Contents

5.201 Application Submission Requirements

(1) Vicinity Map

(a) Area within 50-mile radius from the site

Please see Appendix AA – Vicinity Map

(b) Map showing all existing transmission lines and pipelines

Please see Appendix AE for a map of existing transmission lines and the project site and the location of the other utility-scale solar project in the County. See Appendix E – WSEO Plan for more detailed transmission lines and pipelines on the project site.

(c) For upgrades to existing transmission lines, a map showing existing transmission lines within one mile

The Project does not propose upgrades to existing transmission lines.

(d) For all other major facilities, the area within ten miles of the site

No other facilities are proposed.

(2) Type of facility

The Palmer Solar Project is a 60MW AC Photovoltaic (PV) Solar Energy Generation Facility. The solar PV system will be composed of photovoltaic modules that convert the sun's radiant energy into electricity. The modules will be mounted on horizontal single-axis tracking racks that rotate from east to west to track the sun over the course of each day. The modules will be electrically connected in series strings to achieve a system DC design voltage of 1500V DC. Cables from the module strings will be run via cable trays or messenger wire to DC combiner boxes located strategically throughout the field. The DC combiners will connect multiple arrays in parallel, from which point the electricity will be conducted via cables to the inverters, which convert the DC power generated by the modules to grid-synchronized AC power. Step-up transformer(s) will raise the inverter AC output voltage, and the Solar Project output will pass through an AC collection system (at 34.5-kV) to the Palmer substation and ultimately to the point of interconnection at the Williams Creek Substation via a 230-kv overhead transmission line.

A plant monitoring and control system will maximize energy generation while minimizing the downtime associated with planned and forced outages. The system will also provide for the necessary control and dispatching functionality required by sophisticated utilities and grid operators. The supervisory control and data acquisition ("SCADA") system delivers a high-level overview of plant operations in addition to environmental sensing and real-time electrical data associated with subsystems down to the individual array. More importantly, the system is designed to provide operators with an alert of important events including communications outages, inverter failures, and breaker trips.

The Williams Creek Substation will be a 230-kV substation located on Colorado Springs Utilities existing 230-kV transmission line. It will include circuit breakers, switches, metering, and instrumentation, relays and controls, arresters, transformers, control building and appurtenant facilities and equipment. Please see Sheet 7 of the WSEO Map for a layout of the Williams Creek Substation. Williams Creek Substation will be built to meet Colorado Springs Utilities specifications for substations. All applicable current electrical standards and codes will be followed. The Williams Creek Substation will function as the point of interconnection for the proposed Palmer Solar Project. It will support generation, reliability, and planning goals of Colorado Springs Utilities.

(a) The voltages and lengths of transmission lines

The following lines are proposed:

- The maximum length of the 34.5-kV overhead power line connecting the solar arrays to the project-side substation is 6045 feet.

- The maximum length of the 230-kV overhead power line connecting the project-side substation to the Williams Creek Substation is 1700 feet.

There are existing transmission lines in the vicinity of the Project. Please see page 6 of Appendix E - WSEO Plan for existing lines, sizes, and ownership information.

(b) Types of poles used with graphic depictions

The 34.5-kV poles are wood structure (see Appendix F – Elevation Plans). The 230-kV line connecting the Palmer Solar Project to the Williams Creek Substation will consist of wood or steel poles.

(c) Power source and generating capacity

The Palmer Solar Project is a 60 MW (AC) solar energy generation facility. Interconnection requires construction of a project-side substation and the Williams Creek Substation.

(d) Functions and Size of Substations

The Palmer Solar Project include a 34.5-kV substation. It will interconnect to the proposed Williams Creek Substation located on the existing 230-kV Colorado Springs Utilities transmission line. It will be a 230-kV substation. These sizes also denote the capacity of the substations. The Williams Creek Substation will not be at full capacity when the Palmer Solar Project is interconnected.

Please dimensions of substations in Appendix E – WSEO Map Plan.

