

**Palmer Solar Project and Williams Creek Substation**

**El Paso County 1041 Application**

**Applicant: Palmer Solar LLC and Colorado Springs Utilities**

**Submitted: November 2018**



**Prepared by:**  
**JSI Construction Group LLC**  
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## Contents

<b>Appendices .....</b>	<b>3</b>
<b>Acronyms .....</b>	<b>4</b>
<b>Article 3: Permit Applications .....</b>	<b>5</b>
<b>Section 2.303: Submission Requirements for all Permit Applications .....</b>	<b>5</b>
<b>(1) Completed Application Form .....</b>	<b>5</b>
<b>(2) Additional Information, as required by the Director .....</b>	<b>5</b>
<b>(3) Certification of Deed of Mineral Owners and Notification of Mineral Owners of Surface Development.....</b>	<b>5</b>
<b>(4) Information describing the applicant.....</b>	<b>5</b>
<b>(5) Information describing the Project .....</b>	<b>12</b>
<b>(6) Property rights, other permits and approvals .....</b>	<b>17</b>
<b>(7) Land-Use .....</b>	<b>21</b>
<b>(8) Surface and subsurface drainage analysis.....</b>	<b>38</b>
<b>(9) Financial feasibility of the project .....</b>	<b>38</b>
<b>(10) Local infrastructure and services impacts .....</b>	<b>39</b>
<b>(11) Recreational Opportunities.....</b>	<b>40</b>
<b>(12) Areas of Paleontological, Historic, or Archaeological Importance .....</b>	<b>40</b>
<b>(13) Nuisance .....</b>	<b>41</b>
<b>(14) Air Quality.....</b>	<b>41</b>
<b>(15) Visual Quality .....</b>	<b>41</b>
<b>(16) Surface Water Quality.....</b>	<b>42</b>
<b>(17) Groundwater Quality.....</b>	<b>44</b>
<b>(18) Water Quantity .....</b>	<b>45</b>
<b>(19) Floodplains, Wetlands, and Riparian Areas; Wildlife and Wildlife Habitat.....</b>	<b>46</b>
<b>(20) Soils, Geologic, Conditions and Natural Hazards .....</b>	<b>46</b>
<b>(21) Hazardous Materials.....</b>	<b>47</b>
<b>(22) Monitoring Plan and Mitigation Plan.....</b>	<b>47</b>

## **Appendices**

A – 1041 Application

B – Certification of Mineral Owners

C – Authorization of Application by Project Owner

D – 1041 Map

E – WSEO Map Plan

F – Elevation Plans

G – Geotechnical Report

H – Wildlife, Wetlands, and Cultural Resource Surveys

I – Correspondence: CPW

J – Correspondence: USFWS

K – Wetlands Delineation Report and USACE Correspondence

L – History Colorado Letter

M – Noise Plan

N – Noxious Weed Management Plan

O – Preliminary Drainage Report

P – Traffic Memo

Q – Visual Impact Analysis

R – Fire Prevention & Protection Plan and Hanover Fire Protection District Commitment Letter

S – Operations and Maintenance Plan

T – Decommissioning Plan

U – Determination of No Hazard from Federal Aviation Administration

V – Road Condition Survey

W – Phase I ESA

X – Grading and Erosion Control Plan

Y – Safe Work Practices and Emergency Response Plan

Z – Power Purchase Agreement

AA – Water Letter from Colorado Springs Utilities

AB – Vicinity Map and Public Land Map

AC – Colorado Springs Utilities Service Territory Map

AD – Interconnect Agreement

AE – Existing Use Map

AF -- Existing Utility-Scale Solar Projects

AG – EMF Memo

## **Acronyms**

AC – Alternating Current

APEN – Air Pollutant Emission Notice

CPW – Colorado Parks and Wildlife

CSU – Colorado Springs Utilities

CWA – Clean Water Act

ESA – Endangered Species Act

FAA – Federal Aviation Administration

kV—Kilovolt

MW- Megawatt

PCD – Planning and Community Development of El Paso County

Phase I ESA – Environmental Site Assessment

PPA – Power Purchase Agreement

PPRBD – Pikes Peak Regional Building Department

PV – Photovoltaic

SPCC Plan – Spill Prevention, Control, and Countermeasure Plan

SWMPP – Stormwater Management Program Plan

USFWS- United States Fish and Wildlife Service

USACE – United States Army Core of Engineers

WSEO – Wind/Solar Energy Overlay

### **Article 3: Permit Applications**

#### **Section 2.303: Submission Requirements for all Permit Applications**

##### **(1) Completed Application Form**

El Paso County 1041 Application is included in Appendix A – 1041 Application.

##### **(2) Additional Information, as required by the Director**

No additional information identified at time of 1041 Application submission.

##### **(3) Certification of Deed of Mineral Owners and Notification of Mineral Owners of Surface Development**

Please see Appendix B – Certification of Mineral. Notifications have been sent to Mineral Owners at least 30 days before initial public hearing.

##### **(4) Information describing the applicant**

###### **(a) Names, Addresses, including email and fax, organizational form, and business of the applicant and, if different, the owner of the Project**

The co-applicants for the 1041 Permit are Palmer Solar LLC and Colorado Springs Utilities (with JSI Construction Group LLC as its agent). Palmer Solar LLC and JSI Construction Group LLC are wholly owned subsidiaries of juwi Inc. and any documentation referencing juwi also pertains to JSI Construction Group LLC and Palmer Solar LLC. Palmer Solar LLC will be owner of Palmer Solar Project and Colorado Springs Utilities will be owner of Williams Creek Substation.

Co-applicants:

1. Palmer Solar LLC  
1710 29<sup>th</sup> Street, Suite 1068  
Boulder, CO 80301  
Attention: Jay Sonnenberg, General Counsel  
Contact: Stuart Coles, Project Planner  
Phone: 720.245.2922  
Email:
2. Colorado Springs Utilities  
121 South Tejon Street, Third Floor  
P.O. Box 1103, Mail Code 930  
Colorado Springs, CO 80947  
Attn: John Romero, Warren Seese  
Phone: 719.668.8390  
Email: [wseese@csu.org](mailto:wseese@csu.org)

Authorized Agent of Colorado Springs Utilities:

1. JSI Construction Group LLC  
1710 29<sup>th</sup> Street, Suite 1068  
Boulder, CO 80301  
Attention: Jay Sonnenberg, General Counsel  
Contact: Stuart Coles, Project Planner  
Phone: 720.245.2922  
Email: [scoles@juwiamerica.com](mailto:scoles@juwiamerica.com)

**(b) Names, Address, and Qualifications, including those Areas of Expertise and Experience with Projects Directly Related or Similar that Proposed in the Application, of Individuals who are or will be Responsible for Constructing and Operating the Project**

JSI Construction Group, LLC  
1710 29<sup>th</sup> Street, Suite 1068  
Boulder, CO 80301

1. Mark Marion – SVP, Projects Group

Mr. Marion has supervision over the development and project management functions and employees at juwi. His primary responsibility for projects in late stage development and under construction is to ensure the company is meeting its commitments to project stakeholders. Mr. Marion served as the Project Manager for the 12 MW Wyandot Solar, 15 MW Jacksonville Solar projects, 15 MW Milford Solar and 50 MW Pavant projects. For all four projects, he managed the engineering design, permitting, interconnection process, equipment procurement, juwi's on-site construction team and the relationships with the owning entity and with the off-take. Prior to joining juwi., Mr. Marion worked in the Clean Energy & Fuels group of a technology consulting company for four years. He holds bachelor's and master's degrees from Yale University in Chemical Engineering.

2. John Tembrock – VP, Operations

Mr. Tembrock is the Vice President of Operations for juwi. In this role, Mr. Tembrock is responsible for managing, executing and monitoring the engineering activities for all juwi projects. Mr. Tembrock has 20 years of experience designing and implementing industrial control and data acquisition systems. He has worked in the electric utility, semiconductor and high-speed manufacturing industries. He has 14 years of experience designing and implementing environmental information systems for EPA air permitted facilities. In this role, he delivered more than 25 custom systems to large and medium utilities and facilities. His responsibilities included customer consultation, design, commissioning and custom solutions. Prior to this, Mr. Tembrock designed and implemented facility wide ultra-pure water control systems in the semiconductor utility industry. He has been responsible for financial performance, planning and implementation of many projects within the water purification industry and power industry.

3. Dr. Sara MacAlpine – Systems Engineer

Dr. MacAlpine is a Systems Engineer at juwi with over 10 years of experience working with photovoltaic technologies. In her current role, she is responsible for PV system design optimization, including solar resource analysis, generation modeling and related technical research. Dr. MacAlpine also coordinates juwi's efforts in PV module selection, procurement, and associated due diligence activities. Prior to joining juwi,

Dr. MacAlpine started her career in microprocessor design at Hewlett Packard and Intel, with a focus on circuit design and layout, and software design and simulation. Dr. MacAlpine holds a doctoral degree in Civil Engineering, with a concentration in Building Systems and Renewable Energy, from the University of Colorado Boulder. She previously earned a BS in Electrical Engineering from Rice University.

4. Darnell Everett, CCM – Director, Project Management

Mr. Everett is a Certified Construction Manager with over 18 years of experience in managing projects consisting of electrical, mechanical, industrial facilities, cogeneration facilities, solar and energy savings performance contracts. He has experience with juwi Inc. managing nearly 100MW of utility-scale photovoltaic power plants. Mr. Everett's primary responsibilities include directing, developing and leading juwi project manager and on-site construction personnel to ensure the successful execution of the Palmer-Williams Creek Project. Mr. Everett studied at Virginia Polytechnic Institute and State University, earning a BS in Industrial and Systems Engineering.

5. David Doerner, EIT – Project Engineer

Mr. Doerner has over seven (7) years of experience with juwi Inc. designing and leading various engineering efforts for over 300MW of utility-scale photovoltaic power plants. Mr. Doerner's primary responsibilities include the creation of engineering drawings, engineering work schedules, scopes of work, the composition of the solar bill of materials, and assisting in Project Management duties. His specialties include electrical code compliance of solar photovoltaic systems and wiring methods. Mr. Doerner studied at the University of Colorado, Boulder earning a B.S. in Mechanical Engineering with an Environmental Option.

6. Stuart Coles – Project Planner

Mr. Coles is the principal point of contact for the Palmer-Williams Creek 1041 Application. At juwi, he oversees a national portfolio of projects to ensure development milestones are met in compliance with applicable regulations. He has worked with local, state, and federal agencies throughout the country on renewable energy, including NEPA review, ESA compliance, and CWA permits. Prior to joining juwi's Project Development team, he worked on the rollout of major federal energy initiatives in the non-profit sector, including Section 368 West-wide Energy Corridors, BLM Solar Energy Development Programmatic EIS, and Resource Management Plans. Mr. Coles received his MA in Global Finance, Trade, and International Economics from the University of Denver, where he also holds BAs in Environmental Science and International Studies.

Colorado Springs Utilities  
121 S. Tejon  
Colorado Springs, CO 80903

1. Warren Seese, Senior Project Manager, Energy Services

Warren Seese was responsible for the development of the Clear Springs Ranch Solar Array; a 10 MW PV facility in El Paso County. Mr. Warren Seese holds a BS in Computer Science and has been certified as a Project Management Professional. He has 35 years of experience has worked in the Utility industry for 27 years. He has been the Project Manger for three Community Solar Garden projects in El Paso County, including the Venetucci Community Solar Garden, the Bradley substation Community Solar Garden, and the United Methodist Community Church Community Garden.

2. Colorado Springs Utilities

Colorado Springs Utilities has the technical and financial capability to manage the contract and purchase the energy from Palmer Solar Project. It also has the capability and interest in operating and maintaining the Williams Creek Substation. The City owns and operates Colorado Springs Utilities (“Springs Utilities”), which is an enterprise of the City under the Colorado Constitution and the City Charter. Springs Utilities includes the municipal waterworks system, the electric light and power system, the gas system, the wastewater system, the streetlight system, and other systems designated in accordance with the home rule charter of the City. More than 85% of the population of El Paso County (the “County”) is directly or indirectly served by the Electric System.

**(c) Authorization of application by Project Owner**

Palmer Solar LLC is the Project Owner for the Palmer Solar Project. Colorado Springs Utilities is the Project Owner of the Williams Creek Substation. Please see Appendix C—Authorization by Project Owner for authorization from Colorado Springs Utilities to apply for the 1041 Permit as its agent. Given the interconnected nature of the projects, El Paso County has requested a joint 1041 application and has agreed to the possibility of future 1041 Permit assignments for each of the respective owners. No additional authorizations are necessary for this application.

**(d) Documentation of the applicant’s financial and technical capability to develop and operate the Project, including a description of the applicant’s experience developing and operating similar Projects.**

- *Financial capability:* Palmer Solar LLC is a wholly owned subsidiary of juwi Inc. juwi is a private, corporation based in Boulder, Colorado that was founded in 2008 and is a subsidiary of its German parent, juwi AG. juwi has a proven track record of arranging and securing over \$850 million in equity financing for 17 solar energy generation projects with an aggregate nameplate capacity over 375 MW. juwi has created strong and lasting relationships with a well-vetted and qualified group of strategic equity investors interested in pursuing ownership of the solar facilities juwi develops and constructs.. juwi typically secures financing for the projects through a transfer of ownership of the project to the equity investor after the project’s offtake agreement is secured and prior to Notice to Proceed. As an integral part of the financing process, juwi executes an EPC contract to build the projects and an Operations and Maintenance (“O&M”) contract to operate and maintain them.



































juwi can execute a variety of financial structures for construction and long-term financing of the projects. Based on juwi’s successful financing experience in North America, juwi has found that unregulated subsidiaries of large utilities, including Duke Energy Renewables, Dominion, PSEG Solar Source, AEP Renewables, and other similar entities are the most efficient owners of utility-scale solar projects. These entities have institutional experience in owning and operating power generation facilities, tax exposure to utilize the benefits of the Investment Tax Credit (“ITC”), and large balance sheets with which to finance projects. Thus, financing is “on a balance sheet” for this Project and will not require debt.

- *Technical capability to develop:* juwi has all the in-house capabilities to develop top-of-the-line utility-scale solar energy projects, including the Palmer Solar Project. juwi project team consists of renewable energy professionals with the necessary credentials and aptitudes in engineering, electrical design, planning and policy, real estate, law, and construction management. Additionally, the company



operates in close coordination, and with support, of a network of outside consultants and counsel. These subject matter experts often focus on niches of the renewable energy industry and have worked on multiple juwi projects elsewhere the country. By combining in-house professionals with external consultants, juwi can ensure its tailoring its development approach to a specific development context; incorporating best management practice and local knowledge to achieve superior outcomes.

