations for solar need to differentiate between these two stages.

Housing

4. Sections §103.S and 104.V delve into housing impacts associated with a solar facility. This is one of the sections where impacts during construction and operations are merged (see above). During construction, there will inevitably be a larger team of contractors and workers involved, many of whom are locally employed. This is typical for almost any construction project.
 - a. During operations, a solar project will only have a handful of employees responsible for monitoring the site.

Road and Rights-of-Way Improvements and Maintenance

5. The regulations further intertwine construction and operations concerning the proposed public rights of way obligations. Although §103.U addresses construction traffic, our primary concern lies in the ongoing maintenance obligations imposed on solar projects for the upkeep and repairs of rights of way, as outlined in §103.V.
 - a. Solar operations will involve markedly low levels of traffic, and almost all the resulting traffic will not consist of large trucks, equipment, or heavy machinery of any nature.
 - b. Consequently, the fiscal obligations imposed by such regulations on solar projects for regular vehicles and very infrequent public road use appear highly disproportionate.

Visual Impacts

6. The proposed regulations introduce standards for visual impacts that extend beyond the scope of anything addressed in the current land use code, specifically in sections §103.P and 104.S. The existing San Miguel County land use code already comprehensively covers scenic qualities and visual impacts in §2-12 and 5-21. These regulations seem to establish the basis for scenic and visual impact considerations related to virtually every other type of development. However, despite the existence of effective standards, the proposed regulations, particularly at §103.P.II, state the following:
 - a. "Describe the impacts of the Large-Scale Solar Development on the visual quality of the scenic rural landscape within one-half (1/2) mile of the Large-Scale Solar Development."
 - b. Considering a solar facility where the height of the most significant improvements will range from 6 to 9 feet above grade, it becomes challenging to comprehend how such a standard has any proportionality to the actual impacts of a project. This language is not seen in any other land use code in Colorado.

Decommissioning and Restoration Plan

7. Section §103.BB of the proposed regulations introduces an intricate and demanding framework for the decommissioning and restoration of solar sites at the end of their useful life. While we acknowledge the importance of having a decommissioning plan, we must consider that solar facilities typically have a useful life of at least 25 years, often extending longer with the approved "repowering" of the solar panels. Given this, our concern arises from the regulations mandating a financial bond for the entire life of the solar project, potentially spanning well over 50 years. Additionally, the requirement for regular site inspections for three years after decommissioning ceases adds another layer of concern and is out of the norm.
 - a. The existing land use code already outlines a financial guarantee process for improvements in section 5-9, with no other activity subjected to a bond requirement that impractically extends over the course of several decades.
 - b. Large-scale solar projects are extremely expensive to build, the developer will not just abandon the project right after construction ceases.

- i. The decommissioning bond can come later in the process and the community will still be well protected in any situation down the road. Many counties have adopted a bond requirement at year 15 or 20 after the commercial operation date.

Permitting versus Site Planning and Technical Considerations for Development

- 8. A critical concern revolves around the proper process and stages for planning and approving solar facilities. Many of the proposed regulatory sections seek a level of project detail akin to a site plan early in the process, even before any indication of project approval. While the two-step review process for large solar projects is supported, the ambiguity arises regarding the exact nature of the approval.
 - a. Advocating for the solar facility approval process to be akin to a special use permit aligns with industry practices. This initial special permit process should encompass a broader examination of the project's conceptual planning, determining approval viability, and assessing the need for modifications or conditions. Only upon obtaining such a permit should a solar developer proceed to the site plan stage.
 - b. The site plan review is the appropriate juncture for detailed engineered designs covering drainage plans, water quality, floodplain control, revegetation, and other specific engineering considerations for development and mitigation. Mandating this level of specificity before project approval, when uncertainties regarding modifications persist, places an undue burden on developers.
 - c. A glaring instance highlighting this pragmatic challenge in the proposed regulations is the requirement in §104.B, mandating an interconnection agreement with a utility as a criterion for approval.
 - i. Industry practices dictate that solar developers engage in negotiations and execute interconnection agreements after the initial approval of the project, typically through a special use permit. Similarly, utilities only consider such agreements when developers secure an approved project site. Requiring an interconnection agreement before approval effectively undermines the feasibility of virtually any solar project in the County.

Threshold of Facility Sizes

- 9. Another concern lies in the fact that the ½ acre threshold for small and medium facilities, and the 20-acre threshold between medium and large facilities, deviates from industry standards.
 - a. For instance, a community solar project, which industry and State standards do not categorize as large, would require more than 25 acres for proper operation.
 - b. ½ acre would only be enough to support 500kw, less than enough energy necessary to power 100 homes.
 - c. To align more closely with industry practices, we recommend revisiting the thresholds and considering a 100-acre threshold to differentiate between medium and large-scale solar facilities.

- i. The 20-acre limit on medium sized systems is already extremely small compared to other land use codes in Colorado, lowering it further as discussed in the work session would make the proposed code additionally difficult to work with.

Conclusion

In conclusion, COSSA urges the San Miguel County BOCC and Staff to reconsider the proposed solar land use regulations. The lack of clarity within the standards creates a significant obstacle for developers seeking approval for large-scale solar facilities, rendering the current draft effectively a ban on such developments within the County.

The drafted code surpasses the level of stringency observed in any other county-level solar land use code in Colorado. To meet the Town of Telluride's carbon neutral goal by 2040, solar will have to be developed in the County. As the state adapts to a changing energy grid, it is essential to facilitate the development of renewable energy to meet energy demand, state and federal goals, and increase environmental conservation.

Additionally, the stringent regulations outlined in the current draft will hinder economic development within San Miguel County, causing a missed opportunity for potential lease payments to landowners and long-term tax revenue that could contribute significantly to the County's fiscal well-being. A more balanced approach to solar development would not only align with energy goals but also foster economic growth and financial sustainability for the community.

Land use codes are vital tools for ensuring best practices, however they should be crafted in a manner that upholds individual property rights within reasonable and clear guidelines. The current draft unfairly singles out solar development with onerous requirements.

Furthermore, the spread of misinformation regarding the impacts of solar development is concerning. COSSA is prepared to engage with the County staff and BOCC in discussions surrounding factual information about solar development and land use practices to address these misconceptions.

The outlined concerns, including those related to technical and financial feasibility, alternative location analysis, construction versus operation impacts, housing considerations, rights-of-way obligations, visual impacts, decommissioning plans, and facility size thresholds, collectively indicate the need for a comprehensive reevaluation of the proposed regulations.

COSSA appreciates the opportunity to voice these concerns and request further dialogue, work sessions, and revisions to ensure a fair and balanced approach to solar development within San Miguel County. Thank you for your attention to these matters, and we hope to foster collaboration in developing sustainable land use policies for San Miguel County.

Sincerely,

Jeremiah Garrick

COSSA – Manager of Community Engagement

Appendix 1: Sources and supporting information

[\[1\]](#) [\[2\]](#) - One of the more common concerns towards solar is that the panels (referred to as “modules” in the solar industry) consist of toxic materials that endanger public health.

However, as shown in this source, solar energy systems do not endanger public health. Modules are sealed and extremely durable. This source explores the toxicity of silicon-based PV panels and concludes that they do not pose a material risk of toxicity to public health and safety. Modern crystalline silicon PV panels, which account for over 90% of solar PV panels installed today, a greater percentage in the United States. Well over 80% (by weight) of the content of a PV panel is the tempered glass front and the aluminum frame, both of which are common building materials. Most of the remaining portion are common plastics, including polyethylene terephthalate in the backsheet, EVA encapsulation of the PV cells, polyphenyl ether in the junction box, and polyethylene insulation on the wire leads. The active, working components of the system are the silicon photovoltaic cells, the small electrical leads connecting them together, and to the wires coming out of the back of the panel. The electricity generating and conducting components makeup less than 5% of the weight of most panels. The PV cell itself is nearly 100% silicon, and silicon is the second most common element in the Earth’s crust. The silicon for PV cells is obtained by high-temperature processing of quartz sand (SiO₂) that removes its oxygen molecules. The refined silicon is converted to a PV cell by adding extremely small amounts of boron and phosphorus, both of which are common and of very low toxicity.

There are no negative impacts to the health or safety of a community due to solar development.

[\[3\]](#) - The presence of the arrays did cause spatial heterogeneity in soil moisture, meaning that the solar panels led to concentrated areas of moisture in the soil beneath the panels due to their position and orientation. And while the soil properties found in the array samples differ from those in the native plot, the researchers found that panels could be strategically oriented to guide rain toward or away from the soil below, meeting the irrigation needs of different types of plants.

Moreover, because the uncompacted soil beneath the panels allowed it to drain moisture rapidly, it could serve as a suitable growing space for drought-resistant, co-located crops.

A key takeaway from this research is that solar panels could be used to redistribute precipitation, with positive implications for co-location of agricultural crops.

[\[4\]](#) – Industry standards typically recommend cleaning solar panels once or twice a year, but this guideline is not universal. Monitoring the performance of the solar plant and conducting regular inspections can help owners determine the appropriate cleaning schedule. A significant amount of water is not necessary for solar facility operation. Water use requirements for solar power plants depend on the technology and climate conditions at the site. In general, all solar power technologies use a modest amount of water (approximately 20 gallons per megawatt hour, or gal/MWh) for cleaning solar collection and reflection surfaces like mirrors, heliostats, and photovoltaic (PV) panels. For comparison, a typical family uses about 20,000 gallons of water each year, more than the amount of water needed per MW of photovoltaic generation capacity.

[\[5\]](#) - Some solar facilities can make a small amount of noise, similar to that of an air conditioner. This can be created by inverters, HVAC systems for energy storage, and potentially solar tracking mechanisms. Solar panels themselves do not create any noise.

[\[6\]](#) - Fire risk assessments are taken before development to ensure that solar facilities are safe. Although a fire can happen anywhere, the precautions developers take help to mitigate potential risks and in the situation a fire does occur, help prevent it from spreading. These precautions include frequently maintaining and monitoring systems, following setback guidelines, maintaining vegetation, and more.

See the National Fire Protection Agency’s suggestions on Energy Storage and Solar System Safety at:

<https://www.nfpa.org/News-and-Research/Resources/Emergency-Responders/High-risk-hazards/Energy-Storage-Systems>

[7] – The studies reviewed in this article revealed that avian fatalities occur at USSE facilities employing both CSP and PV technologies. Systematic data collection and science-based methodologies to estimate adjusted mortalities to account for bias factors (e.g., predation, searcher efficiency, etc.) are important to understand avian impacts of USSE developments in the context of other human activities. The studies at the three USSE facilities from which systematically-derived avian mortality estimates could be calculated were all located in a region of southern California currently experiencing an accelerated rate of USSE development. According to SEIA, this region accounts for nearly 80% of all USSE developments in the state of California and nearly 50% of all USSE developments in the United States

Table2. Estimated annual avian mortality from various sources in the Southern California Region and United States.

Mortality source	Southern California region	United States
Utility-scale solar energy (USSE) developments	16,200–59,400	37,800–138,600 ^a
Wind energy developments	29,537–48,862	140,000–573,000 ^b
Fossil fuel power plants	3,561,600	14.5 million ^c
Communication towers	70,552	4.5–6.8 million ^d
Roadway vehicles	>453,000 ^e	89–340 million ^f
Buildings and windows	>7,800,000 ^g	365–988 million ^h

[8] – The most recently constructed CSP project in the United States was the Ivanpah project.

“The Ivanpah Solar Electric Generating System is a 386-megawatt project consisting of three solar concentrating thermal power plants located in the Mojave Desert in San Bernardino County. The project was certified by the CEC on September 22, 2010 and began commercial operation in December 30, 2013.”

[9] - It usually costs more to develop a project on a hill than a project on flat land. Additionally, panels with tracking mounts can tilt to follow the sun when on flat ground, which collects more sunlight than if the panels were on a hill.

[10] – According to the DarkSky International Organization: “Such development (large scale energy development such as solar or wind) should not impact your ability to be certified as an International Dark Sky Community. In such cases, applicants need to be prepared to show that the community is trying to work with the industry that is creating the impact. They would need to show that there is at least an attempt to engage with them about night sky conservation and encourage them to use best lighting practices and employ complementary management practices, etc. We will want to know details of the impact and know how the community plans to mitigate impacts and monitor night sky quality into the future.”



Nicola Kerr <nicolak@sanmiguelcountyco.gov>

Medium Sized Solar

'Karen Littlewood' via SMC Planning <planning@sanmiguelcountyco.gov>

Wed, Jan 24, 2024 at 4:19 PM

Reply-To: Karen Littlewood <karenlittlewood@yahoo.com>

To: "planning@sanmiguelcountyco.gov" <planning@sanmiguelcountyco.gov>

I am a resident of the town of Norwood, I believe the following.

After attending the meeting online I feel strongly that medium sized solar not exceed 5-7 acres.

Also all medium should be two step approval.

Two comments

I recently traveled to Illinois and was surprised by the development of wind energy in especially Iowa. I asked a local resident on how it impacted them. They noted that there was a constant hissing. From someone who suffers from Tinnitus the high pitched constant noise is maddening. They also noted that both wild animals behaved erratically. This was impart due to the flashing lights all night and high pitched noise. It has been proven that multi-use land zoning can have very harmful effects on ranching.

Recently I traveled to Canada and spoke to a forestry student. I told them I was from western Colorado. They immediately asked about the wolf introduction in Western Colorado. They noted that their school was following the situation where a body of citizens from another part of the state could introduce predators even though the individuals where the wolves are to be introduced are against it. It also was not at the advise of wildlife. Please hear our voices although small in relation to the county. The majority of us where the solar farm is considered don't want large scale solar.

Water priority should be households and ranchers.

What about waste water...How will that be disposed of or treated. Will it contaminate our ground water.



Nicola Kerr <nicolak@sanmiguelcountyco.gov>

Draft LUC

Marty Schmalz <martys@westernwares.com>

Tue, Mar 19, 2024 at 6:52 PM

Reply-To: martys@westernwares.com

To: boccc@sanmiguelcountyco.gov, planning@sanmiguelcountyco.gov, lancew@sanmiguelcountyco.gov, anneb@sanmiguelcountyco.gov, krish@sanmiguelcountyco.gov

I've attached a file (pdf) with my comments on the draft LUC.

Thank you,

Marty Schmalz

The following section of this message contains a file attachment prepared for transmission using the Internet MIME message format. If you are using Pegasus Mail, or any other MIME-compliant system, you should be able to save it or view it from within your mailer. If you cannot, please ask your system administrator for assistance.

----- File information -----

File: Solar LUC Draft.pdf

Date: 19 Mar 2024, 18:25

Size: 41982 bytes.

Type: Unknown



Solar LUC Draft.pdf

41K

Marty Schmalz
3100 43 ZS Road
Norwood CO 81423
1/23/2024

Dear Planning Commission and County Commissioners:

Thank you for the opportunity to respond to the draft LUC for solar installations. I appreciated the moratorium and working with a consultant to provide the community with this first draft.

I am proud of the county for addressing the issue of solar energy, from small to large scale. It is important for us to participate in solutions related to global warming and to support alternative energy solutions.

The inclusion of the Alternative Analysis (103 F) and Best Alternative (104 H.) in the draft is an important guideline for addressing new proposals.

Wright's Mesa Rural Agricultural zone should not be included in the list of permitted zone districts for large-scale Solar Energy Systems (101 E. I. e.). Due to numerous aspects of large-scale solar, more densely populated areas, as well as active agricultural operations would not be good neighbors. If WMRA is included in the permitted zone districts my main concerns are listed below

Fire: The designated Wrights Mesa Rural Agricultural has become an area of major fire concern each summer. Many roads become inaccessible to our fireman because there aren't alternative exit strategies. The following quote addresses solar installations from an insurance publication.

"Meanwhile, a study conducted by the BRE National Solar Centre found that more than a quarter of fires involving solar power systems were caused by the photovoltaics and those fires were all "serious fires," meaning fires that were "difficult to extinguish and spread beyond the area of origin.""

[Fire a major hidden danger for solar farms | Insurance Business America \(insurancebusinessmag.com\)](https://www.insurancebusinessmag.com)

One of their recommendation was to have the solar systems tested regularly by independent qualified third parties. The US Department of Energy also recommends regular independent third party testing. [Kochbuch PV-Brandschutz \(energy.gov\)](https://www.energy.gov) Due to the varied terrain in WMRA, there would need to be a thorough evaluation for each proposed site. This process should include local US Forest Service and the Norwood Fire Chief and staff. There are dangers of chemical exposures and fire suppression protocols for the related to solar and the uploading stations. Our Fire suppression Communities will need further education on response to large-scale solar projects.

Noise: My next and very important concern is the high pitched noise that emanates from large scale solar projects. 50 decibels of the high pitched noise at a residential property line is unacceptable (104 P.). The high pitched noise is mostly continuous during the day. My husband and I experimented with this sound at 50 decibels and he could still hear it at 2,550 feet, almost 1/8th of a mile. It is one thing to hear a piercing sound for a minute or even 10 but to have it prolonged for most of the day would be unbearable for me. The following is a quote from a community that has been affected by the noise from a solar project in their community and is working to rectify it.

“...we set out to learn whether solar farms make any noise. The answer? They sure do. Have a listen below. Why the issue of noise matters is that solar arrays built near homes or schools, especially in rural areas where ambient noise levels are lower, could emit noise of this nature whenever there is enough solar power to generate electricity. “...we set out to learn whether solar farms make any noise. The answer? They sure do. Have a listen below. ” By going to this url, you can listen to the sound.

[Do solar farms make any noise? - CPRE Hertfordshire \(cpreherts.org.uk\)](http://cpreherts.org.uk)

Light: In the section which includes guidelines on light, there is inclusion of “lighting at night.” (103. O.) On WMRA we all appreciate our dark skies and many of us regularly are looking through our telescopes at all hours of the night. Therefore, if WMRA is included in permitted zones, I would recommend motion detect lighting and downward shaded coverings be mandatory for all outside lighting. Also, Wright’s Mesa has been working continuously on extending our Dark Sky status including working with the county to becoming a Dark Sky Reserve a designation from Dark Sky International. I recommend all large-scale projects work with Norwood Dark Sky group.

Wildlife: As mentioned above in the fire section, WMRA has a variety of terrain. Wildlife tends to travel the bottom of canyons as well as the top edges. I hope with any large-scale solar projects, the Planning Commission and the County Commissioners would address wildlife routes whether they’re officially designated or are observed regular routes.

I am grateful the county is addressing the solar regulations to set a framework for future solar projects. The draft proposal sets a clear opportunity for individual and medium scale projects.

WMRA needs to be excluded from the districts where Large Scale Solar Energy Systems are permitted. Most of my reservations are due to placing a large-scale project in residential and active agricultural property.

Thank you,

Marty Schmalz



John Huebner <johnh@sanmiguelcountyco.gov>

URGENT: SMC Solar Regulations

1 message

Mike Malley <Mike@refractivemarketing.com>

Sun, Mar 17, 2024 at 4:02 PM

To: "planning@sanmiguelcountyco.gov" <planning@sanmiguelcountyco.gov>, Kaye Simonson <kayes@sanmiguelcountyco.gov>, "bocc@sanmiguelcountyco.gov" <bocc@sanmiguelcountyco.gov>, "krish@sanmiguelcountyco.gov" <krish@sanmiguelcountyco.gov>, "anneb@sanmiguelcountyco.gov" <anneb@sanmiguelcountyco.gov>, "lancew@sanmiguelcountyco.gov" <lancew@sanmiguelcountyco.gov>
Cc: Kandi Malley <kandi@refractivemarketing.com>

Dear Members of the Planning Commission.

Numerous residents and city officials were recently made aware that during the joint meeting of the BOCC and Planning Commission, all commissioners gave specific directions to REMOVE Wrights Mesa Rural Agriculture from the list of zone districts where large scale solar may be permitted. We now understand that the Planning Commission disregarded their request.

We respectfully request that the Planning Commission accept the directive of our county commissioners and not sacrifice Wrights Mesa agricultural land for large industrial solar projects.

A significant Basin/West End constituency has provided comprehensive reports on the negative impact an industrial size solar installation would have on everyone in the West End, Norwood, Wrights Mesa area.

With kind regards,

Michael Malley
Kandi Malley
160 County Road S44, Norwood, CO 81423



Carmen Warfield <carmenw@sanmiguelcountyco.gov>

Wrights Mesa Solar

1 message

reddog155@gmail.com <reddog155@gmail.com>
To: bocc@sanmiguelcountyco.gov

Mon, Mar 18, 2024 at 8:55 AM

Dear San Miguel County Commissioners,

I live on Wrights Mesa and am very concerned to hear that our Rural District still has Large Solar facilities on the regs. As I am sure you know by now that the vast majority of residents here are vehemently opposed to a large solar facility in our community. This would destroy our views and the loud hum associated with an industrial area in our neighborhood would destroy the very character of our beautiful community. Please do not allow this to happen and change the regs as soon as possible.

Thank you.
Phillip Schultz

Why industrial solar is wrong for Wright's Mesa by Sepp Seitz

This paper will address some of the salient points in the discussion concerning the proposed OneEnergy Wright's Mesa Solar project. Others in this constituency will provide a more 'on the ground' perspective. Pertinent data will be summarized and cited in the bibliography. There will also be some discussion as to why industrial solar is being promoted as one of the preferred, sustainable methods of energy generation in the quest to lower greenhouse gas emissions and thereby global warming. The supporting research has, in many ways, raised more questions about the efficacy of industrial solar as a solution in general and as applied to Wright's Mesa.

Two sources pertaining to the project contractor will be used. They are as follows:

- A. <https://wrightsmesasolar.com/>
- B. <https://wrightsmesasolar.com/about-the-project>

The most important aspect of constructing and operating an industrial scale solar facility is the use of existing infrastructure. The OneEnergy Wright's Mesa Solar project anticipates a 3 to 4 year construction phase which will place exceptional stress on available resources of:

Water
Roads
Fire Mitigation
Environmental Impact
Housing
Food supplies

Yet, there is no mention by the project contractor of materially improving or financially contributing to the additional costs. In other words, the expectation is for the community to absorb these increased expenses. Others will comment more extensively on these topics

Water plays a major role in the maintenance of solar installations as the panels require frequent cleaning in order to maintain their efficiency: "...accumulation of dust on solar panels or mirrors is already a significant issue – it can reduce the output of photovoltaic panels by as much as 30 percent in just one month – so regular cleaning is essential for such installations. But cleaning solar panels is estimated to use about 10 billion gallons of water per year – enough to supply drinking water for up to 2 million people...The water for cleaning these solar panels using pressurized jets has to be trucked in, and it has to be very pure to avoid leaving behind deposits on the surfaces... "The water footprint of the solar industry is mind boggling," (1)

The following is a statement from the website: The project requires no permanent source of water (groundwater wells or otherwise), (B.)

Fire mitigation is another crucial issue with respect to this project. John Metzger's excellent analysis, done for the Norwood Fire Protection District outline the pertinent concerns. Additional reading as to the dangers of industrial scale Lithium-Ion batteries may be found in an article in the Western Journal

about the Chaumont, NY fire. (2.) Additional commentary by David Dittman, Tampa Fire Rescue training chief, said that when the batteries catch fire it can be very difficult to put out. (2.) Residential systems have also experienced multiple battery fires in Germany and Austria. (3.)

Another issue which is not addressed in detail on the project website is End-of-Life mitigation of the site. The developer states as follows:

“At the end of the project’s life, OneEnergy will be responsible for removing the solar improvements and restoring the land to its original use. This will include removal of the roads on the site, soil treatment as necessary, and revegetating any areas disturbed during the removal of solar improvements. At the end of the project life, the site will be restored to its natural hydrology and plant communities to the greatest extent possible. These commitments will be made in writing through the county permitting process.” (B.)

This statement completely fails to address issues of process and responsibility. The enormous amount of material to be removed unavoidably will lead to deterioration of the roads. Soil fertility is likely to be reduced. Potential contamination over time from toxic metals is possible and: “to remediate potential negative impact of these elements and compounds may be extremely expensive...estimated cost for agricultural remediation alone in 2017 was over \$2500/ac. In some cases, such as cadmium compounds, it may be cost prohibitive and the use of the land for agricultural purposes lost.” (4.)

The question is often asked: Will industrial solar affect property values? A group of Michigan realtors provided the answer: “I have zero clients that are interested in living anywhere near that kind of solar.” (5.)

Norwood is a rural community, comprised of ranchers, farmers and others who have settled here for the scenic beauty and rural character. This project, especially because it is sited on the approach to the iconic Lone Cone Mountain, is a direct assault on that character. The court of Appeals of the State of Washington Division Three resoundingly affirmed ‘Rural Character’ as a defensible value in the case of One Energy, LLC, Iron Horse Solar vs Kittitas County Board of Commissioners, and others. (6.)

A broader discussion of the effectiveness of solar energy with respect to the reduction of green house gas reduction is also warranted with respect to this project. There is a much discussion about renewable energy, but their efficiency is sorely lacking: solar panels at 20% wind turbines are somewhat higher at 20 to 40%. This percentage stands in no comparison to coal at 40% and natural gas at 60%, Combined Cycle Gas Turbine plants also approach this 60% mark. The number of solar panels it would take to equal this energy output would consume vast amounts of land. Agricultural land is already being leased to solar projects at an alarming rate and the number of transmission lines required to bring this power to market is mind boggling as state in a recent article in The Range Magazine. (7)

The Royal Society weighed in with this commentary: “Even if green house gases were to suddenly stop, Earth’s surface temperature would require thousands of years to cool and return to the level in the pre-industrial era.”

So, what then is the driving force behind this rush to solar? The short answer is profit. The website 8billionontrees.com provides a hand income-per-acre calculator: \$21,250-\$42,500 per acre per year or \$18.6 million per year on the low end (9.) That is some stout math. And that is not factoring in tax rebates and subsidies.

Norwood is being offered the princely sum of \$50,000 over 30 years which amounts to \$1,666 per year. Furthermore, none of the energy produced by this project is slated for local use. (8)

There is zero upside for the community and incalculable future cost to the community. To permit this project to go forward is to satisfy the voracious energy demands of the cities and sacrifice that which we all love: The land, its natural beauty and Rural Character.

So far the discussion has been around the acceptability of one proposed industrial solar project, but the question needs to be asked: Why Industrial Solar at all? There are other renewable options: Geothermal, hydrogen, hydro and distributed solar to mention a few. These power sources offer equal or greater efficiency and do not require vast swaths of virgin or agricultural land. Industrial solar installations are vulnerable to host of environmental factors just one of which is hail. (10)

The rush to accommodate the solar industry is not well thought out. The carbon footprint of a large installation would likely equal the dreamed of carbon savings. The transport of the panels, from point of origin, alone would be staggering. Add to that manufacture of parts and panels and the green miracle begins to vanish. Recycling, well, that industry does not exist yet. Protecting wildlife is another fantasy as wildlife is unlikely to return after a 3-4 year construction hiatus.

A final question emerges: If Greenwashed Industrial Solar is the future, why are Bill Gates and TerraPower spending their energies on building a nuclear reactor? (11)

Sepp Seitz

1/1/2024

Norwood, CO

Bibliography

1. David Chandler MIT News 3/11/2022
<https://news.mit.edu/2022/solar-panels-dust-magnets-0311>
2. Jack Davis The Western Journal
<https://www.westernjournal.com/battery-fire-ny-solar-farm-triggers-shelter-place-order-fire-chief-says-5-7-days-extinguish/>
3. Sandra Enkhardt PV Magazine
<https://www.PV-Magazine.com/2023/10/10>
4. Mike Carrol North Carolina Cooperative Extension
Go.ncsu.edu/readext?827052
5. Realtor Comments on Property Values
Facebook Group: Stope Solar Farms. Karl Heller
6. Casetext 07/09/2019
7. Jonathan Lesser, Phd, The Range Magazine Fall 2023
<https://rangemagazine.com/features/fall-23/range-fa23-contents.htm>
8. Royal Society
<https://www.royalsociety.org/topics-policy/projects/climate-change-evidence-causes/question-20/>

9. Georgette Kilgore 8billiontrees.com

<https://8billiontrees.com/solar-panels/solar-farm-income-per-acre>

10. John Engel Renewable Energy World

<https://www.renewableenergyworld.com/solar/solar-farm-pelted-by-giant-hail-as-severe-storm-ripped-through-nebraska/#gref>

11. <https://www.forbes.com/sites/antoniopequenoiv/2024/03/19/terrapower-what-we-know-about-bill-gatess-nuclear-power-plant-in-wyoming/?sh=1ce5c2ab350f>



John Huebner <johnh@sanmiguelcountyco.gov>

Please remove Wrights Mesa Ag Zoning from Large Scale Solar Development

1 message

shelley snyder <shelley_2005_c@hotmail.com>

Thu, Mar 14, 2024 at 7:09 PM

To: "planning@sanmiguelcountyco.gov" <planning@sanmiguelcountyco.gov>, "kayes@sanmiguelcountyco.gov" <kayes@sanmiguelcountyco.gov>, "bocc@sanmiguelcountyco.gov" <bocc@sanmiguelcountyco.gov>, "krish@sanmiguelcountyco.gov" <krish@sanmiguelcountyco.gov>, "anneb@sanmiguelcountyco.gov" <anneb@sanmiguelcountyco.gov>, "lancew@sanmiguelcountyco.gov" <lancew@sanmiguelcountyco.gov>

Dear San Miguel County Planning Department and San Miguel County Commissioners,

I am writing to convey the shared sentiments of residents on Wrights Mesa regarding the proposed solar regulations in our area. We find ourselves in a perplexing situation where the voices of our community, fiercely and wholeheartedly expressing their concerns and objections to large-scale solar developments within the Wrights Mesa Agricultural zone, seem to be falling on deaf ears. This disconnect between the elected officials entrusted to represent us and the constituents they serve is deeply troubling.

Despite the overwhelming opposition from the residents of Wrights Mesa, the prospect of large-scale solar projects encroaching upon our agricultural landscape continues to be considered within the range of large-scale development. This disregard for the expressed desires of our community is disheartening and undermines the fundamental principles of democratic representation.

Preserving the agricultural integrity of Wrights Mesa is not merely a matter of sentimental attachment; it is paramount for safeguarding the rural essence, the breathtaking views, and the overall quality of life that define our community. The imposition of large-scale development would not only irreversibly alter our landscape but also disrupt the harmony and cohesion of our close-knit county.

We plead the Planning Department to recognize and honor the collective will of Wrights Mesa residents by excluding large-scale development from the Agricultural zone. It is imperative that our elected officials prioritize the voices and concerns of their constituents in decisions that shape the future of our community.

Thank you for your attention to this matter and for considering the imperative need to uphold the unique character and identity of Wrights Mesa.

Sincerely,

Shelley Donnellon

(970)729-1283



Nicola Kerr <nicolak@sanmiguelcountyco.gov>

Comments for the March 27 work session regarding second draft of the Land Use Codes for solar development projects

tami s <tami.st.germain.5@gmail.com>

Tue, Mar 19, 2024 at 10:57 AM

To: "bocc@sanmiguelcountyco.gov" <bocc@sanmiguelcountyco.gov>, planning@sanmiguelcountyco.gov

[Quoted text hidden]



EA_large-scale-solar_031924.pdf
10978K



Nicola Kerr <nicolak@sanmiguelcountyco.gov>

Submission for the March 27, working session regarding solar development and revisions to the Land Use Code.

tami s <tami.st.germain.5@gmail.com>

Wed, Mar 20, 2024 at 9:46 AM

To: planning@sanmiguelcountyco.gov, bocc@sanmiguelcountyco.gov

Dear P&Z,

It's been brought to my attention that there have been some comments to the Commission with regards to the Land Use Code revisions, made by One Energy, with regards to wildlife habitat. Their comment is as follows in blue:

2) Wildlife (*excerpt*)

Note: Although risks to wildlife were noted as a community concern, after reviewing the maps included in the community meeting notes, we noted that many locations identified by the community for solar development are US Forest Service and Bureau of Land Management areas. These lands are known to provide important wildlife habitat, whereas previously disturbed agricultural lands are not considered prime habitat. For this reason, we ask the County to allow the use of agricultural lands for solar development to avoid focusing development impacts on important wildlife habitat that is located on USFS and BLM lands.

Firstly, I agree with their comment...."many locations identified by the community for solar development are US Forest Service and Bureau of Land Management areas. These lands are known to provide important wildlife habitat." True statement, these areas are important and should not be a target of development.

(There were an inordinate number of sticky notes indicating that the basin and USFS and BLM lands were appropriate places for large-scale solar. I am dismayed by the number of responses that seem to disregard the importance of wildlife habitat value---unless it's near their "backyard". This is the sad strategy used by the NIMBY sector. It's short-sighted, self-serving, not scientifically based AT ALL!!!! and ultimately detrimental to the greater cause of preserving habitat and the ecosystem integrity that supports us all.)

I agree too that previously disturbed agricultural lands are not considered prime habitat. **Previously disturbed areas are not prime habitat and should be prioritized over areas that are natural and have not been otherwise disturbed, such as USFS and BLM lands.**

However, I must point out that One Energy Wright's Mesa project that was introduced last May, targeting the SLB tract + private lands on Wright's Mesa, is NOT ON "PREVIOUSLY DISTURBED AGRICULTURAL LANDS"! True, the site has been used to graze some cattle, but it is overwhelmingly a native juniper-pinyon scrub habitat that provides tremendous natural habitat value. I want to impress upon the P&Z how important it is to prioritize site selection for areas that have been disturbed and have degraded habitat value. Native natural undisturbed areas should be avoided at all costs!