(e) Diameters and lengths of pipelines

No pipelines are proposed

(f) Capacities of storage tanks and types of petroleum derivative to be stored

No storage tanks or batteries are proposed.

(g) Corridor locations and dimensions

Please see WSEO Map for location of the 100-foot transmission line corridor.

(h) Service Area

Colorado Springs Utilities is the identified offtake for the Palmer Solar Project. Please see Appendix AB – CSU Service Territory for a map of the Colorado Springs Utilities service territory.

(3) Resource Area (source of power)

The solar resource is adequate for meeting generation commitments outlined in the PPA (see Appendix Y – Power Purchase Agreement).

(4) Project Development Schedule

Table 5: Williams Creek Substation Schedule

Milestone	Start	Finish
1. Permit Process and Preparation (WSEO, 1041)	July 2018	February 2019
2. Permit Approvals (Site Plan, Building Permit, Others)	February 2018	March 2019
3. Pre-construction (surveys, engineering)	November 2017	February 2019
4. Site Improvements, Substation and Project Construction	April 2019	November 2019
4.1 Civil Construction (site grading; roads)	April 2019	September 2019
4.2 Williams Creek Substation construction	April 2019	September 2019
5. Initial Energization	October 2019	
6. Commercial Operation		December 2019
7. Close out of Stormwater Permit	March 2019	July 2020

(5) Hazards and Emergency Procedures

(a) Hazards and danger to health, safety and welfare of employees and general public

Generation, distribution, and transmission of electricity requires delivering substantial amount of electrical current over long distances. While unlikely, there is a possibility of electrocution or explosion at a substation facility. For this reason, federal regulations require careful planning and design of substation facilities. The National Electrical Safety Code and other relevant standards have evolved over the years to minimize risk, reduce change of hazards, and protect people in a variety of development contexts. Palmer Solar Project and Williams Creek Substation will comply with all requirements and standards for substation development, including substation specifications required by Colorado Springs Utilities on all new substation projects.

It is also worth noting that the future owner of Williams Creek Substation and offtake for the Palmer Solar Project, Colorado Springs Utilities, is recognized as a national leader for safely delivering power to its consumers. The American Public Power Association (APPA) awarded Colorado Springs Utilities with the Diamond Level Reliable Public Power Provider (RP3) designation in 2018. Of the over 1,400 public power utilities in the country, only 41 utilities earn this special recognition. Relevant factors for the recognition

include preparing for emergencies, providing safety trainings to employees and contractors, maintaining equipment, responding to outages, and ensuring reliability. Colorado Springs Utilities plays a critical role in the design process, review, approval, and eventual energization of the Williams Creek Substation as well as the interconnection process for the Palmer Solar Project.

Applicant has prepared a Fire Prevention and Protection Plan with coordination, input, and approval by Hanover Fire Department (see Appendix Q – Fire Prevention and Protection Plan).

(b) Hazards and danger to environment from contamination due to substances on site

Hazardous materials at the Williams Creek Substation are limited to petroleum products. Once operational, petroleum projects will be managed under SPCC requirements. The Substation will receive routine inspections to ensure no petroleum products have spilled on the site. No other hazards from contamination are anticipated.

(c) Procedures in case of emergency

A Project-specific, comprehensive Health and Safety Plan is required for project development. This procedural document will be reviewed at the time of the Site Plan Review to standards set by relevant El Paso County, State of Colorado, and federal regulations and best management practices for utility-scale power plants and substations. It is also included here within; please see Appendix X – Safe Work Practice and Emergency Response Plan. Colorado Springs Utilities has provided input and review on requirements for emergency response for Palmer Solar and Williams Creek Substation through various legal agreements.