- *Technical capability to operate:* While juwi is not the long-term owner of its projects and will not be the long-term owner of the Palmer Project, the company has a vested interest in the operational success of its facilities. In addition to contractual arrangements with future project owners, juwi often performs maintenance and operations actions and duties on its facilities.
- *Experience developing and operating:* juwi has developed three projects in Colorado in three different counties (Larimer County, Las Animas County, and Adams County). Nationally, juwi has successfully brought over 17 solar energy generation projects with an aggregate nameplate capacity over 375 MW and have a national development pipeline for the coming years. Projects and relevant parties are listed below.

Project	Capacity (MWp)	Financing Status	Investor	Offtaker
Pavant Solar III	26	Financial Close Achieved ("FCA"): August 2016		
Victory Solar	16	FCA: August 2016		
San Isabel Solar	38	FCA: January 2016		
Rawhide Flats Solar	36	FCA: January 2016		
Pavant Solar II	63	FCA: December 2015		
PNM Solar	2 x 12.5	Direct EPC Structure: 2015		
L&D Solar	13	Direct EPC Structure: 2014		
Rockfish Solar	13	FCA: December 2014		
Pavant Solar	62	FCA: October 2014		
Essex Solar	3.6	FCA: July 2014		
Newman Solar	13	FCA: May 2014		
Badger I Solar	19	FCA: November 2012		
Milford Solar	15	FCA: September 2012		
Queen Creek Solar	25	FCA: December 2011		
Mill Creek Solar	3.8	Direct EPC Structure: June 2011		
Blue Wing Solar	16	FCA: January 2010 Project Financing: June 2010		
Jacksonville Solar	15	FCA: September 2009		
Wyandot Solar	15	FCA: September 2009		

#### (e) Written qualifications of report preparers

The 1041 Letter of Intent is a product of JSI Construction Group LLC and Palmer Solar LLC. The following consultants contributed to reports referenced herein. Applicant appreciates its network of consultants in

Colorado, which have assisted in the El Paso County Wind/Solar Energy Overlay (WSEO) and 1041 Application.<sup>1</sup>

#### Drainage Report; Traffic Study; Grading and Erosion Control Plan; Visual Impact Analysis

*Kimley Horn Associates, Colorado Springs Office*

1. Ted Ritschard, P.E.

Ted is a licensed professional civil engineer with 35+ years of experience. He holds a Bachelor of Science degree in the field of civil engineering. Ted's experience ranges from work on large scale DOT roadway design projects to transportation master plans for communities and cities. His role on the project includes support with the road condition survey and overall project quality control.

2. Eric Gunderson, P.E.

Eric is a licensed professional civil engineer with 9+ years of experience. He holds a Bachelor of Science degree in the field of civil engineering. Eric's experience ranges from work on large scale master planned single family subdivisions, to industrial warehouse sites, small site retail and commercial projects and municipal roadway design. His role on the project includes that of project manager and engineer of record.

3. Kevin Kofford, CEIT

Kevin is a certified engineer in training with 3+ years of experience. He holds a Bachelor of Science degree in the field of civil engineering. Kevin's experience ranges from work on various side development projects and roadway design for municipal entities. His role on the project is the lead engineering designer.

4. Marilyn Wagman

Marilyn is an intern landscape architect with 3+ years of experience. She holds a Master of Science degree in the field of landscape architecture. Marilyn's experience ranges from large scale multi-family projects to large scale retail. Her primary role on the project is the lead graphics and rendering designer.

#### Wetlands, Wildlife, and Cultural Memo

*Ecology and Environment Inc.*

1. Maureen O'Shea Stone

Ms. O'Shea-Stone is a professional ecologist with more than 30 years of progressive experience. Her projects center on the intersection of ecological knowledge, planning, and regulatory compliance. These include land and energy development, natural resource management, county or local government planning. She has managed over 20 renewables energy projects in Wyoming and Colorado.

2. Jennifer Jackson

Ms. Jackson is an ecologist, project manager, and regional permit coordinator for energy projects with more than 15 years of experience conducting environmental services to a diverse client base. She is experienced in land use planning; local, state, and federal permitting; agency coordination, special status botanical and wildlife surveys; vegetation and habitat mapping; ecological restoration planning and implementation; and ecological construction monitoring. Ms. Jackson has served as project manager for 10 projects requiring permit approval in Colorado.

3. Scott E. Severs

Mr. Severs has 24 years of experience working on many diverse projects, including renewable energy, oil and gas, city master plans, and NEPA analysis and documentation. He has the capacity to accomplish projects within the desired timeframe, while maintaining the integrity and quality of the data collected within both a team setting, or an individual situation. Mr. Severs has completed numerous projects in El Paso County and is very familiar with the proposed project area.

4. Susan Nordstrom, RLA

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<sup>1</sup> This does not reflect a comprehensive list of all contributors to the Project. juwi undertakes a comprehensive review of credentials and experience when selectin potential consultants for a project.

Ms. Nordstrom is a landscape ecologist and registered landscape architect with more than 29 years' experience providing native vegetation expertise to multi-disciplinary planning and design teams. She has planned, designed, and managed projects at all levels of scale, from construction detailing to large area master planning. Ms. Nordstrom has worked extensively in El Paso County and has a very good working relationship with USACE.

5. Ted Hoefer, RPA

Mr. Hoefer has been conducting archaeological and historical investigations in the western United States since 1979. Most of his projects have occurred in Colorado, Utah, and Wyoming. His research interests include cultural landscapes, modeling archaeological site locations, human behavioral ecology, hunter-gather subsistence and settlement, and lithic technology

6. Chris Jessen, PG

Mr. Jessen has been actively involved in GIS map development and analysis since 1997, applying the technology primarily to water resource engineering, EA, and renewable energy permitting applications. He has served clients in the mining, forestry, wind, solar, petroleum and agriculture industries, as well as all levels of government. He has acquired a broad scientific background in geology, soil science, civil engineering and geotechnical practice, computer programming, website and database development, environmental regulatory compliance, wildlife and natural systems, wetlands, water rights assessment, and visualization technologies.

Environmental Site Assessment (ESA) Report

*Pinyon Environmental, Inc.*

1. Julie Linn, Hazardous Materials Specialist

Ms. Linn is a registered professional geologist with 24 years of environmental experience including investigation and remediation of soil and groundwater impacted by chlorinated solvents, metals, petroleum hydrocarbons, and salts. She has managed and provided geologic and hydrologic oversight for multiple Voluntary Cleanup Program (VCUP) sites, Superfund sites, RCRA hazardous waste sites, and closed pre- and post- RCRA subtitle D and hazardous waste landfills. She has conducted and managed Phase I and II Environmental Site Assessments, wetland delineations, and Section 404 permitting and mitigation projects. She has completed storm water inspections and is well-versed in review and interpretation of federal, state, and local environmental regulations.

Noxious Weed Inventory and Plan

*Pinyon Environmental, Inc.*

1. Karin McShea, Senior Technical Oversight

Ms. McShea is Pinyon's biological resources Technical Group Manager and will provide technical oversight and quality control for the project. Ms. McShea has collected noxious weed data for numerous clients in Colorado and surrounding states. She is well-versed in noxious weed regulations, from the federal to local level. She has used noxious weed mapping and inventory data to write Integrated Noxious Weed Management Plans for various projects across Colorado and surrounding states. Her recent experience includes managing the collection of noxious weed data on 25 Colorado Springs Utilities properties totaling over 9,000 acres, and overseeing the formulation of management recommendations for those properties.

2. Brandee Anderson, Botanist

Ms. Anderson is a botanist with over five seasons of botanical field experience and is excellent at efficiently surveying large areas and identifying noxious weeds in various phenological stages. Her recent experience includes noxious weed inventories on 25 properties owned by Colorado Springs Utilities, totaling over 9,000 acres, and preparing management recommendations for those properties. Ms. Anderson will lead the field work and prepare the Noxious Weed Management Plan for the Palmer Solar Project.

3. Pamela Wegener, Biologist and GIS Specialist

Ms. Wegener has four years of biological field experience, including noxious weed surveys. Her recent experience includes noxious weed inventories on 25 properties owned by Colorado Springs Utilities, totaling over 9,000 acres. Ms. Wegener is also skilled in the collection, processing, and presentation of GIS data. Because Ms. Wegener will be conducting the field surveys and mapping, as well as post-processing and creating the GIS deliverables, this process will be streamlined and efficient, saving time and money.

#### Geotechnical Report

*Terracon Consultants, Inc.*

1. Terracon is a 100 percent employee-owned consulting engineering firm providing quality services to clients. Since 1965, Terracon has evolved into a successful multi-discipline firm specializing in environmental, facilities, geotechnical, and materials services. Terracon currently has more than 4,000 employees in more than 140 offices, serving all 50 states nationwide. For the Palmer Project, Terracon's Colorado Springs office provided geotechnical analysis, report creation, and recommendations, particularly Robert M. Hernandez, P.E. (Geotechnical Services Manager), Ryan W. Feist, P.E. (Principal), and Jon Shen, P.E. (SME for Solar Projects).

### **(5) Information describing the Project**

#### **(a) Vicinity Map**

See Appendix AA – Vicinity Map and Public Lands Map. Also see Appendix E—WSEO Map Plan.

#### **(b) Executive Summary of the project included scope and need**

Scope: Palmer Solar LLC proposes to construct, operate, and decommission the Palmer Solar Project, a solar facility capable of generating up to 60 alternating current (AC) megawatts (MW) of photovoltaic (PV) solar energy. The proposed Solar Project consists of ground-mounted solar arrays and associated infrastructure sited within approximately 622 acres of the WSEO on land owned by Woodmoor Water and Sanitation District No. 1 in El Paso County (herein called the "County").

Colorado Springs Utilities proposes to construct, operate, and decommission the Williams Creek Substation, a utility substation sized to accommodate new electrical power from the Palmer Solar Project onto the existing Colorado Springs Utilities transmission system. The Williams Creek Project consists of a new three-breaker ring bus switchyard planned by Colorado Springs Utilities; sited within an 89-acre area of City of Colorado Springs-owned land in the County (jointly, the WSEO acreage proposed is 711 acres).<sup>2, 3</sup>

The Palmer Solar Project will be built with proven and bankable technology, building off Applicant's experience building facilities in fourteen (14) states across the United States. The Solar Project will be a single-axis PV tracking system that connects directly to the Colorado Springs Utilities' existing 230-kilovolt (kV) transmission system. In its first year of operation, the facility will have a generating capacity of approximately 151,728 MWh: directly powering local homes, business, and institutions.

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<sup>2</sup> Colorado Springs Utilities is a charter-created municipal enterprise of the City of Colorado Springs, Colorado. The City owns and operates the Colorado Springs Utilities, which includes the electric light and power system, in accordance with the home rule charter of the City. Accordingly, Colorado Springs Utilities and City of Colorado Springs act in coordination as it pertains to issues covered by such charter.

<sup>3</sup> Not all portions of the WSEO will host infrastructure (see WSEO Plan).

Need: Colorado Springs Utilities has identified a 20% renewable energy goal by 2020 in its Integrated Resource Plan for electricity. Additionally, the Colorado Renewable Energy Standard requires municipal utilities and cooperatives to derive a minimum percentage of their generation portfolio from renewable energy sources (wind, solar, and geothermal). Colorado Springs Utilities, as the principal electricity provider in El Paso County, has a stated need, interest, and ability to procure a utility-scale solar energy project.

**(c) Plans and Specifications of the Project in sufficient detail to evaluate the application against the Applicable Review criteria.**

Please see Appendix E – WSEO Map Plan for a detailed Project layout, resource maps, and relevant considerations to the proposed Project.

**(d) Description of alternatives to the Project considered by the Applicant.**

Colorado Springs Utilities owns and operates approximately 232 miles of high voltage transmission lines located almost exclusively in El Paso County. These transmission lines are largely located within urban and suburban areas (near energy load), or in areas with substantial topographic features due to the utility's location at the base of the Rocky Mountains.<sup>4</sup> Therefore, sites available and viable for a utility-scale renewable energy project are rare in this area for this utility.

Additionally, as part of its 2016 Request for Proposal, Colorado Springs Utilities offered two sites owned by City of Colorado Springs for a renewable energy project: North Clear Springs Ranch (within the Clear Spring Ranch WSEO) and Williams Creek (sited on Colorado Springs land to the east of the proposed Palmer-Williams Creek WSEO). Applicant dismissed these two Utilities-provided sites for the following reasons:

- Clear Spring Ranch site: At the North Clear Springs Ranch site there is only a 12.5kV interconnection available which can only support up to a 12 MW project. The North Clear Spring Ranch site is approximately 130 acres and land outside this area in the Clear Spring Ranch WSEO is uneconomic due to topographic constraints. Additionally, any project greater than 12MW would require a new substation and line upgrades that make project costs too substantial for development. While there is an existing 1041 Permit that allows for 10 MW of solar energy and the Clear Spring Ranch WSEO allows for 110 MW, a 1041 Permit would still be required for additional phases within the WSEO.
- Williams Creek site: Applicant considered designing and building on this Utilities-provided site, however Applicant determined that certain topographical features of the site would present significant execution challenges. These features include a large FEMA flood zone impacting much of the site, the prevalence of wetlands, and the existence of underground gas pipelines.

Applicant undertook a comprehensive analysis of alternative sites (approximately 10) within the Colorado Springs Utilities service territory. Areas were dismissed because sites did not meet suitability requirements: suitable land, electrical interconnection, development context, or County zoning setting. The area proposed for interconnection is unique in that it is suitable for a large-scale solar project and from an electrical perspective, can inject a sizable amount of power.

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<sup>4</sup> See publicly available service territory map: <https://www.csu.org/CSUDocuments/mapelectric.pdf>

**(e) Schedules for designing, permitting, constructing, and operating the Project, including the estimated life of the Project.**

<b>Milestone</b>	<b>Start</b>	<b>Finish</b>
1. Major Permit Approvals (WSEO, 1041)	July 2018	January 2019
2. Secondary Approvals (Site Plan Review, PPRBD permit)	January 2019	April 2019
3. Pre-construction (surveys, engineering)	November 2017	February 2019
4. Site Improvements, Substation and Project Construction	March 2019	November 2019
4.1 Civil Construction (site grading, roads)	March 2019	September 2019
4.2 Post Rack Module Install	April 2019	November 2019
4.3 Electrical Install	April 2019	November 2019
4.4 Construction of Interconnection Facilities (including Williams Creek Substation)	April 2019	September 2019
5. Initial Energization	October 2019	
6. Plant Commercial Operation		December 2019
7. Seeding and close out Stormwater Permit	March 2019	July 2020
8. Estimated life of the Project/1041 Timeframe	January 2020	January 2055
9. Final Decommissioning Plan submittal	May 2054	
10. Begin Active Revegetation and Site Restoration	January 2055	

**(f) The need for the Project, including a discussion of alternatives to the Project that were considered and rejected; existing/proposed facilities that perform the same or related function; and population projections or growth trends that form the basis of demand projections justifying the Project.**

Colorado Springs Utilities has a sizable load profile of which it is required to meet in compliance with NERC reliability standards. Utilities identifies a system peak of 908 MW in publicly disclosed, which likely will increase alongside growing populations, industries, and residential development in El Paso County. The projected demand growth rate is between 0% and 1% over the next ten years. In its 2015 forecast, Utilities forecasted system peak demand between 1,100 MW and 1,400 MW in 2040. Given these considerations, existing firm capacity resources (such as conventional sources like coal power) are likely capable of meeting Colorado Spring Utilities load and reserve requirements.