Thank you for your efforts to carefully prescribe the code so that our natural and cultural heritage here in San Miguel County is preserved for this and many many generations to come!

Tami St. Germain
970-708-8600

ENVIRONMENTAL ASSESSMENT

100-Megawatt Utility-scale Solar Project

Wright's Mesa, Colorado



Photo of Section 36, SLB property, along 43Z looking south into the area proposed to be developed for the east array, October 1, 2023.

March 19, 2024

Prepared for:

The Community of Wright's Mesa and San Miguel County, Colorado

Prepared by:

Tami St. Germain

Wildlife Biologist / NEPA Specialist

Norwood, Colorado 81423

tami.st.germain.5@gmail.com

Table of Contents

1. INTRODUCTION	1
Project Summary.....	1
Background	6
San Miguel County, Wright’s Mesa Master Plan 2008	6
1.1 Purpose and Need.....	7
1.2 Document Preparation and Conformance with Federal Guidelines.....	7
1.3 Relationships to Statutes, Regulations, Policy and Executive Orders.....	7
1.4 Public Involvement.....	8
1.5 Issues.....	8
2. ALTERNATIVES.....	10
2.1 Alternative 1—No Action	10
2.2 Alternative 2—Proposed Action	10
2.2.1 Project Components	10
2.2.2 Construction.....	13
2.2.3 Operations and Maintenance	14
2.2.4 Decommissioning and Site Reclamation	15
2.3 Alternatives to the Proposed Project.....	15
3. Affected Environment and consequences	16
3.1 Air Quality	16
3.2 Greenhouse Gas Emissions	19
3.3 Water Resources —Surface Water, Ground Water, Wetlands.....	21
Surface Water	21
Ground Water	23
Wetlands	23
3.4 Soils.....	29
3.5 Vegetation	33
3.6 Wildlife	34
3.7 Migratory Birds.....	40
3.8 Bald and Golden Eagles.....	42
3.9 Federal Threatened and Endangered Species.....	44
3.10 State-listed Species	45

3.11 Acoustic Environment.....	47
3.12 Visual Resources and Landscape Identity	49
3.13 Environmental Justice and Socioeconomics	51
Environmental Justice	51
Socioeconomics.....	51
3.14 Public Health and Safety.....	52
3.15 Cultural Resources	53
4. Cumulative Impacts	54
5. contributing authorities and document Prepararation	55
References.....	55
Appendices.....	60

List of Tables

Table 1-1: Issues Identified for Analysis.....	8
Table 2-1. Project specifications, land use details and design summary.	12
Table 2-2: Typical equipment used during construction of utility-scale solar facilities.	14
Table 3-1: Norwood Water Commission water rights in addition to the Farmer's Water Development Company shares.....	22
Diversion Name.....	22
Table 3-2 NRCS Soils classifications and ratings for solar array ballast anchor and soil-based anchor systems and shallow excavations (USDA NRCS, 2023).	30
Table 3-3. Birds of Conservation Concern, Potential for Occurrence in Project Area	41
Table 3-4. USFWS Information for Planning and Consultation (IPaC) Report, December 30, 2023, List of Threatened, Endangered, Candidate and Proposed Species.....	46
Table 4-1: Reasonably Foreseeable Future Utility-Scale Solar Development Projects in the Region (U.S. Energy Information Agency, 2023)	54
Table 3-5 Noise Levels Generated by Construction Activities	71
Table 3-6 Noise Levels Generated by Operation and Maintenance Activities	71

List of Figures

Figure 1 – San Miguel County Map depicting the town of Norwood, approximate location of the Project, and land management status within the county. (Source: San Miguel County Public Lands and Roads (arcgis.com). Accessed, September 23, 2023.).....	3
Figure 2 – General Vicinity Map depicting the approximate Project location (not to scale) and Norwood relative to the Four Corners region. (Source: Google Earth Pro, 2023. Accessed, September 23, 2023.)	4
Figure 3 – Google Earth aerial imagery depicting town of Norwood, proposed solar Project, and distance 2.25- (yellow) and 3.7-mile (red) radii from Norwood. Imagery is dated August 25, 2019. (Source: Google Earth, 2023. Accessed, September 23, 2023.).....	5
Figure 4 - Image of site plan taken from the OneEnergy Project website, showing the two proposed array areas in brown with blue areas indicating wetland and riparian zones to be avoided.....	11
Figure 5 - USFWS National Wetlands Inventory map depicting the approximate boundary of the east array area.	25
Figure 6: Image of proposed east array area depicting layout of PV panels. Taken from the information flyer provided at the May 16, 2023, public meeting.....	26
Figure 7 - USFWS National Wetlands Inventory map depicting approximate boundary of the west array area.	27
Figure 8: Image of proposed west array area depicting layout of PV panels. Taken from the information flyer provided at the May 16, 2023, public meeting.....	28
Figure 9 – USDA NRCS Web Soil Survey soils units in Section 1, the east array area.....	31
Figure 10 – USDA NRCS Web Soil Survey soils units in Section 2, the west array area	32
Figure 11 Key terrestrial habitat types of the Project area. Source: CODEX https://codex.cnhp.colostate.edu/	39

Acronyms and Abbreviations

AF	acre-feet
ASWG	Avian-Solar Working Group
BESS	Battery Energy Storage System
BLM	Bureau of Land Management
BOCC	Board of County Commissioners
CAA	Clean Air Act
CDPHE	Colorado Department of Public Health and Environment
CFR	<i>Code of Federal Regulations</i>
CPW	Colorado Parks and Wildlife
DC	direct current
DOE	Department of Energy
DOI	Department of the Interior
EA	Environmental Assessment
EJ	Environmental Justice
EPA	Environmental Protection Agency
ESA	Endangered Species Act
GHG	Greenhouse Gases
HAZMAT	hazardous materials
MBTA	Migratory Bird Treaty Act
MV	Medium voltage
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
O&M	Operation and Maintenance
PEIS	Programmatic Environmental Impact Statement
pers. comm.	personal communications
PLSS	Public Land Survey System
PM	particulate matter
PM _{2.5}	particulate matter less than 2.5 micrometers in diameter
PM ₁₀	particulate matter between 2.5 and 10 micrometers in diameter
PV	photovoltaic
ROW	right-of-way
SCADA	Supervisory Control and Data Acquisition
SMPA	San Miguel Power Association
SPCC	Spill Prevention Control and Countermeasure Plan
SWPPP	Stormwater Pollution Prevention Plan
USC	<i>United States Code</i>
USFS	United States Forest Service
USGS	United States Geological Survey
USFWS	United States Fish and Wildlife Service

Chemicals

CH ₄	Methane
CO	Carbon monoxide
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
NO _x	Nitrogen oxides
N ₂ O	nitrous oxide
O ₃	Ozone
SO ₂	Sulfur dioxide

Units of Measure

dB	decibel
dBA	Decibel A-weighted
ft	feet
km	kilometer
m	meter
mi	mile
mps	meter per second
MW	megawatt
T gCO ₂ -eq/yr	teragrams of CO ₂ equivalent per year
t CO ₂ e	tons CO ₂ equivalent

1. INTRODUCTION

This Environmental Assessment (EA) has been prepared on behalf of the community of Wright's Mesa, Colorado, and for the benefit of the Citizens of San Miguel County, Colorado, in an effort to display potential effects associated with large-scale solar developments in support of the ongoing drafting of county land use codes (LUC). Though written in response to and using a specific project introduced by OneEnergy Renewables, Inc. in May of 2023, it is my intention to use that project as a viable and very real example of what a large-scale solar project would do the cultural and natural landscapes of San Miguel County.

OneEnergy Renewables (OneEnergy) is in the process of planning, designing, and developing a 100-megawatt (MW) utility-scale solar power plant (Project) and proposes to site it near the town of Norwood, in San Miguel County, Colorado. If implemented, the Project would convert 1,009.4 acres of native sagebrush scrublands, pinyon-juniper forests and riparian cottonwood forests to an industrial facility. In order for the Project to be implemented, the San Miguel County Planning and Zoning Commission and the Board of County Commissioners (BOCC) would need to grant approvals for the permitting and licensing of the Project proposal.

OneEnergy hosted a public meeting and presented the Project in an open forum, at the Lone Cone Library in Norwood, on May 16, 2023. At that time, the San Miguel County Land Use Code did not include policy or procedural guidance designed to manage permitting or development of industrial-scale utility Projects, such as that proposed by OneEnergy. As a result, the San Miguel BOCC issued a temporary emergency moratorium on all commercial solar and major utility Projects to allow time to update the land use codes, so that the County would have procedural policy in place to adequately address such proposals. The moratorium, which was to expire on November 23, 2023, has been renewed for six months until May 23, 2024.

As a career-long biologist with an emphasis on environmental review of projects pursuant to the National Environmental Policy Act (42 USC 4321 et seq.) (NEPA), I have prepared this EA to analyze the potential environmental impacts associated with the proposed construction, operation, and decommissioning the proposed power plant. I claim all professional rights to the information contained herein and declare that this EA has been produced as an independent document, drafted pro bono, and under no direction from any organization, governmental entity or private business. This EA has been prepared according to the standard NEPA process and its implementing regulations. This EA illustrates the suite of potential affects a large-scale solar facility could have on natural resources and communities of San Miguel County, and may be used as an example to inform the process of updating the County Land Use Code.

Project Summary

Information about the proposed Project used to develop the analysis in this EA was gathered from materials provided during the meeting hosted by OneEnergy on May 16, 2023, and from OneEnergy's Project-specific website, [Home | Wright's Mesa Solar | OneEnergy \(wrightsmesasolar.com\)](https://www.wrightsmesasolar.com).

The Project is proposed to be sited approximately 2¼ miles southeast of the town of Norwood, Colorado; roughly 60 miles north-northwest of Durango; 45 miles west of Telluride; 40 miles east of the Colorado-Utah state line. The proposed Project site is on Wright's Mesa within the Colorado Plateau ecoregion, as described by the U. S. Environmental Protection Agency (USEPA) on the Colorado Ecoregions map (Chapman et al. 2006). A county map and vicinity maps are provided in Figures 1, 2, and 3.

The Project entails the design and construction of a 100MW solar power plant. According to preliminary designs described on an information flyer (Appendix A) provided during the May 16, 2023, meeting, the Project area encompasses 1009.4 acres, requires 189,196 photovoltaic (PV) modules, a substation and switching yard, a 50MW battery storage facility (BESS) and multiple staging areas. Project specifications and details are provided in Table 2-1. The Project is sited to access and tie into an existing transmission line owned by Tri-State Generation and Transmission Association, Inc. (Tri-State).

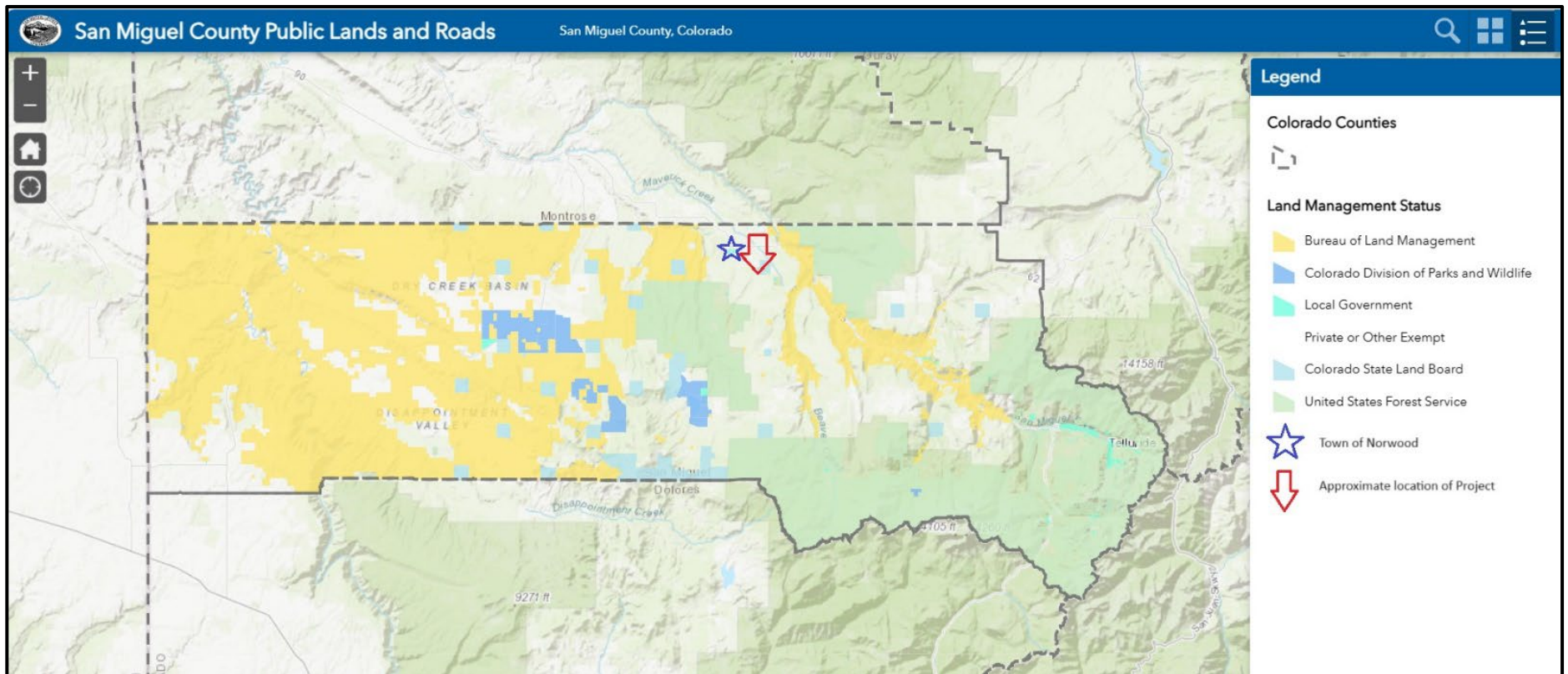


Figure 1 – San Miguel County Map depicting the town of Norwood, approximate location of the Project, and land management status within the county. (Source: San Miguel County Public Lands and Roads (arcgis.com). Accessed, September 23, 2023.)

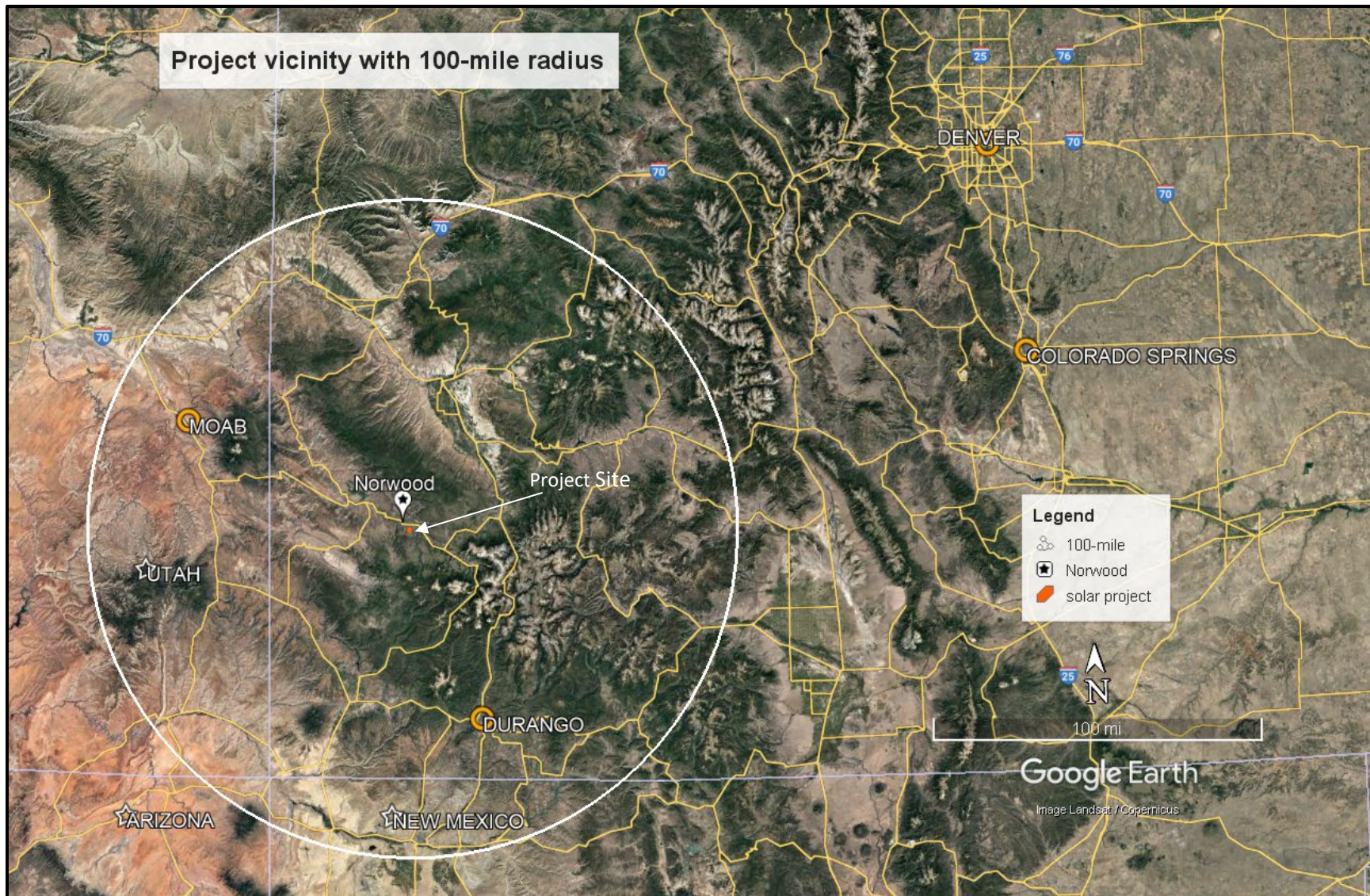


Figure 2 – General Vicinity Map depicting the approximate Project location (not to scale) and Norwood relative to the Four Corners region. (Source: Google Earth Pro, 2023. Accessed, September 23, 2023.)

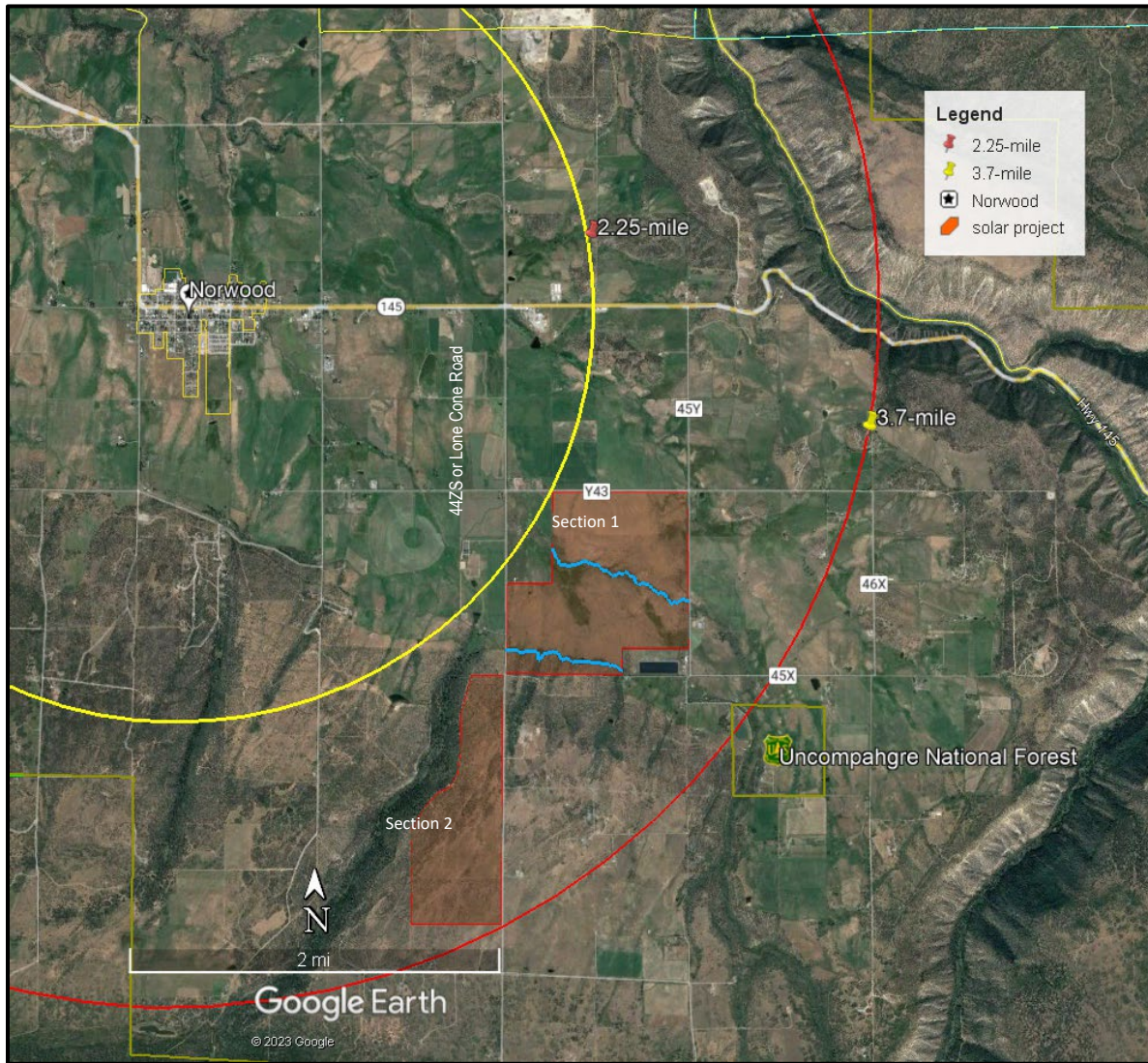


Figure 3 – Google Earth aerial imagery depicting town of Norwood, proposed solar Project, and distance 2.25- (yellow) and 3.7-mile (red) radii from Norwood. Imagery is dated August 25, 2019. (Source: Google Earth, 2023. Accessed, September 23, 2023.)

According to the information flyer (Appendix A) the Project area is divided into two sections of PV array areas.

Section 1: 525.64 acres on Colorado State Land Board (SLB) property located in Section 36, Township 45 North, Range 13 West. The approximate Project boundaries are 0.5 mile along 44Z S Road (also known as Lone Cone Road), 0.7 mile along Y43 Road, and 0.85 mile along 45Y Road. Approximate coordinates for the northeast corner are 38° 6'57.50"N, 108°14'32.48"W. The area is transected by Gurley Ditch and South Lateral Ditch, and is vegetated in sagebrush and pinyon-juniper scrublands, riparian cottonwood forests, and herbaceous wetlands. The east array area is owned by the Colorado State Land Board and is currently being leased for: 1) agricultural; 2) recreational; and 3) renewable energy planning solar.

Section 2: 483.76 acres on privately-owned land in Sections 2 and 11, Township 44 North, Range 13

West. Approximate coordinates for the northeast corner of Section 2 are 38° 6' 5.95" N, 108° 15' 37.94" W. The Project boundary runs approximately 1.3 miles along the west side of 44Z S Road or Lone Cone Road. The west array area is owned by private landowners; there are no permanent dwellings on the property. A powerline right-of-way (ROW) transects the area. The area is vegetated in pinyon-juniper scrublands.

Background

Norwood, Colorado is a small rural ranching (primarily) community located in central San Miguel County on Wright's Mesa. The town encompasses approximately 192 incorporated acres, has a population of 551, with 240 housing units (U.S. Census Bureau, 2021). An estimate based on Google Earth imagery, indicates that Wright's Mesa covers approximately 27 square miles. The estimated total population of Wright's Mesa is approximately 2,200.

On May 16, 2023, OneEnergy hosted a town meeting to introduce the Project to the community of Norwood, Colorado. More than 200 people attended the meeting in-person, with more attending virtually via a livestream Zoom meeting platform. As of this writing on January 14, 2024, a video recording of the May 16, 2023, meeting remains available on the Project website at [Project Updates | Wright's Mesa Solar | One Energy \(wrightsmesasolar.com\)](https://www.wrightsmesasolar.com). Attendees identified numerous issues including adverse impacts to environmental, cultural, and economic resources. The environmental issues identified included: soil and groundwater contamination, impacts to wildlife and protected species, and impacts to visual resources. Cultural issues included that a utility-scale plant does not align with the community identity and that an industrial power plant would have adverse impacts to the community lifestyle, cultural values and quality of life. Economic concerns including diminished property values and damage to the local economy and tourism industry, were also stated. Norwood's mayor stated that local services would be unable to manage the workforce required to construct the Project, including: public safety, fire hazards, local and regional housing, traffic, medical services, grocery, and fuel. Some attendees questioned the practicality of utility-scale solar in a region where dust and snow would inevitably impede the efficiency of the PV modules. Concerns were also raised about end-of-life plans for the plant, specifically identifying hazardous materials and wastes associated with solar panels and hydraulics, as being a problem.

Several who spoke pointed out that the informative materials provided on the Project website were misleading and the question of company integrity was emphasized, noting that OneEnergy claimed to be in partnership with Snyder Ranches, and that they had already met with San Miguel Power Association, when on both accounts the statements were false. It was also pointed out that OneEnergy's website indicated that there were no protected species on the Project area, when in fact, the Project area provides habitat for numerous bird species protected under the Migratory Bird Treaty Act and bald and golden eagles nest within close proximity to the Project site (see Sections 3.7 and 3.8).

San Miguel County, Wright's Mesa Master Plan 2008

The San Miguel County Land Use Code classifies virtually all land on Wright's Mesa outside of Norwood town limits as Wright's Mesa Zone District. The Wright's Mesa Zone District is a 50± square mile area of unincorporated San Miguel County surrounding the town of Norwood. In 2008, the Wright's Mesa Master Plan was drafted with the intent:

"...to continue to allow very low density rural residential on Wright's Mesa (outside the Norwood Master Plan Area) but ensure that such development fits the character of the mesa and does not interfere with ranching and other resource protection."

The Wright's Mesa Master Plan does not distinguish appropriate "town" uses in areas closer to Norwood or within the town's planning area boundary. Among the primary concepts presented in the Wright's Mesa Master Plan are: promote rural residential patterns that fit the character of Wright's Mesa and protect

sensitive resources. The Plan also recommends that agriculture and rural residential will remain the predominant uses on the Mesa, and that appropriate locations for heavy industry will be determined through locational criteria, to ensure that it will only be sited in appropriate locations, if any.

1.1 Purpose and Need

The purpose of the proposed Project is to provide a source of electricity as an alternative to carbon-based or fossil fuel-based electricity generation.

The need of the Project is to provide an alternative option that would assist with the state (Colorado HB19-1261) and federal (Executive Order 14082) mandates to reduce greenhouse gas emissions 50–52 percent below 2005 levels in 2030.

1.2 Document Preparation and Conformance with Federal Guidelines

This EA was developed with the analysis protocol (40 CFR 1501.5) followed during the federal environmental review process set forth by the NEPA. The NEPA protocol is a methodical process that assesses the level of potential impacts to the environment, to determine whether a proposed action would have a significant impact (40 CFR 1508.1) on the environment. The outcome of an EA is a summary of the environmental impacts associated with the Project, including an analysis of alternatives that would fulfill the intent and goals of the Project, in order to assist with county planning and decision making.

1.3 Relationships to Statutes, Regulations, Policy and Executive Orders

The following laws, regulations and executive orders, have been considered during the development of this EA, to assess Project compliance with applicable county, state and federal laws and policies:

County

- San Miguel County Comprehensive Development Plan, Adopted August 3, 1978. Amended through December 8, 2021
- Wright’s Mesa Master Plan, San Miguel County, Colorado, February 13, 2008

State

- Colorado § 5 CCR 1001 Air Quality Control Commission
- Colorado House Bill-1261 The Climate Action Plan to Reduce Pollution
- Colorado Greenhouse Gas Pollution Reduction Roadmap 2021
- Colorado Regulation No. 11 - Colorado Primary Drinking Water Regulations (5 CCR 1002-11)
- 2021 Colorado Code Title 25 - Noise Abatement § 25-12-103

Federal

- Clean Air Act of 1972, as amended (42 USC 7401 et seq.) (CAA)
- Executive Order 14072 Strengthening the Nation’s Forests, Communities, and Local Economies, April 22, 2022.
- Executive Order 14082 Implementation of the Energy and Infrastructure Provisions of the Inflation Reduction Act of 2022.
- 2007 Energy Independence and Security Act
- Clean Water Act (33 USC 1251-1376; Chapter 758; PL 845; 62 Stat. 1155); reauthorized 1991
- Safe Drinking Water Act of 1974, as amended (42 U.S.C. §300f et seq.)
- Farmland Protection and Policy Act, 7 U.S.C. 4201
- Soil and Water Resources Conservation Act of 1977, as amended

- Endangered Species Act of 1973 (16 USC 1531 et seq.) (ESA)
- Migratory Bird Treaty Act (16 USC 703 et seq.) (MBTA)
- Bald and Golden Eagle Protection Act, as amended (16 USC 668-668d, PL 86-70, PL 87-884, PL 92-535, PL 95-616;)
- Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds
- Noise Control Act of 1972 (42 U.S.C. 4901)
- Quiet Communities Act of 1978
- Paleontological Resources Preservation Act of 2009 (Sections 6301-6312 of the Omnibus Public Lands Act of 2009, 16 USC 470aaa)
- American Indian Religious Freedom Act of 1978 (PL 95-431; 92 Stat. 469; 42 USC 1996)
- Native American Graves Protection and Repatriation Act of 1990 (PL 101-601; 104 Stat. 3048; 25 USC 3001; 43 CFR Part 10)
- Antiquities Act of 1906 (PL 52-209)
- Section 106 of the National Historic Preservation Act of 1966 (PL 89-665; 80 Stat. 915; 16 USC 470 et seq.), as amended (implemented under regulations of the Advisory Council on Historic Preservation, 36 CFR Part 800)
- Archaeological and Historical Conservation Act of 1974 (PL 93-291)
- Archaeological Resources Protection Act of 1979 (PL 96-95; 93 Stat. 721; 16 USC § 470aa et seq.), as amended (PL 100-555; PL 100-588) and its regulations (36 CFR 296)

1.4 Public Involvement

May 16, 2023 - OneEnergy hosted a meeting at the Norwood library to introduce the Project to the community.

NEPA guidelines do not specifically require scoping and public involvement during the development of an EA, but rather allows the lead agency to decide which level of public involvement would be appropriate. This EA will be publicly available and provide some basis for the public to reference to provide input to the BOCC in the process of either permitting such a development or during the public involvement process for updating the San Miguel County Land Use Code.

1.5 Issues

An EA should provide succinct examination of only those resources that might be affected by the proposed action. Based on the list of resources typically considered during the NEPA environmental review process and those identified by the community of Norwood during the May 16, 2023, meeting, the following resources have been identified for analysis in this EA.

Table 1-1: Issues Identified for Analysis

RESOURCE
Air Quality and Greenhouse Gases
Water Resources
Soils
Vegetation
Wildlife
Migratory Birds, Bald and Golden Eagles
Federal Threatened and Endangered Species
State-listed Species

RESOURCE
Acoustic Environment
Visual Resources and Landscape Identity
Environmental Justice and Socioeconomics
Public Health and Safety
Cultural Resources

2. ALTERNATIVES

The NEPA analysis protocol requires an analysis of potential alternatives that would meet the purpose and need of the proposed Project. The alternatives analysis includes an evaluation of impacts of the alternatives, to the level necessary to ascertain a relative comparison of impacts of the proposed Project and those of the alternatives. Alternatives to the proposed Project may include alternative sites, alternative technologies, alternative disposal of the proposed technologies, etc. The alternatives analysis supports the NEPA directive to “*use all practicable means and measures to foster and promote the general welfare, create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans.*”

2.1 Alternative 1—No Action

NEPA analyses must consider the potential effects that would arise if the proposed Project were not to occur. Analysis of the No Action alternative provides a benchmark level of environmental effects by which the effects of the Project and other alternatives can be measured, thereby providing information necessary to allow a logical comparison of effects.

Under the No Action alternative, OneEnergy’s application to the BOCC for a permit to develop and construct the Project would not be granted and the Project would not be constructed. The environmental resources in the area would likely continue as is currently occurring. The impacts (beneficial and adverse) to environmental resources associated with the No Action Alternative are discussed under each resource in Chapter 3.

2.2 Alternative 2—Proposed Action

OneEnergy proposes to construct and operate a 100MW solar power plant. The proposed solar power plant would include the design and construction of a solar PV panel array, access roads, substation, switchyard, and battery storage (BESS). The Project is proposed to connect to an existing transmission line owned and operated by Tri-State, which, due to the size of transmission line and design of the energy grid, would carry the electricity generated at the proposed facility out of the local/regional service area to be distributed elsewhere.

In order to be implemented, the Project would require the following:

1. Approval and recommendation of the San Miguel County Planning Commission.
2. Licensing and permitting by the San Miguel County BOCC.
3. Accepted and permitted by the San Miguel Power Association.
4. Lease agreement with the Colorado SLB to develop the east array area.
5. Lease agreement with the landowners to develop the west array area.

The Project is proposed as a long-term temporary development based on a 30-year lease of the properties. The solar facility would be in operation for the term of the lease, at the end of which, the facility would be decommissioned and dismantled, and the Project site reclaimed. According to the Project website, the timeline of the Project includes permitting and development in 2023-2024, construction in 2025, and operation by 2026.