(6) Non-structural alternatives to Project development, such as conservation and no-development

Colorado Springs Utilities has a stated goal to generate 20% of its generation portfolio from renewable energy sources by the year 2020. The utility has undertaken budgeting and planning to achieve this goal, which includes the necessary investments in system infrastructure to support large-scale renewable energy. An alternative where the Project does not move forward may result in Colorado Springs Utilities not meeting its renewable energy targets and possibly, greater reliance on generation from conventional energy sources. This "no action" alternative would not result in increased jobs and tax base in El Paso County. In terms of energy efficiency as an alternative, this approach can help reduce the peak demand on the system but does not add or substitute existing generation resources. Therefore, it would do little to move Colorado Springs Utilities in a direction of great renewable energy integration.

Other factors such as changes to schedule, conservation programs, and land trades referenced in the 1041 regulations would also not help achieve a renewable energy goal on the terms and schedule needed by Colorado Springs Utilities. Utilities could theoretically purchase renewable power on the wholesale market, but this may have adverse effects on its rate payers, stability of markets, and health of its grid. It would also not achieve an important attribute of the Project: improving local reliability of electricity for its customers from local generation as close to load as possible.

While the Project could theoretically interconnect to other transmission lines located next to the Project site, Applicant is unaware whether injection is viable or if these utilities have interest in new generation at this location. The Project was designed and financed specifically for Colorado Springs Utilities.

(7) Structural alternatives to the Project

Siting alternatives were considered for the Project. As previously discussed, the sites (Clear Springs Ranch and Williams Creek) identified by Colorado Springs Utilities in its 2016 RFP were not viable from a cost, environmental, or electrical perspective at 60-MW. Other locations on the Colorado Springs Utilities system are not well-suited for other renewable energy generation projects, such as wind or biomass. These types of energy projects were able to bid into the Colorado Springs Utilities RFP but were ultimately not successful against the design and cost of the Palmer Project.

At early stages of development, Applicant considered a variety of designs and generation alternatives, such as thin-film panels, bifacial modules, fixed tilt arrays, and storage energy systems that would result in an alternative generation matrix. For example, the original design was almost exclusively sited on the Western portion, but this would lead to greater impacts to neighboring parcels and likely less generation. The design of the Palmer Solar Project and Williams Creek Substation Project reflects a configuration that optimizes interactions between generation technology, invertors, transformers, land-use (spacing and location), and power lines (Project overhead lines and existing system). While certain components of the Project may have minor changes alongside more detailed design and input from departments such as Pikes Peak Regional Building Department, the design will follow standards and requirements from WSEO and 1041 process.

Optimizing solar facilities to meet localized conditions and desired generation is inherently complex; requiring sophisticated modeling and comprehensive inputs from technology suppliers. Applicant has put forward design standards that utilizes land as efficiently as possible, while meeting the energy price and generation output agreed upon in the Power Purchase Agreement between Palmer Solar LLC and Colorado Springs Utilities. Structural alternatives for a 60 MW Project would likely result in a design that is not optimized (from an electrical, land, or finance perspective) or does not fully incorporate design considerations like recommendations by Colorado Parks and Wildlife, Hanover Fire Protection District, or other review agencies.

Additionally, different sizes were considered at very early stages of project development, but it is important as a developer to meet the goals and preferences of a utility in a bid process. Colorado Springs Utilities determined that it needs approximately 150,00 MWh per year of energy from renewable resources by 2019. The Project size proposed is based in this identified generation size. Colorado Sprigs Utilities does not have viable renewable energy projects currently on its system that it could modify to meet its renewable energy goals. Wind energy (or other energy types) were not shown to be competitive in the open and competitive bid process; from a financial or electrical perspective.