Meeting existing load and reserve requirements, however, is only one factor to consider for electrical and generation planning by a utility. Other factors, as discussed elsewhere in this document, come into play, such as legislative requirements for renewable energy, customer preferences, and stated interests in adding renewable and low-carbon options for businesses and residences. At this stage of integration of renewable energy in the Colorado Springs Utilities portfolio, solar can be particularly attractive for addressing peak load needs where running conventional resources is often more expensive. To fully meet the renewable energy goals in the Energy Vision, Utilities has determined that it needs approximately 150,000 MWh per year of additional energy from renewable resources by the end of 2019.

Additionally, Colorado Springs Utilities has announced retirements of existing generation source (such as the Drake facility) that will need to be supplemented or replaced in advance of decommissioning. Colorado Springs Utilities has the authority and governing structure to add resources that it sees fit in order to meet the

needs of its customers and position its business model for long-term success. The demand for the Project is fundamentally based in Utilities resource planning, which sets consequential goals for renewable energy procurement.

Accordingly, some of the reasons Colorado Springs Utilities considered renewable energy additions through its 2016 Solicitation included:<sup>5</sup>

- Achieving Colorado Springs Utilities 2020 Energy Vision renewable energy goals
- Responding to recent and historical trend of customer surveys indicating interest in Colorado Springs Utilities expanding its renewable energy portfolio
- A desire by Colorado Springs Utilities customer base to move beyond the Renewable Portfolio Standard (RPS)
- The potential for an increased Colorado RPS or a national RPS

Census Bureau data released in 2018 shows that El Paso County led Colorado for numerical population growth. Additionally, Colorado's State Demography Office establishes population estimates annually. The most recent estimates show that El Paso County is expected to grow at a rate of over 1% annually and be Colorado's most populous county in 2050. Population trends demonstrate need for utility services, including electricity, from the County's principal utility provider.

Through the second quarter of 2018, Colorado had installed 1,055.17 MW of solar energy and is ranked 12<sup>th</sup> nationally for solar installations (the State ranked 20<sup>th</sup> in 2017). Colorado is expected to continue strong sector growth and investment in solar energy, with an expected 1,382 MW over the next 5 years. El Paso County has several ground-mounted solar facilities; primarily community solar gardens and net-metered systems. In particular, Colorado Springs Utilities commissioned its first utility-scale solar energy project in 2016: the Clear Springs Ranch Solar Project. It is a 10 MW ground-mounted solar photovoltaic (PV) facility that is similar in general structure and design to the proposed Palmer Solar Project.

At its current size, the Clear Springs Ranch Project does not produce enough power to meet the Energy Vision of Colorado Springs Utilities (a 20% renewable energy goal by 2020). While El Paso County approved a WSEO substantially larger than the boundaries of the Clear Spring Ranch project, electrical capacity in this portion of the Colorado Springs Utilities system is constrained. The new substation created for the Clear Spring Ranch solar project allows for solar interconnection of that facility but does not result in sizable transmission upgrades writ large. Bringing on the necessary amount of generation needed to hit its renewable energy goals would require network and facility upgrades that would result in substantial costs for both the developer and Colorado Springs Utilities (that interconnection is currently limited to approximately 12 MW project). Moreover, it is unclear whether a utility-scale solar project that utilizes technology that is available on the market could be built on much of this land due to steep slopes, hydrographic conditions, and otherwise challenging topography. Finally, while a WSEO has been established for the area, a new permitting and 1041 process would be required for each additional phase within the WSEO.

The proposed Palmer Solar Project was identified by Colorado Springs Utilities as the best place for a utility-scale solar energy project. This was done through an open and competitive process with developers across the country. The 2016 RPP was a Renewable Energy RFP meaning that it was open to both solar and wind energy projects. Wind was not considered by the Applicant as the company exclusively develops solar and Colorado Springs Utilities did not find wind technology to be competitive in the open bid process. Land requirements for a wind facility on the Palmer Williams Creek 1041 property would be very different and it is unclear there is buy-in from landowners or adequate wind resource for a viable project. Moreover, solar

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<sup>5</sup> See example 2016 RFP Scope of Work:

<https://legacy.rockymountainbidsystem.com/Bids/Attachments.asp?TN=134735&GroupID=1028>

energy has the added benefit of meeting system load requirements during daylight hours, which can help address common system peaks during hot summer days.

Overall, the Clear Spring Ranch project demonstrates Utilities' ability to partner and help facilitate a successful renewable energy project within its service territory. By selecting Palmer Solar in its 2016 RFP, it selected a project that would be fitting for the stability and growth of its electrical system and would align with the operational budget available for generation and transmission projects.

**(g) Description of relevant conservation techniques to be used in construction and operation of the Project.**

The principal conservation technique used for Project development is avoidance. The Project site was selected because it avoids sensitive resources such as Critical Habitat for Threatened and Endangered Species and Candidate Open Space Lands identified by El Paso County. The Project layout avoids features of potential conservation concern, such as jurisdictional wetlands. Furthermore, it collocates with existing utility land and electrical infrastructure.

The following construction techniques will be employed to minimize environmental impact, including:

- Undertaking pre-construction surveys for sensitive and listed species that may be potentially located on site as identified in letters provided by CPW and USFWS
- Removing more substantial vegetation (high cactus and bushes) outside of bird nesting season (April 1 – Aug 15)
- Training site managers and contractors on identification of wildlife species and relevant rules and regulations to protect wildlife
- Delineating the Project site to prevent creep and maintaining project boundaries
- Maintaining a clean project site with adequate waste disposal
- Implementing buffer distances and timing stipulations for active raptor nests. Buffer zone distances depend on the proposed activity, context of behavior (migration, nest building, territorial defense, breeding), and species.
- Following best management practices drainage and erosion mitigation, such as soil stabilization, erosion blankets, and soil wetting
- Preparing and executing a vegetative management plan for site maintenance and noxious weeds
- Coordinating with relevant wildlife agencies
- Limiting artificial lighting by undertaking construction activities during daylight hours
- Reducing fire hazards by following recommendations put forward by Hanover Fire Protection District

The Project has multiple features (such as fencing and distribution lines) that are meant to minimize environmental impact. The ground underneath the arrays will consist of a mix of native grass and shrub species, and ongoing management will minimize potential spread of noxious weeds. There is minimal lighting within the facility, which will only be used during the rare circumstance of maintenance activities in the evening time. Operations and maintenance activities incorporate conservation techniques, such as best management practices for noxious weeds, monitoring of basins and drainages, and routinely inspecting the Project perimeter for potential wildlife entanglement.



**(h) Description of demands that this project expects to meet to meet and basis of those demands**

Please see section f above regarding growth trends and demand projections. Additionally, it is worth noting that Colorado Springs Utilities actively considering scenarios and ways to decommission the Martin Drake facility. The utility has committed to decommissioning the facility no later than 2035 and already began its decommissioning in 2016 by retiring Unit 5 in 2016. In total, the Martin Drake facility constitutes 254 MW of generation (coal power). The lifetime of the Palmer Solar Project, which could extend to 2055, would overlap with decommissioning timeline for the Martin Drake facility set forth by Colorado Springs Utilities. The Project would likely provide an alternative form of generation to this existing resource.

**(i) Adjacent Property Owners**

There are six unique property owners (not including Woodmoor Sanitation District no. 1 or land owned by City of Colorado Springs)<sup>6</sup> that share a property line with the parcels of the proposed Project.

**Table 1:** Adjacent Property Owners

APN	Last Name	First Name	Address	City	State	Zip Code
56280-01-008	LEAF	MATTHEW C	13375 MOONSHADOW LN	FOUNTAIN	CO	80817-3723
56000-00-120	LOWER	FOUNTAIN SEWAGE	901 S SANTE FE AVE	FOUNTAIN	CO	80817
56280-01-002	MCCARTAN	DANIEL K	11183 BERRY FARM RD	FOUNTAIN	CO	80817-4220
56000-00-131	RANCHES	HANNA	15680 HANOVER RD	FOUNTAIN	CO	80817-9520
56280-01-003	SNOWDEN	HAROLD E	13425 MOONSHADOW LN	FOUNTAIN	CO	80817
56000-00-030	STATE	OF COLORADO	633 17TH ST STE 1520	DENVER	CO	80202

**(6) Property rights, other permits and approvals**

**(a) Description of property rights that are necessary or that will be affected by the Project, including easements and property rights proposed to be acquired through negotiation or condemnation**

**Table 2:** Necessary Property Rights

Property Right Type	Owner	Proponent	Purpose
Land Lease	Woodmoor Water and Sanitation District no. 1	Palmer Solar LLC	Authorizing use of Woodmoor Water and Sanitation District no. 1 land for the Palmer Solar Project (including substation and overhead power lines).

<sup>6</sup> Land owned by Woodmoor Water Sanitation District no. 1 and City of Colorado Springs are not listed since these land owners have entered into agreements with Applicant authorizing proposed Project

Easement	City of Colorado Springs	Palmer Solar LLC	Agreement authorizing 230-kV overhead power line to interconnect to the Williams Creek Substation
Access Agreement	City of Colorado Springs	Palmer Solar LLC	Authorizing use of private access road on eastern portion of Project

**Table 3: Property Rights affected by Project**

Property Right Type	Owner	Proponent	Purpose
Encroachment Agreement	Tri-State Generation and Transmission	Palmer Solar LLC	Agreement authorizing transportation access and MV cable across 115-kV transmission line easement
Encroachment Agreement	Public Service Company of Colorado (Xcel)	Palmer Solar LLC	Agreement authorizing transportation access and MV cable across 345-kV transmission line easement
Encroachment Agreement	Public Service Company of Colorado (Xcel)	Colorado Springs Utilities	Agreement authorizing transportation access under 345-kV transmission line easement
Encroachment Agreement	Mountain View Electric	Palmer Solar LLC	Agreement authorizing transportation and MV cable across 12kV line easement
Encroachment Agreement	Colorado Springs Utilities	Palmer Solar LLC	Agreement authorizing transportation and MV cable across 230kV line easement
Encroachment Agreement	Colorado Springs Utilities	Palmer Solar LLC	Agreement authorizing transportation and MV cable across 12kV line easement
Encroachment Agreement	Kinder Morgan	Palmer Solar LLC	Agreement authorizing transportation access and MV cable across buried gas line

Applicant requests that the required encroachment agreements be submitted to PCD at the Site Plan Review. Following the WSEO and 1041 process, Applicant will have greater clarity on precise location of the respective encroachment agreements and can engage easement holders accordingly. This waiver will help preserve project schedule due to complexities associated with negotiation and approval between parties. Importantly, all easement holders are aware of the Project and are willing to participate in an encroachment agreement.

Additionally, mineral estate owners in the Project parcel have been identified. Per Section 24-65.5-103 of the Colorado Revised Statutes, these mineral owners have been notified at least thirty days before the initial public hearing that an application for surface development has been submitted.

- (b) A list of all other federal, state and local permits and approvals that will be required for the Project, together with any proposal for coordinating these approvals with the County permitting process. Copies of any permits or approvals related to the Project that have been granted.

Table 4: Required Permits

Authorization	Agency	Permit or Authorization Trigger
<b>Federal</b>		
Spill Prevention Control and Countermeasure (SPCC)	Environmental Protection Agency (EPA)	SPCC Plan required for aggregate oil containment on-sites that exceed 1,320 gal. of oil-filled transformers
<b>State</b>		
Air Pollutant Emission Notice (APEN)	Colorado Department of Public Health & Environment - Division of AIR Quality	No major permitting related to air quality or emissions is expected for the project. To comply with State regulations, a notice to proceed and terminate is required from the State of Colorado.
Construction Stormwater General Permit (NPDES)	Colorado Department of Public Health & Environment	Construction of the project requires application and approval by Colorado Water Quality Control Division to comply with regulations for stormwater discharges associated with construction activities. This will include development of a Stormwater Management Plan.
State Electrical Permit	State of Colorado Electrical Board- Department of Regulatory Agencies	This type of commercial solar energy generation facility requires inspections and approval by the State to adhere to electricity regulations.
<b>County/Local</b>		

Wind and Solar Energy Overlay (WSEO)	El Paso County	<p>The first project approval is the WSEO Plan Amendment. This Overlay designation can be applied to any underlying zoning (including RR-5 where the project is sited). A comprehensive application package will be submitted to the County that addresses planning issues and design considerations relevant to the El Paso County Master Plan and Policy Plan. The approval process includes coordination with County departments, agencies, and the public.</p>
1041 Permit	El Paso County	<p>In addition to WSEO approval, the project meets criteria for Areas and Activities of State and Local Interest (1041 Permit). This application and permitting process can run concurrently with WSEO, including meetings with the Planning &amp; Community Development and Board of County Commissioner for approval. The project will adhere to any conditions established through the 1041 process.</p>
Site Plan Review - Notice to Proceed	El Paso County	<p>Site plan review is required before an application for a building permit. This review ensures project design is consistent with the El Paso County Code and conditions established in the WSEO and 1041 permitting process.</p>
Erosion and Stormwater Quality Control Permit	El Paso County	<p>El Paso County requires an Erosion and Stormwater Quality Control Permit prior to land disturbing activities.</p>
Building Permit	Pikes Peak Regional Building Department	<p>Following Site Plan Review, local regulations require review and approval of building plans and design. This includes electrical designs and other final drawings for the Project. This will happen overlap with the Site Plan Review.</p>

Access Permit

El Paso County

There is existing gate access from Birdsall onto the Woodmoor Water and Sanitation District no. 1 property. The access point onto the site may be a few hundred feet (east or west). Depending on final design, a Commercial Driveway Access Permit may likely be required.