2.2.1 Project Components

For purposes of this EA, the following definitions are used with reference to the Project components listed below:

Solar Array Area: The solar array area refers to both the east (Section 1) and west (Section 2) array areas and to all areas within the proposed perimeter fencing; this includes tracker rows and modules, the substation, switchyard, and BESS areas, and staging areas. This also includes any area outside of the perimeter fencing that would incur impacts in the process of constructing the proposed facility, i.e., surface disturbances associated with installing the perimeter fencing and any access roads that begin at local/county roads and enter the perimeter fencing, and electrical servitudes requiring trenching or plowing to install transmission lines.

Proposed Project area: The solar array area and any area within the vicinity of the solar array area that would be impacted by the Project. Generally, the Project Area will refer to the Solar Array area and all areas within a 1-mile radius. However, this may also include areas further away that would incur impacts from the proposed Project. Such areas will be specifically indicated when necessary for the purposes of this EA.

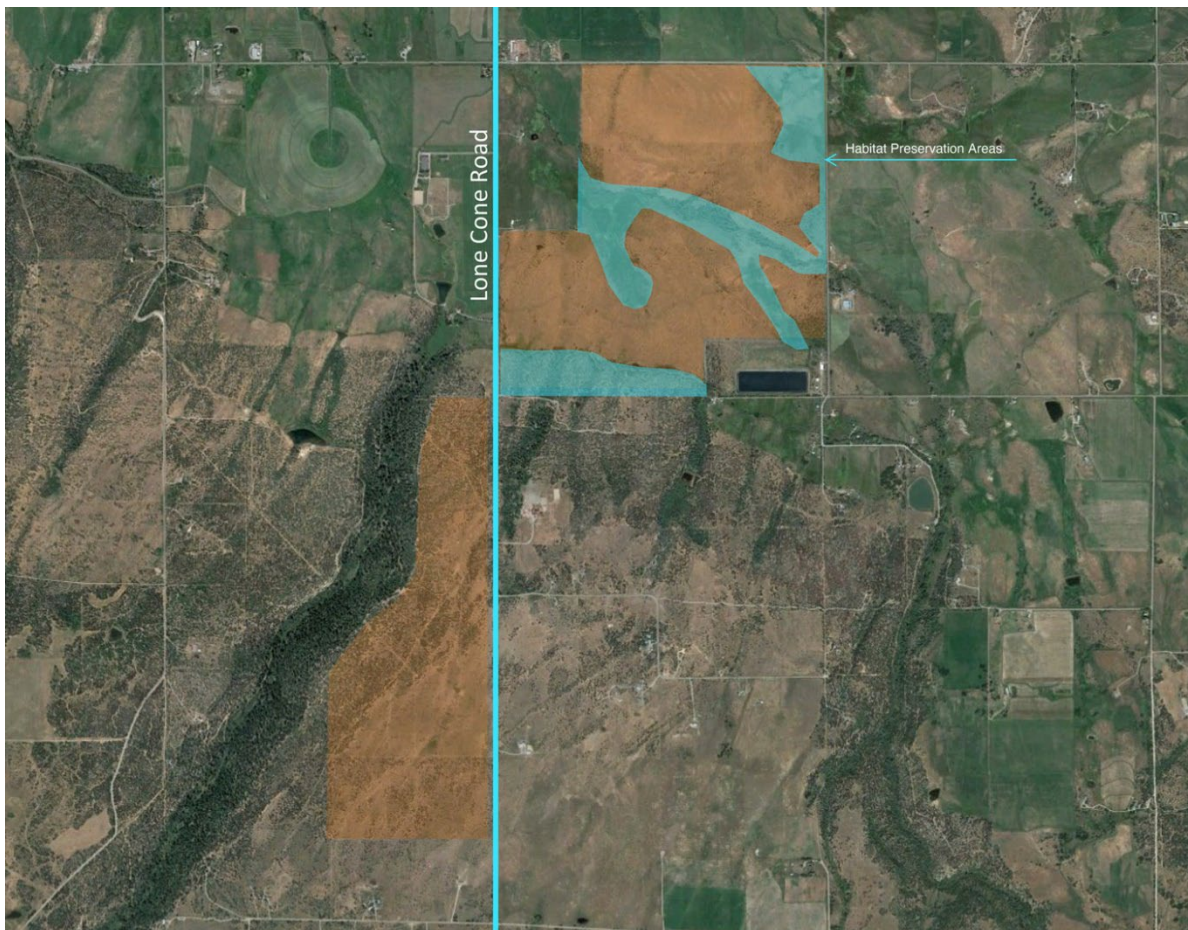


Figure 4 - Image of site plan taken from the OneEnergy Project website, showing the two proposed array areas in brown with blue areas indicating wetland and riparian zones to be avoided.

The following information was gathered either from flyers (Appendix A) provided during the May 16, 2023, meeting, or from the Project website:

[Home | Wright's Mesa Solar | OneEnergy \(wrightsmesasolar.com\)](https://wrightsmesasolar.com).

Solar Array

The Project is designed to be constructed across two array areas, as seen in Figures 3 and 4. The Project would require 189,196 PV modules. The modules are connected in series on tracker rows, which are

connected to form power blocks, which are aligned to form the solar array. The modules would be mounted to central beams, forming tracker rows, which are designed to tilt the PV modules to follow the sun throughout the day to maximize exposure to sunlight, and increase effectiveness of the solar array. There would be a total of 30 inverters, which along with the DC-coupled BESS units, collect the power from the power blocks. *Note:* Though not in the information flyers or on the website, typically, tracker row motors are powered by lithium-ion batteries.

Substation, Switchyard, Battery Energy Storage System (BESS)

A substation, switchyard, and BESS yard are proposed to be constructed within the Section 2 array area. Construction would require clearing, grading, limestone gravel to provide a working surface for access vehicles, and concrete foundation(s) where necessary.

Generation Tie (Gen-tie) Lines

The electricity is carried from the power blocks to the substation by underground gen-tie electrical lines. An undetermined amount of trenching would be required for installation of the gen-tie lines that would run throughout the array areas to tie the power blocks together. Information regarding surface area impacted by trenching was not available.

Access Roads

There would be gravel access roads throughout the array areas. These would be permanent roads to provide access to the Project area for the life of the Project. Access roads would have a 16-ft graded ROW. There would be 7.57 acres of graded/gravel roads in Section 1 and 4.74 acres of graded/gravel roads in Section 2.

Perimeter Fencing

Both array areas would be fenced to prevent wildlife and unauthorized entry to the Project area. Installation of the fencing would incur surface impacts and likely require an approximate 6-foot area of clearing/surface disturbance along the entire length of the fencing. The total linear distance of fencing is not available.

Project Specifications

Project specifications as provided on the information flyer (Appendix A) are provided in Table 2-1, below.

Table 2-1. Project specifications, land use details and design summary.

Project Details			
Land Use Details	Section 1 (acres)	Section 2 (acres)	Project Total (acres)
Total area	525.64	483.76	1009.4
Leased area	354.41	304.29	678.86
Fenced area	333.25	247.45	580.70
Solar panel coverage @ 31%	103.31	76.71	180.02
Access roads	7.57	4.74	12.31
Staging areas	11.16	2.21	13.37
BESS Yard	unknown		
Substation			
Switchyard			
Design Summary			
# PV Modules	105,212	83,984	189,196
# Inverters	17	13	30

2.2.2 Construction

Timetable and Workforce

Construction is estimated to take place over a period of 24 to 36 months. It is estimated that 300 full-time employees would be hired for construction. Information regarding housing for workers or how workers would access the area was not available. Parking, transport or traffic patterns have not been identified, but primary access to the Norwood area is typically via CO Hwy 145 from the east, and developed areas such as Ridgway or Montrose.

Construction Methodology

Specific information regarding the construction methodology that would be employed to implement the Project was not provided during the May 16, 2023, meeting or on the Project website. A list of equipment typically used during construction of utility-scale solar facilities is provided in Table 2-2. The following information has been gathered through the author's professional experience, via industry literature, and available NEPA documents prepared for solar PV projects (BLM, 2019).

Ground Cover Ratio

According to the information flyer, the ground cover ratio of the solar array area would be 31.0%. which means that 31% of the fenced area or 180.02 acres would be effectively covered by PV modules.

Clearing, Grading, Trenching

Topography in the Project area is sloped and variable throughout the Project site. The proposed solar array areas would require some clearing and grading to make the area drivable for vehicles and equipment, and create appropriate grade necessary to keep tracker rows within the engineering and design specifications. Information regarding clearing and grading was not provided during the May 16, 2023, meeting or on the website. The total area that would be graded is not known.

Construction Sequencing

Each element of construction generally requires multiple passes of equipment and vehicles along each tracker row and throughout the proposed solar array areas. Construction of a solar array typically follows the below sequence:

- **Geotechnical Investigations:** Geotechnical investigations are necessary to finalize engineering specifications.
- **Staging Areas:** Cleared and graded areas for temporary storage of equipment and materials.
- **Site Preparation:** Land surveying and site delineation; trenching and excavation; dust, erosion and sediment control measures.
- **Solar Array Assembly:** Materials and equipment are mobilized to individual solar array block areas; trenching, installation of underground cable, backfill trenches; installation of posts and frames for the tracking system; installation of PV modules; connection of electrical terminations; and inspection, testing, and commissioning equipment. **Note:** Geotechnical surveys would be necessary to determine which method of "trenching" would be appropriate for burying the MV cable.
- **Electrical Collection / Transmission Systems:** Installation of the DC and SCADA systems; the power and control equipment; the high, medium, and low voltage cables; grounding of all equipment; and installation of communication systems.

- **Substation:** Excavation and pouring a foundation; installation of electrical equipment, overhead cabling; installation of a control building; installation of all auxiliary systems (e.g., heating, ventilation, lights).
- **Internal roads and transmission access:** grading, compacting, and leveling.

Construction Materials and Waste Handling

The Project would require general construction materials and materials specific to construction and installation of a solar power generating plant and associated electrical infrastructure. The Project would be required to handle and dispose of wastes according to San Miguel County policy. Construction waste would be managed according to a Project waste disposal plan; likely stored in dumpsters to be serviced by a solid waste hauler licensed in San Miguel County, Colorado.

Table 2-2: Typical equipment used during construction of utility-scale solar facilities.

Construction Activity	Equipment
Clearing, Grading, Excavation, Earth Moving	1 Cat 140 grader 5 30-35TN excavators 10-20 skid steers 1 D7 dozer 2 D6 dozer 2 rubber-tracked JD7230R tractors 2 loader backhoes 1 78-84" single drum roller 1 sheepsfoot roller
Driving Piles / Truss Installation	10-20 truss driving rigs
Equipment Handling	2-5 10,000 extendable lifts 2-5 150 TN RT cranes 4 tracked trailers 5 CAT 928 loaders
Cable installation	2 cable plowing machines 5 reel trailers
General Vehicles	20-40 pickups 5-10 vans 5-10 ATVs 5-10 enclosed trailers 5-10 utility trailers
Water Truck	10 large water trucks

2.2.3 Operations and Maintenance

Operation and maintenance (O&M) for the proposed Project would occur for the life of the Project (30 years). Site maintenance would likely include inspections and maintenance of solar arrays and infrastructure, roads, fencing, lighting systems. PV panel washing would also be necessary on an as needed basis. An O&M Plan is not available for the Project. The number of O&M staff and the frequency of inspections/maintenance is not available.

PV Module Washing and Water Needs

PV modules need to be cleaned periodically to maintain optimum efficiency. No information regarding module cleaning or water needs was provided during the May 16, 2023, meeting or on the Project website. According to the *Draft Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States*, the water demand for a 10-MW PV facility is estimated to be about 0.5 acre-feet (AF) a year for panel washing (BLM and DOE, 2010, 2012). Based on that estimate, the 100 MW Project

would require 5AF (1,629,257.14 gallons) annually, or 150 AF (48,877,714.05 gallons) over the 30-year lease term.

2.2.4 Decommissioning and Site Reclamation

Decommissioning would include dismantling all components and removal from the Project site. According to OneEnergy, all tracker row supports would be removed; any supports that cannot be pulled from the ground would be cut off at 18 inches below grade. All materials, components, and equipment would be disposed of by appropriate methods and according to county, state or federal regulations. No specific information regarding the reclamation plan, recontouring graded areas or plans to revegetate the site is currently available.

2.3 Alternatives to the Proposed Project

The NEPA environmental review process requires that alternatives that meet the purpose and need of the Project be analyzed to provide a benchmark of potential impacts to which the impacts of the proposed Project could be compared. The intent of the alternatives analysis is to provide a robust discussion of viable alternatives in support of agency review and planning.

Alternative 3 - Dispersed Solar to provide electricity on a local basis.

A true assessment of the immediate and future growth of San Miguel County and region and the electrical needs would provide a basis for planning dispersed solar that could provide electricity for the area and meet the county and state mandates regarding reduction of GHG.

Census data for Norwood and the County indicate that Norwood encompasses approximately 192 incorporated acres, has a population of 551, with 240 (± 52) housing units (U.S. Census Bureau, 2021). San Miguel County has a population of 8,003 with 6,638 housing units; and is expected to reach a total population of over 10,914 in 2040. (July 1, 2022) (Census Bureau, 2022).

A simplistic analysis of current population data would indicate that the need for solar-generated power in the county could be met by less than half of the proposed Project. Solar facilities could be dispersed throughout the region, or even on a town-by-town basis to provide adequate power needs, with less direct impact on resources discussed in Chapter 3. This alternative could meet the purpose of providing electricity to San Miguel County communities and align with goals to reduce GHG and be carbon neutral as outlined in the Ouray and San Miguel County Regional Climate Action Plan.

In general, utility-scale systems (solar, wind) require vast resources to construct, have large footprints that impact vast acreage of natural resources and habitat, require vast resources to develop battery storage, and require countless acreage for transmission lines. Localized systems have smaller footprints and have less of an impact on resources to construct and site. Because the facilities are sited within or near the service area, smaller facilities do not require large transmission lines to deliver the service, drastically reducing the associated environmental impacts.

Alternative 4 – Utilizing previously impacted areas.

Siting proposed facilities at brown fields, waste disposal facilities and other locations that already have been severely degraded or converted by previous land-use should be considered as a priority, instead of siting Projects on areas that are in a natural state with high value habitat.

3. AFFECTED ENVIRONMENT AND CONSEQUENCES

“Here in Colorado, we are preserving and protecting our world-class outdoors, supporting our thriving agriculture industry, and expanding opportunities for outdoor recreation, and legislation to protect our treasured land in the Lower Dolores River canyon is a great step towards achieving these goals.” —Governor Jared Polis, July 15, 2022¹

Introduction

This chapter provides a baseline information on the resource in the Project area and the anticipated consequences from Project implementation. The baseline information on each resource topic describes the existing conditions and allows for a comparative “before-and-after” analysis between pre-Project conditions and the anticipated effects associated with Project implementation.

Field investigations of the proposed Project area were conducted on October 3 and 4, and January 6, 2024. The proposed Section 1 east array area was surveyed via pedestrian surveys throughout the area. Access to the SLB tract was granted by the current agricultural lease holder (pers. comm. Mont Snyder, October 2, 2023). The proposed west array area, or Section 2, is privately owned. Observations of this area were made from outside the fenced area, along Lone Cone Road and from the property to the north (with landowner’s permission).

Wright’s Mesa General Description

Wright’s Mesa is an approximate 27-square-mile area delineated roughly by Naturita Creek and canyon to the west and the San Miguel River canyon and Beaver Creek to the north and east. Wright’s Mesa is part of the shale deserts and sedimentary basins of the Colorado Plateau ecoregion (Chapman et al. 2006). The proposed Project area would encompass 1,009.4 acres of pinyon-juniper sagebrush scrubland and riparian cottonwood forests within a rural ranching community, and is situated in an otherwise undeveloped area.

3.1 Air Quality

Regulatory

Federal and state regulations to protect air quality are, Clean Air Act of 1972 (42 USC 7401 et seq.) (CAA) and Colorado § 5 CCR 1001. The CAA requires the EPA to set National Ambient Air Quality Standards (Title 40, CFR Part 50) (NAAQS) for six “criteria pollutants” that are common in outdoor air and considered harmful to public health and the environment. ([Reviewing National Ambient Air Quality Standards \(NAAQS\): Scientific and Technical Information | US EPA](#)). The NAAQS specify the maximum ambient (outdoor air) concentration levels of criteria pollutants considered safe for public health and the environment and provide a management guideline by which governing entities such as the Colorado Department of Public Health and Environment (CDPHE) can monitor and regulate pollution. An area where a criteria pollutant concentration exceeds NAAQS levels is categorized as “nonattainment”.

The NAAQS criteria pollutants are: particulate matter (PM_{2.5} and PM₁₀), ground-level ozone (O₃), Sulfur dioxide (SO₂), Nitrogen dioxide (NO₂), Lead (Pb), and Carbon monoxide (CO). Particulate matter is a mixture of solid particles and liquid droplets found in the air and is classified based on the size of the

¹ [Bennet, Hickenlooper Unveil Legislation to Protect the Dolores River Canyon | Press Releases | U.S. Senator Michael Bennet \(senate.gov\)](#)

particles (less than 2.5 microns or between 2.5 and 10 microns).

It is widely accepted that solar photovoltaic array Projects have beneficial long-term effects on air-quality and greenhouse gas (GHG) emissions and the correlated global warming effects, and is the basis for the rationale behind federal and state mandates to hasten the shift from utility-scale fossil fuel-generated electricity to alternative electricity generation such as solar or wind (Executive Order 14082, Millstein et al., 2017). Such effects are generally analyzed on large-scale models, with discussions focused on the regional and global effects of alternative energy sources. Analysis of the proposed Project on regional or global scales is outside the scope of this EA. This EA will present the immediate short-term effects to local air quality and GHG emissions associated with construction and maintenance of solar facilities. The analysis area for this resource topic is the general vicinity of the proposed Project on Wright's Mesa and the community of Norwood.

Baseline Conditions

San Miguel County

The San Miguel County environmental health department collaborates with the EPA, CDPHE, U.S. Forest Service (USFS) and other public health agencies to protect and improve air quality. San Miguel County Environmental Health Department operates sampling devices for PM_{2.5} and PM₁₀. San Miguel County is currently in attainment for NAAQS and compliance with all State and Federal standards for air quality. According to the 2022 Regional Air Quality Summary (San Miguel County, 2022), sources of air pollution in San Miguel County include:

- wildfires
- high winds
- oil & gas extraction
- combustion engines
- power plants
- construction
- solid fuel heaters

Western Slope

San Miguel County is one of nine counties in the Western Slope Region of Colorado. A mix of mountains on the east, and mesas, plateaus, valleys and canyons to the west form the landscape of this region. Grand Junction is the largest urban area, and other cities include Telluride, Montrose, Delta, Rifle, Glenwood Springs, Meeker, Rangely and Craig. Primary industries include ranching, agriculture, mining, energy development and tourism. The population of this region is 325,046 (U.S. Census Bureau, 2021).

According to the 2022 Regional Air Quality Summary, all of the Western Slope Region was in compliance with federal air quality standards. However, elevated ozone levels were recorded in the Rangely area during the winters of 2010-2011 and 2012-2013, which resulted in violations of the 2008 ozone standard. The area has not experienced such elevated ozone concentrations since that time. The 3-year average (2015-2017) ozone concentration is below the 2008 NAAQS, so a “nonattainment designation” was not appropriate for Rangely. The Grand Junction area experiences elevated wintertime PM_{2.5} concentrations due to inversions, though the area has not violated the federal NAAQS (San Miguel County, 2022).

Sources of air pollution on the Western Slope:

- motor vehicles
- oil and gas development
- Craig coal-fired power plant

- coal mines (Delta, Rio Blanco and Moffat counties)
- sand and gravel operations
- windblown dust
- wildfires and prescribed fire

Climatology

Air quality in a given area is directly affected by local climatology and regional topography. Prevailing winds, forested versus open range, mountain ranges and canyon topography all play into the how air masses move and impact concentrations of pollutants. Wright's Mesa sits at approximately 7,500 ft in elevation. The San Miguel River and Canyon border the Mesa to the north. Distant mountain ranges surround the area to the east and west, and Lone Cone Mountain is to the south.

Prevailing surface winds on Wright's Mesa are bimodal: after sunset, winds are mainly SE thru NE directions with speeds below 5 meters per second (mps); after sunrise wind direction shifts to S-WSW with speeds between 7-25mps. These winds are close to the surface and within the boundary layer. Above the boundary layer winds are subject to non-local forcing and may have a different direction and speed; even in calm conditions. A stable boundary layer will trap pollutants and any wind will move them downwind. Calm conditions are infrequent but not rare. Occasionally, waves that form on the nighttime inversion will break and flush out the boundary layer. There is also a daytime inversion, though not as intense as the nighttime one. During the day, convective currents can disperse pollutants throughout the boundary layer. Generally, local topography doesn't support the formation of eddy circulation that could "trap" pollutants in the local area. (pers. comm. Dr. Robert Grossman, meteorologist University of Colorado, retired)

Consequences

Construction

The proposed Project would add to the air quality issues (combustion engines, motor vehicles and windblown dust) in the county as identified in the San Miguel County (2022) Regional Air Quality Summary. Construction of a solar facility has many phases and requires numerous passes of vehicles and heavy industrial equipment throughout the Project site. The general elements of constructing a PV array include surveying, site preparation (clearing and grading where necessary), tracker row installation and PV module assembly, inverter installation, burying MV cable. Table 2-2 provides a list of typical equipment used during construction.

Workforce traffic would increase emissions in the Project area and regionally. Vehicle and equipment operation during construction would emit diesel particulate matter and other criteria air pollutants. Construction activities associated with the Project would significantly increase PM levels from fugitive dust. Clearing and grading would expose soils. Soil disturbance from clearing, grading, excavations and vehicle/equipment traffic can destroy soil structure that would otherwise maintain soil integrity preventing wind erosion. Removal of vegetation will further increase the soils susceptibility to erosion.

Air quality impacts would be most intense during active equipment use and subside after activities cease. It is likely that the maximum ambient concentrations of PM₁₀, PM_{2.5}, and NO₂ would exceed the NAAQS within close proximity to operating machinery, and would be expected to decrease in proportion to distance from emissions source(s). The determination of effects from the Gemini Project indicates that maximum ambient concentrations at the fence lines around the development areas would exceed NAAQS for PM₁₀ and PM_{2.5} (BLM, 2019). The residences within 0.5 mile of the Project site would likely experience significant adverse effects from fugitive dust emissions (both PM₁₀ and PM_{2.5}).

Until construction is complete and site stabilization efforts have been implemented, exposed soils will be susceptible to wind erosion, thereby having a direct adverse effect on air quality in the project area and surrounding areas. Impacts to air quality in the town of Norwood are expected to be adversely affected, with intensity of effects dependent on weather patterns. Southeasterly winds would carry dust and emissions towards Norwood.

Operations

Workforce vehicles traveling to and from the site and those conducting maintenance activities would emit some pollutants. Some emissions from the testing and use of generators could occur but would be minimal. Operation of the Project would involve the disturbance of approximately 580 acres of land. Some areas of the Project site would be paved with concrete or gravel (i.e., substation access roads, inverter skids); however, the majority of the Project site would be disturbed soil. Until site stabilization has been achieved, wind events could disturb soils on the Project site, resulting in erosion and fugitive dust. Dust can dramatically affect the energy output of solar cells as much as 23 percent, depending on the type of dust and angle of solar panel (Maghami, et al. 2016). Panel cleaning and dust controls (such as watering and applying regulation-compliant palliatives) are commonly used in solar fields to minimize output losses. Permitting requirements would include a Dust Control and Air Quality Plan, which would minimize emissions. Provided a dust control plan is implemented, it is anticipated that impacts to air quality during operations would not be significant.

No Action Alternative

The No Action Alternative would result in no impacts to air quality. Conditions would continue unchanged.

3.2 Greenhouse Gas Emissions

Regulatory

Executive Order 14082 *Implementation of the Energy and Infrastructure Provisions of the Inflation Reduction Act of 2022* and Executive Order 14072 *Strengthening the Nation's Forests, Communities, and Local Economies*, include mandates to manage GHG in an effort to thwart effects of climate change.

Greenhouse gases are natural and human-caused emissions that cumulatively create an atmospheric barrier that traps and holds heat within Earth's atmosphere that would otherwise be radiated into space. The net effect causes changes in the radiative balance of the Earth altering climate and weather patterns at global and regional scales. Human activities are the primary cause of the global warming since the start of the 20th century (Intergovernmental Panel on Climate Change (IPCC), 2021). Anthropogenic sources result from energy-related activities (e.g., combustion of fossil fuels in the electric utility and transportation sectors), agriculture, land-use change, waste management and treatment, and various industrial processes.

Major GHG include CO₂, CH₄, N₂O, and various synthetic chemicals. Many GHG are extremely long-lived in the atmosphere, remaining airborne for tens to hundreds of years. GHG concentrations in the atmosphere reflect past and recent contributions from emissions sources worldwide. GHGs become globally mixed, meaning that the amount in the atmosphere is roughly the same all over the world, regardless of the source of the emissions (IPCC, 2021).

Baseline Conditions

No specific GHG reporting documents are available for the town of Norwood. However, EcoAction Partners, a 501(c)3 non-profit organization funded by the Town of Telluride and San Miguel County, tracks the region's GHG emissions and develops programs to accomplish GHG reduction. Their 2020 GHG Emissions Inventory ([GHG Inventory — EcoAction Partners](#)) indicates that GHG emissions in Ouray and

San Miguel counties come from: residential buildings (28%), gasoline vehicles (19%), commercial buildings (17%), food purchase (11%), fuel production (8%), air travel (6%), diesel vehicles (4%), waste MSW (4%), water/waste water treatment/irrigation (1.6%), cement (1.6%), and government energy use (1.2%) (EcoAction Partners, 2020).

Carbon sequestration

Carbon sequestration is the process by which atmospheric carbon dioxide is taken up by plants and stored via photosynthesis, as carbon in biomass and soils. Unlike other land use sectors, forests and trees not only emit GHGs, they also remove CO₂ from the atmosphere. This sink of carbon or sequestration in forests helps offset emissions from other sources (i.e., fossil fuel emissions) and is recognized as an important element in the effort to meet state and federal mandates to reduce GHG emissions (San Miguel County, 2022). Intrinsic within Executive Order 14082 are directives to “*harness nature-based solutions*” that “*benefit rural communities, Tribes, farmers, ranchers, and forest landowners; reduce climate pollution; increase resilience to climate change; conserve our lands and biodiversity*”, citing carbon sequestration by forests among the nature-based solutions.

The U.S. Geological Survey (USGS) is congressionally mandated (2007 *Energy Independence and Security Act*) to conduct a comprehensive national assessment of storage and flux (flow) of carbon and the fluxes of other GHG (including CO₂) in ecosystems. According to USGS Professional Paper 1797, (Zhu and Reed, 2012), terrestrial and aquatic ecosystems in the U.S. take up approximately a quarter of the nation’s CO₂ emissions. Ecosystems of the Western U.S. serve as a GHG sink for CO₂, N₂O, and CH₄; accumulating GHGs at an estimated –599.1 to –51.3 TgCO₂-eq/yr (teragrams of CO₂ equivalent per year). (Negative values denote a carbon sink.) Forests are the largest carbon sink (62% of the average), followed by grasslands/shrublands (30%), and agricultural lands (7%). That report also noted that land use and land cover changes directly affect carbon fluxes and carbon stocks in ecosystems. Decline in forest clearcutting led to an increased per-unit-of area net flux of carbon; changes in species composition that lead to a reduced amount of aboveground biomass, accelerated soil decomposition and a loss of soil organic carbon stock to the atmosphere (Zhu and Reed, 2012).

The San Miguel County, Summary Report: *GHG Inventory for Forests and Trees Outside Forests, 2004 to 2019 San Miguel County, Colorado* (GHG Summary Report), provides information on how local changes in land use and tree canopy contribute to the county’s net GHG profile. The GHG Summary Report indicates that of 333,667 hectares (824,507 acres) of the county’s land base, 54% is forest.

Key findings from that report are:

- Emissions from forests and trees were 13,872 t CO₂e per year.
- Annual CO₂ removals from forests and trees were -234,786 t CO₂e per year.
- Net GHG balance of forests and trees was -220,913 t CO₂e per year

The report states that conversion of forests to other land cover uses increases GHG emissions and that total GHG emissions for San Miguel County across all sectors could be reduced if additional forests/trees were added to its land base, and/or if losses of trees were reduced further. The importance of forest carbon stocks is well recognized in the scientific literature, with regrowth, reforestation, avoiding conversion of forests to other land uses, minimizing forest disturbance, and increasing sequestration through enhanced forest growth among recognized strategies for capitalizing on the carbon sequestration potential of forests systems (Gutrich and Howarth, 2007).

Consequences

Though the ultimate purpose of alternative energy generating projects is to have an overall positive effect on GHG emissions regionally and globally, the Project as proposed would directly and adversely impact GHG emissions. Land use conversion from forest to industrial will remove 580 acres of forests and scrublands currently providing the ecosystem service of carbon sequestration in San Miguel County. As indicated by Gutrich and Howarth, 2007, avoiding conversion of forests to other land uses is among the recognized strategies for capitalizing on the carbon sequestration potential of forest systems. The San Miguel County GHG Summary Report supports that assertion stating that conversion of forests to other land cover uses increases GHG emissions and that total GHG emissions could be reduced if additional forests/trees were added to its land base, and/or if losses of trees were reduced further.

The San Miguel County GHG Summary Report indicates that Annual CO₂ removals from forests and trees were -234,786 t CO₂e per year. Though the types of forests used in calculations for that report were not identified, using the base figure to calculate carbon sequestration for the forests on the Project site provides a rough estimate of the sequestration value of forests in the Project area. Based on that 824,507 acres sequester -234,786 t CO₂e per year, gives a factor of -0.29 t CO₂e per acre X 580 acres = -165.16 t CO₂e per year and -4,954.8 t CO₂e over the 30-year life of the Project. Implementation of the Project would result in the loss of 580 acres of carbon sink and the sequestration potential of up to -4,954.8 t CO₂e over the 30-year life of the Project.

Operation of the Project would generate minimal GHG emissions. Indeed, the premise behind federal mandates to increase alternative energy generation is to offset a GHG emissions generated by non-renewable energy generating plants. Thus, operation of the Project is expected to be beneficial overall with respect to GHG emissions. However, the proposed site holds resource value and GHG sequestration value that would be lost for the life of the project and until time the site could be adequately reclaimed, if at all. The proposed Project would yield indefinite and long-term to permanent adverse impacts on natural forests in San Miguel County to sequester CO₂.

No Action Alternative

The No Action Alternative would result in continued GHG emissions as currently produced in the region.

3.3 Water Resources —Surface Water, Ground Water, Wetlands

Regulatory

State and Federal regulations regarding management and regulation of water include: Colorado Regulation No. 11 - *Colorado Primary Drinking Water Regulations* (5 CCR 1002-11) Clean Water Act (33 USC 1251-1376; Chapter 758; PL 845; 62 Stat. 1155); reauthorized 1991, and the Safe Drinking Water Act of 1974, as amended (42 U.S.C. §300f et seq.).

Baseline Conditions

Surface Water

Maverick Draw Watershed

The proposed Project area is within the Headwaters of Maverick Draw Watershed (HUC (140300030405)). Maverick Draw headwaters feed into Maverick Draw mainstream, which drains into Naturita Creek to the San Miguel River. The Headwaters Maverick Draw watershed covers 47.88 sq. mi.. The San Miguel River watershed comprises 1,555.36 square miles, and flows 80 miles from headwaters above Telluride to the Dolores River, which flows into the Colorado River towards the Gulf of Cortez (USEPA, 2023).

Surface Water within Project Area

Numerous surface water features occur within the proposed Section 1 east array area. The Gurley Ditch and the South Lateral Ditch, two integral segments of Norwood's water system, transect the tract. A freshwater spring and marsh, a small drainage, and numerous wetland areas also occur within the SLB tract. According to the informative flyers provided at the May 16, 2023, meeting (Appendix A) and the Project website ([About the Project | Wright's Mesa Solar \(wrightsmesasolar.com\)](https://wrightsmesasolar.com)) the east array would be built over at least one surface water drainage and a small pond (Appendix A); the Project would avoid Gurley Ditch, the South Lateral Ditch, and most of the wetland areas within the SLB tract.

Three channels which come off of the South Lateral and two ponds occur within the proposed Section 2 west array area. According to the Project website and the information flyer, the array would be constructed to avoid the two ponds and be built over the channels (Appendix A).

Norwood Water Supply

Water resources in the Project area are managed by the Norwood Water Commission. The Norwood Water Commission serves an area defined by Beaver Creek on the east side of Wright's Mesa, Oak Hill on the south, Naturita Creek on the south and west and the San Miguel River on the north and east side of the mesa. The Norwood Water Commission derives most of its water supply from the Farmers Water Development Company (Farmers Water) system, which manages the Gurley Ditch and Reservoir. The Gurley system diverts water from Beaver Creek through the Gurley Ditch to Gurley Reservoir. Gurley Reservoir holds 9,000 AF of water, which is delivered to users through a series of canals, and irrigates approximately 20,000 acres. The Gurley system flow is reliant on annual precipitation, primarily snowfall in the mountains above Beaver Creek. The Gurley flow is not perennial, with water being delivered during specific times: the irrigation season, generally from April 15-May 1 through October 1 (about 20 to 22 weeks per year); upon request after this time until January 15 for domestic uses (e.g. stock watering); one domestic "run" about the first of November. (Norwood Chamber of Commerce, 2000; San Miguel Watershed Coalition, 2000)

Norwood currently holds 119 shares of water which provide the town of Norwood with 286 AF of water during average years and 119 AF during dry years. Because of concerns over expanding the municipal use within the system, the Town is not likely to be able to acquire more shares from Farmers Water. By-laws of Farmers Water set forth the rules for how company water rights are administered and distributed to shareholders. Each shareholder is entitled to a prorata portion of the water and storage available to the company under water rights and available annual supply. Under both the decree and the by-laws, the water use is limited to domestic and irrigation uses. (San Miguel Watershed Coalition, 2000.)