(8) Need for the Proposed Development

(a) Present Population of area to be served and population when operating at full capacity

The Palmer Solar Project may power up to approximately 15,000 homes, business, and institutions served by Colorado Springs Utilities. Eighty-five percent of El Paso County is served by Colorado Springs Utilities. There is a strong demand by Colorado Springs Utilities' customer-base (exemplified through their public processes for resource planning and strategic planning) to add renewable energy sources to its portfolio; thereby undertaking responsible electricity generation practices (air quality and emissions). Utilities has recently completed an update to its long-term Electric Integrated Resource Plan (EIRP). Through the EIRP process, Utilities determined that it needs at least 150,000 MWh per year of energy from renewable resources by the end of 2019. The Project meets this generation request. Utilities peak electric load is 908 MW, however, the need for the Project is primarily based in renewable energy goals and needs as opposed to a

simple energy generation growth rate. The Project may allow for decommissioning and retirement other facilities, such as the Martin Drake facility.
The Palmer Solar Project and Williams Creek Substation provide local, affordable, and reliable energy to support a significant portion of the El Paso County economy. By increasing the renewable energy portfolio in the County, conventional resources can be modified or retired; resulting environmental benefits (particularly air, water, and waste) across the County. Additionally, the electrical grid is heading in a direction of increased integration and regionalization – it's possible that over the life of the project that the power generated from the Project will produce power that supports other utilities (Colorado Springs Utilities has existing interconnection with Tri-State and Xcel at the Midway substation for example); thereby providing environmental and electrical benefits for end-users outside Colorado Springs Utilities.

(b) Predominant Type of Users or Communities to be served

Colorado Springs Utilities, and its customer base, is the predominate community to be served.

(c) Percentage of Design Capacity at which the system is currently operating

The Williams Creek Substation will increase injection capacity to accommodate the Palmer Solar Project. Since this portion of the system is not yet designed, a percentage of design capacity number is not appropriate. The Colorado Springs Utilities system is complex and does not have a nominal percentage that indicates operational capacity. This is primarily due to the concept that system capacity varies depending on different points on the system. As stated previously, the system has generation resources to meet current needs, but Colorado Springs Utilities is also charged with planning for future demand, incorporating rate pricing, and considering customer preferences regarding the energy generation matrix. Nevertheless, the Project will address Utilities peak electric load of 908 MW.

(d) If Proposal is for a new facility and the capacity exceeds a ten-year projected increase in Demand, a detailed explanation of the excess service capacity and cost

The Palmer Solar Project will add 60-MW of renewable energy to the Colorado Springs Utilities system. Colorado Springs Utilities generates and purchases 4.7 million MWh of energy each year. The maximum increase in projected energy growth is 1% over the next ten years. This equates to 47,000 MWh. Palmer Solar will exceed this amount by providing 151,728 MWh annually.[1] Planning for energy generation, however, has evolved from merely looking at capacity of conventional resources to a more sophisticated and adaptive approach to the electrical grid.

Utilities owns 416 MW of coal fired generation, 575 MW of gas fired generation (60 MW of which is simple cycle combustion turbines), 35 MW of hydro generation, and 10 MW of utility scale solar capacity. From a broad overview, Colorado Springs Utilities has a high percentage of coal generation and gas fired generation as compared to solar or wind energy resources. Coal units are typically operated as base load facilities because changing generation output is difficult and often expensive. By adding renewables to this portfolio, Colorado Springs Utilities can meet intermediate and peaking loads, particularly on long summer days. Adding solar can help its customers save money, result in less energy waste, and improve air quality. This is particularly true

[1] This is a broad overview of generation and does not take into account reserve margins and other generation requirements.

given planned coal facility retirements that will take place during the life of the Palmer Project, including the Martin Drake facility.

The Williams Creek Substation accommodates the size of the Palmer Solar Project and per industry practices, is built to accommodate larger build-out in the future at the discretion of Colorado Springs Utilities. Adding the additional power from the Palmer Solar Project gives Colorado Springs Utilities improved options for addressing base load, intermediate load, and peak load with solar energy. This will not "cost" the County for excessive capacity.