Right of Way Permit

El Paso County

Work needed for the Access Permit requires a concurrent Work in Right of Way Permit

**(c) Copies of relevant official federal and state consultation correspondence prepared for the Project; a description of all mitigation required by federal, state and local authorities; and copies of any draft or final environmental assessments or impact statements required for the Project.**

Please see Appendix I – Correspondence: CPW and Appendix J – Correspondence: USFWS for copies of correspondence between Applicant and Colorado Parks and Wildlife, and United States Fish and Wildlife Service (USFWS). Please see Appendix K – Wetlands Delineation Report and USACE Correspondence for correspondence with US Army Core of Engineers. A Determination of No Hazard was provided by the FAA (see Appendix T – Determination of No Hazard from FAA)

The Project has no major federal nexus requiring action under the National Environmental Policy Act or other relevant federal law. No mitigation actions are required by these agencies. Applicant has agreed to abide by recommendations made by Colorado Parks and Wildlife in its development review, which align with USFWS.

As depicted in the Resource Map of the WSEO Map Plan, the project footprint avoids overlap with all past cultural finds. There are no cultural features in the array areas and the only place where the WSEO/1041 boundary demonstrate overlap is in the transmission corridor where an existing line is already located. The Cultural Features, identified as #5EP.3296.1, will be fully avoided through micro-siting of transmission line and is not eligible for National Register of Historic Places. The results of the cultural resource study (see Appendix X) found 9 sites within the survey boundary, but the project boundary is smaller than this survey boundary and limits overlap with sites. Applicant took a conservative approach by identifying all resources within a 1-mile buffer; no disturbance to potential NRHP sites will result. The State Historic Preservation Office did not have any concerns with the Project (Appendix L – History Colorado Letter). Applicant has committed to response protocol in the event of a cultural or historical discovery.

**(7) Land-Use**

**(a) Project Map Detailing Current Land Use and Zoning, including adjacent lands**

Current zoning for the Project is Rural Residential- 5 (RR-5) and requires a Wind/Solar Energy Overlay. Majority of the surrounding land use is also zoned as RR-5. Please see the Appendix E – WSEO Map Plan for existing zoning designations in the Project vicinity.

## **(b) Affected Public Land Boundaries and Impacts**

There are no federally-owned lands in the Project vicinity. State lands have been identified. However, state lands are not considered as public lands as they have specific beneficiaries outside the general public. Map identifies overlap with City of Colorado Springs-owned land and adjacency with El Paso County road.

## **(c) Conformity with El Paso County Master Plan**

The El Paso County Master Plan is comprised of guiding documents for land use and zoning. It includes topic-specific and location-specific elements, including: El Paso County Policy Plan (CPP), Small Area Plans, the Parks Master Plan, and the Master Plan for Mineral Extraction. This application addresses relevant components of El Paso County plans and offers a detailed discussion on the consistency of the Palmer-Williams Creek WSEO with the Master Plan. The sections below reflect the order of applicable goals and policies as they appear in the CPP.

### **CPP 1.0 Small Area Plans**

El Paso County is divided into discrete planning areas to help facilitate compatible land-use decisions. Termed as Small Area Plans, these planning areas have been in place since the 1970s and are important features of the County's comprehensive planning efforts. The Solar Project and Substation Project are located within the Proposed Fountain Valley Small Area Plan boundary. As a proposed Small Area Plan, a formal land-use plan has not been completed for this area. Accordingly, this WSEO application exclusively addresses the County Policy Plan and the Zoning Map for this portion of unincorporated El Paso County.

### **CPP 2.0 Natural Systems**

- *Goal 2.1: Preserve, enhance and restore the environment to acceptable health standards.*

Renewable energy systems have the benefit of supplying power to the local energy grid without contributing to regional haze, pollution, or greenhouse gas emissions. Population growth in El Paso County is expected to continue and likely increase over the coming years and decades. The proposed Palmer Solar Project and Williams Creek Substation Project will help address growing populations by contributing to Utilities' energy portfolio, while not incurring major environmental costs to the County's air, water, land, or waste. No major regulatory approvals with State or Federal environmental agencies have been identified for the Solar Project or Substation Project. The Solar Project and Substation Project will further responsible development that meets acceptable health standards.

Project design and construction methods seek to minimize environmental impacts to the greatest degree possible. However, as discussed below, there will be localized impacts from development, including modifications to minor ravine (non-wetland) features<sup>7</sup> and wildlife habitat. The sections below address the relevant policy components of CPP Section 2.0 Natural Systems by topic:

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<sup>7</sup> Dirt-moving and project infrastructure is proposed in and around existing channels on the eastern portion of the site. These areas were identified by National Wetlands Inventory (NWI) dataset, which is a national geospatial layer that provides coarse data of potential wetlands. NWI areas in the WSEO were surveyed twice by professional biologists and were not found to meet criterion for jurisdictional wetland as defined by the US Army Core of Engineers.

### **CPP 2.1 Air Quality**

- *Policy 2.1.1 Meet the Federal Clean Air and Clean Water Acts and its amendments*

During the construction phase, there will be particulate emissions from fugitive dust and internal combustion engine exhaust. However, these emissions will be short-term and at no time will exceed National Ambient Air Quality Standard levels or County standards for air quality. In advance of construction, an Air Pollutant Emission Notice (APEN) will be filed with Colorado Department of Public Health and the Environment (required for projects disturbing over 25 acres). Potential air quality impacts will be minimized through best management practices for dust suppression and emission reduction, and commitments to comply with State of Colorado and Federal regulations. Best management practices for air quality include speed limits within the site (11 miles per hour) and suspending major soil disturbing activities during high-wind events.

Once completed, the proposed developments will not generate emissions or pollution. Solar facilities are a beneficial energy generation resource in part, because of their contribution to pollution and emission reduction goals. The Solar Project's construction, as an alternative to additional conventional resources, represents avoided emissions. Since the solar arrays will have native grasses underneath, dust will not be a major concern for local air quality during operations.

### **CPP 2.1 Hazardous Materials**

- *Policy 2.1.3 Meet regulations and monitoring for the transportation and storage of hazardous materials and wastes.*
- *Policy 2.1.5 Encourage the practice of appropriate management techniques for handling and disposal of hazardous materials and wastes.*
- *Policy 2.1.6 Encourage the control, reduction, and elimination of hazardous materials and wastes at their sources.*

A Phase I Environmental Site Assessment was conducted for the area. The Phase I assessment revealed no evidence of Recognized Environmental Conditions (RECs), Controlled RECs, or Historical RECs in connection with the property.

The risk of release of hazardous materials is low as there will not be a significant amount of temporary or permanent hazardous materials on-site at any one time. The control and release of petroleum products held for construction equipment will abide by a Spill Prevention, Control, and Countermeasure (SPCC) Plan. All potentially hazardous materials will be transported, stored, and handled in accordance with applicable regulations. Project developers and site crew have training in emergency response.

### **CPP 2.1 Noise**

- *Policy 2.1.7 Encourage the adoption of noise level standards which limit or mitigate adverse impacts to surrounding land-owners*
- *Policy 2.1.8 Carefully consider all proposed land uses adjacent to interstate highways, railroads, military training areas, and in designated flight zones to protect them from associated disruptive noise levels.*

The proposed Solar Project is a quiet use of the land that requires no on-site employees. Modern PV technology produces minimal amount of noise once operational.

Noise impacts are limited to construction phases and steps will be taken to limit the amount of noise during this time. This includes noise-suppression techniques, posted site rules, and use of modern equipment. Construction on the eastern portion of the Solar Project will be over a mile-and-a-half from residences near Old Pueblo Road and therefore, is not expected to rise above ambient levels. Construction on the western portion of the Solar Project will produce noise during construction, particularly for post driving and placing of PV racking systems. Added precautions will be taken to minimize sound disturbance to nearby residences.

Work across the site will take place during working hours between 7:00 a.m. and 6:00 p.m. on Monday through Saturday, with Sundays being utilized infrequently. Any construction personnel on site outside of these times will receive strict guidance on noise expectations.

The Applicant will develop additional noise plans, as required, to mitigate noise from construction and to comply with County ordinance.

### **CPP 2.1 Water Quality**

- *Policy 2.1.1 Meet the Federal Clean Air and Clean Water Acts and its amendments*
- *Policy 2.1.9 Encourage approaches to land use that promote innovative techniques to protect water quality and encourage mitigation to reduce pollution from non-point sources such as run-off from roads, parking lots and lawn chemicals.*

A Drainage Report has been completed based on current design at the time of the WSEO application. The Applicant has engaged Kimley Horn, a very experienced consultancy for development and engineering services, out of their Colorado Springs office to complete Drainage and Grading Plans in compliance with County regulations and manuals. While the Solar Project overlaps with some minor drainage features east of Calhan Reservoir, it will not impact historic flows of minor or major drainage basins in the Project vicinity. The Solar Project minimizes downstream flow onto adjacent properties and retains the property's natural hydrography using ditches and diversion techniques. Kimley Horn concluded in its Drainage Report that:

“The proposed drainage patterns will match the existing drainage conditions and historic patterns discussed in the previous section of this report. Overlot grading of specific areas within the Site will be required to facilitate the construction of the solar arrays on adequate slopes. The overlot grading will follow the existing topography and will not alter the historic drainage patterns.”<sup>8</sup>

Following input during the WSEO and 1041 Permit review, a Final Drainage Report for the Solar Project and Substation Project will be completed for the El Paso County Site Plan Review.

Water is further addressed in this application in CPP 3.0: Water Resources.

### **CPP 2.2 Wildlife and Vegetation Impacts**

- *Goal 2.2 Protect the flora and fauna found in the County's five life zones and transitional communities.*
- *Policy 2.2.1. Encourage a coordinated and systematic planning approach to identify, locate and protect critical areas of wildlife habitat from all five life zones and transitional communities.*
- *Policy 2.2.3 Evaluate the impact from proposed developments on watersheds and wildlife habitat with appropriate governmental agencies early in the development process.*
- *Policy 2.2.4 Provide incentives to encourage development to incorporate sensitive planning that ensures the protection of watersheds and wildlife habitat*
- *Policy 2.2.7 Comply with requirements of the federal Endangered Species Act*

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<sup>8</sup> See Conceptual Drainage Report included in WSEO application.



- *Policy 2.2.8 Encourage the protection and preservation of state listed endangered and threatened species, species of special concern, and species with immediate conservation needs*

## Wildlife

The Applicant has taken a conservative approach to wildlife by considering resources within the Overlay boundary as well as a larger footprint surrounding the Solar Project and Substation Project. Based upon a thorough review of publicly available datasets and field studies, development will be sited in an area that does not contain regionally-significant habitat or ecological resources. The properties have been used for cattle grazing and ranching activities for almost a century. These historic uses have noticeably altered the natural condition of the property. Noxious weeds, rangeland and electrical infrastructure, and the large water-retention facility (Calhan Reservoir) demonstrate major ecological modifications and habitat degradation.

The site was selected as a suitable site across the suite of available land in the Colorado Springs Utilities' service area because it demonstrates low-conflict features with natural resources. The Solar Project and Substation Project do not overlap with floodplains or designated critical habitat for Threatened and Endangered species. Moreover, the Overlay is outside all Potential Conservation Areas (including Critical Wetland Areas) in El Paso County, as identified by the Colorado Natural Heritage Program's County-wide survey and analysis.<sup>9</sup> It is also outside Candidate Open Space Lands identified by the El Paso County Parks, Trails and Open Space Master Plan.

Ecology & Environment, Inc. (E&E) was contracted to complete a Wetlands and Wildlife Memo to review existing wildlife and potential habitat on site. The Applicant has also undertaken early and voluntary coordination with the Colorado Parks and Wildlife (CPW) Energy team and Southern Field Office. Results of field surveys and desktop review by E&E and CPW can be found in Appendix H – Wildlife, Wetlands, and Cultural Resource Report and Appendix I – Correspondence: CPW respectively. In both reviews, no major constraints were identified due to wildlife impacts.

The Applicant recognizes that even as a low-impact site, a project of this scale will have impacts on wildlife. The area proposed for development is agricultural and vacant, and provides forage for big game, birds, and small mammals that are adapted to rangeland settings. The Solar Project and Substation Project will result in the loss of terrestrial habitat in the area for certain species, mainly for mammals (including potential habitat for deer). Construction may also likely lead to the mortality of common animal species, such as small, ground-dwelling mammals and reptiles. Construction and design elements incorporate recommendations provided by CPW. These plans and elements include (but are not limited to):

- Adhering to “Suggested Practices for Avian Protection on Power Lines”
- Undertaking preconstruction surveys to ensure that birds protected by the Migratory Bird Treaty Act or species protected under the Endangered Species Act are not on site. Applicant will abide by setback distances identified by CPW for raptor and sensitive species.
- Co-locating the Solar Project's distribution line with existing transmission infrastructure
- Installing motion-detected night lighting with reduced lumen and shielding methods
- During construction phases, adhering to construction buffers in the event of active nests of protected or sensitive raptor species identified by CPW
- Educating construction personnel on local wildlife and ways to avoid potential impacts to species
- Developing a Weed Management Plan

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<sup>9</sup> See *Survey of Critical Wetlands and Riparian Areas in El Paso and Pueblo Counties*:

[http://county.pueblo.org/sites/default/files/documents/Survey of Critical Wetlands and Riparian Areas in El Paso and Pueblo Counties%2C Colorado%2C by CNHP.pdf](http://county.pueblo.org/sites/default/files/documents/Survey%20of%20Critical%20Wetlands%20and%20Riparian%20Areas%20in%20El%20Paso%20and%20Pueblo%20Counties%2C%20Colorado%2C%20by%20CNHP.pdf)

- Committing to a site decommissioning and restoration plan following facility operation

Early outreach with CPW resulted in recommendations for construction and design that are included above. Furthermore, the Applicant has provided responses to CPW's May 2018 development review to detail development plans and incorporation of wildlife recommendations. The Applicant will continue coordination with CPW as it finalizes site designs and construction plans.

Pre-construction surveys, targeted for spring of 2019, will be important for determining construction approaches, including phased development, timing stipulations, and the use of buffers; adhering to wildlife best management practices. The Applicant recognizes that there is a potential need to adapt construction plans for wildlife, including the active Great Horned Owl nest on the northwest portion of the site. Additionally, there is a potential that sensitive species, like burrowing owl and swift fox (see CPW correspondence) will be found on the eastern portion of the site. The following construction stipulations are possible based on existing and potential conditions:

- *Buffers for active nests of raptor species:* A ¼ mile buffer for all nests, generally February 15 to June 15
- *Burrowing Owls:* If nesting burrowing owls are present, no human encroachment within 150 feet of nesting burrows from March 15 to October 31
- *Mountain Plover:* Undertake construction activities outside critical nesting periods where species are found
- *Swift fox/kit fox:* avoid surface disturbance within 1/4 mile of den sites while young are den dependent (approximate dates: kit fox Feb 1 to May 1; swift fox March 15-June 15).

### Vegetation

Vegetation on the sites are typical to the Central Shortgrass Prairie ecosystem (including blue gramma dominated shortgrass, cholla cactus, and saltbush shrublands). Site studies have not documented any sensitive or listed plant species and CPW did not raise concerns on this issue.