In addition to the Farmer's Water Development Company shares, the Norwood Water Commission also relies upon the water rights listed in Table 3-1. These water rights deliver an average annual yield of 266.5 AF during an average year, and 79.9 AF during a dry year.

Table 3-1: Norwood Water Commission water rights in addition to the Farmer's Water Development Company shares.

Diversion Name	Amount (cfs)	Source
Farmers' Water Development Company Ditch	0.25	Gurley Canyon Watershed
Town of Norwood Pipeline	0.50	Gurley Canyon Watershed
Town of Norwood Pipeline	0.25	Gurley Canyon Watershed
Norwood Water Commission Gurley Diversion	5.00	Gurley Canyon Watershed
Norwood Infiltration Pipeline	0.75	Groundwater in Gurley Canyon

Gardner Springs	0.25	Groundwater in Gurley Canyon
Gardner Springs	0.50	Groundwater in Gurley Canyon

The Norwood Water Commission diverts its water supply at its treatment plant, or stores it in either one of two reservoirs: Reservoir 1 is used for fire protection, Reservoir 2 stores 200,000 gallons of treated water for municipal use. Reservoir 2 and the treatment plant are located on the southeast corner of the SLB property, adjacent to the proposed Project area. Reservoir 2 and the treatment plant are held under a perpetual lease with the SLB (Norwood Chamber of Commerce, 2000; San Miguel Watershed Coalition, 2000).

Ground Water

According to the U. S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA, 2023), the depth to the water table throughout the Project area is greater than 78.74 inches. The Project area and much of San Miguel County is underlain by the Dakota-Glen Canyon aquifer system, which is part of the Colorado Plateau Aquifer region, a system that underlies an area of approximately 110,000 square miles in western Colorado, northwestern New Mexico, northeastern Arizona, and eastern Utah. The depth to the top of the aquifer is less than 2,000 ft in many areas. (Robson and Banta, 1995).

Wetlands

Information and imagery regarding wetlands were gathered at:

- USFWS National Wetlands Inventory mapping program. Available at: [Wetlands Mapper | U.S. Fish & Wildlife Service \(fws.gov\)](https://wetlands.fws.gov/)

Observations made during field investigations corroborated general locations of water and wetland features as indicated by the NWI database. Access to conduct field investigations of the SLB tract was granted via the current agricultural lease holder (personal communications Mont Snyder, 2023). All information and descriptions of conditions in the Section 2 west array area were gathered from the USFWS NWI mapping site, Google Earth (2023) or visually from points along Lone Cone Road. As the proposed west array area is privately held, no onsite investigation was conducted in the west array area.

A jurisdictional wetland delineation as prescribed by the U. S. Corps of Engineers has not been conducted for the Project areas.

East Array

Freshwater emergent wetland areas and riparian zones occur in the east array area. Based on the information flyers distributed at the May 16, 2023 meeting, it appears that the layout of the east array would avoid most of the wetland areas. However, some areas may be impacted by the proposed installation. At least one of the channels in the east array area could be covered by the solar array. Specific information regarding potential access roads needed for construction activities which could potentially impact wetlands and channels, is not indicated in any of the Project information. See Figures 5 and 6.

West Array

Two ponds and two channels occur in the west array area. Based on the information flyers, it appears that the layout of the west array would avoid the ponds, but would cover the channels. Specific information regarding potential access roads needed for construction activities which could potentially impact wetlands and channels, is not indicated in any of the Project information. See Figures 7 and 8.

Consequences

Water is a critical resource on Wright's Mesa and for the town of Norwood. Annual availability is limited and water quality is critical to sustain agricultural and residential use. According to the by-laws of Farmers Water, the water use is limited to domestic and irrigation uses. There are no shares available for industrial activity. The proposed Section 1 east array area is situated on either side of the Gurley Ditch (see Figure x), upstream from most of the agricultural fields on Wright's Mesa and the town of Norwood. Any project-related impacts to surface waters would affect most of the water rights on the Mesa.

Project construction, operation, maintenance and decommissioning involves use of numerous chemicals, fuels and other hazardous materials (HAZMAT). Safety data sheets for Project HAZMAT are not available on the project website. Spill contingency plans and stormwater runoff management plans were not presented during the May 16, 2023, meeting, nor are they available on the Project website. Projects such as the proposed are required to develop a Stormwater Pollution Prevention Plan (SWPPP) and a Spill Prevention Control and Countermeasure Plan (SPCC) to minimize potential adverse effects to water resources. The SWPPP and SPCC develop site-specific erosion control measures and hazardous materials handling and spill contingency plans. Measures would be implemented throughout all phases other Project to minimize impacts to surface and ground water resources.

Continuous soil disturbance and vehicle and equipment operations during construction are likely to increase sedimentation and surface runoff. Increased total suspended solids in surface waters could occur during construction during seasonal releases from the Gurley Reservoir through the Gurley Ditch and the South Lateral Ditch. Any runoff into these conveyances would impact water quality downstream. It is anticipated that the SWPPP for the Project would include measures to minimize surface runoff into area streams.

Over the course of the Project life of 30 years, direct adverse effects to water quality are likely. Adverse impacts to water quality downstream could occur from sedimentation during construction and unintentional release of hazardous chemicals over the course of the 30-year life of the project from construction through operations. Potential impacts to ground water could occur from unintentional release of hazardous chemicals over the course of the 30-year life of the project from construction through operations. Project permitting requires that appropriate spill contingency plans are prepared and implemented to minimize potential for impacts to surface and ground water resources. Based on the implementation if SWPP and SPCC, it is anticipated that adverse effects to water resources would be minimized but cannot be completely eliminated. The proposed project would result in direct adverse impacts to water resources. The level of impact could range from significant to minor, and is dependent on the type of event (i.e., sediment runoff, HAZMAT spill), the effectiveness of remediation, and timing of the spill events relative to seasonal water releases.

No Action Alternative

The No Action Alternative would result in no impacts to water resources and water quality because the Project would not be constructed.

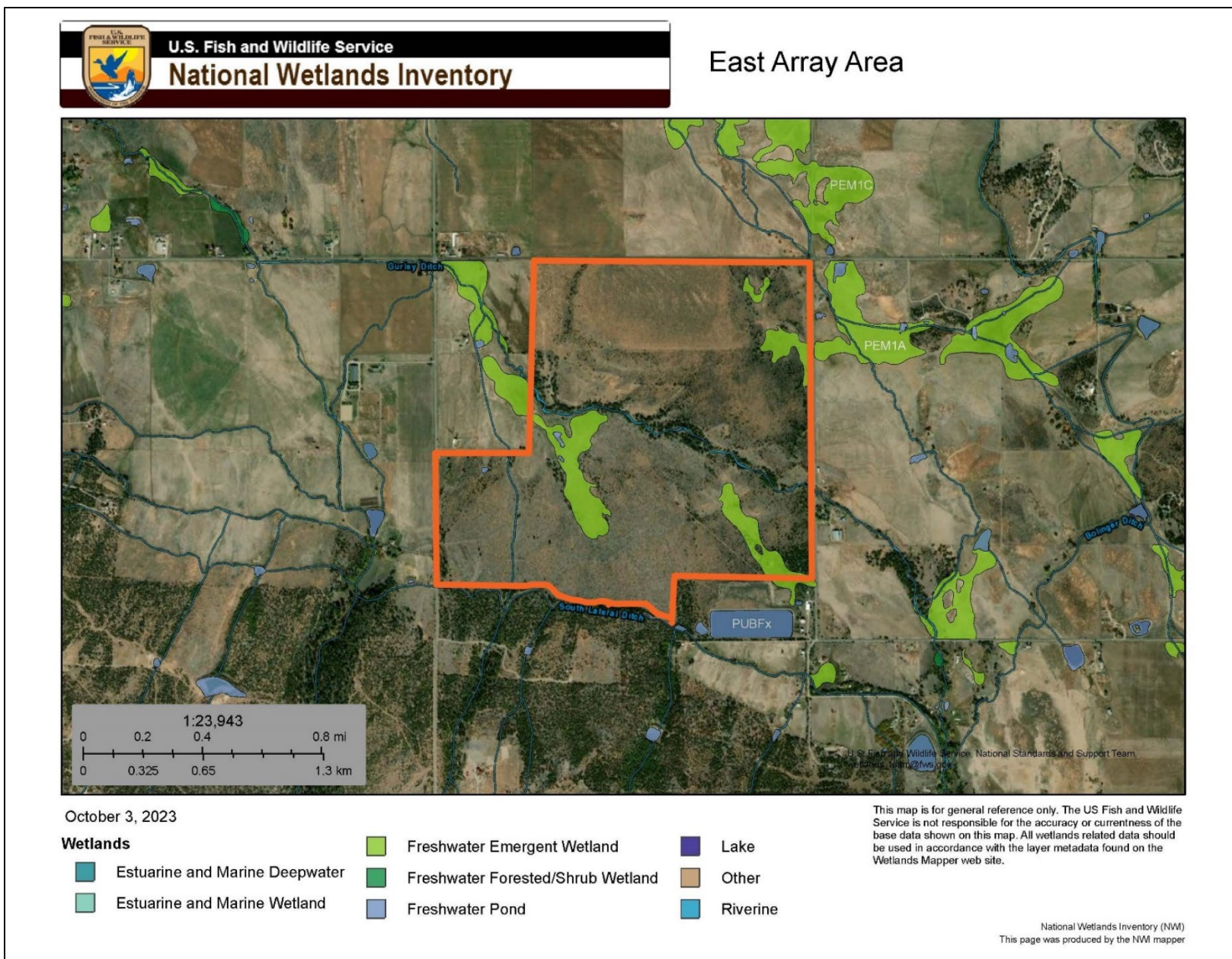


Figure 5 - USFWS National Wetlands Inventory map depicting the approximate boundary of the east array area.



Figure 6: Image of proposed east array area depicting layout of PV panels. Taken from the information flyer provided at the May 16, 2023, public meeting.

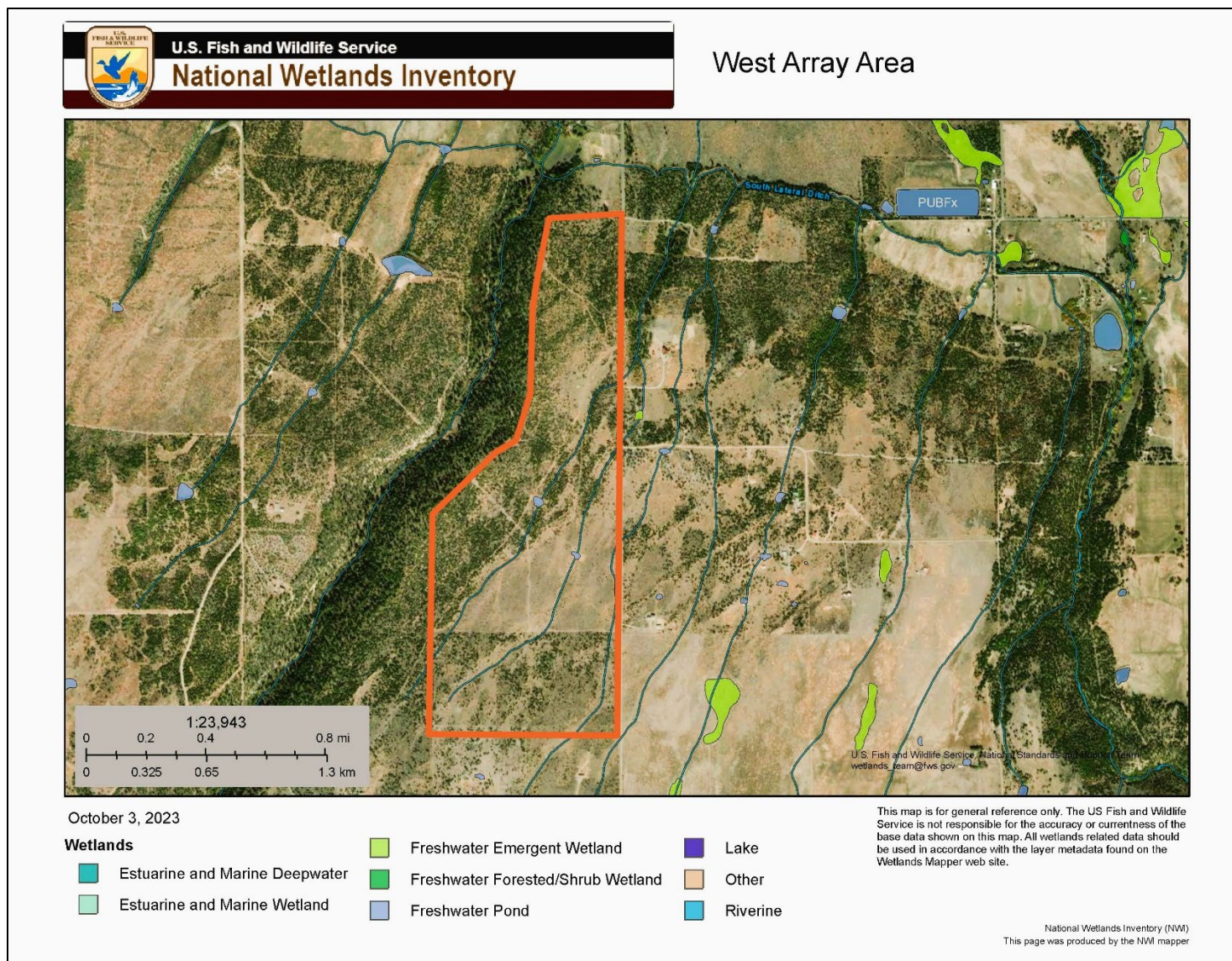


Figure 7 - USFWS National Wetlands Inventory map depicting approximate boundary of the west array area.



Figure 8: Image of proposed west array area depicting layout of PV panels. Taken from the information flyer provided at the May 16, 2023, public meeting.

3.4 Soils

Regulatory

The Soil and Water Resources Conservation Act of 1977, as amended, provides the USDA NRCS authority for the conservation, protection, and enhancement of soil, water, and related natural resources. Farmland Protection and Policy Act, 7 U.S.C. 4201, was enacted in 1981 to minimize the loss of prime farmland and unique farmlands as a result of Federal actions by converting these lands to nonagricultural uses. Prime farmland is farmland 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. Unique farmland is used for production of specific high-value food and fiber crops; it has the soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality or high yields of specific crops.

Baseline Conditions

The soils in the Project area were identified and mapped (Figures 9 and 10) using the USDA NRCS Web Soil Survey (USDA, 2023). The Web Soil Survey provides land classifications (i.e., prime or unique farmlands) and information regarding soils properties such as erosion rates and hydrologic qualities, which can be affected by construction and excavation, as well as shrink-swell capacity and chemistry which can limit Project objectives. The Web Soil Survey provides information ratings for building site development, including suitability ratings for anchoring systems for solar arrays. The purpose of this analysis is to provide a general overview of the soil types and properties in the Project area.

Soil types in the proposed Project area were identified and rated for farmland and ecological site characteristics, wind erodibility, and suitability/limitations for shallow excavations, and solar array anchoring systems. Table 3-2 lists soil types found in the proposed Project area with farmland classifications and suitability ratings for solar array anchoring systems. Soils units 5-Acree loam and 31-Callan loam are classified as prime farmland if irrigated. Soils in the proposed Project area are classified as very limited for soil anchoring systems and somewhat limited for ballast anchoring systems. NRCS soils resource reports are provided in Appendix G.

Note: The Web Soil Survey is an ARC GIS-based mapping program. An ARC GIS-compatible shapefile of the Project footprint was not available to use with the program. As such, the soils maps developed for this analysis were drawn using a polygon tool in the Web Soil Survey program and do not represent the exact dimensions of the Project, the specific footprint of the east or west array sections, or specific location of any of the components included in the preliminary design of the Project. These soils maps are intended to be general overview maps that encompass the proposed Project footprint, but that do not represent exact acreage or the final design, and are presented with the express purpose of providing general information of soils classifications, capabilities and limitations relevant to the proposed Project.

Consequences

Construction activities would disturb most if not all of the soils within the proposed 580-acre Project site. Excavation, trenching, backfilling and compaction from vehicle and equipment traffic will result in adverse impacts to soil structure, soil chemistry and soil biotics. Surface disturbance would increase potential for erosion, especially during the construction process when soils will be disturbed and exposed to wind and precipitation. Some areas of soil will be permanently lost due to surface treatments (i.e., concrete foundations, gravel access). Many areas would incur severe compaction from repeated passes of construction traffic, changing soils structure and subsurface hydrology. Soils and topsoil would be lost due to wind erosion. Project-related impacts are expected to be short- and long-term direct adverse effects to soils.

No Action Alternative

Wind and water erosion of soil would continue at the current rate.

Table 3-2 NRCS Soils classifications and ratings for solar array ballast anchor and soil-based anchor systems and shallow excavations (USDA NRCS, 2023).

Soil unit #	Soils type	% Slope	Farmland Classification	Solar Array ballast anchor system rating	Solar Array soil-based anchor system rating	Shallow Excavations
Section 1 East Array Area						
5	Acree loam	1 to 6	Prime if irrigated	Somewhat limited	Very limited	Somewhat limited
6	Acree loam	6 to 12	Not Prime	Somewhat limited	Very limited	Somewhat limited
31	Callan loam	3 to 6	Prime if irrigated	Somewhat limited	Somewhat limited	Somewhat limited
41	Fivepine-Nortez-Rock outcrop complex	12 to 30	Not Prime	Very limited	Very limited	Very limited
51	Haplaquolls	0 to 3	Not Prime	Very limited	Very limited	Very limited
66	Nortez loam	1 to 6	Not Prime	Somewhat limited	Very limited	Very limited
67	Nortez loam	6 to 12	Not Prime	Somewhat limited	Very limited	Very limited
69	Nortez-Fivepine loams	1 to 12	Not Prime	Somewhat limited	Very limited	Very limited
85	Radersburg gravelly loam	6 to 30	Not Prime	Very limited	Very limited	Very limited
109	Zoltay loam	3 to 15	Not Prime	Somewhat limited	Somewhat limited	Somewhat limited
Section 2 West Array Area						
5	Acree loam	1 to 6	Prime if irrigated	Somewhat limited	Very limited	Somewhat limited
67	Nortez loam	6 to 12	Not Prime	Somewhat limited	Very limited	Very limited
68	Nortez-Acree loam	1-12	Not Prime	Somewhat limited	Very limited	Very limited
69	Nortez-Fivepine loams	1 to 12	Not Prime	Somewhat limited	Very limited	Very limited

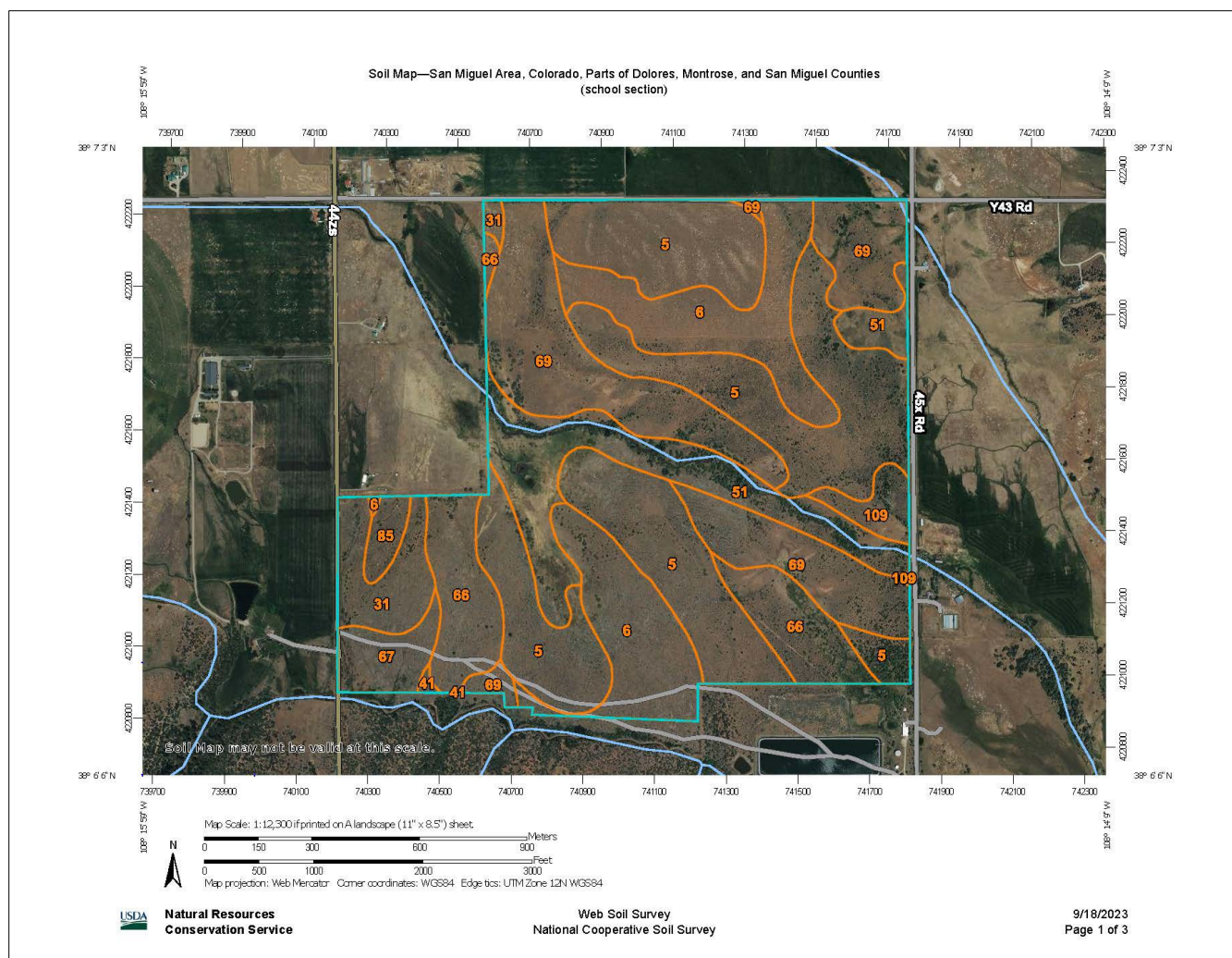


Figure 9 – USDA NRCS Web Soil Survey soils units in Section 1, the east array area.

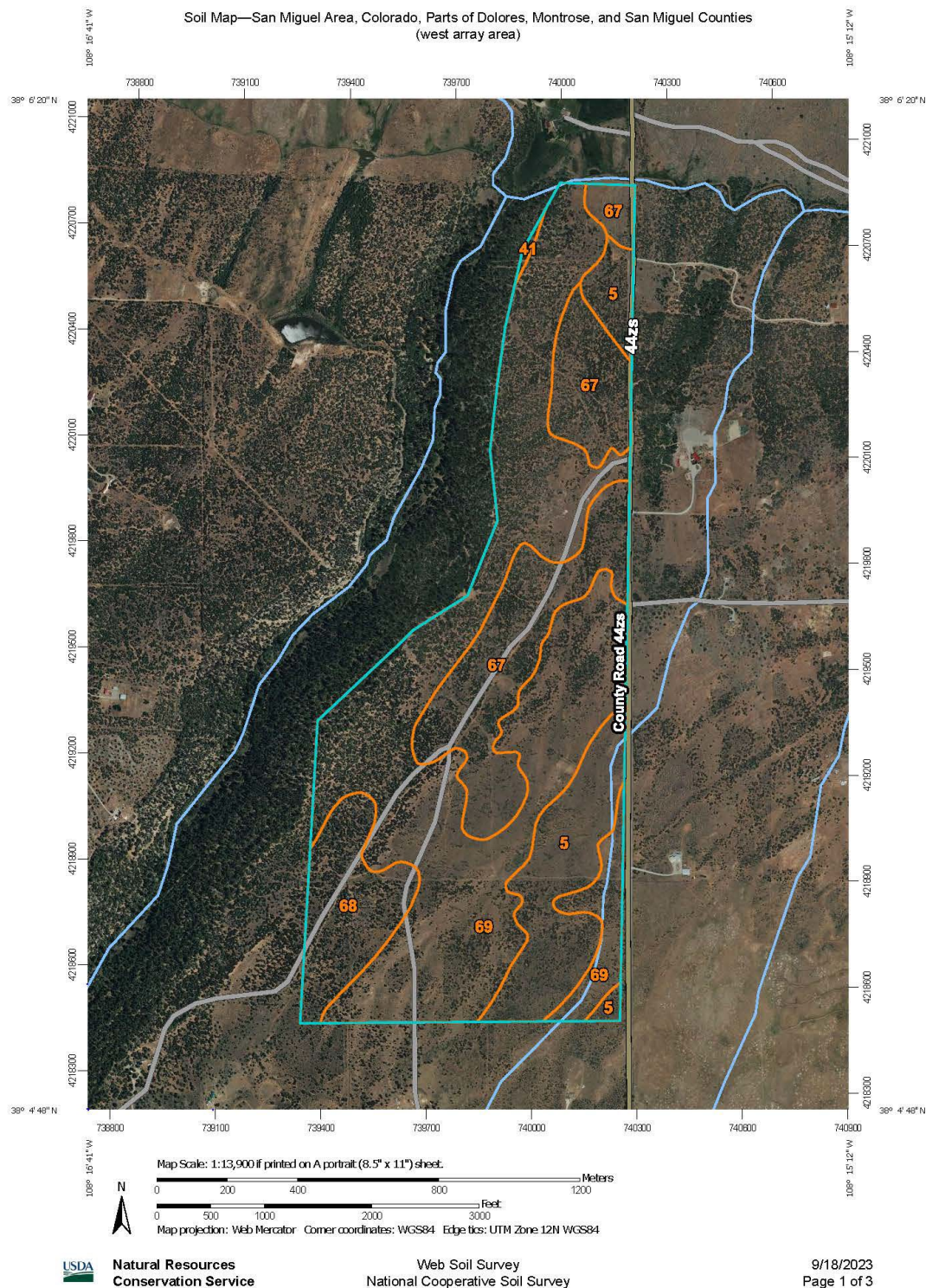


Figure 10 – USDA NRCS Web Soil Survey soils units in Section 2, the west array area

3.5 Vegetation

Information on plant species within the Project area was gathered during onsite investigations of the proposed East array area and observations made from the perimeter of the proposed West array area along Lone Cone Road. Field investigations were conducted on October 3 and 4, and January 6, 2023.

The proposed Project area encompasses 1009.4 acres of undeveloped lands within the shale deserts and sedimentary basins of the Colorado Plateaus ecoregion, with the southern extent of the Project area reaching into the semiarid benchlands and canyonlands ecoregion (Chapman et al. 2006). Dominant habitat types in the Project area are two-needle pinyon-Utah juniper (*Pinus edulis* - *Juniperus osteosperma*) shrub dry-mesic woodlands and sagebrush / sandsage scrub, characterized by *Pinus edulis* that forms a very open to moderately dense tree layer often with *Juniperus osteosperma* (sometimes with *J. monosperma* or *J. scopulorum*) and an understory dominated by an open to dense layer of relatively mesic shrubs or shrubs exceed cover of grasses. The understory is characterized by relatively mesic shrubs that typically form an open to moderately dense layer, including: *Amelanchier utahensis*, *Artemisia tridentata* ssp., *Quercus gambelii*, and *Symphoricarpos oreophilus*. The herbaceous layer is sparse to moderate and composed of grasses often with diverse, but low cover of forbs.

The Gurley Ditch in the SLB tract is a natural watercourse characterized by riparian vegetation along the stream banks and with Gambel oak and cottonwood woodlands creating a forested gallery along the channel through the proposed Project site. The creek bed consists of rocky stream bottoms interspersed by bedrock flats. The Gurley and South Lateral Ditches are intermittent streams managed by the Farmers Water, as discussed above in Section 3.3. Smaller channels in the proposed east array and the west array areas exhibit similar vegetation. The freshwater spring in the SLB tract presents an open water pond surrounded by cattail (*Typha* spp.) marsh. Wetlands in the Project area are characterized by cattail marshes.

Plant species observed during field investigations within the east array area and from outside of the west array area boundaries along Lone Cone Road, include:

Pinyon Pine (<i>Pinus edulis</i>)	Yellow sweet clover (<i>Melilotus officinalis</i>)
Juniper (<i>Juniperus</i> sp.)	Tufted evening primrose (<i>Oenothera caespitosa</i>)
Gambel Oak (<i>Quercus gambelii</i>)	Prickly pear cactus (<i>Opuntia</i> sp.)
Big Sagebrush (<i>Artemisia tridentata</i> ssp.)	Wolly plantain (<i>Plantago patagonica</i>)
Serviceberry (<i>Amelanchier utahensis</i>)	Scarlet globemallow (<i>Sphaeralcea coccinea</i>)
Russian knapweed (<i>Acroptilon repens</i>)	Russian thistle (<i>Salsola tragus</i>)
Milkvetch (<i>Astragalus</i> sp.)	Cattail (<i>Typha</i> spp.)
Bulbous springparsley (<i>Cymopterus bulbosus</i>)	Fish-hook cactus (<i>Sclerocactus</i> sp.)
Gordon's buckwheat (<i>Eriogonum gordonii</i>)	False wheatgrass (<i>Eremopyrum triticeum</i>)
Ridgeseed spurge (<i>Euphorbia glyptosperma</i>)	James' galleta (<i>Hilaria jamesii</i>)
Western tansy mustard (<i>Descurainia pinnata</i>)	Indian Rice grass (<i>Oryzopsis hymenoides</i>)
Red dome blanketflower (<i>Gaillardia pinnatifida</i>)	Alkali sacaton (<i>Sporobolus airoides</i>)
Curlycup gumweed (<i>Grindelia squarrosa</i>)	Giant dropseed (<i>S. giganteus</i>)
	Greasewood (<i>Sarcobatus vermiculatus</i>)

Consequences

Vegetation removal would occur across most of the Project site during construction. Construction of the Project would cause the direct and permanent loss of 580 acres of vegetation and the habitat it provides within the Project site. Root structures would be removed, and soils would be highly disturbed and compacted such that impacts would be permanent. Native vegetation is unlikely to regrow during Project operation. Indirect

impacts from the Project are likely to include the introduction and establishment of weed species carried into the area on vehicles and equipment. Proliferation of nonnative species in the Project site and adjacent properties would result in degradation of vegetation communities in the area. Indirect impacts could also include fugitive dust, which can impede photosynthesis and other metabolic processes of native plants. Increases in surface water runoff from the Project site could also affect hydrologic characteristics of these communities. The introduction of contaminants into downstream habitats could result from contaminant spills and dust palliatives. There is also potential for herbicide drift from the site to impact surrounding plant communities. The proposed Project would have long-term and permanent adverse impacts to the native plant communities in the Project area.

No Action Alternative

The No Action Alternative would result in no impacts to the vegetation.

3.6 Wildlife

Regulatory

The 2020 Colorado Revised Statutes (CRS) Title 33 – *Parks and Wildlife* directs regulatory authority to the Colorado Parks and Wildlife (CPW) Department to protect, preserve, enhance, and manage all game and nongame species of wildlife in Colorado. Some of the species within the Project area are regulated under CRS Title 33, managed by the CPW and have various levels of regulatory protection and/or restrictions on activities that can occur within their habitat.

Baseline Conditions

Information regarding wildlife in the Project area was gathered from personal observations of the author, and by contributing resource experts (Craig Grother, wildlife biologist USFS, retired; Chris Hensley, wildland firefighter USFS herpetological citizen scientist). The author, a wildlife biologist, lives in the Project area and makes observations of wildlife throughout the year. General observations of habitat types and vegetation coverage in and surrounding the Project area were made using Google Earth imagery and corroborated during field investigations of the east array area, and from outside of the west array area boundary along Lone Cone Road. The Colorado Natural Heritage Program (CNHP) Colorado Conservation Data Explorer (CODEX) was also queried for information on wildlife in the area. CODEX is an online program that synthesizes data from multiple authoritative sources including: CNHP, CPW, Bird Conservancy of the Rockies, U. S. Fish and Wildlife Service (USFWS), and NatureServe. The CODEX report is provided in Appendix D.

The proposed Project area encompasses a total of 1009.4 acres. The dominant habitat type in the Project area is two-needle pinyon-Utah juniper (*Pinus edulis* - *Juniperus osteosperma*) shrub dry-mesic woodlands and sagebrush and sandsage scrub. Some Ponderosa pine (*Pinus ponderosa*) occurs sporadically throughout the Project area. The Project area has a very open canopy and an understory of fairly open mesic shrubs, herbaceous vegetation and grasses. The general setting of the surrounding area is undisturbed rural and agricultural land cover. Within that setting, the Project site provides habitat for numerous species of game and nongame wildlife and connects habitat to the south, east and west.