(e) Relationship to Applicants long-range planning and capital improvement programs

Colorado Springs Utilities 2016 Integrated Resource Plan identifies future procurement of renewable energy sources. Recently, Colorado Springs Utilities release a draft 2019-2023 Strategic Plan. Similarly, this plan identifies new opportunities for renewable energy integration on the existing system. In the draft Colorado Springs Utilities 2019 operating budget, $3,270,000 is initially earmarked for the Palmer Solar Project interconnection. The Operating Budget acknowledges the Colorado Springs Utilities' Board Approval of up to 90MW renewable energy projects. This Project aligns with Colorado Springs Utilities generation planning: both procurement of new renewable energy resources and potential retirement of older, conventional resources.

(f) Description of user needs and user patterns to be fulfilled by Project

The Solar Project provides power to Colorado Springs Utilities consumers, particularly during daytime hours. Please see page 3 of Appendix AB – CSU Service Territory for a map of the Colorado Springs Utilities service territory. As the utility provider for the City of Colorado Springs, majority of the end users will be located in that area.

(g) Description of relationship of Project to other existing and planned utility facilities of a similar nature, other communication or energy generation and transmission facilities, local government capital improvement programs and special district expansion programs

Solar energy in El Paso County is primarily limited to community gardens, small utility-scale, commercial and residential. The following solar projects are operational within El Paso County:

- AFA Solar Farm (5 MW)
- Pikes Peak Solar Garden (2 MW)
- Carson Solar (2 MW)
- Clear Spring Ranch Solar (10 MW)

The proposed Project relates to the Clear Spring Ranch Solar in that both projects will supply energy to Colorado Springs Utilities. As part of its permitting process, Clear Spring Ranch established a WSEO that is significantly larger than the project footprint. As discussed elsewhere in this application, much of this land is not desirable due to geotechnical conditions or floodplains. Additionally, electrical interconnection in this area is considered to be constrained and would require upgrades to allow for increases in power generation in the area.

The Project will be located in an area with substantial transmission facilities that already exists on the landscape. There are four separate utilities that operate transmission lines alongside the project site. The Project will interconnect into an existing Colorado Springs Utilities transmission line and easement. This approach supports colocation of infrastructure and impact minimization. Substations at the Project will meet federal standards and will resemble existing substations in El Paso County.

Two other utility-scale projects are proposed in El Paso County. The Front-Range Midway Project is a 100 MW facility that received a WSEO and 1041 approval in 2018 without a Power Purchase Agreement. In other words, the Project has been approved by El Paso County, but the developer has not found an "offtake" utility to purchase power from the solar project. To the knowledge of the Applicant, no progress has been made to bring this Project to a development-ready stage. The Front Range Midway Project's identified 2019 construction schedule requires updating.

In addition to the Front Range-Midway Project, there is another utility-scale project proposed near the town of Calhan and the Golden West Wind Project in unincorporated El Paso County. This project, named Grazing Yak, is also in the application process for a WSEO and 1041 permit. This project is a 35 MW project that will also provide power to Colorado Springs Utilities. Like the Palmer Solar Project, Grazing Yak was selected in the same competitive bid process as the Palmer Project. It does not conflict or change permitting considerations for the Palmer Project. It appears to align with and to support strategic goals and planning set by the Colorado Springs Utilities. Grazing Yak is not located directly on Colorado Springs Utilities infrastructure and has to "wheel" across other utilities to tie into the Colorado Springs Utilities system. The project's application identifies a 2019 construction schedule.

(9) Environmental Impact Analysis

(a) Land Use: Specify how the proposed development will utilize existing easements or rights-of-way for any distribution or collector networks

Appendix E – WSEO Map Plan identifies existing easements for transmission lines on the Project site. The distribution line between the two array areas is collocated with existing transmission lines but is not within an existing easement or rights-of-way. This is the extent of the Project's distribution network. The Williams Creek Substation is proposed to be located adjacent (to the north) to an existing Colorado Springs Utilities 230-kV transmission line and easement. The Williams Creek Substation is point of interconnection that ties into these lines. While the Project is next to an existing easement, it is not exclusively using it for its point of interconnection (the line will be restructured to enter and exit the new substation).