Construction will result in short-term impacts to vegetation, including removal of plant cover during land-clearing activities and grading. To address any losses to vegetation on site, a native seed mix (approved by El Paso County Environmental Department) will be applied promptly. Passive revegetation from seedbanks along boundaries will also assist in natural revegetation. Monitoring of ground cover and vegetation during and after construction will drive active management, including mowing and control of noxious weeds.

In terms of long-term impacts, the Solar Project requires minimal amount of impervious surface as posts, which host PV panels, are mounted directly into the ground. Disturbance on the ground is limited to where posts and other infrastructure are located (such as roads, substation, and O&M shed). Impervious surface is estimated to be less than 1% of the total Overlay area. Cumulative impacts to vegetation in the region and to the larger ecosystem is negligible.

Following decommissioning, the site will be restored to a condition available for a range of uses, including agricultural and grazing, open space, or other uses as determined by the landowner and County.

### Noxious Weeds

Per El Paso County requirements, a detailed Noxious Weed Management Plan was created to address County and State requirements for noxious weeds (see Appendix M – Noxious Weed Management Plan). The Plan is driven by an on-site survey with species and location-specific management actions. To meet standards of the El Paso County Environmental Department and best practices for weed control, a comprehensive inventory of the area was completed in June of 2018 by Pinyon Environmental, Inc. This was done to fully capture the presence and extent of noxious weeds during the growing season. Deferring weed inventories and management plans until Winter or Spring months before construction would likely result in an incomplete picture of site conditions.

Management actions for noxious plant species in the Noxious Weed Management Plan are tailored to individual species and address goals put forward in the El Paso County Noxious Weed Management Plan as well as listed (A, B, and C) species on the State of Colorado Noxious Weed List. Implementation of standard Best Management Practices for utility-scale solar projects will help identify, prevent, and treat the spread of invasive species on site and to adjacent properties.

### Wetlands

As part of the pre-development actions, a wetlands review of the area was completed by a team of qualified professional environmental consultants from E&E. The review included desktop analysis and two separate field surveys of the entire site that resulted in two reports (included in Appendix H and Appendix K).

In areas proposed for solar arrays and substation, the Project does not exhibit any overlap or impact Waters of the US and wetlands would not be impacted from development. There are non-jurisdictional hydrologic features (ditches) located on the eastern portion of the proposed project. Solar arrays would have some overlap with these features. As detailed in the report from E&E, these features do not meet the criterion for jurisdictional waters. Permitting with or approvals from the US Army Corps of Engineers (USACE) are not required for impacts to these features. The natural hydrologic conditions would be retained throughout the project, as determined by Kimley Horn in the Conceptual Drainage Report.

Wetlands and potential wetlands are exclusively identified in the central portion of the Woodmoor Water and Sanitation District No. 1 property; immediately downstream from the Calhan Reservoir. This area, while not within the main footprint of the Solar Project, was included in the review because a distribution line is required between the two main array areas.

The hydrographic connections to Calhan Reservoir that flow south (in the direction of Fountain Creek) would imply the property wetland and streams as delineated and connected Waters of the U.S. Given the presence of the planned overhead line in the area, it is important to describe the following permitting scenarios with USACE as possible pathways for construction activity planned within the boundaries of the wetland and streams:

- No impact or fill material placed in the boundaries
  - o No USACE notification, consultation or requirement
- Less than 1/10th Acre permanent fill material placed with boundaries
  - o No notification or consultation with the USACE is necessary
  - o Follow USACE Nationwide Permit General Conditions
- Greater than 1/10th Acre Impact permanent fill material placed with boundaries
  - o Notification and consultation with the USACE is required
  - o Follow USACE Nationwide Permit General Conditions

As part of the professional wetlands review, E&E completed a jurisdictional delineation to avoid wetlands impacts during construction and operations. All Solar Project activity will take place in uplands, including the

upland swale identified in Appendix K – Wetland Delineation Report and USACE Correspondence. Poles will be placed well-outside of wetland areas. Construction in these areas are not regulated by the USACE and therefore, do not require USACE notification or consultation. The Southern Colorado Regulatory Office of USACE reviewed the portion of the Project with potential impacts to wetlands (the transmission line interconnecting the two sites) and made a formal determination that a Department of the Army Nationwide Permit is not required. The project will not result in the discharge of dredged/fill material into waters of the United States (see Jurisdictional Determination Action No. SPA-2018-00184-SCO). This formal determination is also included in Appendix K.

Importantly, there are two existing, high-voltage transmission lines that traverse these wetlands, immediately adjacent to the proposed distribution line. By siting the distribution line in this area, the Solar Project incorporates El Paso County policy and CPW’s recommendations for collocation of utility infrastructure wherever possible.

### **CPP 3.0 Water Resources**

- *Policy 3.1.7 Carefully analyze each new development’s proposed use of water.*
- *Policy 3.3.2 Consider the water requirements for natural areas adjacent to proposed developments*
- *Policy 3.3.4 Implement appropriate measures to protect and/or mitigate effects of point and non-point sources of pollution to surface water*
- *Policy 3.3.6 Evaluate the consequences to surface water from new development including run off of natural soils, as well as chemical compounds that may result from the proposed uses including pesticides, herbicides and hydrocarbons*

Long-term water supply is not required or necessary for the Solar Project or Substation Project. The Solar Project requires only a small amount of water during the operational phase for panel washing. Panel washing will occur on a ‘as-needed’ basis and is not expected to exceed two times a year. For washing during operations and maintenance, water will be provided by an off-site provider.

### **CPP 4.0 Historic Resources**

- *Goal 4.1 Encourage preservation and enhancement of historical resources.*
- *Policy 4.1.1 Support a systematic inventory to identify and categorize historic sites, structures and artifacts*
- *Policy 4.1.6 Encourage reporting of all artifacts unearthed during construction of roadcuts, utility lines, outside storage, water tanks and buildings.*

A desktop survey of historical and cultural resources of the area was completed as part of site due diligence and project preparation. The results, incorporated into a professionally-consulted Cultural Resources Survey, are included in Appendix H – Wildlife, Wetlands, and Cultural Report. Results show no major concerns pertaining to historic features; as none of the resources identified in the review (a desktop data review of resources within the survey boundary and a 1-mile buffer) are on the National Register of Historic Places.

The desktop review concluded that there are cultural sites and isolated finds within the Project area, including a 1-mile buffer. The sites included a prehistoric open camp (5EP4846) and a segment of the Chilcott Ditch (5EP3296.1). Both sites are recommended as not eligible for inclusion in the NRHP. Importantly, the area considered in the cultural review encompassed a significantly larger area than what is proposed in the WSEO.

The final boundary, proposed here within, overlaps with a single feature. This feature (5EP.3296.1) is identified as a historic ditch and is not eligible for inclusion in the NRHP. The historic resource slightly overlaps (less than .1 acres) with the proposed corridor for the overhead transmission line. Like the transmission lines that exists on the landscape currently, the feature will be avoided through pole placement and micro-siting (shown in Resource Map of Appendix E – WSEO Plan). The poles will span the feature and the line will be slightly north of it. The location of all other features identified by consultants are included in Appendix H – Wildlife, Wetlands, and Cultural Resource Surveys.

The Project boundary proposed is unlikely to have prehistoric or historic resources. As recommended by E&E, the professional environmental consultant that completed the review of historic resources, any discovery of prehistoric or historic resources or artifacts will be immediately reported to applicable authorities (including El Paso County and Colorado State Historic Preservation Office). E&E did not recommend additional analysis or field studies based on concerns for cultural or historic resources.

### **CPP 5.0 Economic Development**

- *Goal 5.1 Maintain a land use environment which encourages quality economic development that is compatible with surrounding land uses.*
- *Policy 5.1.1 Encourage economic development that enhances a sense of community, provides vigor to the economy and considers the environment while contributing to the overall health of the County.*
- *Policy 5.1.6 Promote economic development alternatives, such as locating in industrial parks, which place the lowest strain on available infrastructure*

Construction will support economic development in El Paso County. The Solar Project and Substation Project will result in construction jobs and materials procurement in El Paso County as well as secondary economic impacts to local businesses in Fountain and Colorado Springs (service industry, hotels, etc.). An estimated peak of 250 workers will be employed daily during construction (on and off-site). Therefore, it is a short-term regional growth opportunity for the economy in El Paso County for 2019.

The Solar Project, as a local form of energy generation, will also support businesses in El Paso County and help meet growing energy demand. The production of renewable energy provides alternative and diversified energy choices for the local economy and Colorado Springs Utilities. Consumers and business owners in the area have a stated interest and preference for renewable energy generation to be part of the local power portfolio in the coming years. At completion, the project will power as many as 15,000 homes and business in the area. The Solar Project and Substation Project will also produce job opportunities over the life of the project, including Operations and Maintenance jobs, vegetation management, site security, and other operational jobs as needed.

The Solar Project is compatible with the Colorado Springs Utilities' electrical grid and does not require additional County infrastructure, such as public roads, water utilities, or additional emergency response capacity.

### **CPP 6.0 Growth and Land Use**

- *Goal 6.1.b Support growth and development in the unincorporated County in a manner which reasonably limits long term public costs, provides for the development of supporting infrastructure, preserves environmental quality, provides economic opportunities, and otherwise enhances the quality of life.*

- *Policy 6.1.1: Allow for a balance of mutually supporting interdependent land uses, including employment, housing and services in the more urban and urbanizing areas of the County.*
- *Policy 6.1.3: Encourage new development which is contiguous and compatible with previously developed areas in terms of factors such as density, land use and access.*

The area is characterized by utility infrastructure that provide services to the citizens of Fountain and El Paso County. Utility uses in the area include the Colorado Springs Utilities Pump Station, Calhan Reservoir water storage site owned by Woodmoor Water and Sanitation District No. 1, Lower Fountain Metro Sewage facility, the nearby Broadacre Landfill, and the distant Ray Nixon Power Plant. Electrically, the area hosts multiple high-voltage transmission lines owned by three separate utilities as well as low voltage distribution lines. These features, particularly the existing transmission lines, allow for colocation of utility infrastructure and show compatibility with existing development in this portion of the County.

The Solar Project and Substation Project are proposed in a rural area with minimal residential character and surrounding residences. Adjacent properties are primarily used for rangeland activities, while the west side of the Solar Project boundary supports low-density residential development alongside Old Pueblo Road. Operations on neighboring parcels will not be dislocated by the facility. Moreover, the west side of the Solar Project incorporates sizable buffers from property lines and residences to help to reduce visual impacts to residential properties.

- *Policy 6.1.6: Direct development toward areas where the necessary urban-level supporting facilities and services are available or will be developed concurrently.*

The site was selected because Colorado Springs Utilities' transmission infrastructure is available as a point of interconnection.

- *Policy 6.1.8: Encourage incorporating buffers or transitions between areas of varying use or density where possible.*

The Solar Project incorporates the current setback of the RR-5 zone, which is 25 feet. While the final layout is dependent on additional review by the County, the actual distance of the setback from parcel lines with residential properties on the west side generally ranges from 198-feet to 394-feet. The site has topographic features (small mounds) and a gradient that helps limit views of the eastern portion of the Solar Project from nearby residents. For residents and commuters alongside Old Pueblo Road, a significant portion of the facility is concealed from view due to its remote location and topography. Additionally, a seven-foot-tall fence will be installed around the perimeter of the Solar Project that meets standards for protective arrangements in electric supply stations defined by the National Electrical Safety Code.

- *Policy 6.1.10: Ensure that new development will not create a disproportionately high demand on public services and facilities by virtue of its location, design or timing.*

Pressure on public services from the Solar Project and Substation Project is expected to be minimal for construction, operations, and decommissioning phases of the project. Additional demand is not anticipated to stress service capacity or infrastructure that could not be met by current conditions.

Once operational, there will be little additional traffic in the area since the facilities do not require on-site workers on a regular basis. No special or additional emergency response capacity will be required as part of the construction of the facilities. A Fire Plan, resulting from coordination with the Hanover Fire Department, was created to address and minimize potential fire risks.

- *Policy 6.1.11: Plan and implement land development so that it will be functionally and aesthetically integrated within the context of adjoining properties and uses.*

The Solar Project will be added to utility infrastructure as a predominate development form in the area, including high-voltage transmission lines, a sewage facility, and a pump station. Following construction, a native seed mix will be applied to areas of disturbance. Solar arrays are low in height and generally follow the contours of the landscape.

- *Policy 6.1.15: Recognize the need for new development and redevelopment to respond to changes in demographic, market and technological conditions.*
- *Policy 6.1.16: Allow for new and innovative concepts in land use design and planning if it can be demonstrated that off-site impacts will not be increased, and the health, safety and welfare of property owners and residents will be protected.*

Solar energy facilities are a new development type in El Paso County. The PV technology planned for the facility consists of proven technology to minimize risk and impacts. The facility is designed to be low-impact with ground resources, water, and adjoining properties. Based upon preliminary drainage studies and plans, there will be little to no additional impact to groundwater resources. Existing and historic drainage patterns will be retained.

In terms of safety, the Solar Project and Substation Project will be protected by a perimeter fence. Access will be controlled at each access point. The layout of the Solar Project will allow for vehicular access on the perimeter of the arrays and between PV modules for security, operations, and maintenance.

A Fire Prevention and Protection Plan has been prepared for the Solar Project and Substation Project. Vegetation will be mowed or removed during growing season to minimize fire risk. Modules are designed to be resistant to fire and the solar module racking system uses non-combustible steel and aluminum. The Applicant has been in communication with Hanover Fire District to discuss design features, access, and safety of the proposed facilities and adjacent property owners. Construction will follow site-specific recommendations, including additional fire monitoring during heightened fire danger. The Solar Project's design allows for firetruck access and vegetation management around its perimeter (see Appendix Q – Fire Prevention & Protection Plan).

- *Policy 6.2.1: Fully consider the potential impact of proposed zone changes and development on the integrity of existing neighborhoods.*

The addition of solar panels on the Woodmoor Water and Sanitation District No. 1 property will result in some visual impacts to residential properties on the west side of the Solar Project. The Solar Project follows existing contours of the land and the height of the panels are not higher than 8 feet from grade. The Applicant hosted an Open House in April of 2018 where visual impacts were voiced as a potential concern. Following this meeting, the Applicant more than tripled the size of setbacks in some places and rearranged solar arrays to decrease visual contrast. As it stands, the proposed Solar Project has a sizable buffer from the parcel boundary of neighboring residential properties (greater than 500 feet in places). Visual renderings (Appendix P – Visual Impact Study) show the Solar Project is not visible from City of Fountain neighborhoods to the north.

- *Policy 6.2.10: Utilize buffer zones to provide mutually compatible transitions between neighborhoods and adjoining development with differing uses or densities.*

The Project was modified to increase buffer distance on the west-side of the facility.