Field investigations were conducted on October 3 and 4, 2023, and January 6, 2024. The east array area was surveyed via walking through the entire area and making observations of habitat types and wildlife. The Section 1 east array area encompasses pinyon-juniper forest, sagebrush scrub, riparian zones, a spring, and small ponds. The Gurley Ditch riparian zone, dominated by Gambel oak, narrowleaf cottonwood, and coyote willow, transects the entire tract. The South Lateral Ditch runs along the south edge of the tract. There is a freshwater spring and two small ponds located near the western edge of the tract and three large wetland areas (see Figure 5). The east array area is owned by the Colorado State Land Board and is currently being leased for: 1) agriculture - to keep a small herd of bulls; 2) recreation – hunting; and 3) renewable energy planning

solar. Surrounding areas are privately owned; it is bounded to the north, east and west by section roads and open agricultural lands (privately owned, pasture); it is bounded to the south by mostly undeveloped pinyon-juniper woodlands. According to the CODEX mapping program, disturbance levels on the east array area are classified as “low” to “moderate”;

Field investigations of the west array area or Section 2 were conducted on October 3 and 4, 2023; observations were made from outside of the existing perimeter fence along Lone Cone Road to the east and from the north on neighboring property (with permission of the landowner). Habitat types and vegetation observed indicate that the dominant habitat type in Section 2 is pinyon-juniper forest with open areas of sagebrush scrub and herbaceous vegetation. Aerial imagery (Google Earth, 2023) indicates that pinyon-juniper/sagebrush habitats are the dominant land cover type(s) throughout the west array area. A powerline ROW transects the area. The tract is bounded to the south by similarly undeveloped pinyon-juniper forests, to the east by pinyon-juniper woodlands with some large-tract (>40-acre) residential/small farm development, and to the north by open residential/agricultural lands (pasture). To the west is the Ed Joe Draw, a steep riparian zone of the Cone Ditch, forested in old growth Ponderosa pine. The west array area is privately owned; there are no permanent dwellings on the property. Surrounding areas are privately owned. According to the CODEX mapping program, disturbance levels on the west array area are classified as “low” to “none or minimal”.

The CODEX mapping program was used to identify landscape-level habitat classifications, land cover, and surface ownership to provide a context of the Project affect within the landscape. The proposed Project site is located in a transition zone where residential/agricultural surface use gives way to less developed (very widely spaced residential) areas within native wildland habitats. Habitat within the proposed Project area provides breeding, foraging and shelter for numerous wildlife species and provides connectivity of habitat to the south, east and west, providing a corridor for wildlife movement between these areas. The proposed Project site is located within one mile of two private conservation areas and USFS lands, and within two miles of BLM lands and the San Miguel River corridor—identified by the Audubon Society as an Important Bird Area (Appendix B, Map B-2). CODEX maps provide a landscape-level reference of the size of the proposed Project within the surrounding landscape, and the potential for land cover conversion should the proposed Project be implemented. A map of the land cover types is provided in Figure 11. Additional resource maps are provided in Appendix B and include:

1. Topography of the Project area
2. Land surface features and ownership
3. Land cover types
4. Key terrestrial habitats
5. Landscape disturbance classes

Wildlife species observed in the Project area include:

Rocky Mountain Elk (*Cervus canadensis*) - Spring of 2023, 5 cows calved on the SLB property; elk observed using the proposed east array area as wintering habitat (observations of the author). The CODEX database identifies the Project area to be within 1) overall range; 2) winter range; 3) elk winter concentration area - a high priority habitat. *CPW restrictions*: Elk severe winter range-no permitted or authorized activities from December 1 to April 30; Surface density limitations of one pad per square mile and less than one linear miles of route per square mile (640 acres).

Mule Deer (*Odocoileus hemionus*) – a resident population of mule deer occur in the Project area year-round and use the area for forage, breeding and sheltering (observations of the author). The area provides shelter and forage especially for females and fawns. The CODEX database identifies the Project area to be a mule deer concentration area. *CPW restrictions*: No permitted or authorized activities from December 1 to April 30; Surface density limitation of one pad per square mile and less than one linear mile of routes per square mile (640 acres).

Mountain Lion (*Puma concolor*) – mountain lions and sign (tracks and scat) have been observed in the Project area and within close proximity on several two occasions in 2023.

American Black Bear (*Ursus americanus*) – move through the area and likely use the Project area for foraging and occupancy throughout the spring and summer, and in fall when gambel oak acorns are abundant.

American Badger (*Taxidea taxus*) – resident in surrounding areas. More abundant in areas where prey such as prairie dogs and ground squirrels are available.

Red Fox (*Vulpes vulpes*) – Burrow and tracks observed within east array area; many sightings in fields and scrublands surrounding the proposed Project area. Red fox is an opportunistic omnivore, preying on small mammals, carrion, birds, insects, fruit, human refuse, etc. Rabbits and mice are common prey.

Coyote (*Canis latrans*) – Observed in surrounding areas. Coyote likely occurs in Project area as a resident species due to availability of suitable habitat and limited access by humans. Coyote are opportunistic omnivores that prey on small mammals, carrion, insects, birds, and refuse.

White-tailed jack rabbit (*Lepus townsendii*) – observed in the sagebrush habitats within the proposed east array area throughout the year. Important prey for raptors, fox, coyote, mountain lion.

Desert cottontail (*Sylvilagus audubonii*) - observed in the Project area and surrounding areas throughout the year. Important prey species for raptors, fox, coyote, mountain lion.

Striped skunk (*Mephitis mephitis*) – observed along streamside zones in areas surrounding the Project site. Active all year; Project area provides suitable foraging, denning and breeding habitat.

Raccoon (*Procyon lotor*) – tracks and scat observed along streamside zones in areas surrounding the Project site. Active all year; Project area provides suitable foraging, denning and breeding habitat.

Sagebrush scrub, juniper woodlands, and extensive riparian and wetland habitat within the proposed Project area provides a rich and diverse ecosystem to support a variety of reptiles and amphibians. Reptiles observed in the proposed Project area include: greater short-horned lizard (*Phrynosoma hernandesi*), sagebrush lizard (*Sceloporus graciosus*). Other reptiles and amphibians expected to occur in the proposed Project area include:

Barred Tiger Salamander	<i>Ambystoma mavortium</i>
Woodhouse's Toad	<i>Anaxyrus woodhousii</i>
Western Whiptail (Painted Desert)	<i>Aspidoscelis tigris</i>
Plateau Striped Whiptail	<i>A. velox</i>
Striped Whipsnake	<i>Coluber taeniatus</i>
Western Rattlesnake	<i>Crotalus oreganus</i>
Eastern Collared Lizard	<i>Crotaphytus collaris</i>
Desert Nightsnake	<i>Hypsiglena chlorophaea</i>
Western Milksnake	<i>Lampropeltis gentilis</i>
Northern Leopard Frog	<i>Lithobates pipiens</i>
Smooth Greensnake	<i>Opheodrys vernalis</i>
Gophersnake	<i>Pituophis catenifer</i>
Western Chorus Frog	<i>Pseudacris triseriata</i>
Plateau Fence Lizard	<i>Sceloporus tristichus</i>
Ornate Tree Lizard	<i>Urosaurus ornatus</i>
Wandering Garter Snake	<i>Thamnophis elegans ssp. vagrans</i>

The diversity of habitat types in the proposed Project area provides plentiful high-quality habitat for an abundance of invertebrate species that, along with the biotic environs of the soils in the area, provide the basis for the food chain and the diversity of wildlife in the area. The wetland areas within the proposed east array area provide a unique and extraordinary resource within the setting of the shale deserts and sedimentary basins of the Colorado Plateau ecoregion—a region typified by xeric species, low annual precipitation and sparse surface waters. Wetlands play an integral role in the ecology of the region. The combination of shallow water, high levels of nutrients and primary productivity is ideal for the development of organisms that form the base of the food web. Wetland areas such as those within the east array provide critical habitat for the reproductive life cycle of invertebrate species. Insect species form the prey base for many vertebrate species and make up a large part of the pollinator niche—critical to the health and functioning of ecosystems, both local and regionally. Many species rely on wetlands for food, water and shelter; especially during migration and breeding. The CODEX report, provided in Appendix D, identifies numerous other species that have potential to occur in the proposed Project area.

Consequences

Construction and Operation/Maintenance.

Construction of the Project would result clearing and permanent loss of 580 acres of native pinyon-juniper sagebrush scrublands and fencing/exclusion from 1009.4 acres of habitat for numerous terrestrial game and non-game, special status (see Sections 3.6, 3.9, 3.10), and non-status wildlife species and migratory birds (see Section 3.7). As depicted by Figure 11, the pinyon-juniper sagebrush land cover stretches east to west across the region connecting habitat along the San Miguel River corridor and BLM lands to the east with expansive USFS lands to the west. The SLB tract (the proposed east array area) encompasses the northernmost contiguous tract of pinyon-juniper sagebrush habitat in the area. The proposed east and west array areas together would fragment this habitat type and create a fenced barrier running north-south for approximately 2.25 miles that would bisect the pinyon-juniper sagebrush land cover type and prevent wildlife movement through the area.

Direct effects would include injury or mortality to individuals or wildlife species from habitat disturbance (i.e., vegetation clearing, excavation, trenching, soils compaction) and from collision/contact with construction equipment and/or Project facilities and equipment. Solar panel arrays have been shown to increase mortality to bats from collisions and electrocution. Exposure to predators, stress and increased mortality from disturbance and removal of vegetation and habitat are also likely. Direct effects could also occur from herbicides (used properly or improperly) including death, damage to vital organs, decrease in body weight, decrease in healthy offspring, and increased susceptibility to predation, depending on exposure time and amount. Secondary poisoning could also affect predators that ingest affected prey species. Workforce traffic could also increase vehicle-wildlife collisions. Indirect effects include aural and visual disturbances during construction and long-term maintenance that would deter wildlife and migratory birds from utilizing adjacent areas.

The resultant loss of pinyon-juniper sagebrush scrublands would be locally significant due to the size of the site and because the location of the site within the landscape. Figure 11 depicts the proposed Project site and the change in key terrestrial habitats that would occur should the Project be implemented. The Project would remove 580 acres and fragment pinyon-juniper, sagebrush and sandsage habitat that currently provides breeding, forage and shelter for resident wildlife and also provides a corridor for wildlife movement between areas to the south, east and west of the proposed Project site. Project fencing would exclude terrestrial wildlife and create a barrier to seasonal movement of elk and mule deer. Implementation of the Project would result in severe reduction of available habitats in the landscape, fragment habitat and create new edge effects within the landscape, and reduce total available habitat on Wright's Mesa and within the region. As depicted by Figure 11, the fenced Project site would remove a significant amount of habitat from the available habitat in

the area and the proposed land cover use would result in a substantial change of habitat value within the landscape.

The Project site is located within close proximity to USFS lands, BLM lands, private conservation areas, and the San Miguel River corridor, which has been identified by the Audubon Society as an Important Bird Area and by the Colorado Natural Heritage Program as potential conservation area due to high to moderate biodiversity. Excluding this area from the available wildlife habitat would create further disparity between available habitat, cutoff essential corridor habitat between areas along the San Miguel River to the east and areas to the west on USFS and BLM lands, and reduce the overall quality of habitat in surrounding areas.

The proposed Project would create an immediate and significant change in percentage of vegetated land cover to industrial use, reduce habitat availability and suitability, fragment existing habitat types, and diminish various habitat values (i.e., wintering range, breeding range, concentration area, nesting, etc.) in the Project area and on the landscape level. Loss of habitat has been widely recognized as the number one reason for decreasing animal populations and species diversity for at least half a century. Fragmentation has been shown to reduce bio-diversity by 13 to 75% and impairs key ecosystem functions by decreasing biomass and altering nutrient cycles. Effects are greatest in the smallest and most isolated fragments, and they magnify with the passage of time (Haddad et al., 2015).

No Action Alternative

The No Action Alternative would result in no impacts to the wildlife. Conditions in the area would continue as is.

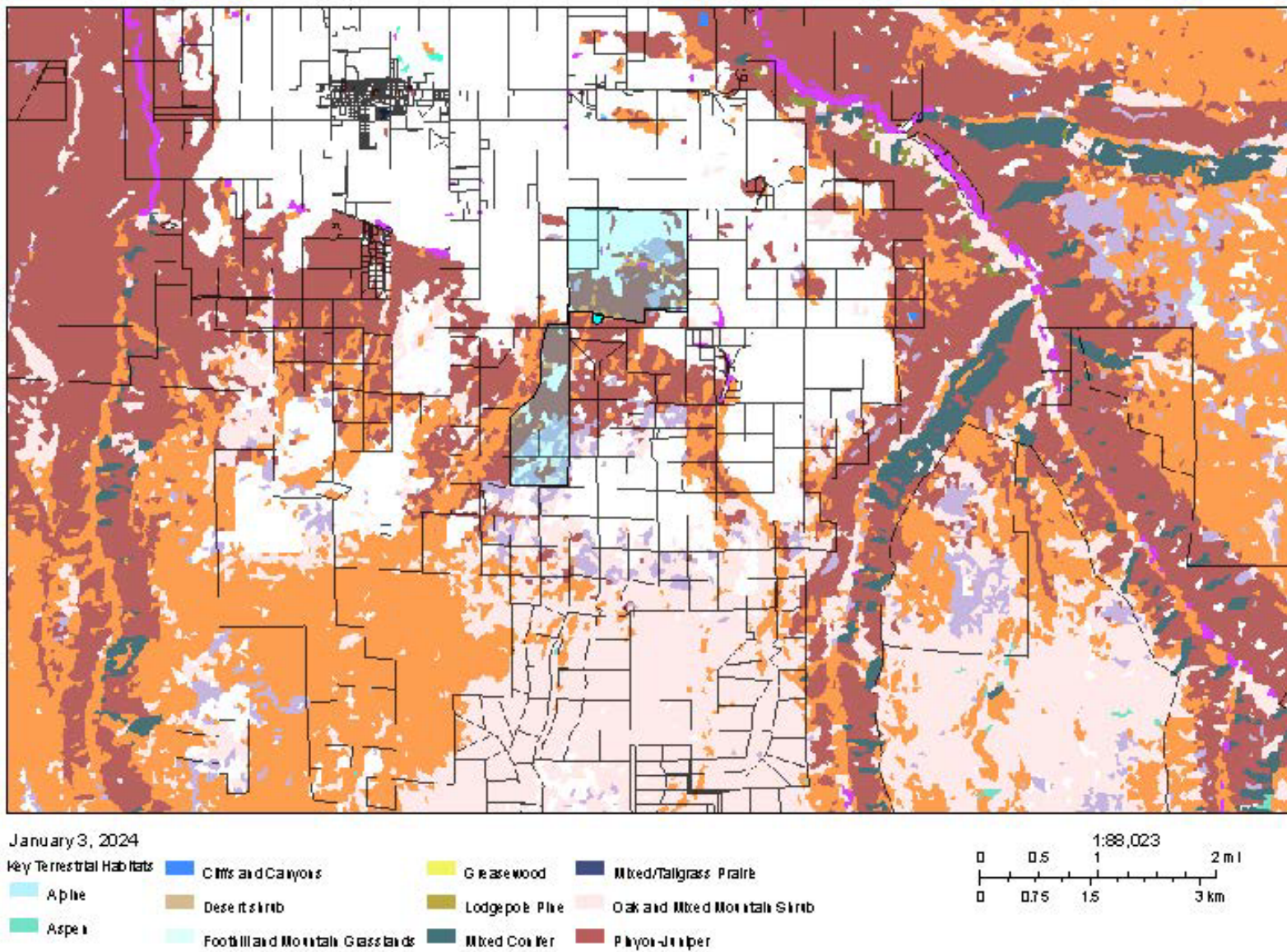


Figure 11 Key terrestrial habitat types of the Project area. Source: CODEX <https://codex.cnhp.colostate.edu/>.

3.7 *Migratory Birds*

Regulatory

The Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) provide legal mandates to protect birds. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). It is the responsibility of the Project proponent to comply with the MBTA and the BGEPA, and to seek appropriate guidance from the USFWS regarding conservation measures that avoid taking migratory birds and eagles.

The Fish and Wildlife Conservation Act (16 U.S.C. 2901–2912) (FWCA) directs the USFWS to identify Birds of Conservation Concern (BCC)—species, subspecies, and populations of migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the ESA; recognizing that proactive bird conservation is critical at a time when continued human impacts will be intensified by effects of a changing climate.

Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds* protects migratory birds and migratory bird habitat. EO 13186 obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations.

Baseline Conditions

The proposed Project area encompasses a total of 1009.4 acres, comprising a variety of habitat types as discussed in Sections 3.5 *Vegetation* and 3.6 *Wildlife*. Because of the habitat diversity (upland forests, scrub, herbaceous, and wetlands), surrounding areas of undeveloped and relatively undeveloped rural land cover, the Project area provides significant high-quality habitat for nesting, foraging, and migratory stopovers for numerous bird species.

Field investigations to identify bird habitat and birds that occur in the proposed Project area were conducted on October 3 and 4, 2023, and January 6 and 8, 2024. The author, a wildlife biologist and avid birdwatcher, resides within one-half mile of the proposed Project site and has been making observations of birds in the area for nearly two years, as of this writing. Of the 214 species observed in San Miguel County in 2023 (Cornell, 2023), 137 species have either been observed in or within close proximity to the proposed Project area, or due to habitat suitability, have a high probability of occurring within the Project area. A complete list of species that were either observed in the Project area or have potential to occur in the Project area is provided in Appendix C.

A large raptor nest was observed in a ponderosa pine in the east array area. The nest tree is located in an area of the east array that would be cleared for installation of the solar panels. The nest tree is approximately 1/3-mile from the nearest residence. A survey would need to be done during nesting season to determine to which species the nest belongs, but given the high numbers of red-tailed hawks in the area, the nest is most likely that of a red-tailed hawk. CPW restrictions for activity around a red-tailed hawk nest are: no surface occupancy (beyond that which historically occurred in the area) within 1/3-mile radius of active nests. No permitted, authorized, or human encroachment activities within 1/3-mile radius of active nests from February 15 through July 15. Some individuals of this species have adapted to urbanization and may exhibit a high tolerance to human habitation and activities within 100 yards of their nest. Development that encroaches on rural nest sites is more likely to cause abandonment (CPW 2020). The nest is within an undeveloped area away from residences and high-human activity. Red-tailed hawks and their nests are protected by the MBTA and by CRS Title 33 – *Parks and Wildlife*.

Birds of Conservation Concern—migratory and non-migratory bird species that represent the USFWS highest conservation priorities (beyond those already designated as federally threatened or endangered) (USFWS, 2021). The USFWS IPaC program has identified 15 BCC with potential to occur in the proposed Project area. (The IPaC report is provided in Appendix E.) Of those, seven species have been observed in the Project area.

Consequences

Construction of the Project would result in clearing and permanent loss of 580 acres of pinyon-juniper sagebrush scrublands, fragmenting habitat in the area and irrevocably impacting 1009.4 acres of foraging, breeding, migration habitat that supports over 137 species protected under the MBTA. The Project would fragment habitat within the landscape of Wright's Mesa, reducing the overall habitat quality in the area surrounding the proposed Project, and create more edge habitat which would change the habitat suitability for species that currently occur in areas surrounding the Project site. The Project would also reduce the total available habitat for birds during migration between wintering areas and breeding grounds, an issue that's becoming more critical as landscapes across the country and within the western hemisphere are under continued pressure for development. Clearing of habitat during breeding season would result in the direct take of nests, eggs, sub-adult birds and cause increased stress and mortality on adult birds. Clearing would also take the raptor nest tree discussed above. The proposed Project would result in direct and indirect long-term adverse impacts to migratory birds.

Table 3-3. Birds of Conservation Concern, Potential for Occurrence in Project Area

Species	Level of Concern	Breeding Season	Occurrence in Project Area
Lewis's Woodpecker <i>Melanerpes lewis</i>	BCC Rangewide	Apr 20 to Sep 30	Observed
Evening Grosbeak <i>Coccothraustes vespertinus</i>	BCC Rangewide	May 15 to Aug 10	Observed
Cassin's Finch <i>Haemorhous cassinii</i>	BCC Rangewide	May 15 to Jul 15	Observed
Bald Eagle <i>Haliaeetus leucocephalus</i>	Non-BCC Vulnerable	Dec 1 to Aug 31	Observed
Black Swift <i>Cypseloides niger</i>	BCC Rangewide	Jun 15 to Sep 10	Possible but rare, non-breeding
Clark's Nutcracker <i>Nucifraga columbiana</i>	BCC - BCR	Jan 15 to Jul 15	Observed, non-breeding
Golden Eagle <i>Aquila chrysaetos</i>	Non-BCC Vulnerable	Dec 1 to Aug 31	Observed
Grace's Warbler <i>Dendroica graciae</i>	BCC - BCR	May 20 to Jul 20	Possible but rare
Lesser Yellowlegs <i>Tringa flavipes</i>	BCC Rangewide	Breeds elsewhere	Suitable habitat
Long-eared Owl <i>Asio otus</i>	BCC Rangewide	Mar 1 to Jul 15	Outside of known range
Olive-sided Flycatcher <i>Contopus cooperi</i>	BCC Rangewide	May 20 to Aug 31	Not suitable, but possible rare migrant through area.
Pectoral Sandpiper <i>Calidris melanotos</i>	BCC Rangewide	Breeds elsewhere	Not suitable habitat
Pinyon Jay <i>Gymnorhinus cyanocephalus</i>	BCC Rangewide	Feb 15 to Jul 15	Possible non-breeding
Virginia's Warbler <i>Leiothlypis virginiae</i>	BCC Rangewide	May 1 to Jul 31	Observed within 0.5 mile
Western Grebe <i>Aechmophorus occidentalis</i>	BCC Rangewide	Jun 1 to Aug 31	Not suitable habitat

The construction and operation of a solar facility and its associated ancillary facilities can directly cause bird fatality or sublethal effects (i.e., injury or energetic costs), the latter of which may lead to fatality or the individual not contributing to the population (e.g., inability to reproduce). One of the primary forms of mortality from solar facilities occurs when birds collide with project infrastructure, including security fences, collector and generation tie lines, PV panels. (Agha et al., 2020; Multiagency Avian-Solar Collaborative Working Group (ASWG), 2016). Impact trauma has been indicated as the leading cause of death documented at a PV facility in California; species affected ranged from hummingbirds to pelicans; from aerial feeders (swallows) to aquatic feeders (grebes) to ground feeders (roadrunners) to raptors (hawks and owls). The species identified were equally divided among resident and non-resident species, and nocturnal as well as diurnal species were represented. (Kagan et al., 2014). Walston et al. (2016) estimated that the annual utility-scale solar energy-related avian mortality to be between 37,800 and 138,600 birds for all utility-scale solar energy facilities across the U.S. that are either installed or under construction.

Glare from panels and mirrors, unexpected fluctuations in lighting, increased illumination, and night lighting could disorient birds or attract them to solar facilities (ASWG, 2016; BLM and DOE 2010, 2012; Hockin et al. 1992; Longcore et al. 2008; Navara and Nelson 2007; Longcore and Rich 2004); Light reflecting off panels may attract insects and insectivorous bird species (Harrison et al., 2016; Kagan et al. 2014; Horváth et al. 2009, 2010; Longcore and Rich 2004); • (ASWG, 2016)) leading to higher rates of mortality from collisions and adverse effects to local avian populations. It has also been documented that large solar arrays create a “lake affect”, whereby the array of panels appears to birds as water. The lake affect attracts birds and also insects that in turn attract birds. Birds (especially waterfowl) mistaking the array for a body of water, attempt to land and are injured and killed on impact. (Kagan et al. 2014; Smith and Dwyer, 2016; ABC, 2015). The proposed Project would create the lake affect. The layout of the east array would leave the riparian corridor along the Gurley Ditch and remaining wetland areas as habitat “islands” within the lake affect. Because of the incidence of bird mortalities from solar arrays, the American Bird Conservancy (ABC) specifically states that large arrays should not be placed near populations of rare or endangered species, in major migratory routes, near wetlands or close to active agricultural lands (ABC, 2015).

Wetland habitats in the shale deserts and sedimentary basins of the Colorado Plateau ecoregion provide essential habitat value for resident and migrating birds, and are of particular importance for breeding, resting and refueling along migration routes. With increased stress due to habitat loss, pollution, climate change, and invasive species, many bird species are declining, making conservation of wetland habitat essential to sustain bird populations (USFWS, 2021). Solar arrays also increase evaporation and evapotranspiration which would likely change the plant communities in these areas over the course of the project life, adversely impacting wetland habitats and birds that use those areas.

No Action Alternative

The No Action Alternative would result in no impacts to the migratory birds.

3.8 Bald and Golden Eagles

Regulatory

Bald and Golden eagles are protected under the Bald and Golden Eagle Protection Act (BGEPA) and the MBTA. Any activity, intentional or unintentional, resulting in take of eagles is prohibited unless otherwise permitted by the USFWS (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). It is the responsibility of the Project proponent to comply with the MBTA and the BGEPA and seek guidance from the USFWS to avoid or minimize potential take of eagles. Specific management guidelines and restrictions on activities within specific distances from eagle nesting, roosting and communal sites are set by the USFWS and the CPW CNHP.

Baseline Conditions

Bald and golden eagles are common in the Project area. Bald eagles and golden eagles have been observed hunting or perched in the Project area, and are known to nest near the Project area. Both bald and golden eagles prey on a variety of species, including prairie dogs, rabbits, waterfowl. The Project area provides high quality foraging habitat within close proximity to nesting sites. The Project site contains suitable perching trees; the Project area does not contain any trees large enough to be considered potential nest trees.

Bald Eagle (*Haliaeetus leucocephalus*)

Three active bald eagle nest sites are located 0.70 mile east, 0.75-mile west and one mile west of the proposed east array area. Bald eagles have been observed in the Project area year-round.

CPW restrictions for activities near bald eagle nests are: half-mile buffer considered high priority habitat. No surface occupancy or ground disturbance (year-round) within ¼ mile (1,320 ft, 400 m) radius of active nests. No permitted, authorized, or human encroachment activities within ½ mile (2,640 ft, 800 m) radius of active nest sites from December 1 through July 31. The majority of bald eagle chicks in Colorado have fledged by July 31; however, for late-nesting or potential re-nesting bald eagles, CPW recommends seasonal restrictions beyond July 31 if chicks are still present in the nest. CPW's recommended buffer is more extensive than the National Bald Eagle Management Guidelines (USFWS, 2007) due to the generally open habitat used by Colorado's nesting bald eagles. No permitted or authorized activities within 0.50-mile of winter night roost or communal roost site from November 15 to March 15 if there is direct line of sight to the activity. No permitted, authorized, or human encroachment activities within ¼ mile (1,320 ft, 400 m) radius of an active night roost from November 15 through March 15 if there is no direct line of sight between the roost and the activity. No permitted, authorized, or human encroachment activities within ½ mile (2,640 ft, 800 m) radius of an active night or communal roost from November 15 through March 15 if there is a direct line of sight between the roost and the activity.

Golden Eagle (*Aquila chrysaetos*)

Though no golden eagle nest sites have been observed for this EA, there are recent (within 5 years) observations of a golden eagle nest in Ed Joe Draw that runs along the west boundary of the west array area. A young golden eagle was observed at a night roost on January 1, 2024 within 500 ft of the west array area. A pair of adult golden eagles was observed to roost within 580 ft of the proposed west array area on January 8, 2024. Activity of golden eagles roosting in the area indicate a high probability that there is a nesting pair of golden eagles in the area. Regular sightings of golden eagles indicates that habitat in the area provides high quality foraging habitat for the species.

CPW restrictions for activities near golden eagle nests are: No surface occupancy or ground disturbance (year-round) within ¼ mile (1,320 ft, 400 m) radius of active nests. No permitted, authorized, or human encroachment activities within ½ mile (2,640 ft, 800 m) radius of active nests from December 15 through July 15.

Consequences

Construction of the Project would result in clearing and permanent loss of 580 acres of pinyon-juniper sagebrush scrublands, fragmenting habitat in the area and irrevocably impacting 1009.4 acres of high-quality foraging habitat from the total foraging area of multiple bald eagle nest sites, and resident bald and golden eagles. The proposed Project would also increase potential for direct injury and mortality of eagles from collision with solar PV panels. Discussion regarding bird mortalities associated with solar facilities is included in Section 4.9 Migratory Birds also applies to eagle species.

Construction of the proposed west array area would result in permanent surface occupancy of an industrial facility within 0.70, 0.75, and one mile of active bald eagle nest trees. The proposed west array area would be located within 500 ft of a golden eagle evening roost tree, and adjacent to Ed Joe Draw where golden eagle

nesting is highly likely. The proposed west array would remove vital sheltering habitat associated with the golden eagle roost and possible nest site. Any surface occupancy within ¼ mile of a golden eagle nest; or activities within ½ mile of active nests from December 15 through July 15, would be in violation of CPW restrictions. Further field investigations are warranted to protect golden eagles.

No Action Alternative

The No Action Alternative would result in no impacts to eagles.

3.9 Federal Threatened and Endangered Species

Regulatory

The Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. §1531 *et seq.*) was enacted by Congress as a pledge by the United States—as a member of the international community—to conserve threatened and endangered species and their ecosystems, pursuant to (A) migratory bird treaties with Canada and Mexico; (B) the Migratory and Endangered Bird Treaty with Japan; (C) the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere; (D) the International Convention for the Northwest Atlantic Fisheries; (E) the International Convention for the High Seas Fisheries of the North Pacific Ocean; (F) the Convention on International Trade in Endangered Species of Wild Fauna and Flora; and (G) other international agreements.

The purpose of the ESA is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. The ESA directs the USFWS to identify threatened and endangered species, and their critical habitats, and to implement steps necessary to recover those species and remove them from the Endangered Species List. The ESA also provides for the protection of those species and the legal process by which intentional violations are executed.

Baseline Conditions

The USFWS Information for Planning and Consultation (IPaC) online database was queried December 30, 2023, to assess potential for species listed under the ESA to be impacted by the proposed Project. The IPaC query generated a list of a total of eight species. Species statuses include threatened, endangered, candidate, proposed and experimental (see Table 3-4). No critical habitat occurs within the Project area. The species list fulfills the requirements of the USFWS under section 7(c) of the ESA. The accuracy of this species list should be verified after 90 days, or March 30, 2024.

Monarch butterfly (*Danaus plexippus*) Candidate

Based on observations made during onsite investigations, only the Monarch butterfly, a candidate for listing, has potential to occur in the proposed Project area. Monarch butterflies make a multi-generational migration between wintering grounds in Mexico and summer breeding areas in the northern U.S. and Canada. Monarch butterflies are reliant on *Asclepias* sp. to complete metamorphosis. *Asclepias* plants have been observed in the Section 1 east array area. Monarch butterflies have been observed within 0.5 mile of the Project site. Flowering plants and milkweed plants (*Asclepias* spp.) that occur in the area provide nectaring habitat and potential reproductive habitat.

Bonytail (*Gila elegans*), Colorado Pikeminnow (*Ptychocheilus lucius*), Humpback Chub (*Gila cypha*), Razorback Sucker (*Xyrauchen texanus*)

Four fish species were identified in the IPaC report (Appendix E). The proposed Project is out of the known range of these species and does not overlap designated critical habitat. However, connectivity of water resources in the watershed with the upper Colorado River provide a potential link of Project impacts to these listed fish species and their critical habitat.

Consequences

Monarch Butterfly - Though the proposed Project site is not within a primary Monarch migration route, Monarchs do occur in the area and have been observed within 0.5 mile of the proposed Project site. Habitat within the proposed Project area provides foraging, roosting and reproductive substrate for Monarchs passing through the region. The proposed Project would remove 1009.4 acres of suitable foraging and reproductive habitat for migrating Monarch butterflies.

Bonytail, Colorado Pikeminnow, Humpback Chub, Razorback Sucker - According to the IPaC report, potential effects must be analyzed if the proposed Project would result in water depletions in the upper Colorado River basin that adversely affect the species and their critical habitat. Project information provided during the May 16, 2023, meeting and on the Project website, does not indicate water sources for the Project. Water resources on Wright's Mesa and for the town of Norwood are limited and designated for residential and agricultural purposes, indicating that any water needed for the Project would need to be sourced from outside of the current water system in the area. Because information regarding the source and amounts of water needed to implement the Project, it is not possible to make a determination of effects for these species. Project proponents would need to provide information regarding water needs and sources prior to permitting.

No Action Alternative

The No Action Alternative would result in no impacts to federal listed species.

3.10 State-listed Species

According to the CNHP CODEX system, two state-listed species—bald eagle and burrowing owl (*Athene cunicularia*) have potential to occur within the proposed Project area. Occurrence of and potential Project-related impacts to bald eagles are discussed in *Section 3.8 Bald and Golden Eagles*. Burrowing owls are not known to occur in the proposed Project area. Though prairie dogs, which are the primary prey of burrowing owls, are common on Wright's Mesa, no documented burrowing owl records are known from the area. Within the past ten years, there have been four recorded sightings in SanMiguel County, with the nearest (2015) over sixteen miles to the west (Cornell Lab of Ornithology, 2024).

Consequences

Consequences to bald eagles are discussed in Section 3.9. The proposed Project would occur outside of the current range of burrowing owls. No effects to burrowing owls are expected as a result of the proposed Project.

No Action Alternative

The No Action Alternative would result in no impacts to state-listed species.