The Project utilizes an existing road network for access. Future roads will be multipurposed; providing access for operations and maintenance as well as access for vegetation management, emergency access, and security.

(b) Information regarding Utility Facilities

(i) Map showing existing major facility of a public utility within the county of <u>type</u> proposed for development

Utility-scale solar is the type of proposed development. Colorado Springs Utilities has one utility-scale solar energy generation facility on its system. The Clear Springs Ranch solar project is located across Interstate-25.

Please see Appendix AE – Existing Solar Project Map which identifies the location of the Clear Spring Ranch Solar Project to the southwest of the proposed Palmer Project.

(ii) Design Capacity of each such facility, the excess capacity of each such facility and the percentage of capacity at which each such facility operates

The design capacity of each such facility is limited to the Clear Spring Ranch, which is 10MW. It is understood to operate at the identified capacity. There is additional land available within the Clear Spring Ranch WSEO (a total of 5 stages), but this area was not found to be favorable for solar energy. The Front Range Midway Project is approved but is not operational – no determinations can be made about capacity or excess capacity. Grazing Yak will operate at 35 MW if it is permitted and built according to identified schedule.

(iii) Can Present facilities (Clear Spring Ranch) be upgraded to adequately accommodate a ten-year project increase in demand for services to be offered by Proposed Project.

The major driver of the Palmer Solar Project is not simply the forecast for demand in 10 years. The Project reflects national trends for necessary grid modernizations and improvements. That said, it is very unlikely that the current footprint of the Clear Springs Ranch facility is able to be upgraded to meet the generation output offered by the Palmer Solar Project. El Paso County approved up to four additional phases of this Project, but these are not "present facilities." The additional land required to meet generation output at the Clear Springs Ranch site would be considered similar to brining on the Palmer Solar Project. Additionally, the electrical infrastructure at the Clear Springs Ranch point of interconnection does not appear favorable for injecting this additional power. Interconnections at 12.5 kV is available North Clear Springs Ranch, which can support up to 12 MW. The additional capacity to fulfill the available land's full potential requires additional system upgrades (born on the developer) that are currently not financeable for a competitive project. As stated clearly in CSU's 2018 RFP document:

> "Interconnections at 12.5 kV are available at the Williams Creek Reservoir and North Clear Springs Ranch site 2 sites which <u>can support up to 12 MW</u> at each, but not both. Additional capacity could be added up to the available land's full potential if <u>Respondent funds additional system upgrades that meet Utilities' standards</u>. Respondents would be responsible for connecting at the 12.5 kV interconnection."

(10) Energy Map

Solar radiation in El Paso County is the resource for the proposed Project. It is not a conventional power source. Accordingly, identifying a "resource area to be utilized as sources for energy" is not applicable.

(11) For Applicants seeking permit for construction of transmission lines or substation

(a) Computer modeled electromagnetic field measurement with the proposed transmission line easement for that portion of the transmission line between the two substations

The 230-kV transmission line between the two substations is approximately 1500 feet. As detailed in the Project layout and Interconnection Insert (see WSEO Map Plan), the immediately adjacent area has five other high-voltage transmission lines. Additionally, the closest residence is over 1.5 miles away. Electromagnetic fields at this distance will not be detectable.

Of relevance, an Environmental Assessment completed by Department of Energy in 2015 looked at electromagnetic fields from transmission lines in a review of impacts from solar facility interconnection and found the following:

> "Transmission lines operate at a power frequency of 60 Hz; at this frequency, for a 230kV transmission line there would be an average EMF level of approximately 58mG directly under the line, and an average level of approximately 7.1mG at a distance of 100 feet. Household electrical appliances also operate at 60 Hz. Examples of measured average magnetic field levels for household appliances include: 8mG for an electric oven, 60mG for a vacuum cleaner, and 150mG for a can opener. This demonstrates that EMF levels within the home can be much higher than those of transmissions lines depending on the size of the line and proximity to the source, though home appliances are often operated less frequently than a transmission line." [2]