- *Policy 6.6.6: Consider the development of cooperative building, zoning and infrastructure standards in areas that interface with municipalities and military properties.*

The Project is in unincorporated El Paso County and is not adjacent to a municipality or military property. The Federal Aviation Administration (FAA) reviewed potential impacts to nearby military facilities and operations. A Determination of No Hazard to air navigation was secured for the Project (see Appendix T - Determination of No Hazard).

### **CPP 7.0 Special and Unique Land Uses**

- *Policy 7.5.1: Encourage the multiple uses of utility sites and corridors where feasible and appropriate.*

A major factor in the selection of the property was colocation with existing utility infrastructure and transmission corridors. The Project will not require a new transmission system. The distribution line between the two Project areas is a medium-voltage power feeder that will be stepped up to the higher transmission voltage by a transformer at the Solar Project's substation.

### **CPP 8.0 Parks, Trails, and Open Space**

Land included in the WSEO are not open to the public. Additionally, Calhan Reservoir is not used for public recreation activities. No trails or recreation areas are adjacent to the Project. The area is outside the current El Paso County park system, including areas covered by the Fountain Creek Regional Park Master Plan. Furthermore, the area is not identified as a Potential Regional Park, Potential Nature Center, or Candidate Open Space by the El Paso County Parks, Trails and Open Space Master Plan

The 2013 El Paso County Parks, Trails and Open Space Master Plan does identify a proposed bicycle route on the western side of the project area. However, unlike other Proposed Primary Regional Trails, this proposed route does not have an identified name or development schedule. Furthermore, the Project is not incompatible with a potential bicycle route as both uses can take place in the area through micro-siting or other land development options.

### **CPP 9.0 Transportation**

As stated previously in the Introduction, access to the Project is from Birdsall Road and Squirrel Creek Road. A traffic analysis was completed in preparation for the Solar Project and Substation Project (Appendix O—Traffic Memo). At the start of construction, approximately 25 personnel will be onsite during the civil construction activities. This will ramp up to approximately 250 construction workers during peak construction activities with an additional 15 delivery trucks and 10 water trucks per day. After the Palmer Solar Project has been constructed, the number of trips generated by the solar plant is expected to be significantly less than during the construction period. The Substation Project and the Solar Project will be unmanned, with only weekly site visits by operational personnel, not expected to exceed 10 trips per month.

- *Policy 9.1.1 Identify and preserve the functional integrity of the corridors necessary to meet the County's potential future surface transportation needs.*

The Solar Project and Substation Project do not exhibit any features that conflict with existing transportation designations or uses by County, State, or Federal plans. In addition, the Solar Project and Substation Project do not conflict with El Paso County's Adopted 2040 Major Transportation Corridor Plan and are outside the Pikes Peak Area Council of Government's boundary for regional transportation planning. For these reasons,



the proposed developments are largely compatible with existing and future transportation uses in El Paso County.

Based on a review of long-term El Paso County planning documents, however, the Solar Project falls in the vicinity of a 2060 Corridor Preservation expressway. The 2060 Corridor Preservation Map provided by El Paso County identifies a new expressway between Interstate-25 and Squirrel Creek Road. As stated in the plan:

“Right-of-ways on these corridors should be preserved and development setback should be required to respond to potential development and growth as it occurs. The preservation plan *does not imply that all of the facilities will be improved to the level indicated.* If anticipated developments do no happen, a particular long-range roadway expansion may not be needed.” (Emphasis added)

The proposed Solar Project overlaps with a small portion of the identified 2060 Corridor. Given the long planning horizon for this corridor, there are several potential solutions to support local development, including micro-siting of the corridor further north. It is also important to note that as part of decommissioning actions for the Solar Project, the land is returned to a natural condition suitable for a range of development activities, including roadways. The schedule of the facility may align with long-term transportation planning in El Paso County.

- *Policy 9.3.1 Place a high priority on maintaining the environmental condition when planning or building roads.*

No new public roads will be required for the Solar Project or Substation Project. The Operations and Maintenance roads are private and are already in use for transportation across the site.

- *Policy 9.3.4 Provide for noise attenuation and visual screening along major transportation corridors by incorporating techniques including setbacks, buffers, berms, and vegetation treatments.*

The Overlay does not include major transportation corridors. However, setbacks, buffers, natural berms, and vegetation treatment will be present along the west access of the Solar Project.

#### **CPP 10.0 Water and Wastewater Facilities**

- *Policy 10.2.2 Carefully consider the availability of water and wastewater services prior to approving new development.*

El Paso County’s Water Master Plan has demonstrated that use and availability of water is a frequent resident concern and is commonly expressed in public hearings regarding land use decisions.<sup>10</sup> The proposed Solar Project is a low water-use development. Water from an off-site source is required for construction (including dust suppression, soil compaction, and revegetation). However, operational requirements are minimal and limited to occasional panel washing (if needed). Water will be brought in from local water purveyors.

#### **CPP 11.0 Drainage and Flood Protection**

- *Policy 11.1.4 Require development plans to effectively address both quantitative and qualitative impacts of drainage within the project site*

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<sup>10</sup>See El Paso County Water Master Plan: <https://planningdevelopment.elpasoco.com/wp-content/uploads/ResourcesReference/MasterPlan/RFP-17-063-Water-Master-Plan-DSD.pdf>

- *Policy 11.1.8 Promote planning approaches which allow for interim solutions for drainage problems in less developed basins*
- *Policy 11.4.7 Limit new development in and modification of flood plains in accordance with regionally adopted floodplain regulations*

FIRM Panel 080059 indicates that the Solar Project and Substation Project will not be in a special flood hazard area (sited in Zone X which covers areas outside of 500-year floodplains). Therefore, a floodplain use permit is not required. Erosion and sediment control will be accomplished through the application of Best Management Practices (BMPs) detailed in a Stormwater Management Plan (SWMP) that will be developed at the time of the Site Plan Review.

The Solar Project requires minimal impervious surfaces. Grading work will follow waterflows of major and minor basins and meet compliance with the El Paso County Drainage Criteria Manual. Since water will follow existing flows and patterns, no major changes are expected following construction.

### **CPP 12.0 Other Services and Utilities**

- *Goal 12.4 Reduce the adverse impacts and maximize the efficiency of energy generation, transmission and distribution systems.*
- *Policy 12.4.1: Ensure that electric, natural gas, petroleum and other facilities (generation, distribution, pipelines and storage) are located in a manner which is safe, environmentally sensitive and which does not unreasonably burden particular property owners with adverse impacts.*
- *Policy 12.4.3: Promote energy efficiency through careful siting, design and landscaping, especially the use of passive solar.*
- *Policy 12.4.5: Encourage the use of existing easements for utility installation in order to reduce negative impacts in other areas.*
- *Policy 12.4.7: Allow for the effective use of renewable energy resources especially where it minimizes the local impacts on neighboring properties and non-renewable energy use.*

The Solar Project is colocated with existing transmission infrastructure owned by Colorado Springs Utilities and other utility providers in Colorado. As a renewable energy system, the new energy generation resource will meet Utilities' needs, while limiting emissions and pollution in El Paso County. Furthermore, the Solar Project and Substation Project will not disrupt the operations of adjacent property owners. The site was selected in part because of lack of conflict with sensitive areas and resources in Colorado, such as Threatened or Endangered Species or Potential Conservation Areas.

### **CPP 13.0 Housing**

The proposed Project does not include a housing component.

### **CPP 14.0 Public Finance District**

- *Policy 14.1.2: Encourage coordination among existing and potential future special districts, municipalities, utilities, and other entities in order to provide needed facilities and services in the most cost-effective, equitable and environmentally sensitive way possible.*

A PPA has been signed for the Palmer Solar Project. This agreement provides a development partnership between Palmer Solar LLC and Colorado Springs Utilities to provide electricity in a cost-effective and environmentally-sensitive way.

### **CPP 15.0 Land Development Regulations**

The WSEO is a unique planning tool created by El Paso County for utility-scale solar and wind energy generation projects. This application adheres to the process laid out for the WSEO designation. Moreover, the Applicant has attended pre-application meetings with El Paso County, provided opportunities for public engagement, and committed to continued coordination with El Paso County, the public, and other agencies throughout the approval process (WSEO, 1041, and Site Plan Review).

Letters were mailed to property owners in March 2018 notifying them of the project and providing contact information for any questions about the project. The Applicant has met with the owners of these residences and has incorporated their recommendations in the Solar Project design. Based on the feedback received at the Open House meeting in April 2018, the following adjustments were made to the Solar Project to address potential concerns raised by El Paso County citizens:

- Increased setbacks beyond 25 feet on western boundary
- Better demonstration of Solar Project avoidance of topographic features in map products
- Removing arrays south of Birdsall Road
- Further committing to best management practices for fire prevention
- Further committing to retention and improvement of existing surface and water runoff conditions

The Solar Project and Substation Project will abide by all relevant El Paso County land development regulations and conditions of approval.

### **(d) Conformity to applicable regional and state planning policies**

The State of Colorado has a Renewable Energy Standard (RES) that requires electricity providers, including Colorado Springs Utilities, to generate a certain percentage of power from wind, solar, or geothermal resources. The state most recently passed SB 13-252; requiring non-Investor Owned Utilities, such as Colorado Springs Utilities, to have a generation portfolio with of least 10% renewable energy by 2020 (Colorado Springs has set a goal that surpasses that number). Colorado Springs Utilities uses an Integrated Resource Plan (IRP) to review generation resources and potential procurement of renewable energy resources. The proposed Project complies with (and supports) decisions made in the IRP to add solar to the Colorado Springs portfolio. The IRP was drafted with ample public input from customers and interested stakeholders.

Pikes Peak Area Council of Governments (PPACG), which encompasses Teller and El Paso Counties, has a comprehensive 2030 Plan. While it does not set any binding mandate, it does provide a framework for local governments, institutions, businesses, and individuals to find regional solutions to regional challenges across a variety of field and topics. The Plan, titled “Looking to Our Future – Pikes Peak region 2030” was created through a lengthy collaboration process from nearly 100 organizations (including El Paso County) and thousands of hours of volunteer time. The Plan addresses Energy Strategy and sets a goal that by 2030, the region will make considerable progress toward 100% sustainable energy use by meeting 50% of energy

consumption from renewable energy sources. Goal 1.2 specifically encourages utility-scale renewable energy projects within the region.<sup>11</sup>

The State of Colorado supports this regional initiative. On July 11, 2017, Governor John W. Hickenlooper issued Executive Order D 2017-015 supporting Colorado's Clean Energy Transition. The Executive Order declares that it shall be the goal of the State of Colorado to achieve the following:

- Reduce greenhouse gas emissions statewide by more than 26% by 2025
- A 25 percent reduction in carbon dioxide from the electricity sector by 2025, as compared to 2012 levels
- A 35 percent reduction in carbon dioxide emissions from the electricity sector by 2030, as compared to 2012 levels

To accomplish these goals, the Colorado Executive Order directs state agencies to work strategically with any interested electric utilities or cooperatives that would like to maximize its use of renewable energy.

Additionally, through meaningful consultation and collaboration with local governments, appropriate state agencies shall identify opportunities with local governments to support locally-led climate goals and resilience solutions.<sup>12</sup> State agencies do not play a central role in the proposed Project. However, it would further State goals to reduce emissions from the electricity sector, including from a major utility in the state.

**(e) Conformity to federal land management policies**

Federal land management plans or policies do not apply to this Project.

**(f) If relevant to Project Design, describe the agricultural productivity capability of land in the Project area, using Soils Conservation Service classification data.**

Agricultural productivity is not relevant to Project Design. The Project site is not used for agriculture. Historically, the area has been kept in rangeland condition for passive livestock grazing. It is not currently zoned as an Agricultural District in the El Paso County. Land can be returned to rangeland, or other uses, following project decommissioning.

**(g) Describe probability that the Project may be significantly affected by earthquakes, floods, fires, snow, slides, avalanches, rockslides, or landslides and any measures taken to reduce impacts**

This area of El Paso County does not have a notable history of earthquakes and tornados. The technology and equipment at the Project will meet industry standards and national electrical requirements. Solar arrays are designed to endure major weather events, including floods, snow, hail, and high winds. PV panels are certified by manufacturers to withstand certain weather events, including hail and snow. The arrays at the proposed facility are on a tracking system and in the case of a major wind or hail event, the panels can be "stowed" or positioned from a remote location to an angle that will help protect equipment. Finally, the

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<sup>11</sup> See "Looking to Our Future – Pikes Peak Region 2030" at <http://www.peakalliance.co/uploads/pdf/Final%20PPR%202030%20Plan.pdf>

<sup>12</sup> See Executive Order D 2017-015 "Supporting Colorado's Clean Energy Transition": [https://www.colorado.gov/governor/sites/default/files/executive\\_orders/climate\\_eo.pdf](https://www.colorado.gov/governor/sites/default/files/executive_orders/climate_eo.pdf)

system has several protections to prevent widespread damage to the facility or the Colorado Springs Utilities grid, such as surges protection equipment in the case of a lightning strike.

In addition to using proven solar energy technology, Applicant will take precautions to reduce exposure from severe weather events. Comprehensive drainage planning is not only important for minimizing impacts to adjacent properties, but also for protecting equipment during major rain events. The Project is not located in a flood zone. However, the Project is designed to maintain integrity and minimize impacts during a 100-year storm event. Monitoring and inspection of culverts and site drainage features will help minimize risks to equipment.

Given the dry conditions that exist at the site, there is a possibility of rangeland fire in the Project. The El Paso County Community Wildfire Protection plan for unincorporated El Paso County identifies the Project area as being in a moderate to high wildland fire susceptibility zone.<sup>13</sup> The Project heeds recommendations made in this report; namely to encourage planners to take steps to reduce wildfire risk and encouraging mitigation projects undertaken by utilities. Hanover Fire Protection District's Station 2 is located just over 1.5 miles from the access point on the east side of the Project; helping to ensure the facility and adjacent properties would receive timely response in the event of a rangeland fire.

**(h) Specify if excess services capabilities created by the proposed Project will prove likely to generate sprawl or strip development**

The Project does not host commercial enterprises or occupied buildings. It is an unoccupied facility that is monitored from an off-site location. The Project will not lead to sprawl or strip development. "Excess" power is not possible as power generation is predicated upon a Power Purchase Agreement, whereas Applicant commits to building a facility that will create power at an agreed-upon amount. Colorado Springs Utilities retains the autonomy and authority to operate its generation resources at whatever power level it sees fit. In the US energy and development market, the capability of a utility to generate electricity is not a principal driver of urban sprawl.