Table 3-4. USFWS Information for Planning and Consultation (IPaC) Report, December 30, 2023, List of Threatened, Endangered, Candidate and Proposed Species

SPECIES	STATUS	OCCURRENCE / EFFECTS	NOTES
Mammals			
Gray Wolf <i>Canis lupus</i>	Endangered Experimental Population No critical habitat.	Unlikely to occur in Project area. May affect, not likely to adversely effect.	Few gray wolves occur naturally in the state; December 2023, CPW released 10 gray wolves in Summit and Grand counties. Project would remove 1009.4 acres of potential suitable foraging habitat within the statewide range of the species. If wolves were to occur in area, individuals would avoid activities associated with construction.
Birds			
Mexican Spotted Owl <i>Strix occidentalis lucida</i>	Threatened No critical habitat.	Outside of known range. No effect.	Project area and surrounding habitats not suitable for occurrence.
Fishes Critical habitat has been designated for all fish species listed below. The proposed Project location does not overlap the critical habitat. These species only need to be considered under the following conditions: Water depletions in the upper Colorado River basin adversely affect this species and its critical habitat. Effects of water depletions must be considered even outside of occupied range.			
Bonytail <i>Gila elegans</i>	Endangered	Out of range / Unable to determine effects based on available information.	Information regarding water source and needed amounts for construction and operations was not available. Therefore, an effects determination cannot be made. Water sources within the proposed Project area are managed by Farmers Water and only run during certain times.
Colorado Pikeminnow <i>Ptychocheilus lucius</i>	Endangered - wherever found, except where listed as an experimental population		
Humpback Chub <i>Gila cypha</i>	Threatened		
Razorback Sucker <i>Xyrauchen texanus</i>	Endangered		
Insects The species below are either candidates or proposed for listing. The Endangered Species Act does not provide for legal protection of species that have not yet been recognized as either threatened or endangered. Conservation measures are recommended by the USFWS but not required by law.			
Monarch Butterfly <i>Danaus plexippus</i>	Candidate No critical habitat.	Observed in surrounding areas. Loss of foraging, roosting, reproductive habitat along migration route.	Within range. Individuals have been observed within 0.5 mile of the proposed Project site.
Silverspot <i>Speyeria nokomis nokomis</i>	Proposed Threatened No critical habitat.	No effect	Outside of known range.

3.11 Acoustic Environment

Regulatory

The **Noise Control Act of 1972** and the **Quiet Communities Act of 1978** delegate authority to the states to regulate environmental noise.

2021 Colorado Code Title 25 - Public Health and Environment Article 12 - Noise Abatement § 25-12-103. Maximum Permissible Noise Levels sets standards for sound levels, with specific directives for time of day, types, frequencies, and periodic timing of sound. The Code also provides exemptions for certain activities (race tracks, industrial, construction). With regards to electrical development, Colorado Code § 25-12-103 includes:

§12. a. *“the public utilities commission may determine, while reviewing utility applications for certificates of public convenience and necessity for electric transmission facilities, whether Projected noise levels for electric transmission facilities are reasonable.”*

§12. b. *Because of the statewide need for reliable electric service and the public benefit provided by electric transmission facilities, notwithstanding any other provision of law, no municipality or county may adopt an ordinance or resolution setting noise standards for electric transmission facilities that are more restrictive than this subsection (12). The owner or operator of an electric transmission facility shall not be liable in a civil action based upon noise emitted by electric transmission facilities that comply with this subsection (12).*

EPA guidelines, state that outdoor sound in excess of 55 decibels (dB) Day-Night Average Sound Level are normally unacceptable for noise-sensitive land uses including residences (USEPA, 1974).

Baseline Conditions

The proposed Project area is set amongst a rural ranching community, with section roads bounding the site on three sides. According to the Wright’s Mesa Master Plan, the proposed Project area is within an area zoned as rural residential / agricultural. Based on the Google Earth aerial imagery dated 2019, there are 19 residences within ¼ mile (1,320 ft), and 46 residences within ½ mile (2,640 ft) of the proposed Project area. There are no industrial properties in the Project area. Observations made at various points near the proposed Project site along Y43, 45Y and Lone Cone Road indicate that sounds in the area are consistent with a rural agricultural setting. Intermittent vehicles along Y43, 45Y and Lone Cone Road, sounds of cattle and sheep, wind, birds and occasional overhead jets create the soundscape in the Project area. Ambient background sound is subtle. During hay season, tractors may be heard in surrounding fields. During cattle drives the cattle can be heard throughout the area.

According to standard charts, the natural ambient sound of quiet rural landscapes is 30-40 dBA (FAA 2024). National Park Service studies indicate that median natural ambient sound levels ranged between 19.3 to 39 dBA during the daytime hours and between 15 to 38 dBA during nighttime hours (NPS 2024). For the purposes of this analysis, standard dBA of 30-40 will be used.

Consequences

Workforce and Traffic

The proposed Project would employ 300 workers and take 3-4 years to develop, design, and construct. In a town of approximately 600 people, the workforce required to construct the Project would significantly affect traffic patterns along Y43, 45Y and Lone Cone Road, throughout the town of Norwood, and along Hwy 145 during morning and evening hours as workforce traffic commutes to/from the job site. Noise from traffic

would likely be most intense nearer the Project site, but would also increase ambient noise levels in all areas where increased traffic levels occur.

Construction

Construction would require 2-3 years of daily activity involving multiple pieces of heavy machinery and equipment to clear and grade the area, deliver materials, transport personnel, install and construct PV arrays, construct the substation and switchyard and plow/bury the gen-tie cabling throughout the site. Table 2-2 provides a list of the typical equipment used during construction of a solar facility.

A complete acoustic analysis of the Project area is outside of the scope of this EA. Therefore, this analysis will tier to the analysis of impacts to the soundscape taken from the GEMINI SOLAR PROJECT Final Resource Management Plan Amendment and Environmental Impact Statement (DOI-BLM-NV-S010-2018-0051-EIS) December 27, 2019. (Gemini EIS) (DOI BLM, 2019) The Gemini Solar Project is a PV array project currently being constructed outside of Las Vegas, Nevada. Though the Gemini Project is substantially larger (5,000 acres) than the proposed OneEnergy Project (1009.4 acres), the Project is similar in design features (i.e., PV array, substation, BESS, switchyard, buried gen-tie cables).

Information regarding construction methods and equipment were not provided during the May 16, 2023, meeting or on the Project website. For the purposes of this EA, it is assumed that equipment and machinery necessary for the proposed Project would be similar to that used for construction and operations of the Gemini project. The analysis of sound impacts in the Gemini EIS are based on attenuation of sound from the two loudest equipment types used for each Project activity, and not a composite of all equipment sound operating on any given day, which would be a factor of Project size. Therefore, the Gemini EIS sound analysis provides a general idea of potential sound impacts that would occur if the proposed Project were implemented.

Sound analysis from Gemini Solar EIS

The construction and operations noise analyses are based on typical equipment and vehicle noise levels and attenuation of noise, representing a conservative noise level. Maximum noise levels from construction equipment and vehicles were estimated using in the Federal Highway Administration's Roadway Construction Noise Model, in accordance with the methodology detailed in the Federal Transit Administration's Transit Noise and Vibration Impact Assessment (2006). Information regarding noise levels associated with equipment used during the construction, operations, and decommissioning of Solar facility are provided in Appendix F.

Construction and Decommissioning

Equipment used during construction and decommissioning are similar. Therefore, sound impacts associated with these phases of the Project would be similar.

Construction/decommissioning would require several to over a hundred pieces of industrial equipment. Noise levels at 50 ft (15 m) from the two loudest equipment types for each construction activity, would generally range from 70 to 80 dBA Leq at 50 ft. Backup alarms would intermittently sound, resulting in a level of approximately 70 dBA Lmax at 50 ft. Noise levels from the loudest construction activity would dissipate to 55 dBA Leq at approximately 1,350 ft from the noise source.

EPA guidelines, state that outdoor sound levels in excess of 55 decibels (dB) are normally unacceptable for noise-sensitive land uses such as residences. Nineteen residences are within 1,320 ft of the proposed project site and would be adversely impacted by noise generated from construction (2-3 years) and decommissioning (estimated one year).

Operation and Maintenance

Solar array trackers, inverters, transformers, and transmission lines emit low levels of ongoing noise during operation. Maintenance activities also generate intermittent and occasional noise. Noise emitted from equipment associated with the solar facility would be less than 55 dBA at 50 ft. Equipment and vehicles used during maintenance activities would result in occasional higher noise levels, with a Leq of 55 dBA at 315 ft from the source.

Operations and maintenance would result in minor adverse impacts to the soundscape for residences within 1,320 ft of the Project site.

Consequences

Implementing the proposed Project would transform the soundscape of the area from rural agricultural to industrial. Construction activities would increase ambient sound in the Project area from 30-40 dBA to 70 to 80 dBA. And average increase 40 dBA. Operations (average 55dBA) would increase the ambient sounds in the Project area by 25-15 dBA. There are 19 residences within ¼ mile (1,320 ft), and 46 residences within ½ mile (2,640 ft) of the proposed Project. The proposed Project would have a significant adverse impact to the soundscape experience of residences within the analysis area.

The proposed Project would also impact soundscape features throughout Wright's Mesa as workforce traffic would significantly affect traffic patterns and noise during the period of construction. Analyzing traffic patterns and associated noise is outside the scope of this EA. The proposed Project would have long-term (several years of construction) direct adverse effects on the ambient acoustic environment in the immediate vicinity of the Project area, as well as surrounding areas.

Countless species rely on acoustic communication for survival. Rocky Mountain elk are exceedingly vocal during rut and mating season and rely on acoustic communication to attract mates and as part of territorial establishment amongst bulls. Coyotes and foxes rely on acoustic communication to attract mates, establish and defend territories, and detect potential predators. Nearly all birds species rely on song and calls to successfully breed and establish nesting territories. Soundscapes free of noise pollution are critical to survival of wildlife in the Project area.

No Action Alternative

The Project would not be built under the No Action Alternative, and no changes to the acoustic environment would occur.

3.12 Visual Resources and Landscape Identity

Regulatory

There are no federal laws regarding visual resource protection. However, several agencies (NPS, NRCS, FAA) have specific visual resource management policies. Visual resources include natural landscape features that are visually important or have unique characteristics. In unique circumstances, the nighttime sky may be considered a visual resource. Visual character of an area can be defined by the landscape, i.e., urban, aquatic, coastal, desert, sagebrush scrublands, rural agricultural. Visual resources include aesthetic value and can be linked to an individual's or community's sense of culture and identity.

Landscape represents the dynamic interaction between cultural and natural processes. The relations developed with surroundings create and establish belonging, meaning, and informs people's identity. The European Landscape Convention recognise landscapes in law as an essential component of people's surroundings, an expression of shared cultural and natural heritage, and a foundation of their identity. Alterations to the landscape affect how people see themselves. If changes are negative or non-democratic, it

undermines the relationships individuals and communities have with their surroundings. Change has the potential to create ‘landscape induced alienation’ or solastalgia, homesickness without leaving home (Butler and Sarlöv-Herlin, 2019.)

Baseline Conditions

Visual character in the Project area are typified by open pinyon-juniper woodlands, sagebrush scrublands and rural ranching agriculture. The viewshed in general is an open landscape of pastures, cattle and sheep, with sagebrush scrub and pinyon-juniper woodlands to the south. Lone Cone Road (44Z S) bisects the proposed Project area south to north, creating a contrasting strip of dark pavement in the otherwise subtly colored landscape. Barbed wire and cedar post fences line the perimeter. An electrical distribution line runs along Y43, 44ZS, and Y45; it is made of tall wooden poles with multiple cross braces and insulators. To the west are the LaSalle Mountains which create the skyline beyond which the sun sets, a mountainous backdrop to the otherwise shades of green of the sagebrush and pastures. The Rocky Mountains rise to the east, creating an eye-catching, jagged background to Wright’s Mesa in the lower foreground viewshed. The overwhelming visual element is Lone Cone Mountain to the South, which is the Town’s iconic identifier.

Consequences

The Project would result in significant adverse impacts to the viewshed in areas surrounding to Project Site. Instead of the open juniper-pinyon sagebrush scrublands and wildlife habitat, neighboring properties would have an industrial solar facility consisting of hard dark angular shapes dominating the viewshed. The nearest town is Norwood, approximately 2.25 miles northwest of the proposed Project area. The Project would create an extreme contrast to the existing setting, and be visible by residents of Norwood and on the Uncompahgre Plateau, nearly 25 miles to the north. North and southbound travelers along on 44ZS would have a shockingly contrasted viewshed as they approach the Project. The Project would be visible to travelers on Hwy 145, for approximately 2.25 miles between Y45 and Norwood.

Perceptible impacts to the viewshed can vary depending on elevation change, vegetation, lighting, and distance from the Project. In general, the further from the Project, the less obvious or visually confronting the Project would be perceived within the viewscape. Topography in the area would likely hide the Project from some points. However, the 1009.4-acre Project would become one of the primary visual elements on an otherwise rural scenery, typified by open fields, and pastures of cattle and flocks of sheep. The sharp angles and lake effect would be especially distracting as a drastically different visual element within the bucolic environment.

Clearing vegetation and earth moving required to construct the Project would create distinct and harsh visual changes during construction and result in long-term adverse changes to the viewshed. The presence of large panels, perimeter fencing, and associated structures will change the character of the landscape and thus the viewshed. The reflective surfaces of solar panels can cause glare, increasing its visual impact on the landscape and potentially causing discomfort to nearby residents and drivers. Glare also causes the lake effect, whereby the entire array appears as a body of water. This reflective quality causes the array to be more visible at greater distances.

Change has the potential to create ‘landscape induced alienation’ or solastalgia, homesickness without leaving home. Converting land for solar arrays means a change in land use, which will be significant compared to the current undeveloped state. The community of Norwood and Wright’s Mesa identify with a rural agricultural way of life. The proposed industrial solar facility would be an intrusion on the community. This uninvited and unwelcome change to the landscape would be a negative, non-democratic change to the land. It would be perceived as a violation of land and lifestyle that threatens the shared cultural and natural heritage of the area. (Butler and Sarlöv-Herlin, 2019.)

No Action Alternative

Under the No Action Alternative, the landscape values and visual resources would remain as is.

3.13 Environmental Justice and Socioeconomics

Environmental Justice

Regulatory

Executive Order (E.O.) 12898 - Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations - was issued in 1994 to ensure minority and low-income populations are given equal consideration during the analysis of the environmental impacts with the goal of achieving environmental protection for all communities.

According to the EPA's *Final Guidance for Incorporating EJ Concerns in EPA's NEPA Compliance Analysis* (1998) (Guidance), an Environmental Justice analysis must be completed if:

- the percent of low-income population within the affected area is greater than or equal to that of the county;
- if the minority population in the affected area exceeds 50 percent or is 10 percentage points higher than the county or state level.

Baseline Conditions

Norwood's low-income population (13.9%) is 1.5 times greater than that of San Miguel County (8.5%). Norwood's foreign-born population (9.5%) is about 10 percent higher than San Miguel County (8.5%) and about the same as the rate in Colorado (9.5%). These statistics indicate that an Environmental Justice analysis is appropriate for this EA. (U.S. Census Bureau, 2022).

Consequences

Any project-related impacts would affect this minority and low-income population.

Socioeconomics

Baseline Conditions

Norwood, Colorado is a rural ranching community with a population of 551; 240 housing units; 192 incorporated acres. The unemployment rates in Norwood and San Miguel County are 3.4% and 3.1%, respectively, (USCB, 2022).

Consequences

Employment - The workforce at the Project site during the 2-3-year construction period would require as many as 300 workers. In-migration of the work force from other counties or adjacent states would be necessary to meet the 300 workers needed during construction. The effects on regional employment as a result of constructing the Project would be beneficial, but minor since the majority of workers would need to come from outside of Norwood.

Housing - According to the San Miguel Regional Housing Authority, Housing Needs Assessment for San Miguel County (2018), there is a "well-recognized deficit of affordable housing for the local workforce". Rental housing and availability of temporary accommodations such as hotels and motels in Norwood and San

Miguel County could not accommodate the potential influx of workers. San Miguel county prohibits man-camps. Most of the workforce would have to commute from outside of San Miguel County. The Project would have further exacerbate housing needs in Norwood and the County.

Public Services - Norwood has one gas station (with four pumps), three hotels, one grocery store, one coffee shop, one restaurant, and a saloon. Though the generation of direct sales and income taxes would be a benefit, the influx of up to 300 out-of-town workers during the construction period would also be a significant burden public services in Norwood. Information on medical and emergency services is provided in Section 3.15.

Town Culture and Identity - The Project would result in a 1009.4-acre facility outside of a 192-acre town. The proposed Project would be an industrial structure encompassing an area 5.25 times the size of the town. The town of Norwood would be dwarfed in the shadow of the proposed solar facility. Long-time residents express concern over the potential loss of identity, as if their community, built on generations of ranching and the commerce that is specific to the town of Norwood, will experience a significant shift away from the culture with which they identify. More recent residents have stated that they move to Norwood for the small-town aesthetic and that the aesthetics will be significantly changed if an industrial plant is constructed in town, not just near their property. The SLB tract is currently leased by a rancher who keeps his bulls on the property. If the proposed Project was implemented, he would have to find another place to keep his bulls which would incur costs of either leasing another tract, purchasing property or changing his herd management.

According to the Solar Energy Development PEIS, large solar development projects can have significant impacts on small rural communities. Social disruption is likely to occur once an arbitrary population growth rate associated with solar energy development projects has been reached, with an annual rate of between 5 and 10% growth in population resulting in a breakdown in social structures, an increase in alcoholism, depression, suicide, social conflict, divorce, and delinquency, and deterioration in levels of community satisfaction. The number of new residents from outside the region of impact is likely to lead to some demographic and social change in small rural communities. Communities hosting these development projects are likely to be required to adapt to a different quality of life, with a transition away from a more traditional lifestyle of ranching in small, isolated, close-knit, homogenous communities with a strong orientation toward personal and family relationships, toward a more urban lifestyle with increasing cultural and ethnic diversity and increasing dependence on formal social relationships within the community. (Impacts of Solar Energy Development, Chapter 5.17 Socioeconomics DOE and BLM, 2010, 2012).

The proposed project would have significant adverse effects on local services including grocery and fuel availability, currently set to support Norwood's population of 551. The proposed project would have significant and irrevocable adverse effects on the culture and identity of Norwood.

No Action Alternative

The Project would not be constructed under the No Action Alternative. No socioeconomic or environmental justice effects would occur.

3.14 Public Health and Safety

The Uncompahgre Medical Center (UMC), located in Norwood, provides local medical and dental services for the town of Norwood and neighboring communities. It has a staff of two doctors, a physician's assistant, and a clinical social worker. UMC is only open on weekdays; it does not provide emergency services outside of regular business hours. The nearest hospital is approximately 67 miles away in Montrose, Colorado.

The Norwood Fire Protection District (District), located in Norwood, provides emergency medical and fire response services. The District services over 500 square miles to 3,000 residents. The District fleet includes

two ambulances, two fire engines, two brush trucks and one water tender respond to structural and wildland fires. www.norwoodfiredistrict.org

The San Miguel County Sheriff's Department has an office in Norwood. According to the Sheriff's organizational chart, the Department has eleven patrol deputies.

Consequences

The proposed Project will increase the local population by an estimated 300 workers for the duration of construction. The Norwood emergency services, medical clinic, police and fire departments are not equipped or staffed to manage the immediate increase to the population that would occur during Project construction.

It is anticipated that potential for a catastrophic fire would have severe impacts to the project site and residents of Wrigt's Mesa. The Norwood Fire Chief has prepared a separate report to address potential impacts from the proposed Project.

3.15 Cultural Resources

Regulatory

Federal laws that require consideration of historical, archeological and Tribal resources include, the Paleontological Resources Preservation Act of 2009, American Indian Religious Freedom Act of 1978, Native American Graves Protection and Repatriation Act of 1990, Section 106 of the National Historic Preservation Act of 1966, as amended, Archaeological and Historical Conservation Act of 1974, and the Archaeological Resources Protection Act of 1979, as amended.

Cultural resources analysis typically include discussion regarding archeological and historical resources in the area. Analyses include database searches and field investigations of potential archeological and historical resources that are known to or have potential to occur in the Project area. To conduct cultural resources reviews, requires a permit from the Colorado State Historic Preservation Office (SHPO), investigators must hold a Graduate degree in anthropology or archaeology or history with demonstrated experience in Colorado prehistoric or historic archaeology.

Baseline Conditions

No specific archeological surveys have been conducted for this EA. Local residents report finding numerous arrowheads and projectile points in the Project area. A complete archeological review is recommended to assess cultural and historic resources within the Project site.

Consequences

Due to the high incidence of indigenous artifacts in the Project area, excavation and soil disturbance associated with the proposed Project could adversely impact archeologic resources. Without proper mitigation, cultural sites could be destroyed.

No Action Alternative

The No Action Alternative would result in no impact to cultural resources because the proposed Project area would not be disturbed.

4. CUMULATIVE IMPACTS

A cumulative impact is the impact on the environment that results from the incremental impacts of an action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Because utility-scale solar projects have wide-reaching transmission potentials, reasonably foreseeable actions that would add to cumulative impacts with the proposed Project include potential development of solar power facilities in the Western Slope region of Colorado, New Mexico, Arizona and Utah.

According to the U.S. Energy Information Administration website, Colorado has substantial solar resources, especially in the south near the New Mexico border (U.S. Energy Information Agency, 2023). To date, there are five utility-scale solar projects (totaling 1,555 MW) in the preconstruction or permitting stages in the Four Corners region. There are seven utility-scale solar Projects (totaling 1,630 MW) recently announced, in the Four Corners region. (Global Energy Monitor. 2023) Table 4-1 provides information regarding reasonably foreseeable future solar Projects within the region. Along with the potential for additional utility-scale solar development, the potential exists for additional electric transmission lines to be built to tie into the existing power grid.

Continued development of utility-scale solar facilities and electric lines would contribute to incremental impacts on existing resources, as discussed in Chapter 3 in this EA. Short-term adverse impacts associated with construction of solar technology would affect air quality due to increases in particulate matter related to soil disturbance, water quality from surface runoff, noise related to construction, and recreation due to limited access. Long-term adverse effects would occur to the social structure and culture of the town of Norwood, to wildlife, migratory birds, bald and golden eagles, from the long-term conversion to industrial land use. Incremental impacts on resources such as soils, groundwater, and herbaceous vegetation could also occur as a result of increased impervious surfaces and loss of vegetation. Adverse impacts to visual resources would also occur as natural landscape features are converted to industrial land use. Long-term beneficial impacts to regional air quality and GHG would be expected as the net emissions of GHG due to electricity generation are reduced. Short-term benefits to regional economies would be expected as job opportunities increase during the construction phase of the solar Projects.

Table 2-1: Reasonably Foreseeable Future Utility-Scale Solar Development Projects in the Region (U.S. Energy Information Agency, 2023)

Project Name	Generating capacity (MW)	Acreage	Location Town, County, State	Begin construction
Projects in Preconstruction and Permitting Phases				
Boutique Solar	127	2,000	Mancos, Montezuma County, CO	2025
San Juan Solar*	598	4,000	Waterflow, San Juan County, NM	No data
Four Corners Solar*	400	3,500	Fruitland, San Juan County, NM	No data
Shiprock Solar*	360	1980	Waterflow, San Juan County, NM	2023
Red Mesa Tapaha Solar	70	500	Red Mesa, Apache County, AZ	2023
Subtotal	1,555	11,980		
Projects Recently Announced				
Sun Bear	970	5,000	UMUT Montezuma County, CO	2024
Hesperus Solar	155	1,900	Hesperus, Montezuma County, CO	2023
Coyote Gulch Solar	140	1,100	Cortez, Montezuma County, CO	2024
Dolores Canyon Solar	110	800	Cahone, Dolores County, CO	2023

Rockmont Solar and Storage*	100	No data	Kirtland, San Juan County, NM	2023
201LC 8me LLC Solar*	100	No data	San Juan County, NM	2023
Clean Path Energy*	55	No data	San Juan County, NM	2028
Subtotal	1,630	8,800		
Total	3,240	20,000		

5. CONTRIBUTING AUTHORITIES AND DOCUMENT PREPARATION

NAME	RESOURCE CONTRIBUTION AND EXPERTISE
Tami St. Germain	Primary Author, Wildlife Biologist, NEPA Specialist
Chris Hensley	Wildland Firefighter, Citizen Scientist (Herpetofauna)
Craig Grother	Wildlife Biologist, (Retired) U.S. Forest Service, Norwood Colorado
Dr. Robert Grossman	Research Faculty (Retired) University of Colorado (Boulder)
Thomas Goralka	Document Editor

References

Acoustical Society of America, 1983, American National Standard Specification for Sound Level Meters, ANSI S1.4-1983, New York, N.Y.

_____. 1985, American National Standard Specification for Sound Level Meters, ANSI S1.4A-1985 Amendment to ANSI S1.4-1983, New York, N.Y., June 26.

Agha Mickey, Jeffrey E. Lovich, Joshua R. Ennen, Brian D. Todd. 2020. Environmental Research Letters. Volume 15 075004 DOI 10.1088/1748-9326/ab8846. Available at: [Wind, sun, and wildlife: do wind and solar energy development 'short-circuit' conservation in the western United States? - IOPscience](#). Accessed January 5, 2024.

American Bird conservancy. 2015. Solar Energy Position Paper. Available at: [PP-Solar-Energy.pdf \(abcbirds.org\)](#). Accessed January 8, 2024.

Anderson, G.S., and U.J. Kurze, 1992, "Outdoor Sound Propagation," in Noise and Vibration Control Engineering: Principles and Applications, L.L. Beranek and I.L. Vér (editors), John Wiley & Sons, Inc., New York, N.Y.

Butler, Andrew and Ingrid Sarlöv-Herlin. 2019. Changing landscape identity—practice, plurality, and power, Landscape Research, 44:3, 271-277, DOI: 10.1080/01426397.2019.1589774 Available at: <https://doi.org/10.1080/01426397.2019.1589774> Accessed January 15, 2024.

Chapman, S.S., G.E. Griffith, J.M. Omernik, A.B. Price, J. Freeouf, and D.L. Schrupp. 2006. Ecoregions of Colorado, U.S. Geological Survey, Reston, Virginia.

Colorado Parks and Wildlife, Department of Natural Resources. 2020. RECOMMENDED BUFFER ZONES AND SEASONAL RESTRICTIONS FOR COLORADO RAPTORS.

Colorado Energy Office. 2021. Greenhouse Gas Pollution Reduction Roadmap 2021. Available at: CEO Legislative Session Snapshot 2021 - Colorado Energy, Climate & Environmental Justice [FINAL].pdf - Google Drive. [Accessed 17 September 2023](#).

Colorado General Assembly. 2019. Colorado House Bill 19-1261 the Climate Action Plan to Reduce Pollution. Available at: [Climate Action Plan To Reduce Pollution | Colorado General Assembly](#). Accessed 17 September 2023.

Cornell Lab of Ornithology. 2023. San Miguel, Colorado. eBird. Available at: [eBird - Discover a new world of birding...](#) Accessed December 27, 2023.

Cornell Lab of Ornithology. 2024. eBird. Burrowing Owl (*Athene cunicularia*) Species Map 2013-2024. Available at: [Burrowing Owl \(Athene cunicularia\) - Species Map - eBird](#). Accessed January 9, 2024.

EcoAction Partners. 2020. 2020 GHG Emissions Inventory. Available at: ([GHG Inventory — EcoAction Partners](#)) Accessed December 24, 2023.

Global Energy Monitor. 2023. Global Solar Power Tracker. Available at: [Tracker Map - Global Energy Monitor](#). Accessed June 15, 2023.

Google Earth Pro. 2022. Version 7.3. 2019 aerial imagery of the proposed Project area. Available at: <https://earth.google.com/web/?sjid=17732081037115718979-NA>. Accessed, October 3, 2023.

Gutrich, John and Richard B. Howarth. *Carbon sequestration and the optimal management of New Hampshire timber stands*. Ecological Economics, Volume 62, Issues 3–4, 2007, Pages 441-450, ISSN 0921-8009, <https://doi.org/10.1016/j.ecolecon.2006.07.005>.

Haddad, N.M., Brudvig, L.A., Colbert, J., Davies, K.F., Gonzalez, A., Holt, R.D., Lovejoy, T.E., Sexton, J.O., Austin, M.P., Collins, C.D., Cook, W.M., et al. 2015. Habitat fragmentation and its lasting impact on Earth’s ecosystems. Applied Ecology, Science Advances Volume 1, Issue 2. American Association for the Advancement of Science. Available at: <https://www.science.org/doi/epdf/10.1126/sciadv.1500052>. Accessed January 13, 2024.

Harrison, C., Lloyd, H., and Field, C. 2016. Evidence review of the impact of solar farms on birds, bats and general ecology. Natural England, 1st Edition. Manchester Metropolitan University. Available at: <http://publications.naturalengland.org.uk/publication/6384664523046912>. Accessed November 22, 2023.

Hernandez R. R., S.B. Easter, M.L. Murphy-Mariscal, F.T. Maestre, M. Tavassoli, E.B. Allen, C.W. Barrows, J. Belnap, R. Ochoa-Hueso, S. Ravi, M.F. Allen. 2013. Environmental impacts of utility-scale solar energy. In Renewable and sustainable Energy Reviews 29 (2014) 766–779. Available at: [Environmental impacts of utility-scale solar energy \(psu.edu\)](#). Accessed, October 1, 2023.

Hockin, D., et al., 1992, “Examination of the Effects of Disturbance on Birds with Reference to Its Importance in Ecological Assessments,” Journal of Environmental Management 36:253–286

Horváth, G., et al., 2009, “Polarized Light Pollution: A New Kind of Ecological Photopollution,” Frontiers in Ecology and the Environment 7:317–325.

- _____. 2010. “Reducing the Maladaptive Attractiveness of Solar Panels to Polarotactic Insects,” *Conservation Biology* 24(6):1644–1653.
- Intergovernmental Panel on Climate Change (IPCC). 2021. Climate change 2021: The physical science basis Contribution of Working Group I to the IPCC Sixth Assessment Report. Cambridge, United Kingdom: Cambridge University Press.)
- Kagan, Rebecca A., Tabitha C. Viner, Pepper W. Trail, and Edgard O. Espinoza. 2014. *Avian Mortality at Solar Energy Facilities in Southern California: A Preliminary Analysis*. National Fish and Wildlife Forensics Laboratory. Available at: [avian-mortality.pdf \(ourenergypolicy.org\)](#). Accessed January 8, 2024.
- Longcore, T., and C. Rich, 2004, “Ecological Light Pollution,” *Frontiers in Ecology and the Environment* 2(4):191–198.
- Longcore, T., et al., 2008, “Height, Guy Wires, and Steady-Burning Lights Increase Hazard of Communication Towers to Nocturnal Migrants: A Review and Meta-analysis,” *Auk* 125:485–492.
- Maghami, M., H. Hizam, C. Gomes, M. Radzi, M. Rezadad, S. 2016. Power Loss Due to Soiling on Solar Panel: A Review. In *Renewable and Sustainable Energy Reviews*. OI: [10.1016/j.rser.2016.01.044](#)
- Millstein, D., Wiser, R., Bolinger, M. *et al.* The climate and air-quality benefits of wind and solar power in the United States. *Nat Energy* 2, 17134 (2017). <https://doi.org/10.1038/nenergy.2017.134>. Accessed December 27, 2023.
- Multiagency Avian-Solar Collaborative Working Group, 2016, Avian-Solar Science Coordination Plan, November
- National Park Service. [Acoustic Monitoring Reports - Natural Sounds \(U.S. National Park Service\) \(nps.gov\)](#) Fort Collins, CO: NPS Natural Sounds and Night Skies Division. Accessed January 3, 2024.
- Navara, K.J., and R.J. Nelson, 2007, “The Dark Side of Light at Night: Physiological, Epidemiological, and Ecological Consequences,” *Journal of Pineal Research* 43(3):215–224.
- Norwood Chamber of Commerce. 2000. Av [It’s Time to Talk About Water in Norwood \(norwoodcolorado.com\)](#).
- NWCC (National Wind Coordinating Committee), 2002, Permitting of Wind Energy Facilities: A Handbook, Siting Subcommittee, c/o RESOLVE, Washington, D.C., Aug.
- Robson, S. G. and E. R. Banta. 1995. U.S. Geological Survey. GROUND WATER ATLAS of the UNITED STATES; Arizona, Colorado, New Mexico, Utah HA 730-C. Available at: [HA 730-C Colorado Plateaus aquifer text \(usgs.gov\)](#). Accessed, October 1, 2023.
- San Miguel County. 2008. Wright’s Mesa Master Plan, San Miguel County, Colorado, February 13, 2008. Available at [Microsoft Word - Wright'sMesa_revdraftplan_ch1-3_FINALFeb08.doc \(sanmiguelcountycolorado.gov\)](#). Accessed 17 September 2023.