The 34.5-kV transmission line operates at the distribution level where electromagnetic field measurements will be very low (see below). Solar facilities produce negligible electric fields.[3]

Line Voltage*	Exposure Limit†	Center Line (Peak Value)	100 Feet	200 Feet	300 Feet
24 kV					
Electric (kV/m)	4.2	0.04	0.0	0.0	0.0
Magnetic (mG)	2,000	14.0	0.0	0.0	0.0
115 kV					
Electric (kV/m)	4.2	1.0	0.07	0.01	<0.01
Magnetic (mG)	2,000	30.0	1.7	0.4	0.2
345 kV					
Electric (kV/m)	4.2	4.5‡	0.7	0.2	0.06
Magnetic (mG)	2,000	72.1	9.9	2.5	1.1

Source WAPA (2017).
* By comparison, the average household background magnetic field range is 1–2 mG, with the average electric field up to 0.02 kV/m (20 volts) (WAPA 2017).
† Electric and magnetic field levels for 24 kV line are adapted from Hydro-Québec (2011).
‡ Exceeds ICNIRP 2010 continuous exposure limit for the general public.

As it pertains to the Williams Creek substation, the following features are important to note:

- Substations are not major sources of EMF beyond the extent of the perimeter fence[4]

[2] *See* The Cliffrose Solar Interconnection Project Environmental Assessment (EA-1989) available at: https://www.energy.gov/sites/prod/files/2015/05/f22/EA-1989_Cliffrose_DEA_2015-05.pdf
[3] *See* "Electromagnetic Fields Associated with Commercial Solar Photovoltaic Electric Power Generating Facilities". Available at https://www.ncbi.nlm.nih.gov/pubmed/26023811
[4] *See*

- According to the World Health Organization, EMF field strength diminishes to background levels usually around 300 feet
- Operating substations produce EMF from some electrical equipment, including transformers and auxiliary components. Most of this equipment is enclosed within metal casing/housing, which eliminates electric fields but not magnetic fields
- The main source of EMF associated with substations is the overhead transmission lines going in and out of the substation facility[5]

The predominate source of EMF will not be from the new Williams Creek Substation or the small amount of additional 230-kv between the Palmer Substation and the Williams Creek Substation. Instead, the existing 345-kV transmission line operated by Xcel will be the main source. As identified in review by Western Area Power Agency and an Environmental Assessment completed by the Bureau of Land Management, electric and magnetic fields don't combine like sound.[6] [7] One field typically only need to be slightly higher to dominate or cancel the other one out. The existing 345-kV line is assumed to be the primary driver of any measurable EMF. No residences are located within a distance that would raise concerns regarding substation or transmission line EMF.

Given EMF research and distance of any structures or residences, applicant requests a waiver for completing a computer modeled electromagnetic field measurement.

(b) Measures take to comply with concept of prudent avoidance with respect to planning, siting, construction, and operation of the transmission lines, which may be those steps taken to comply with CCR 723-3 Section 3206(9)(b) or similar authority, for projects where other similar authority is applicable.

The Project is in an area with multiple high-voltage transmission lines. Colocation is a fundamental concept for prudent avoidance as it pertains to planning, siting, construction, and operation of transmission lines.

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[5] *See* Talvera Substation and Distribution Project Environmental Assessment available at: https://eplanning.blm.gov/epl-front-office/projects/nepa/68992/155696/190517/AUGUST_2018_Environmental_Assessment_EA_Talavera.pdf

[6] *See* Electric and Magnetic Fields at: https://www.wapa.gov/newsroom/Publications/Documents/EMFbook.pdf

[7] Electromagnetic fields (EMF): What are electromagnetic fields? Available at: http://www.who.int/peh-emf/about/WhatisEMF/en/index3.html

Appendices

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