**(i) Specify whether the demand for the Project is associated with development within or contiguous to existing service areas.**

Colorado Springs Utilities is the primary electrical provider for the City of Colorado Springs and El Paso County; both of which are experiencing significant population growth. Colorado Springs Utilities has a stated goal and requirement (see 2016 Integrated Resource Plan) to procure renewable energy, including utility-scale solar energy. The Palmer Solar Project and Williams Creek Substation Project represents a viable, cost-effective, responsible addition to the Colorado Springs Utilities generation portfolio. The Project will help Utilities meet its generation needs, address potential generation retirements, and help it meet its strategic and operational strategy for its electrical system. Please see Appendix AB – CSU Service Territory Map for a map of the existing Colorado Springs Utilities service area. The Palmer Solar Project will serve energy demands in this area.

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<sup>13</sup> See Community Wildfire Protection Plan for Unincorporated El Paso County "A Continuing Process" at <https://static.colostate.edu/client-files/csfs/pdfs/El-Paso-County-CWPP.pdf>

## **(8) Surface and subsurface drainage analysis**

Please find the Geotechnical Report in Appendix G, a Preliminary Drainage Report in Appendix N, and an initial Grading and Erosion Control Plan (to be finalized at the Site Plan Review) in Appendix W. Since measures are taken to address runoff and drainage, the facility will not result in alterations or negative impacts to the area's natural hydrography. The Project will require a SWMP and approval of Erosion and Stormwater Quality Control Permit from El Paso County at the time of construction.

## **(9) Financial feasibility of the project**

### **(a) Relevant bond issue, loan and financing approvals or certifications**

The Palmer Solar Project is in a mature stage of financing development. juwi, as the representative for Palmer Solar LLC, has engaged a network of investors that have both experience and interest in financing solar energy project of this scale. The market as it stands currently has strong competition by equity financiers looking to benefit from federal tax structure and related market conditions.

The company collected bids for project finance in the fall of 2018 and received positive feedback on the financial viability of the project, including investment requirements, diligence (technical, commercial, administrative), risk, and other pertinent components of equity investing. At time of submission of this 1041 application, the Project is in the final stage of negotiation with its future project owner. Pertinent financing documents will be signed by the end of the year; well-before the commencement of construction. The Project owner is identified as a \$10bn market cap, publicly-traded, investor-owned utility who will finance the project with cash on their balance sheet. Accordingly, bonds will not be necessary for the project. juwi has the experience to execute financial documents on-schedule with various equity investors.

The Williams Creek Substation will be financed and owned by Colorado Springs Utilities – a municipal utility with a proposed 2019 operating budget of \$936.5 million. The 2019 Annual Operating and Financial Plan identifies funds for the “2020 Energy Vision – Palmer Solar Interconnection” in its list of Electric Service Capital Projects, which is described as a new 230-kV switching substation to interconnect the new Palmer Solar project to the Colorado Springs Utilities transmission system.<sup>14</sup>

### **(b) Business plan that generally describes the financial feasibility of the Project**

In line with juwi's 10-year track record of successfully securing financing for solar projects, the Project has been developed as a best-in-class facility with consideration of the long-term owner's needs and preferences. The Project's business plan involves risk mitigation throughout the development, by conducting site studies and engineering and legal reviews. The Palmer Solar project's PPA with Colorado Springs Utilities gives the project its foundation for financial feasibility. Most lenders will not finance a project until a PPA is place as it gives certainty about future income stream from power production. Additionally, Colorado Springs Utilities has the operating budget and board approval, along with a healthy credit and financial standing, and is able to own and operate the Williams Creek Substation.

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<sup>14</sup> See draft 2019 Annual Operating and Financial Plan:

<https://www.csu.org/CSUDocuments/2019%20DRAFT%20Annual%20Operating%20and%20Financial%20Plan%2010-08-18.pdf>

**(10)            Local infrastructure and services impacts**

Please find an impact analysis of existing capacity of and demand for local government services to accommodate the Project:

- *Roads:* Applicant completed a Road Condition Survey (Appendix U) of the proposed haul route plans (Appendix O – Traffic Memo) (from both Squirrel Creek Road and Birdsall Road). Adequate transportation facilities exist to serve the needs of the proposed project.
- *Schools:* The Project would not affect the capacity or demand for El Paso County education services.
- *Wastewater/water treatment:* The Project does not include occupied buildings and no wastewater treatment will be necessary. Restrooms for construction personnel will be temporary. Waste will be removed from site and disposed at an appropriate facility by a third-party contractor.
- *Water:* The Project does not require on-site water services. Water for construction will be supplied by a third-party, local water provider. Once operational, the only water necessary for the Project is periodic cleaning of panels. This is not expected to exceed two washings per year (dependent on local conditions) and will also be provided by a third-party water provider within El Paso County. The Project is sited on land where water providers (Woodmoor Water and Sanitation District no. 1 and Colorado Springs Utilities) could provide the small amount of water for the Project.
- *Emergency services:* Applicant has coordinated with Hanover Fire Protection District, the first responder for construction and operations, to draft the Fire Prevention and Protection Plan included in the application. The Hanover Fire Protection District has agreed to provide Fire and EMS to the Palmer Solar Project (see Appendix Q – Fire Prevention and Protection Plan). A detailed Health and Safety Plan will be utilized for construction (see Appendix X – Safe Work Practices and Emergency Response Plan) to address project-specifics and ensure compliance with relevant local, state, and federal regulations. Applicant will provide Hanover Fire Protection district with a operations and maintenance plan, access to the site, and relevant designs for emergency response.
- *Transportation:* Applicant completed a Traffic Analysis for the Project to identify impacts from construction traffic and operational traffic on local traffic. From a conservative projection, no more than ten percent of the delivery trucks and water trucks trips would occur during the AM and PM peak traffic hours in the area. The Palmer Solar Project, including the construction of the Williams Creek substation, is expected to generate 550 daily trips, split between the two access points. After the Palmer Solar project has been constructed, the number of trips generated by the solar plant is expected to be significantly less than during the construction period. The project will be an unmanned facility with weekly site visits by operational personnel, not expected to exceed 10 trips per month. Traffic impacts related to the operation of the solar plant facility will be negligible and insignificant (see Appendix O – Traffic Memo).
- *Infrastructure:* No additional impacts to public infrastructure from Project construction or operations have been identified.
- *Other:* (none)

## **(11) Recreational Opportunities**

There are no recreation uses on the property currently. The Woodmoor Water and Sanitation District no. 1 property, including Calhan Reservoir, is closed to the public. The area can be generally considered as a utility center for El Paso County: hosting numerous electrical lines, a water retention facility, a sewage treatment facility, water treatment facility, a nearby landfill, and is situated generally along the Interstate-25 corridor. The area does not possess any features or values that would point to a notable recreation experience, especially as compared to the large portfolio of recreational opportunities available elsewhere in El Paso County.

El Paso County has undertaken comprehensive parks planning throughout the planning area. The El Paso County Parks Master Plan identifies Potential Regional Parks in the County. The proposed Project is outside any of these designated areas and outside any existing parks or recreation areas. The trails component of the El Paso Parks Master Plan does identify a potential bicycle route that may be located in the vicinity of Calhan Reservoir. To the knowledge of the Applicant, El Paso County has not discussed a trail easement with the landowner. It also appears that this potential bicycle route follows a proposed 2060 Expressway. From discussion with El Paso County Parks Department, there is not an immediate need or interest for a trail in this area. Please see Applicant's response to proposed 2060 transportation corridor in Appendix O – Traffic Memo for a discussion regarding siting alternatives and pathways forward for the potential transportation route and trail easement.

To date, the Planning Division of the Community Services Department has completed planning for parks, trails, and open space for 11 discrete areas. The closest Master Plan to the proposed Project is the Fountain Creek Regional Park Master Plan. This Plan covers parks and trails almost exclusively within the Fountain Creek corridor outside the project boundary.<sup>15</sup> Accordingly, the proposed Project, as a quiet use that supports local air quality and does not put stressors on public infrastructure, would not pose any impact or change in use for this park area.

Applicant has reviewed El Paso County Parks plans and coordinated with El Paso County Parks Department. No new initiatives or planning processes have been disclosed to the public that would influence the proposed Project.

## **(12) Areas of Paleontological, Historic, or Archaeological Importance**

Cultural and historic uses resources (including paleontological, historic, and archaeological) in the area have been mapped as site diligence and project preparation (please see last page of Appendix H – Wildlife, Wetlands, and Cultural Resource Memo). Areas of cultural or historic importance are not considered to be a significant issue or potential concern for Project design or execution. There are no resources that are eligible for the Colorado Register of Historic Places (CRHP) or National Register of Historic Places (NRHP) in the Project footprint, and no nexus with National Historic Preservation Act (which would require additional coordination with state and federal agencies).

While there were isolated finds in the Project area, none of the documented resources were considered significant by past inventories or cultural reviews. Isolated finds are not considered eligible for the NRHP. The transmission line connecting the two portions of the Project displays minor overlap with an isolated find that is not eligible for NRHP. However, micro-siting of transmission poles for the Project avoids the find

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<sup>15</sup> See Fountain Creek Master Plan planning area on page 46 of plan, available at: [https://communityservices.elpasoco.com/wp-content/uploads/Parks\\_Planning/Final-FCRP-Master-Plan-061016.pdf](https://communityservices.elpasoco.com/wp-content/uploads/Parks_Planning/Final-FCRP-Master-Plan-061016.pdf)



altogether. Overall, professional cultural scientists did not find reason to pursue additional desktop or field studies due to cultural or historic resources in the area. No impacts on cultural or historic resources are anticipated from development. Please see Appendix H – Wetlands, Wildlife, and Cultural Report for the current site layout and findings of cultural/historic resource review.

Although unlikely, if construction activity does encounter subsurface archaeological resources at this site, the construction work near the discovery would stop until an archaeologist has an opportunity to examine the find and evaluate its significance. Coordination with History Colorado (the state Historic Preservation Office) would ensue. An Unanticipated Discovery protocol for cultural and historic resources is included in Appendix H – Wetlands, Wildlife, and Cultural Report.

### **(13)        Nuisance**

The Project will not result in major nuisance, including for the categories listed (noise, glare, dust, fumes, vibration, or odor levels). Photovoltaic panels are designed to capture energy from the sun, so there will be no glare from the facility. Noise will be temporary and limited to construction: inverters have a low-decibel murmur that will be inaudible from property lines. As it pertains to dust, re-seeding of the site and active revegetation practices will return the site to existing ground conditions and there will not be significant increases in fumes or emissions. Lastly, there will not be permanent security lighting at the facility.

### **(14)        Air Quality**

Solar energy facilities often have a net-positive impact on local and regional air quality since there is not measurable emissions from operations. They also serve in emissions reductions if conventional resources come offline. Impacts are limited to construction where earthmoving, grading, and other activities will likely result in some dust particulates released into the air. At no time will construction activities exceed NAAQS or violate standards set by El Paso County or the State of Colorado (Applicant will obtain an APEN in advance of construction). Measures to protect local air quality include use of water to bind soil during construction, speed limits for construction to minimize fugitive dust, and suspension of construction activities during wind events (in line with guidelines and expectations set by Hanover Fire Protection District).

### **(15)        Visual Quality**

There is a substantial amount of electrical infrastructure already located in the Project vicinity. In the relatively small amount of land proposed for the Project, four separate electrical utilities (Tri-State, Xcel, Mountain View Electric, and Colorado Springs Utilities) maintain and operate high-voltage and distribution-level electrical lines. Each of these utilities, except for Tri-State, operate two lines within the general project footprint. Convergence areas for multiple transmission lines and electrical providers have been identified as strategic locations for solar energy projects in many places throughout the country. Not only are they oftentimes viable injection points for electrical generation, but they are also categorized as having an industrial visual character.

Nevertheless, the Applicant recognizes that development of the 60 MW solar energy generation facility and new 230-kv substation constitutes a substantial change to a largely open landscape. The arrays will be visible from the Western side of the Project when traveling north/south Old Pueblo Road and from existing residences in the area, particularly three residences located on Moonshadow Lane. A Visual Impact Analysis for the Project was completed (see Appendix P), which depicts the new facility from key observation points

viewing the Woodmoor Water and Sanitation District no. 1 and City of Colorado Springs properties. The viewshed in the area will be modified. However, certain Project and landscape features help reduce visual contrast:

- *Topography:* From residences located near Old Pueblo Road, the eastern portion of the facility will be hidden from view due to the significant distance of the panels and the topography of the site. Sizable mounds on the west side of the Project (locally called the “Teepee Buttes”) also provide additional screening from adjacent and nearby properties.
- *Technology:* Photovoltaic panels do not rise substantially off the ground (per WSEO zoning, no more than 14 feet, but expectation is around 10 feet (see Appendix F – Elevations). The arrays will follow the existing contours on the landscape. The purpose of the panels is to absorb energy and light – no significant glare impacts result from this type of technology.
- *Panel Placement and setbacks:* Changes were made to the site design that reduce visual contrast for neighboring residences. This includes the elimination of panels in certain areas. Additionally, actual setbacks are much larger than the zoning minimum. The Palmer-Williams Creek WSEO puts forward a minimum setback of 25-feet. However, the shortest distance from project fence line to a property lines with an existing residence is much larger: approximately 173 feet. It is also worth noting that arrays are not built up to the fence: a buffer of 25-feet inside the fence is required for emergency vehicle access and in most places, the amount of space from arrays to fence is much greater than 25 feet. Thereby, the shortest distance from a residential property line to an array is 198 feet.

**(16)      Surface Water Quality**

**(a) Map or description of surface water relevant to the Project.**

Please see WSEO Map Plan (Appendix E), which depicts hydrographic features in the Project vicinity. The Project footprint is in the vicinity of Calhan Reservoir owned by Woodmoor Water and Sanitation District No. 1. The Reservoir is not included in the Project area. The Project abides by the recommended setback distance from water features recommended by CPW. The Calhan Reservoir facility will not influence the operations of the solar project (and vis versa). Applicant and landowner have finalized a land lease that is acceptable to both parties and provides adequate management flexibility for safe operations.

A review of National Hydrography Data indicated that intermittent stream channels in areas identified for solar arrays (mapped on WSEO Resource Map, Appendix E). Prior to project design, these areas were surveyed to determine presence/absence of wetlands. These intermittent stream channels did not meet criteria for wetland. Under the USACE 1987 Wetland Delineation Manual, three criterions must be met when delineating potential wetlands: exhibiting hydrophytic plants, hydric soils, and at least periodically saturated conditions at some time during the growing season of the prevalent vegetation (USACE 1987). Field surveys conducted in April and June of 2018 found that areas identified as intermittent streams lacked hydrophytic plants and hydric soils. Modifications to drainages and channels will take place on the eastern portion of the site. Initial drainage plans allow for surface runoff and sheet flow through the site to areas to the east. Native vegetation helps substantially in retaining surface water quality. Any water from storm events will be responsibly managed through the project site as to fully retain natural and historic drainage regimes.