- _____. 2021. San Miguel County Comprehensive Development Plan. Adopted August 3, 1978. Amended through December 8, 2021. Available at: [Master Plan | San Miguel County, CO - Official Website \(sanmiguelcountyco.gov\)](https://sanmiguelcountyco.gov/master-plan). Accessed 17 September 2023.
- _____. 2021. ([Master Plan | San Miguel County, CO - Official Website \(sanmiguelcountyco.gov\)](https://sanmiguelcountyco.gov/master-plan)). Accessed 17 September 2023.
- _____. 2023. Summary Report GHG Inventory for Forests and Trees Outside Forests, 2004 to 2019 San Miguel County, Colorado. Available at: [GHG-Inventory-for-Forests-and-Trees-Outside-Forests-2004-to-2019-PDF \(sanmiguelcountyco.gov\)](https://sanmiguelcountyco.gov/ghg-inventory-for-forests-and-trees-outside-forests-2004-to-2019-pdf). Accessed December 27, 2023.
- San Miguel County, Department of Environmental Health. 2022. Regional Air Quality Summary. Available at: [Outdoor Air Quality | San Miguel County, CO - Official Website \(sanmiguelcountyco.gov\)](https://sanmiguelcountyco.gov/outdoor-air-quality). Accessed, September 30, 2023.
- San Miguel County Regional Housing Authority. 2018. Final Report. San Miguel Housing Needs Assessment. [Needs-Assessment-2018-1.pdf \(smrha.org\)](https://smrha.org/needs-assessment-2018-1.pdf) Accessed January 14, 2024.
- San Miguel Watershed Coalition. 2000. San Miguel River Legal and Institutional Analysis Draft February 2000. Available at: [San Miguel Watershed Reports](https://sanmiguelwatershedreports.org). Accessed October 1, 2023.
- Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at the following link: <http://websoilsurvey.sc.egov.usda.gov/>. Accessed, September 26, 2023.
- Smith, J.A. and Dwyer, J.F. 2016. Avian interactions with renewable energy infrastructure: An update. *American Ornithology: The Condor*, Volume 118, Issue 2, pp. 411-423. Available at: <https://academic.oup.com/condor/article/118/2/411/5153228>. Accessed November 1, 2023.
- U.S. Census Bureau. 2022. American Community Survey 5-year estimates. Retrieved from Census Reporter Profile page for Norwood, CO <<http://censusreporter.org/profiles/16000US0854880-norwood-co/>> Accessed January 13, 2024.
- _____. U.S. Census Bureau (2021). American Community Survey 5-year estimates. Retrieved from Census Reporter Profile page for San Miguel County, CO <<http://censusreporter.org/profiles/05000US08113-san-miguel-county-co/>>
- U. S. Department of Agriculture, Natural Resources Conservation Service. 2023. *Custom Soil Resource Report for San Miguel Area, Colorado, Parts of Dolores, Montrose, and San Miguel Counties*. September 26. Source: [Web Soil Survey \(usda.gov\)](https://websoilsurvey.usda.gov).
- U. S. Department of Agriculture, Natural Resources Conservation Service. 2023. *Custom Soil Resource Report for San Miguel Area, Colorado, Parts of Dolores, Montrose, and San Miguel Counties West Array area*. September 26. Source: [Web Soil Survey \(usda.gov\)](https://websoilsurvey.usda.gov).
- U.S. Department of the Interior (DOI) Bureau of Land Management (BLM). 2019. GEMINI SOLAR PROJECT Final Resource Management Plan Amendment and Environmental Impact Statement (DOI-BLM-NV-S010-2018-0051-EIS) December 27, 2019.
- U.S. DOI BLM and the U.S. Department of Energy (DOE). 2010. *Draft Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States*. Available at: [Solar Energy Development Draft PEIS \(anl.gov\)](https://anl.gov/solar-energy-development-draft-peis). Accessed November 1, 2023.
- _____. 2012. *Final Solar Energy Development Programmatic Environmental Impact Statement: FES*

- 12-24; DOE/EIS-0403. The U.S. Department of the Interior Bureau of Land Management and the U.S. Department of Energy. Available at: <https://solareis.anl.gov/documents/fpeis/>. Accessed September 2022.
- U.S. DOI Fish and Wildlife Service. 2007. NATIONAL BALD EAGLE MANAGEMENT GUIDELINES. [national-bald-eagle-management-guidelines.pdf \(fws.gov\)](#)
- _____. 2021. Birds of Conservation Concern 2021. United States Department of the Interior, U.S. Fish and Wildlife Service, Migratory Birds, Falls Church, Virginia. <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- _____. 2021. Stories. National Wetland Inventory Data Informing Waterfowl Conservation. May 3, 2021. Available at: [National Wetland Inventory Data Informing Waterfowl Conservation | U.S. Fish & Wildlife Service \(fws.gov\)](#). Accessed January 12, 2024.
- U. S. Department of Transportation Federal Aviation Administration. 2024. [Fundamentals of Noise and Sound | Federal Aviation Administration \(faa.gov\)](#) Accessed January 3, 2024.
- U.S. Energy Information Administration. 2023. Colorado Profile Analysis. Available at: [U.S. Energy Information Administration - EIA - Independent Statistics and Analysis](#). Accessed June 15, 2023.
- U.S. Environmental Protection Agency (EPA). 1974. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (55/9-74-004).
- _____. 1998. Final Guidance for Incorporating EJ Concerns in EPA's NEPA Compliance Analysis. Available at: <https://www.epa.gov/environmentaljustice/epa-final-guidance-incorporating-ej-concerns-epas-nepa-compliance-analysis>. Accessed January 14, 2024.
- _____. 2023. Inventory of U.S. Greenhouse Gas Emissions and sinks by State: 1990-2021. <https://www.epa.gov/ghgemissions/state-ghg-emissions-and-removals>
- _____. 2023. 81423, Norwood, Colorado Watershed: Headwaters Maverick Draw (140300030405) Available at: [How's My Waterway - Community \(epa.gov\)](#). Accessed, September 30, 2023.
- U. S. Executive Office of the President. 2022. “Executive Order 14072 Strengthening the Nation’s Forests, Communities, and Local Economies”. 87 FR 24851, April 27, 2022. Available at: [2022-09138.pdf \(govinfo.gov\)](#). Accessed 17 September 2023.
- _____. 2022. “Executive Order 14082 Implementation of the Energy and Infrastructure Provisions of the Inflation Reduction Act of 2022”. 87 FR 56861, September 16, 2022. Available at: [Federal Register :: Implementation of the Energy and Infrastructure Provisions of the Inflation Reduction Act of 2022](#). Accessed 17 September 2023.
- Walston, Leroy J., Katherine E. Rollins, Kirk E. LaGory, Karen P. Smith, Stephanie A. Meyers. A preliminary assessment of avian mortality at utility-scale solar energy facilities in the United States. Renewable Energy, Volume 92, 2016, Pages 405-414. ISSN 0960-1481. Available at: <https://www.sciencedirect.com/science/article/pii/S0960148116301422>.
- Zhu, Zhiliang, and Reed, B.C., eds.. 2012. Baseline and Projected future carbon storage and greenhouse-gas fluxes in ecosystems of the Western United States: U.S. Geological Survey Professional Paper 1797, 192 p. (Available at <http://pubs.usgs.gov/pp/1797/>.) Accessed 3 January 2024.

Appendices

Appendix A—May 16, 2023 Informational Flyer

Appendix B—Additional Resource Maps

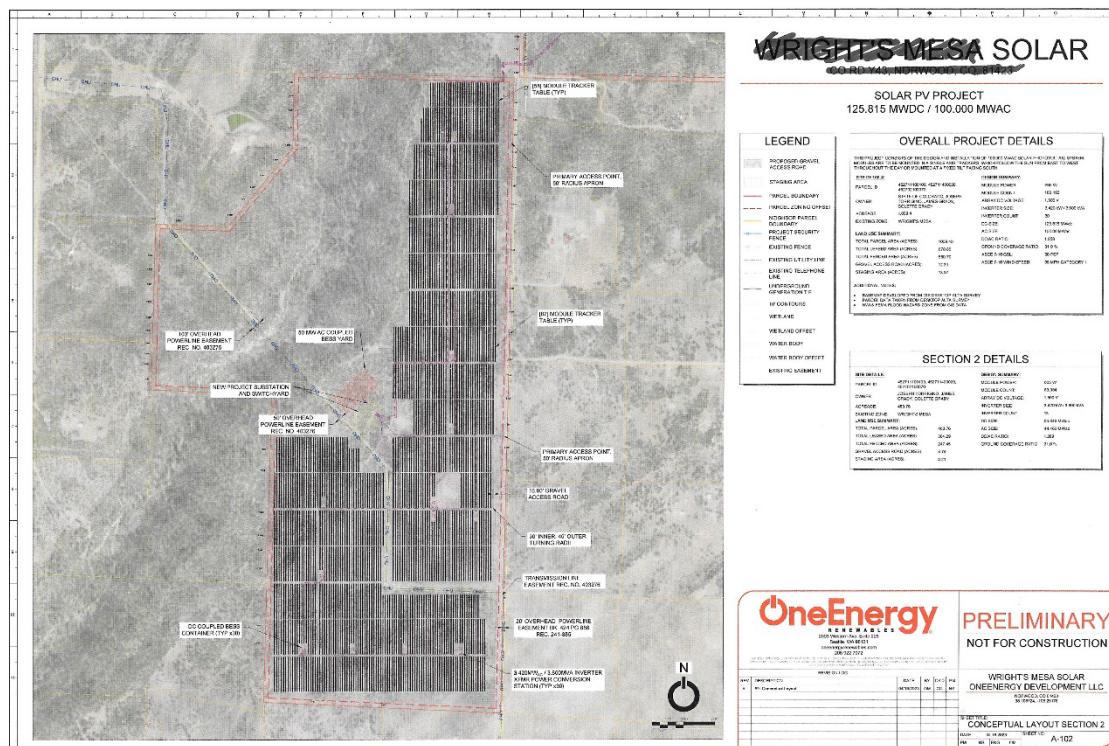
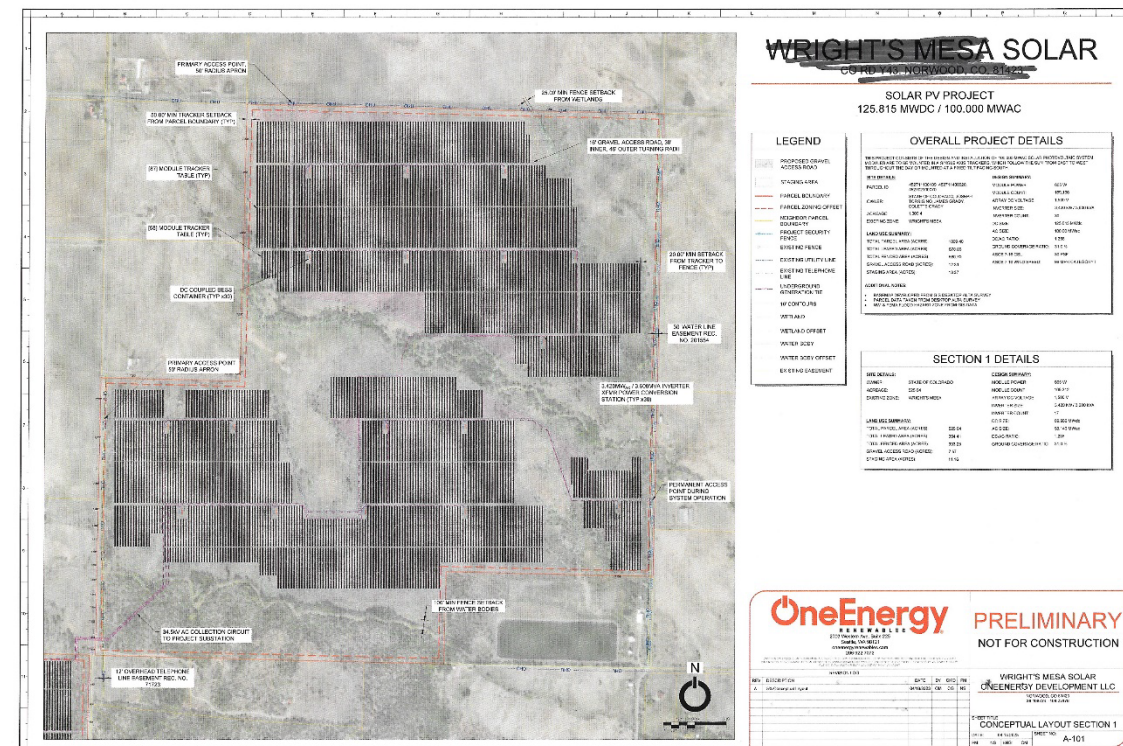
Appendix C—Birds Observed in the Project Area

Appendix D—CODEX Report

Appendix E—USFWS Information for Planning and Consultation (IPaC) Report

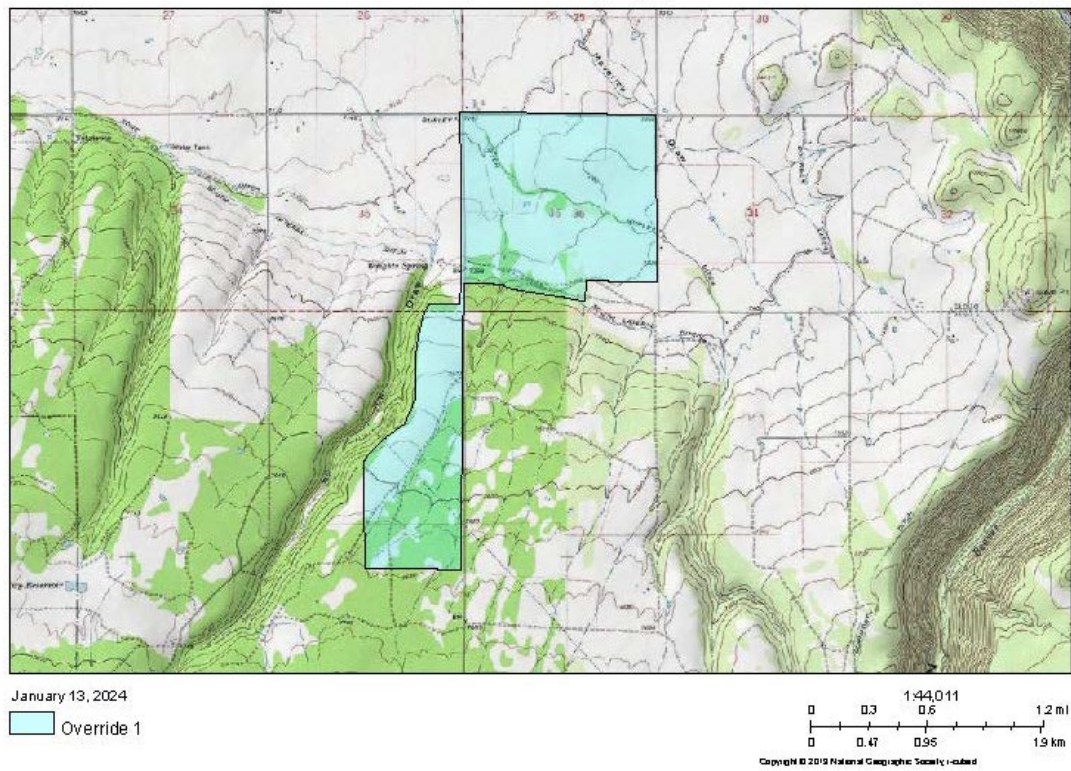
Appendix F—Tables

Appendix G—NRCS Soils Reports

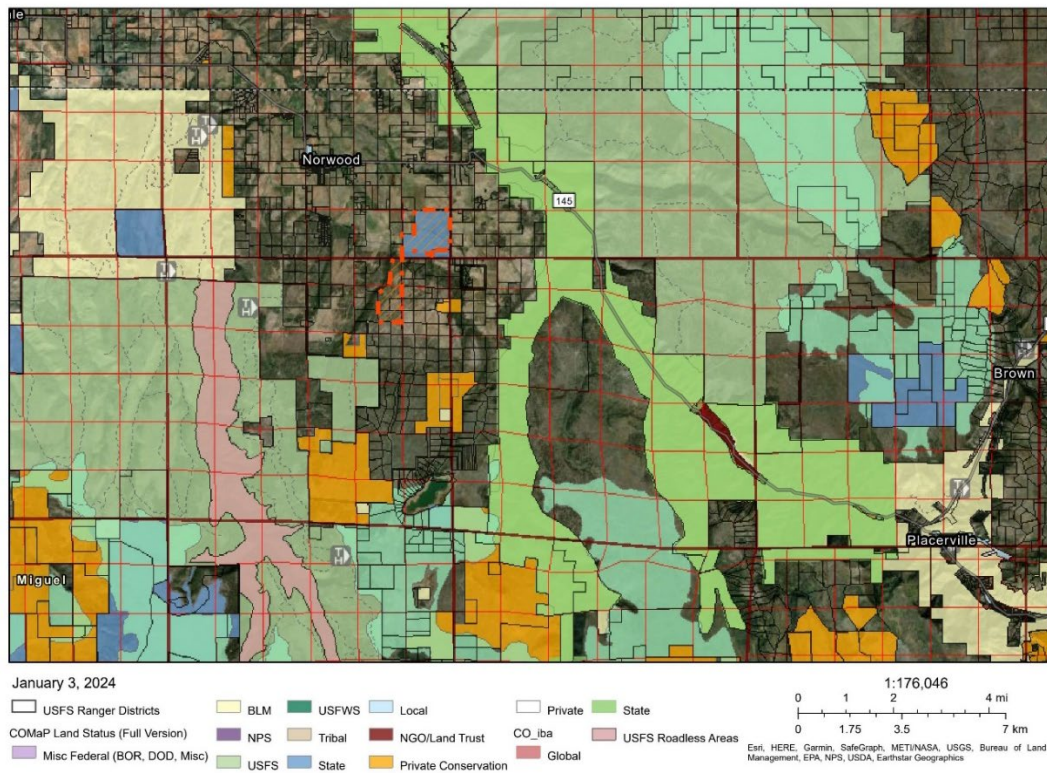


Appendix B—Additional Resource Maps

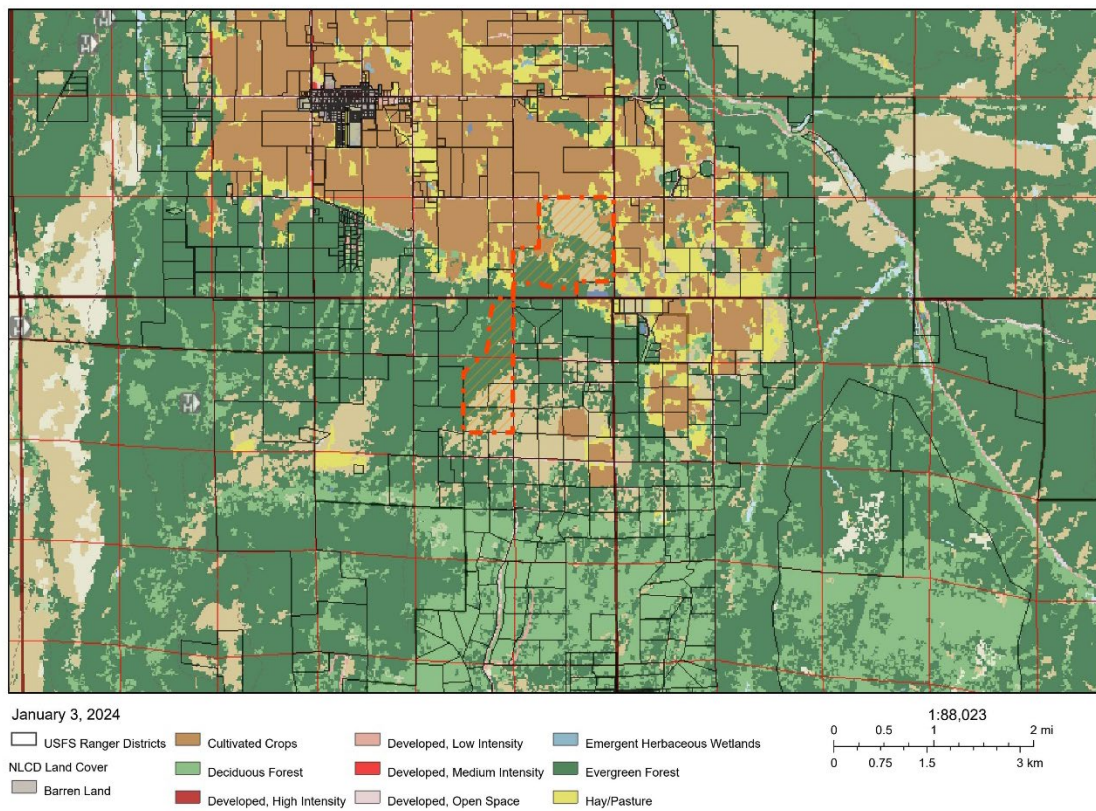
- 1. Topography of the Project area***
- 2. Land surface features and ownership***
- 3. Land cover types***
- 4. Key terrestrial habitats***
- 5. Landscape disturbance classes***



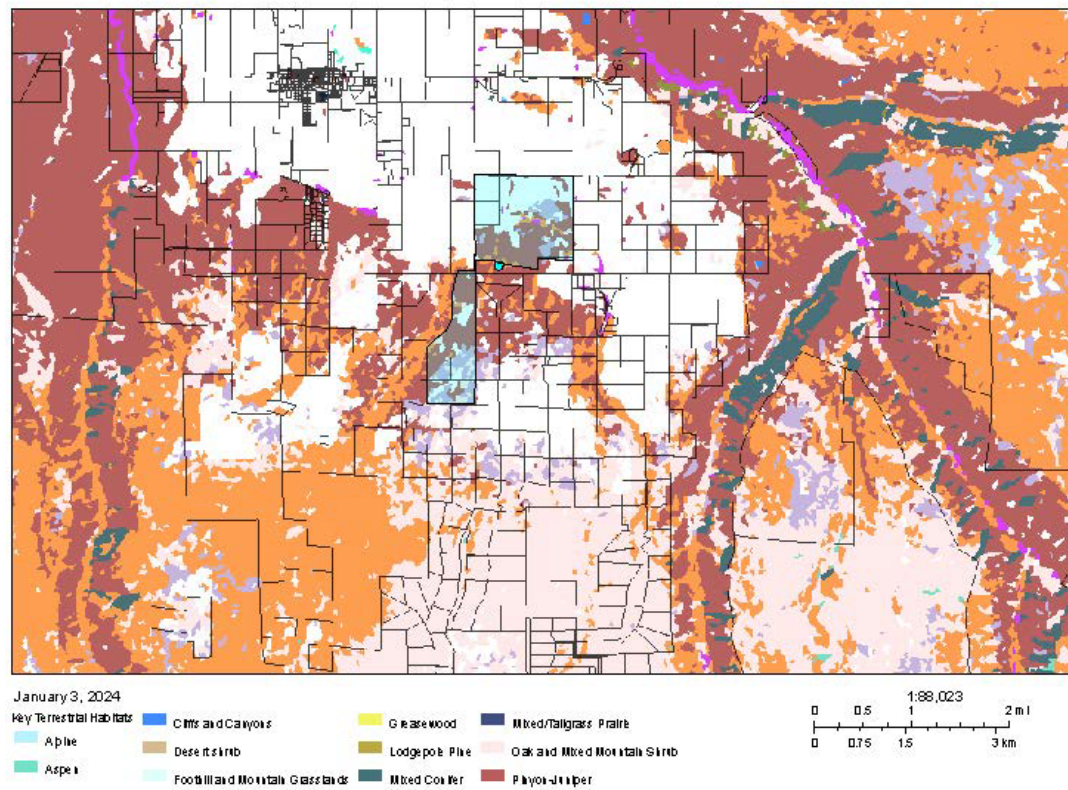
Map B-1. Topography of Project Area



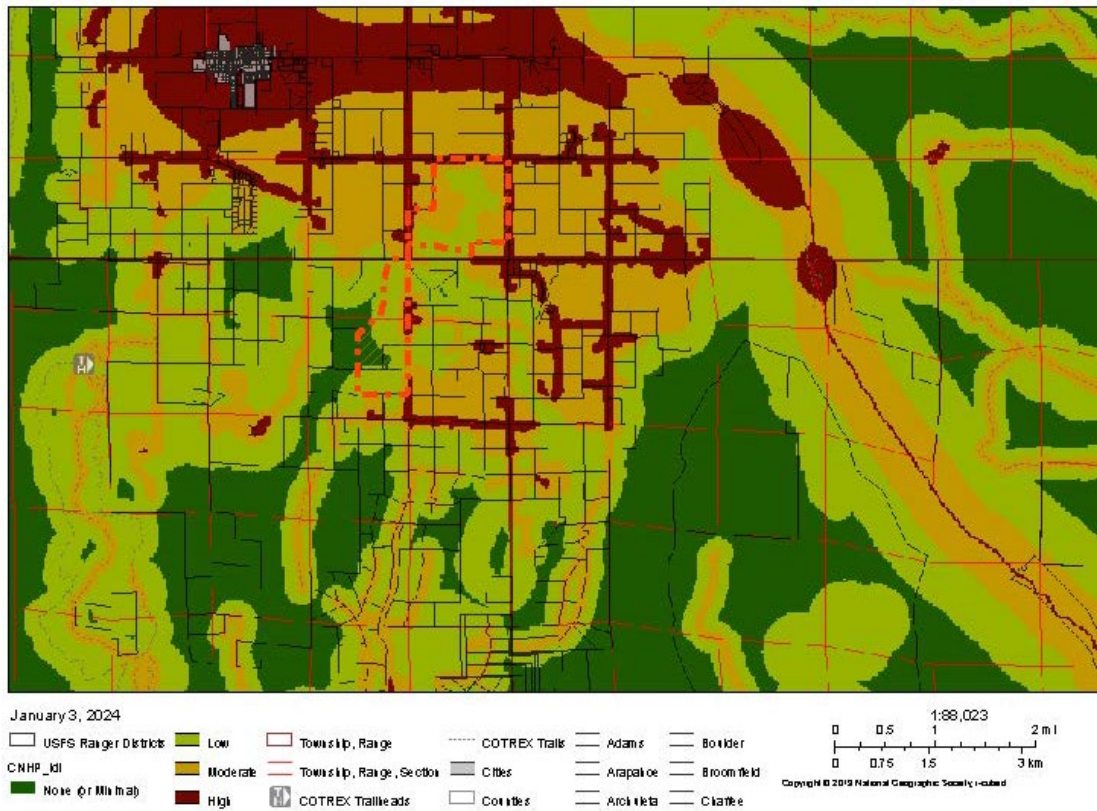
Map B-2. Land Features and Surface Ownership, CODEX Mapping Program



Map B-3. Land Cover Types, CODEX Mapping Program



Map B-4. Key Terrestrial Habitats, CODEX Mapping Program



Map B-5. Landscape Disturbance Classes, CODEX Mapping Program

Appendix C—Birds Observed in the Project Area

	Common Name / <i>Genus species</i>	Observed in Project area or surrounding area		Not observed, expected to occur due to suitable habitat		Status
		Breeding	Non-breeding Migrant	Breeding	Non-breeding Migrant	
1	Canada Goose <i>Branta canadensis</i>		X			
2	Blue-winged Teal <i>Spatula discors</i>		X			
3	Cinnamon Teal <i>Spatula cyanoptera</i>		X			
4	Northern Shoveler <i>Spatula clypeata</i>		X			
5	Gadwall <i>Mareca strepera</i>		X			
6	American Wigeon <i>Mareca americana</i>		X			
7	Mallard <i>Anas platyrhynchos</i>	X				
8	Northern Pintail <i>Anas acuta</i>		X			
9	Green-winged Teal <i>Anas crecca</i>	X				
10	Redhead <i>Aythya americana</i>		X			
11	Ring-necked Duck <i>Aythya collaris</i>		X			
12	Lesser Scaup <i>Aythya affinis</i>		X			
13	Wild Turkey <i>Meleagris gallopavo</i>	X				
14	Pied-billed Grebe <i>Podilymbus podiceps</i>		X			
15	Eurasian Collared-Dove <i>Streptopelia decaocto</i>	X				
16	Mourning Dove <i>Zenaida macroura</i>		X			
17	Common Nighthawk <i>Chordeiles minor</i>		X			
18	Common Poorwill <i>Phalaenoptilus nuttallii</i>		X			
19	Black-chinned Hummingbird <i>Archilochus alexandri</i>	X				
21	Rufous Hummingbird <i>Selasphorus rufus</i>	X				
22	Broad-tailed Hummingbird <i>Selasphorus platycercus</i>	X				
23	Sora <i>Porzana carolina</i>			X		
24	American Coot <i>Fulica americana</i>		X			
25	Killdeer <i>Charadrius vociferus</i>		X			
26	Wilson's Snipe <i>Gallinago delicata</i>	X				
27	Great Blue Heron <i>Ardea herodias</i>		X			
28	Turkey Vulture <i>Cathartes aura</i>		X			
29	Osprey <i>Pandion haliaetus</i>		X			
30	Golden Eagle <i>Aquila chrysaetos</i>		X			BGEPA
31	Northern Harrier <i>Circus hudsonius</i>		X			
32	Sharp-shinned Hawk <i>Accipiter striatus</i>	X				
33	Cooper's Hawk <i>Accipiter cooperii</i>	X				
34	Bald Eagle <i>Haliaeetus leucocephalus</i>	X				BGEPA Active nests within one mile of Project area.
35	Swainson's Hawk <i>Buteo swainsoni</i>		X			
36	Red-tailed Hawk <i>Buteo jamaicensis</i>	X				
37	Rough-legged Hawk <i>Buteo lagopus</i>		X			
38	Ferruginous Hawk <i>Buteo regalis</i>		X			
39	Great Horned Owl <i>Bubo virginianus</i>	X				
40	Northern Pygmy-Owl <i>Glaucidium gnoma</i>			X		
41	Belted Kingfisher <i>Megaceryle alcyon</i>	X				
42	Williamson's Sapsucker <i>Sphyrapicus thyroideus</i>		X			
43	Red-naped Sapsucker <i>Sphyrapicus nuchalis</i>		X			
44	Lewis's Woodpecker <i>Melanerpes lewis</i>	X				BCC
45	Downy Woodpecker <i>Dryobates pubescens</i>	X				
46	Hairy Woodpecker <i>Dryobates villosus</i>	X				
47	Northern Flicker <i>Colaptes auratus</i>	X				
48	American Kestrel <i>Falco sparverius</i>		X			
49	Merlin <i>Falco columbarius</i>		X			
50	Peregrine Falcon <i>Falco peregrinus</i>		X			
51	Prairie Falcon <i>Falco mexicanus</i>				X	
52	Western Wood-Pewee <i>Contopus sordidulus</i>	X				
53	Western Flycatcher <i>Empidonax difficilis</i>		X			
54	Black Phoebe <i>Sayornis nigricans</i>		X		X	
55	Say's Phoebe <i>Sayornis saya</i>	X				
56	Western Kingbird <i>Tyrannus verticalis</i>	X				
57	Plumbeous Vireo <i>Vireo plumbeus</i>	X				
58	Loggerhead Shrike <i>Lanius ludovicianus</i>	X				
59	Northern Shrike <i>Lanius borealis</i>		X			

	Common Name / <i>Genus species</i>	Observed in Project area or surrounding area		Not observed, expected to occur due to suitable habitat		Status
		Breeding	Non-breeding Migrant	Breeding	Non-breeding Migrant	
60	Pinyon Jay <i>Gymnorhinus cyanocephalus</i>				X	
61	Steller's Jay <i>Cyanocitta stelleri</i>	X				
62	Woodhouse's Scrub-Jay <i>Aphelocoma woodhouseii</i>	X				
63	Black-billed Magpie <i>Pica hudsonia</i>	X				
64	Clark's Nutcracker <i>Nucifraga columbiana</i>		X			
65	American Crow <i>Corvus brachyrhynchos</i>	X				
66	Common Raven <i>Corvus corax</i>	X				
67	Black-capped Chickadee <i>Parus atricapillus</i>		X			
68	Mountain Chickadee <i>Parus gambeli</i>	X				
69	Juniper Titmouse <i>Parus ridgwayi</i>		X			
70	Horned Lark <i>Eremophila alpestris</i>		X			
71	Tree Swallow <i>Iridoprocne bicolor</i>		X			
72	Violet-green Swallow <i>Tachycineta thalassina</i>		X			
73	Purple Martin <i>Progne subis</i>		X			
74	Northern Rough-winged Swallow <i>Stelgidopteryx serripennis</i>		X			
75	Barn Swallow <i>Hirundo rustica</i>		X			
76	Cliff Swallow <i>Petrochelidon pyrrhonota</i>		X			
77	Bushtit <i>Psaltiriparus minimus</i>		X			
78	Ruby-crowned Kinglet <i>Corthylio calendula</i>	X				
79	White-breasted Nuthatch <i>Sitta carolinensis</i>	X				
80	Red-breasted Nuthatch <i>Sitta</i>	X				
81	Brown Creeper <i>Certhia americana</i>		X			
82	Blue-gray Gnatcatcher <i>Poliophtila caerulea</i>		X			
83	House Wren <i>Troglodytes aedon</i>	X				
84	Bewick's Wren <i>Thryomanes bewickii</i>	X				
85	European Starling <i>Sturnus vulgaris</i>	X				
86	Gray Catbird <i>Dumetella carolinensis</i>		X			
87	Sage Thrasher <i>Oreoscoptes montanus</i>		X			
88	Northern Mockingbird <i>Mimus polyglottos</i>	X				
89	Western Bluebird <i>Sialia mexicana</i>	X				
90	Mountain Bluebird <i>Sialia currucoides</i>	X				
91	Townsend's Solitaire <i>Myadestes townsendi</i>		X			
92	Swainson's Thrush <i>Catharus ustulatus</i>		X			
93	Hermit Thrush <i>Catharus guttatus</i>		X			
94	American Robin <i>Turdus migratorius</i>	X				
95	Cedar Waxwing <i>Bombycilla cedrorum</i>	X				
96	House Sparrow <i>Passer domesticus</i>	X				
97	American Pipit <i>Anthus rubescens</i>		X			
98	Evening Grosbeak <i>Coccothraustes vespertinus</i>	X				BCC
99	Pine Grosbeak <i>Pinicola enucleator</i>		X			
100	House Finch <i>Haemorhous mexicanus</i>	X				
101	Cassin's Finch <i>Haemorhous cassinii</i>	X				BCC
102	Red Crossbill <i>Loxia curvirostra</i>		X			
103	Pine Siskin <i>Spinus pinus</i>	X				
104	Lesser Goldfinch <i>Spinus psaltria</i>	X				
105	Goldfinch <i>Spinus tristis</i>	X				
106	Chipping Sparrow <i>Spizella passerina</i>	X				
107	Lark Sparrow	X				
108	Brewer's Sparrow <i>Spizella breweri</i>		X			
109	Lark Sparrow <i>Chondestes grammacus</i>		X			
110	Dark-eyed Junco <i>Junco hyemalis</i>		X			
111	White-crowned Sparrow <i>Zonotrichia leucophrys</i>	X				
112	Vesper Sparrow <i>Pooecetes gramineus</i>		X			
113	Savannah Sparrow <i>Passerculus sandwichensis</i>	X				
114	Song Sparrow <i>Melospiza melodia</i>	X				
115	Lincoln's Sparrow <i>Melospiza lincolni</i>		X			
116	Green-tailed Towhee <i>Pipilo chlorurus</i>	X				
117	Spotted Towhee <i>Pipilo maculatus</i>		X			
118	Yellow-headed Blackbird <i>Xanthocephalus xanthocephalus</i>		X			
119	Western Meadowlark <i>Sturnella neglecta</i>	X				
120	Bullock's Oriole <i>Icterus bullockii</i>	X				

	Common Name / <i>Genus species</i>	Observed in Project area or surrounding area		Not observed, expected to occur due to suitable habitat		Status
		Breeding	Non-breeding Migrant	Breeding	Non-breeding Migrant	
121	Red-winged Blackbird <i>Agelaius phoeniceus</i>	X				
122	Brown-headed Cowbird <i>Molothrus ater</i>	X				
123	Brewer's Blackbird <i>Euphagus cyanocephalus</i>	X				
124	Common Grackle <i>Quiscalus quiscula</i>		X			
125	Virginia's Warbler <i>Leiothlypis virginiae</i>		X			
126	MacGillivray's Warbler <i>Geothlypis tolmiei</i>	X				
127	Common Yellowthroat <i>Geothlypis trichas</i>		X			
128	Orange-crowned Warbler <i>Leiothlypis celata</i>		X			
129	Yellow Warbler <i>Setophaga petechia</i>	X				
130	Yellow-rumped Warbler <i>Setophaga coronata</i>	X				
131	Black-throated Gray Warbler <i>Setophaga nigrescens</i>		X			
132	Wilson's Warbler <i>Cardellina pusilla</i>		X			
133	Western Tanager <i>Piranga ludoviciana</i>	X				
134	Rose-breasted Grosbeak <i>Pheucticus ludovicianus</i>		X			
135	Black-headed Grosbeak <i>Pheucticus melanocephalus</i>	X				
136	Blue Grosbeak <i>Passerina caerulea</i>		X			
137	Lazuli Bunting <i>Passerina amoena</i>	X				

Appendix D—CODEX Report

Appendix E—Information for Planning and Consultation (IPaC) Report

Appendix F—Tables of Noise Levels Associated with Construction and Operations of Solar Facility

Table 3-5 Noise Levels Generated by Construction Activities

CONSTRUCTION ACTIVITY	NOISE LEVEL AT 50 FEET (15 METERS) DB(A) LMAX	NOISE LEVEL AT 50 FEET (15 METERS) DB(A) LEQ
Solar Field and Power Collections Systems		
Install BMP Measures (Part of Site Preparation)	75.0	71.3
Site Preparation (Solar Block Arrays)	85.0	83.6
Site Preparation (Roads)	85.0	82.3
Install Fencing	75.0	71.3
Install Tracking System Posts	84.4	78.3
Install Support Structures	75.0	71.3
Install Inverters and Switchgear & Sub-Structure	80.6	76.1
Direct Current (DC) and Alternating Current (AC) Cable Installation (Underground)	80.7	78.4
DC and AC Cable Installation (Above-Grade)	75.0	71.3
Module Installation	75.0	71.3
Fire Protection	80.9	80.8
O&M Building	74.7	68.3
Substation		
Steel Structures	80.6	73.8
Insulators, Bus, and Electrical Equipment	80.6	73.8
Control Wiring	80.6	74.9
Cleanup	85.0	82.7

Source: (DOI BLM, 2019)

Table 3-6 Noise Levels Generated by Operation and Maintenance Activities

SOURCE	NOISE LEVEL AT 50 FEET (15 METERS) DB(A) LEQ
Maintenance	
Pickup truck	71
Solar Panels and Substations	
Tracker	41
Inverter 1 MW	51
Transformer 2 MW	42

Source: (DOI BLM, 2019)

Appendix G—NRCS Soils Reports



Nicola Kerr <nicolak@sanmiguelcountyco.gov>

Proposed solar farm

Tanya J Narramore <janeau71coalminer@gmail.com>

Mon, Mar 18, 2024 at 7:39 PM

To: planningcommission@sanmiguelcountyco.gov

I am not a resident of San Miguel County, but I'm close enough. I feel like our communities are under attack. I am not for solar farms polluting our landscape and down the road our soil and ground water. The BLM selling our land for solar farms is wrong on so many levels. Just down river the environmental groups are trying to make a monument to protect the wildlife and ecosystems, but just north of the Dolores they have land they want to auction off for solar farms. What about the wildlife and ecosystems in these places? Seems like they are doing what benefits them and be dammed with the residents and wildlife. I guess we live in such a rural area they think they can just walk all over us and we'll just lay down and take it. Little do they know, us west enders DO NOT like to be walked on. I strongly urge you to fight the proposed solar farms. Thank you for your time.

Sincerely

Tanya Narramore



Nicola Kerr <nicolak@sanmiguelcountyco.gov>

Draft Regulations for Solar Energy Systems

'Terri Lamers' via Planning Commission <planningcommission@sanmiguelcountyco.gov>Thu, Mar 21, 2024 at
8:57 AM

Reply-To: Terri Lamers <snyderranch56@yahoo.com>

To: "planningcommission@sanmiguelcountyco.gov" <planningcommission@sanmiguelcountyco.gov>, San Miguel County
<bocc@sanmiguelcountyco.gov>

Dear Commissioners, Planning Commission and Staff,

It has caused me and our community great angst to find the language regarding Large Scale Solar Energy Systems has NOT been removed from the 2nd Draft Document. This type of omission does not foster trust for those of us that are bound by these regulations.

Many other community members and I felt a consensus had been reached regarding the removal of Large Scale Energy Systems from the Wrights Mesa Rural Agricultural Land Use Zone at the January 24, 2024 meeting.

I hope to see this corrected at the March 27 meeting. Thank you in advance for your dedication and attention.

Terri Lamers
Snyder Ranches, LLC
970-327-0271



Nicola Kerr <nicolak@sanmiguelcountyco.gov>

draft: regulations for solar energy systems

'thomas goralka' via SMC Planning <planning@sanmiguelcountyco.gov>

Tue, Mar 19, 2024 at 12:24 PM

Reply-To: thomas goralka <tgoralka@yahoo.com>

To: SMC Planning <planning@sanmiguelcountyco.gov>

I am concerned about Wrights Mesa Rural Agriculture still being in the permitted zone districts for large scale solar. At the last meeting there seemed to be a consensus that Wrights Mesa Rural Agriculture be taken off the permitted zone districts, yet it is still there. Many other additions and changes were made, but not this very important one. Please follow the majority public opinion and the directive of the County Commissioners and remove Wrights Mesa Rural Agriculture from the permitted zone districts.

Thank You

Tom Goralka. Wrights Mesa resident and concerned citizen

to be added to the comments for the meeting on March 27



Nicola Kerr <nicolak@sanmiguelcountyco.gov>

cap on large scale solar

'thomas goralka' via SMC Planning <planning@sanmiguelcountyco.gov>

Wed, Mar 20, 2024 at 8:29 AM

Reply-To: thomas goralka <tgoralka@yahoo.com>

To: SMC Planning <planning@sanmiguelcountyco.gov>

San Miguel County Planning

I believe a cap should be included in the section on large scale solar. This cap would put an upper limit on how big a project would or could be allowed to be developed. There are projects being developed south of Cortez that are as large as 5000 acres. That size seems totally inappropriate for this county. If the amount of electric power our county uses yearly were doubled, that could be powered by 300 acres of solar panels. Our county cannot save the planet by ourselves, so doubling the amount of power we consume would contribute to green energy demands, without trashing our county. Whether it be 300 acres, 500 acres, or some other number backed by data, there should be some logical cap on the size of large scale solar projects even being entertained for permitting. Enclosed is a document explaining the figures I used.

Thank You

Tom Goralka, Wright's Mesa resident

Please include this in the BOCC 3.27 meeting packet

**An Idea For A Cap On Large Scale Solar In The County.docx**

14K

An Idea For A Cap On Large Scale Solar In The County

According to the website FindEnergy, San Miguel County used 78,551 MW hrs of electric power in 2022. One MW worth of solar panels generates 2,146MW hrs of electric power in a year. So, to meet San Miguel County's current energy needs, the county would need somewhere around 37 MWs worth of solar panels.

If the county were to double that amount to say 75MW, then the county would be adding twice what we use to the clean energy pool. If we are looking for a starting point as to how much solar power to allow in the county, how about a starting point for a cap at 75MW for the entire county. At the current average of around 4 acres per MW, that would come to around 300 acres of solar panels for the entire county. This would not trash our county, especially if the panels were to spread out throughout the county, and we would be doing a fair share to mitigate climate change.

Just some thoughts.

Tom Goralka



January 14, 2024

To whom it may concern:

Valentine Farm and Jubilee Stables (aka The Farm) is situated at 1265 County Road 44 Z South, and is the acreage immediately to the west and immediately to the north of the proposed solar project. We are strongly opposed to any solar project on Wrights Mesa as this would have a tremendous negative impact on the quality of life for the whole community, and the experience that so many people are able to enjoy when they come to the farm.

At Jubilee Stables, we board a number of horses and donkeys for regional equestrians, and the stables is also home to several horses that we regularly incorporate for the benefit of community members who come to interact with them. Over the years, these horses have provided equine therapy, lessons, and allow children, youth and families to enjoy an equine experience at community gatherings. A solar factory farm in the vicinity would deeply disrupt the quality of the equine experiences and the potential for healing that this facility has to offer.

The land around Valentine Farm has a rich human history, the cultural significance of which spans the lands surrounding the Farm as well. The Valentine Farm is a historic farm, in fact it is the original homestead on Wrights Mesa. The Joseph Family homesteaded the property in the late 1800s, but before they came, the land provided rich hunting grounds for the Native Americans. The local tribes, Ute Mountain Utes and Southern Utes, enjoyed hunting here, as the natural sources of water attracted (and still do attract) abundant wildlife. Legend has it that these original inhabitants also had a horse racing track on the flat lands here, which is now a hay field.

Evidence of this rich cultural history has been found by many visitors in the form of cultural artifacts. The histories, legends and now even the structures and farmhouses of the generations of people who lived on this land are carefully curated by those with a deep appreciation for the significance of this history. To create a structure that would be so destructive to the landscape, the cultural artifacts, and the experience of this place for future generations, is truly disrespectful of all who have come before, and who have been stewards of this land for all these many generations.

The land here at the farm provides a refuge for migratory birds. This area provides a nesting and roosting habitat for many species including Hawks, Sandhill Crane, and Golden and Bald Eagles, which all have been sighted in this area. An industrial solar array would negatively impact the beautiful and diverse ecosystem of animals and birds for which this land is home. The impact of off residual heating from such a large industrial structure would surely disrupt this sanctuary which is currently a nesting ground for Golden Eagles. The drying out of the vegetation and atmosphere, the drying out and evaporation of the water within the ground and the ditches would disturb the prime and ideal habitat that currently exists.

The farm itself has provided a peaceful and healing space for people of all ages who have experienced trauma and hardship. The young people who visited Valentine Farm fondly named the house “Valentina,” and have expressed great care for this fragile and historic structure.

Many families and community groups have chosen Valentine Farm and Jubilee Stables as a place to hold their very special events and significant milestones. From the Norwood Fire Department, to the Telluride Mountain School, From True North Youth Program to the Lone Cone Legacy Trust, from the Norwood school children to the Young Presidents Organization, folks come here from near and far to enjoy the 365 degree views, the dark sky, the solitude, and the deep sense of natural beauty and peace that is all around. If a solar array was built across the road, this place would no longer be able to offer such a visually beautiful, pristine space. The loss of Valentine Farm as a quiet sanctuary, visually stunning refuge, would be devastating to so many people and groups who come to the farm, and who plan to come here in the future.

It would be emotionally impactful to so many who look forward to spending time here year after year. The traditions that we have built here at the farm would be disrupted. If a solar array was built, there is no way to quantify the deep loss that would occur, both as a dwelling space for the year round animal inhabitants, and as a gathering space for all the many visitors and community members, who have come to know Valentine Farm to be a part of the traditions and culture that is woven into the identity of so many who call this mesa home.

Renewable energy and sustainability are words that have become selling points for solar energy. But having a peaceful refuge for animals and people, a place where they can come to **renew their energy**, and find true renewal in the undisturbed and peaceful natural places of creation, that is **true renewable energy**, and being able to protect the places that are so integral to our long-term identity, that is true **sustainability**.

Sincerely,

Valentine Farm & Jubilee Stables

The Valentine Farm and Jubilee Stables Family

Comments Submitted After Packet 3/22/2024 – 3/26/2024

Solar Land Use Code Update

1. Alexandra Thompson, 3/24/2024
2. COSSA, 3/25/2024
3. Martha Schmalz, 3/25/2024
4. Peggy Smelt-Day, 3/26/2024
5. Richard Hollinbeck, 3/25/2024
6. Susan Reynolds, 3/25/2024
7. Terri Lamers, 3/26/2024



Nicola Kerr <nicolak@sanmiguelcountyco.gov>

Fwd: Online Form Submission #4917 for Comment on a BOCC Agenda Item

Carmen Warfield <carmenw@sanmiguelcountyco.gov>

Mon, Mar 25, 2024 at 10:23 AM

To: Nicola Kerr <nicolak@sanmiguelcountyco.gov>

Carmen L. Warfield

Chief Deputy Clerk - BOCC

San Miguel County

[333 W. Colorado Ave, 3rd Floor](#)

PO Box 1170

Telluride, CO 81435

970-369-5429

970-708-8399 cell

E:carmenw@sanmiguelcountyco.govW:www.sanmiguelcountyco.gov

In painting, you have unlimited power. You have the ability to move mountains. You can bend rivers. But when I get home, the only thing I have power over is the garbage. Bob Ross



----- Forwarded message -----

From: <noreply@civicplus.com>

Date: Sun, Mar 24, 2024 at 9:14 PM

Subject: Online Form Submission #4917 for Comment on a BOCC Agenda Item

To: <boccclerk@sanmiguelcountyco.gov>, <shannonb@sanmiguelcountyco.gov>

Comment on a BOCC Agenda Item

Name or description of
agenda item

Wright's Mesa Solar

First Name

Alexandra

Last Name

Thompson

Email Address

alexandra.grace.hilton@gmail.com

Comments

I come before you today with a heartfelt plea to safeguard the agricultural heritage of Wright's Mesa by carefully considering proposals for large-scale and commercial solar development on this historically significant land. As stewards of our county's legacy, it is your solemn duty to protect and preserve the vital connection between our community and its agricultural roots.

Wright's Mesa, with its beautiful open country, holds a special place in our county's history. Long before Telluride became a renowned destination, Norwood stood as a steadfast beacon of agricultural activity, supporting the miners and settlers who flocked to the region in search of fortune. The farmers and ranchers of Wright's Mesa played a pivotal role in shaping the landscape and sustaining the livelihoods of countless families throughout our county's history.

Today, as we confront the prospect of large-scale solar development encroaching upon this cherished land, we must heed the lessons of the past and recognize the irreversible consequences of sacrificing our agricultural heritage for short-term gains. Once agricultural land is lost to commercial solar development, it will never be reclaimed for its original purpose. The decision to convert Wright's Mesa to solar arrays would sever the ties that bind us to our agricultural legacy, robbing future generations of the opportunity to cultivate the land and perpetuate the traditions that define our community.

Moreover, making a living as a rancher in San Miguel County is already an arduous task, fraught with challenges and uncertainties. Our ranchers face an uphill battle against fluctuating market prices, regulatory hurdles, and the ever-present specter of drought. They pour their blood, sweat, and tears into their operations, striving to uphold a way of life that has sustained our community for generations.

Adding to the difficulties faced by our ranchers, the impact of commercial solar development on available agricultural land threatens to exacerbate these challenges. By reducing the land available for ranching and driving up lease prices, solar development places additional strain on our agricultural community, jeopardizing the livelihoods of those who depend on these lands for their sustenance.

Furthermore, the recent wildfires in the Texas Panhandle serve as a stark reminder of the devastating impact that fires can have on our ranching operations. Thousands of cattle perished in those fires, causing immeasurable loss and hardship for ranchers and their families. We must recognize that similar tragedies could occur here if we allow solar development to proceed.

Compounding these concerns is the troubling revelation that

county planning has disregarded the directives issued by this esteemed board in our previous meeting. Such actions undermine the principles of accountability and transparency that are fundamental to effective governance. It is imperative that we hold our county officials accountable for their decisions and ensure that the voices of our constituents are heard and respected.

Finally, when the county seeks to enact changes or developments in Norwood, it often seems to cater more to the needs and desires of Telluride residents or employees being moved to Norwood, rather than considering the perspectives and needs of the generational families who have long called Norwood home. This lack of consideration further marginalizes the voices of those who have deep roots in our community.

As we navigate the complexities of energy development and land use planning, let us not forget the invaluable contributions of our agricultural communities. The county must prioritize support for farmers and ranchers, recognizing their vital role in sustaining our local economy and preserving our rural way of life.

In conclusion, I implore the Board of County Commissioners to carefully consider the impacts of large-scale solar development on Wright's Mesa and to prioritize the preservation of our agricultural heritage. Let us honor our past, protect our present, and safeguard the future of our county for generations to come.

Thank you for your attention to this critical matter.

Email not displaying correctly? [View it in your browser.](#)

RE: Draft Regulations for Solar Energy Systems

To: The San Miguel County Board of County Commissioners and Staff

As an organization deeply involved in promoting renewable energy initiatives across Colorado, we have been closely following the developments regarding the drafted solar energy code in San Miguel County. Upon reviewing the second draft of the solar energy code for San Miguel County, it is evident that while some adjustments have been made, the core concerns highlighted in our initial comments remain unaddressed. The lack of clarity within the standards persists, creating significant obstacles for developers seeking approval for really any scale of solar facility. This ambiguity effectively functions as a ban on solar development within San Miguel County. COSSA suggests heavily revisiting the drafted regulations for solar energy systems. See below for our proposal.

Our concern regarding the disproportionate stringency of the regulations compared to other land use codes in Colorado stands. It is crucial to reiterate that the current draft unfairly singles out solar development with onerous requirements, more stringent than many forms of development with more significant and real impacts to the County and environment. The regulations, if passed as drafted, will hinder economic development within San Miguel County and infringe on private property rights.

Furthermore, the dissemination of misinformation regarding the impacts of solar development continues to be a point of concern. While we provided clarifications and credible sources to refute these misconceptions in our initial comments to San Miguel County, it is disheartening to see that requirements built around these non-existent impacts still persist within the drafted regulations.

Given these ongoing concerns, COSSA strongly urges the Board of County Commissioners and County staff to reconsider the proposed solar land use regulations. It is imperative to provide clarity on the objectives behind the regulations and ensure a fair and balanced approach that upholds individual property rights within reasonable and clear guidelines.

To facilitate a more productive dialogue and address the concerns raised by stakeholders, including COSSA, we propose the following actions:

1. Organize additional work sessions and opportunities for public comment before finalizing the solar energy code.
2. Engage in collaborative discussions with stakeholders, including COSSA, to address any real technical, financial, and environmental considerations related to solar development.

3. Conduct a comprehensive reevaluation and re-drafting of the proposed regulations to align them with County goals while fostering economic growth and protecting property rights and the environment within San Miguel County.

COSSA remains committed to contributing constructively to the development of sustainable land use policies within the County. We appreciate your attention to these matters and look forward to the opportunity for further dialogue and collaboration.

Thank you for your time and consideration.

Sincerely,

Jeremiah Garrick

Manager of Community Engagement

Colorado Solar and Storage Association (COSSA)

Martha Schmalz
3100 43 ZS Road
Norwood, CO 81423

March 19, 2024

To: San Miguel County Commissioners and Planning Department
PO Box 548
Telluride, CO 81435

I appreciate the Planning Commission and Commissioners developing the framework for future solar energy development in San Miguel County. Thank you for the opportunity to comment on the LUC draft and for holding a public work session in Norwood.

I believe the Wright's Mesa Rural Agricultural zone should be removed from the list of permitted zone districts for large-scale Solar Energy Systems.

The Wright's Mesa Master Plan (WMMP) lists several goals, which are not compatible with allowing large scale solar projects in this zone. Many of the issues for large scale solar projects were anticipated and addressed.

- a. Maintaining our rural way of life, equestrian activities, and Agriculture are a high priority for the residents of Wright's Mesa.
“(Goal LU 6 – Compatible Rural Residential, Goal LU 7 – Viable and Sustained Agriculture and Natural Resources, Goal LU 7 – Viable and Sustained Agriculture and Natural Resources).”
- b. It is very important to us to protect the scenic quality of Wright's Mesa by minimizing the visual impacts of development.
“(Goal CS 1 – Wright's Mesa Character and Scenic Quality Protected, CS 1(b) – New Development Maintains Scenic Quality and Highway Views).”
- c. Our dark skies are not only treasured by the residents but also by the growing population of visitors wanting to experience this valuable resource.
“(CS 1 (f) – Maintain Dark Skies).”
- d. I feel the setbacks proposed in draft LUC are not sufficient. In the Heavy Industrial Standards, the WMMP lists a “Minimum setback of 200 feet from any existing or future residential property”.
(Future Land Use Plan CH 4)

Thank you for the opportunity to address the draft LUC. I hope the effort Wright's Mesa residents put into our master plan will guide you in your decision.

Please remove the WMRA zone from the list of zones permitting large scale solar.

Thank you,

Martha Schmalz



Nicola Kerr <nicolak@sanmiguelcountyco.gov>

Fwd: Solar Factory on Wrights Mesa

Carmen Warfield <carmenw@sanmiguelcountyco.gov>
 To: Nicola Kerr <nicolak@sanmiguelcountyco.gov>

Tue, Mar 26, 2024 at 11:37 AM

Carmen L. Warfield

Chief Deputy Clerk - BOCC

San Miguel County

[333 W. Colorado Ave, 3rd Floor](#)

PO Box 1170

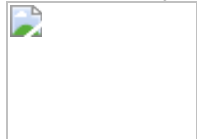
Telluride, CO 81435

970-369-5429

970-708-8399 cell

E:carmenw@sanmiguelcountyco.govW:www.sanmiguelcountyco.gov

In painting, you have unlimited power. You have the ability to move mountains. You can bend rivers. But when I get home, the only thing I have power over is the garbage. Bob Ross



----- Forwarded message -----

From: **Peggy Smelt-Day** <peggywooddive@gmail.com>

Date: Tue, Mar 26, 2024 at 11:33 AM

Subject: Solar Factory on Wrights Mesa

To: <bocc@sanmiguelcountyco.gov>

Sent from my iPhoneDear Board of County Commissioners, I write to you today with the express purpose of reminding you of one thing ! Absolutely , the people of Norwood are against Medium to Large Scale industrial Solar Development on Wrights Mesa . Period .The vision of Wright Mesa for the future includes Diverse organic farming ,International Dark Sky tourism ,building community of young families,retirees with recreation ,beautiful vistas top priority!

The current proposal for setbacks ,rules ,regulations is too vague to move our region of the county into the future ! The value of Wrights Mesa is the laid-back AG /Recreation community ! A new emphasis on retirees getting away from suburban life and young families forging strong community! Large and Medium Solar Factory has no place ripping up our beautiful vistas ,wildlife and plant ecosystems! This is why we choose to buy property here ,participate and build community!

Also, Our county has a poor record of writing strong regulations and providing enforcements of these regulations! This will soon become a big problem with industrial size development! I strongly urge you to say NO to all Medium to Large Scale Renewable Energy Development on Wrights Mesa ! !Thank you,Peggy Smelt Day

Richard Hollinbeck
PO Box C
Norwood, CO 81423

March 19, 2024

To: San Miguel County Board of County Commissioners and Planning Dept
PO Box 548
Telluride, Colorado 81435

Thank you for the opportunity for the public to review and comment on the latest revisions of the Land Use Code additions to address solar energy power plant development in San Miguel County. I understand this will be discussed at the March 27 public work session in Norwood and Telluride.

These are the main issues I noticed:

1. Why is Large Scale Solar is still allowed in the WMRA zone district?

I was surprised and disappointed to see that Large Scale Solar industry is still shown as an allowed use in the Wright's Mesa Rural Agricultural zone district.

As discussed during the January BOCC public work session, Wright's Mesa is not an appropriate zone for Large Scale Solar industry and, in particular, this goes against the spirit and intent of the Wright's Mesa Master plan, which led to the formation of the WMRA zone in the first place. It is the overwhelming majority opinion here in Norwood and on Wright's Mesa.

I feel that this is the primary thing that MUST be corrected in the solar LUC for San Miguel County.

Allowing Large Scale Solar in the West End zone still defines an area about HALF of the land area of the entire county where it could be considered as a use.

As far as other details in the new revision, the issues and suggestions I made in my previous letters to the planning department still apply, as they have not yet been addressed.

For example,

2. Dark Sky Lighting regulations for industrial uses in addition to residential districts.

Norwood prides itself on being a premiere Dark Sky Community and many have worked hard on this. Reasonable regulatory control of outside industrial and residential lighting was a priority for the WMRA zone when it was developed based on the Wright's Mesa Master Plan several years ago.

I've lived on Wright's Mesa myself for over 40 years and I have seen light pollution DECREASE over that time due only to the voluntary desire of local residents to appreciate and preserve our amazing dark and starry skies.

Lighting regulations for solar (and other) industrial uses should be improved in the LUC, especially for the WMRA zone.

The current regulations referred to in the proposed solar LUC amendment only refers to requirements for "residential" and, taken literally, seems to exempt any other government, commercial or industrial uses from specific dark sky requirements, e.g. for shading, on-demand or motion-detect instead of permanent lighting, color temperature, etc.

3. Solar Setbacks are still WAY TOO SMALL.

The setbacks to property lines for large scale solar were not changed in this revision and are still only 50 feet. I had previously suggested that 500 feet or more is appropriate for the major visual and hazard impact of solar power production and energy storage facilities.

Reviewing various other solar land use codes across the USA, I see that 100-250 feet easements to property lines are common for solar. This is true in various diverse places, such as Orlando, Florida, Clinton, Illinois and San Louis Obispo, California, and many others.

There are other details I have questions about in this revision, but these are some of the important ones to me.

Number 1 (Removing Large Scale Solar from WMRA) reflects the overwhelming opinion of the public on Wright's Mesa and is the most important thing to address.

Again, thank you for the opportunity to provide feedback to the county as part of this public process.

Yours sincerely,

Richard Hollinbeck
PO Box C
Norwood, CO 81423



Nicola Kerr <nicolak@sanmiguelcountyco.gov>

Public Comment on the proposed solar LUC

Rick Hollinbeck <rickh@westernwares.com>

Sun, Mar 24, 2024 at 4:51 PM

Reply-To: rickh@westernwares.com

To: planning@sanmiguelcountyco.gov

Cc: anneb@sanmiguelcountyco.gov, lancew@sanmiguelcountyco.gov, krish@sanmiguelcountyco.gov

To:

San Miguel County Board of Commissioners

San Miguel County Planning Dept:

I have attached my comments on the latest update to the solar LUC revisions.

I continue to believe, as most everyone does on Wright's Mesa, that there are better locations for large solar development in the West End and other adjacent counties than in the WMRA zone district community.

I understand there will be a work session on this in Norwood on March 27th.

I will try to attend this.

Thank you,

Richard Hollinbeck

PO Box C

Norwood, CO 81423

The following section of this message contains a file attachment prepared for transmission using the Internet MIME message format. If you are using Pegasus Mail, or any other MIME-compliant system, you should be able to save it or view it from within your mailer. If you cannot, please ask your system administrator for assistance.

----- File information -----

File: Letter3 To San Miguel BOCC Re-Solar Power Plant LUC.pdf

Date: 19 Mar 2024, 14:00

Size: 80475 bytes.

Type: Unknown

**Letter3 To San Miguel BOCC Re-Solar Power Plant LUC.pdf**

79K



Nicola Kerr <nicolak@sanmiguelcountyco.gov>

Fwd: DRAFT Regulations for Solar Systems

Carmen Warfield <carmenw@sanmiguelcountyco.gov>

Mon, Mar 25, 2024 at 10:28 AM

To: Nicola Kerr <nicolak@sanmiguelcountyco.gov>

FYI.

Carmen L. Warfield

Chief Deputy Clerk - BOCC

San Miguel County

[333 W. Colorado Ave, 3rd Floor](#)

PO Box 1170

Telluride, CO 81435

970-369-5429

970-708-8399 cell

E:carmenw@sanmiguelcountyco.govW:www.sanmiguelcountyco.gov

In painting, you have unlimited power. You have the ability to move mountains. You can bend rivers. But when I get home, the only thing I have power over is the garbage. Bob Ross



----- Forwarded message -----

From: **susanreynolds** <zuds53@gmail.com>

Date: Fri, Mar 22, 2024 at 4:48 PM

Subject: Re: DRAFT Regulations for Solar Systems

To: <johnh@sanmiguelcountyco.gov>Cc: <bocc@sanmiguelcountyco.gov>> On Mar 22, 2024, at 4:38 PM, susanreynolds <zuds53@gmail.com> wrote:

>

> Dear San Miguel Planning Commission-

>

> We thought the consensus after the January meeting was that Large scale Solar Energy Systems would NOT be an allowed under the Wrights Mesa Rural Agriculture land use zone. This change is NOT reflected in the March 27, 2024 "Draft Regulations for Solar Systems". Large Scale Energy Systems are defined as being greater than 20 acre in size.

>

> You need to adhere to what was unanimously decided on by the Planning Commission and County Commissioners.

>

> We trust that the correct verbiage will be changed prior to the March 27, 2024 meeting.

>

> Sincerely,

3/25/24, 1:49 PM

San Miguel County Mail - Fwd: DRAFT Regulations for Solar Systems

- >
- > Susan Reynolds
- > Monte Snyder
- > Mex and Sons Ranch, Norwood, CO



Nicola Kerr <nicolak@sanmiguelcountyco.gov>

Fwd: Cocnerns

Carmen Warfield <carmenw@sanmiguelcountyco.gov>
To: Nicola Kerr <nicolak@sanmiguelcountyco.gov>

Tue, Mar 26, 2024 at 9:10 AM

Carmen L. Warfield

Chief Deputy Clerk - BOCC

San Miguel County

[333 W. Colorado Ave, 3rd Floor](#)

PO Box 1170

Telluride, CO 81435

970-369-5429

970-708-8399 cell

E:carmenw@sanmiguelcountyco.govW:www.sanmiguelcountyco.gov

In painting, you have unlimited power. You have the ability to move mountains. You can bend rivers. But when I get home, the only thing I have power over is the garbage. Bob Ross



----- Forwarded message -----

From: **T Lamers** <lamers_t@yahoo.com>

Date: Tue, Mar 26, 2024 at 8:54 AM

Subject: Cocnerns

To: San Miguel County <bocc@sanmiguelcountyco.gov>

Dear Commissioners,

I am asking that Kaye Simonson attend the meeting on the 27th in Norwood in person.

I also think at least one meeting regarding these land use regs should be held in the evening for people that work and are not able to attend during the day.

I hear that you are all very upset about the changes not being made to the solar land use regs as expected after the January 24 meeting. Your actions regarding this issue with staff will speak volumes. This seems to be a deliberate not following of a directive.

I'd like to reference the Mission Statement of the SMC BOCC;

MISSION:

The San Miguel Count Board of Commissioners works to ensure our residents are healthy and flourishing and that our communities are safe and vibrant by:

Providing essential community services

Practicing responsible stewardship of our environment

Prioritizing long-term fiscal stability, and

Partnering with others to enhance the quality of life in San Miguel County and the region

How often are these read and considered? Do the residents of Wright's Mesa though less in population, get equally weighted in the consideration? Are our scenic views as important as those of the Telluride Valley?

Is our mental health important to you? I cannot stress to you enough that 600 acres of solar panels that I would be forced to look at and hear continuously will have a huge negative impact on my health and mental well being. I can honestly ask - "Would I even want to continue farming and ranching here?"

I appreciate your time and effort you put into the role of representing the citizens and **taxpayers** of San Miguel County.

Terri Lamers
Norwood
970-708-9906
970-708-9906

Terri Lamers
970-327-0271