There are potential wetlands immediately downstream of Calhan Reservoir that overlap with the proposed overhead 34.5-kV transmission line. As explained elsewhere in this application, impacts to potential wetlands were circumvented by micro-siting electrical poles exclusively on dry upland areas. The USACE Southern Colorado Office affirmed that no additional permitting or actions are necessary. These areas will be left undisturbed.

The Project does not conflict with any of the recommendations put forward by the Pikes Peak Area Council of Government's Water Quality Management Plan for the Fountain Creek watershed. The principal recommendations for this watershed address land activities immediately within the Fountain Creek corridor; located outside the Project area. The Water Quality Management Plan encourages avoidance of critical stream environment zones, developing mechanisms to address stream quality (bacteria), timely administration of CWA 401 and 404 permits, and green infrastructure (which encourages natural groundcover).<sup>16</sup> Many of these recommendations are outside the Project scope. The Project is compatible with the regional water quality management plan.

Please see Appendix N – Drainage Report for a detailed review of the proposed Project and its interaction with existing drainage patterns. The Project's drainage features, including multiple detention ponds (exact number to be finalized at Site Review stage), are designed to control and mitigate downstream impacts. Per the El Paso County Drainage Manual, the Project will not produce harmful erosion or drainage patterns for adjacent properties. These requirements are also built into the State of Colorado permitting process for water and stormwater management.

#### **(b) Existing data monitoring sources**

There are no known existing data monitoring sources on site.

#### **(c) Short-term and long-term impacts**

Short-term impacts are limited to the construction stage of the Project. Construction is expected to last no longer than nine months with activities taking place during daylight hours Monday through Friday and Saturdays if necessary (see Appendix O – Traffic Memo for discussion of traffic and construction volumes). The Project requires de-vegetation and grading. The Project's SWMPP and Stormwater Permit will be the primary mechanism for minimizing on-site and off-site impacts. This permit will require effective erosion controls on-site during the construction phase and best management practices for runoff control. Generally, precipitation will be engineered to divert stormwater to existing washes (particularly on the eastern side) or constructed culverts (particularly on the western side). The Project will be subject to routine inspections by juwi construction crew and outside personnel. Applicant will take extra precautions and monitoring of west-side Project development given that residences are slightly downhill of the proposed Project. This consideration will be built into construction logistics.

Long-term impacts on water quality have not been identified. Culverts on site will be designed in compliance with the El Paso County Drainage Criteria Manual and to accommodate a 100-year storm event. Likewise, sediment basins and stormwater retention areas will be designed for a 100-year storm event. The final Drainage Plan, certified by a Colorado-certified Professional Engineer and approved by El Paso County, will

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<sup>16</sup> See Pikes Peak Area Council of Governments Water Quality Management Plan 2010 Update <https://www.colorado.gov/pacific/sites/default/files/2010UpdateTo208Plan.pdf>

address potential on-site and off-site impacts. Natural groundcover will play an important role in retaining existing hydrography on-site and off-site.

**(17) Groundwater Quality**

**(a) Description of groundwater**

Photovoltaic systems are exceptionally suitable forms of energy generation in dry and arid systems because of the water requirements are small as compared to conventional resources. The Palmer Solar Project will not require groundwater appropriation (no wells or permanent water supply).

*(i) Seasonal water levels in portions of aquifers affected by project* – Data has been collected at two historic wells in the Project vicinity (outside footprint). These wells are identified as SC0170654ACA and SC02206502AAD have an 8-foot groundwater depth and 25-foot groundwater depth, respectively. The Site is in an area where localized water table conditions occur in colluvial, landslide, and windblown deposits, and in consolidated sedimentary rocks where rocks near the land surface are fractured and weathered. Aquifer materials may not be perennially saturated and depth to groundwater generally ranges from five to 20 feet below ground surface.

*(ii) Artisan pressure* – The Project will not impact groundwater, so artesian pressure was not measured during site diligence.

*(iii) Groundwater flow directions and levels* – Typically, groundwater flow direction mimics topography. Based on the topographic conditions of the Site (Figure 1), the groundwater flow direction is likely toward southwest (surface water flows east on the east side of the Project, but topography generally slopes toward Fountain Creek to the southwest).

*(iv) Existing aquifer recharge rates and methodology used to calculate recharge*— Recharge rates are unknown and not applicable to the proposed Project. Therefore, they were not studied.

*(v) Ability of aquifer to impound groundwater and storage capacity* – The Project will not result in significant additions to groundwater or water table. The storage capacity of aquifers is not considered to be a development factor for photovoltaic solar energy generation projects.

*(vi) Seepage losses expected at any subsurface dam* – All infrastructure is located above ground; no seepage loss will result.

*(vii) Existing groundwater quality/classification:* The existing groundwater quality in the Project vicinity is unknown. As an above-surface development, the Project, will not have any measurable affect on groundwater, including quality.

*(viii) Location of all wells potentially affected by the Project and their uses* – The Project does not overlap with any historic or existing water wells. The closest well is on the property to the west (APN 56210-02-004). It is identified as having a 42 foot well depth for domestic purposes. The Project will not affect groundwater, including the well on this adjacent property.

**(b) Impacts and net effect of the Project on groundwater quality**

The impacts and net effects of the solar facility on ground water quality are negligible at both the local and regional scale. As described in the section below, water will be trucked in by Colorado Springs Utilities (see Appendix Z – Water Letter from Colorado Springs Utilities) for construction. Water will not be purchased

until 1041 Permit is secured. The facility does not require a permanent water supply for operations. Water would only be required at request of owner whereby necessary agreements and contracts will take place.

**(18) Water Quantity**

**(a) Map or description of existing stream flows and reservoir levels.**

Please see the WSEO Map Plan (Appendix E – WSEO Map Plan), which includes a resource map identifying hydrologic features. Hydrologic features identified in the Project areas are non-jurisdictional per the criteria of the US Army Core of Engineers. In Colorado and national geospatial datasets, they are identified as intermittent, which aligns with conclusions made from two field studies. Calhan Reservoir is approximately 800 feet from the nearest solar array and outside the Project area. Water levels at Calhan Reservoir are under the authority and management of Woodmoor Water and Sanitation District no. 1 and outside the scope of the Project. Applicant has coordinated with landowner as to not impede or preclude decision-making for the water retention facility.

**(b) Stream flows held by Colorado Water Conservation Board**

The Project covers the following USGS HUC12 watersheds: Little Fountain Creek, Calhan Reservoir Fountain-Creek, and Williams Creek. There are no perennial streams or rivers in the Project area. None of the hydrographic features in the Project have instream flows regulated by Colorado Water Conservation Board.

**(c) Impacts and net effect on water quantity**

PV systems are an efficient use of water, particularly for the arid Rocky Mountain West. Solar facilities have no operational cooling or substantial water required for generation. As a result, permanent “withdrawals” (water removed directly from the ground) is zero, while “consumption” (water that is removed from the immediate water environment) is extremely low considering the size of the facility and its electrical output. Water is only used when necessary for construction (dust mitigation, soil compaction, etc.) and panel washings (maximum once a year based on experience with other juwi facilities in Colorado). The Project will have natural ground-cover consisting of a native seed mix and the natural hydrography will be retained. The Drainage Report concludes that historical water regimes will be retained (Appendix N – Preliminary Drainage Report). Additionally, a preliminary Grading and Erosion Control Plan (Appendix W) shows initial drainage and erosion features for localized conditions based on project design. It incorporates requirements and recommendations from the El Paso County Drainage Manual.

The proposed technology is suitable for El Paso County and Colorado as it exhibits technological resiliency during times of drought with minimal (if any) impacts on the local or regional water table, or the groundwater resources in the Little Fountain Creek, Calhan Reservoir Fountain-Creek, and Williams Creek watersheds.

During construction, approximately 1.7 million gallons of water will be utilized for construction. Water supply will be obtained from Colorado Springs Utilities where water will be trucked to the site for temporary use. Applicant has undertaken coordination regarding the issue and is prepared for this component of construction. As a project proponent and purchaser of electricity from the solar project, CSU has a vested interest in the success of the project. Accordingly, the utility has expressed ability and interest in providing water for the Project.

A permanent water supply is not required for operations and water-use is not built into the scope of operations and maintenance agreements. Water during operations will only be used during operations at the

discretion of Project owner who will undertake necessary agreements and purchasing with a local water provider if the situation arises. El Paso County has multiple water providers who sell small quantities in these circumstances.

**(d) Methods for efficient water utilization**

Since the Project does not have a permanent water supply, water that is trucked onto site is tracked in detail to minimize need for deliveries, abide by procurement contracts, and limit unnecessary project spending. Water will only be used when necessary.

**(19) Floodplains, Wetlands, and Riparian Areas; Wildlife and Wildlife Habitat**

**(a) Applicant shall only provide description of foregoing natural conditions, animal and plant life, at but not to exceed level of detail required by other federal state permits or review which are applicable to the Project.**

- Floodplains: The Project does not overlap with either 100-year floodplains demarcated by Federal Emergency Management Agency or El Paso County. No floodplain permitting with Pikes Peak Building Regional Building Permit will be required.
- Wetlands/Riparian areas: Wetlands will not be impacted by Project development. See Appendix K for a detailed discussion on wetlands permitting and correspondence with USACE.
- Wildlife: Please see page 23 for a description of impacts to wildlife. Please see Appendix H for a Wildlife memo and Appendix I and Appendix J for a development review from CPW and USFWS respectively. Appendix I also includes a formal response from Applicant and commitments regarding construction, design and operation of facility. Field studies and wildlife agencies (including the USFWS Information, Planning, and Conservation database) identified potential species of concern on the site. Applicant does not anticipate any species listed under the ESA to be on site. Pre-construction surveys will determine presence/absence of potential species (particularly migratory birds and raptors) and appropriate conservation measures will be put in place.
- Wildlife Habitat: Please see page 24 of this document, which addresses consistency with El Paso County Master Plan.

**(20) Soils, Geologic, Conditions and Natural Hazards**

**(a) Map of Geologic Conditions and Natural Hazards**

Please see page of Appendix G – Geotechnical Report for a map and full report of soils and geologic conditions found at the site. The site is composed primarily of lean clay with various amounts of sand and weathered claystone. The Project area was found suitable for the piles and poles that will be placed directly into the ground (no concrete will be necessary). No natural hazard conditions were identified in the Phase I ESA (Appendix V).

**(b) Description of risks from natural hazards**

No natural hazards have been identified that would preclude Project execution or the design proposed. The Geotechnical Report performed by a team of professional engineers found that the site was suitable for the proposed development. Seismic activity in the area is anticipated to be very low; and from a structural standpoint, the property should be relatively stable. Based on the subsurface conditions encountered, the potential for ground rupture and liquefaction is considered to be very low. Flash flooding within the area is possible during high-intensity storm events. A drainage study has been completed for the Project and storm events are fully considered in the proposed civil design.

Given its remote location and arid environment, rangeland fires are possible at the site. Applicant has developed a Fire Prevention and Protection Plan with Hanover Fire Protection District. Future coordination will take place at the Site Plan Review stage and in advance of construction.

Finally, the site will be designed to meet wind, snow-load, and other weather events, in accordance with El Paso County standards.

### **(c) Impacts and net effect on soil and geologic conditions**

Earth moving consists primarily of grading and vegetation removal required for project development. The Project will likely result in ground disturbance for approximately 500 acres (less than the leased area and the WSEO boundary due to setbacks and buffer distances). However, impacts on soils and geologic conditions will be negligible. The Project's professional geotechnical consultants anticipate little grading to be performed. Using existing topsoil for construction will help minimize erosion and help stormwater management. Since revegetation will happen after construction and ground disturbance is minimal following construction, there will be minimal impacts to soils and geologic conditions. The Project requires an approved GEC Plan.

## **(21) Hazardous Materials**

### **(a) Description of Hazardous Materials**

Hazardous materials are not needed for construction or operations. Given the quantities of petroleum needed for construction, federal regulations require that a SPCC Plan be prepared to demonstrate proper safety protocols, responsible construction practices, and adequate resources to respond to various scenarios on site.

### **(b) Location of storage areas and plans for contamination**

A Health and Safety Plan as well as a SPCC Plan will reduce potential for release of petroleum products to surface or groundwater. Potential impacts are considered negligible.

## **(22) Monitoring Plan and Mitigation Plan**

### **(a) Mitigation that is proposed to avoid, minimize, or compensate for adverse impacts of the Project and to maximize positive impacts.**

No compensatory mitigation measures are formally proposed or required for the Project. Mitigation, as it is implemented nationally, often refers to a mitigation hierarchy whereby developers and project proponents take steps to minimize environmental impacts. The mitigation hierarchy consists of three stages: avoidance, minimization, and compensatory mitigation.

The Project incorporates the mitigation hierarchy. It avoids critical habitat for threatened and endangered species, jurisdictional wetlands, cultural sites eligible for National Historic Register, and other pertinent natural resources.

The project takes steps to minimize environmental impacts, including:

- Project footprint: Staging areas and parking areas are located within the Project footprint and lease boundary to minimize lateral extent of development impacts in the area. No construction activities will take place outside the lease boundary.
- Project lighting: Oftentimes, solar facilities will have motion-activated lighting at access points for security purposes. The Project will not have lighting at these access points to minimize light pollution in the area.
- Fencing: Perimeter fencing will be installed for security. Barbed wire fence will not be used on solar facility to reduce likelihood of wildlife impalement. A small amount may be used for the substation.
- Drainage: A Stormwater Management Plan will minimize on-site and off-site impacts from runoff. The final design of the Project will meet standards set by El Paso County.
- Transmission lines: Best Management Practices for raptor and migratory species will be implemented, including anti-perching devices, to reduce potential for bird mortality in and around the facility.
- Vegetation management: Groundcover at the facility will be primarily comprised of native grass species. A noxious weed management plan has been developed to minimize establishment of noxious weed on site and on adjacent properties.
- Buffers and Timing Stipulations: CPW put forward recommendations for minimizing impacts to migratory bird and raptor species. If construction is to take place during nesting season, pre-construction surveys will be completed to identify any active nests. Based on results of these surveys, no ground disturbing activities will take place within buffer distances set by CPW when nests are active. Similarly, buffer distances and timing stipulations will be followed for active burrowing owl nests.

Compensatory mitigation is reserved for projects and circumstances where there are significant impacts and irreversible consequences. The Palmer Solar Project and Williams Creek Substation do not meet this threshold.

#### **(b) Methodology to Measure Impacts**

Methods are built into the SWMPP, the SPCC, and the Operations and Maintenance Plan.

#### **(c) Mitigation Monitoring**

No compensatory mitigation is required. The operations and maintenance plan outlines actions for monitoring the facility, including environmental conditions. Applicant will adhere to all plans approved by El Paso County and PPRBD.