

**REQUEST FOR PROPOSAL**  
**FOR**  
**NEW MEXICO COMMUNITY SOLAR PROJECT**

**EL PASO ELECTRIC COMPANY**

P.O. Box 982  
El Paso, Texas 79960

**ISSUE DATE: October 26, 2018**



## TABLE OF CONTENTS

<b>1.0</b>	<b>INTRODUCTION .....</b>	<b>3</b>
1.1	Purpose.....	3
1.2	Communications .....	4
1.3	Confidentiality of Responses .....	4
<b>2.0</b>	<b>EL PASO ELECTRIC COMPANY SYSTEM DESCRIPTION .....</b>	<b>5</b>
2.1	Company Overview .....	5
2.2	Existing Generation Resources .....	5
2.3	El Paso Electric Property.....	6
<b>3.0</b>	<b>ELIGIBLE PROJECT INFORMATION.....</b>	<b>7</b>
3.1	Eligible Project Structures .....	7
3.2	Eligible Generation Resources .....	7
3.3	Project Site .....	7
<b>4.0</b>	<b>BIDDER TERMS .....</b>	<b>8</b>
4.1	Pricing.....	8
<b>5.0</b>	<b>RFP SCHEDULE .....</b>	<b>8</b>
5.1	RFP Issuance.....	9
5.2	Final Submission of Bidder Questions.....	9
5.3	Proposal Due Date.....	10
5.4	Tentative Date for Selection of Project.....	10
5.5	Tentative Date for Contract Discussions .....	10
5.6	Proposal Validity.....	11
5.7	Proposal Information Requirements .....	11
5.8	Interconnection Requirements .....	11

**6.0 SUBMITTAL PREPARATION INSTRUCTIONS..... 12**

**7.0 EVALUATION PROCESS..... 17**

    7.1 EPE’s Selection of Bid and Discussions with Bidder ..... 19

**8.0 ATTACHMENTS ..... 22**

    8.1 Project Data (provide a detailed description of the solar project) . 23

    8.2 NEW MEXICO COMMUNITY SOLAR Project Site ..... 24

    8.3 Solar PV Project Requirements and Technical Specifications..... 26

    8.4 Energy Profile Spreadsheet (Editable Electronic Excel File to be provided to Bidders)..... 40

## 1.0 INTRODUCTION

El Paso Electric Company (“EPE” or the “Company”) is soliciting a turnkey proposal for the engineering, procurement, and construction (“EPC”) of a utility-scale solar energy generating facility (“Project”) having a combined maximum capacity of up to two megawatts on an alternating current (“MW<sub>AC</sub>”) basis. The Project is to be built on land provided by EPE in Dona Ana County, New Mexico. Location is shown in Attachments 8.2. **THIS IS A SOLAR ENERGY PROJECT REQUEST FOR PROPOSAL (“RFP”) ONLY.** EPE has been ordered by the New Mexico Public Regulation Commission (“NMPRC”) on October 24, 2018, in Case No. 18-00099-UT to issue this RFP and complete bid review and selection by November 27, 2018. The Company intends to fulfill this requirement as described below.

The proposal from Bidders responding to this RFP is for EPE’s purchase and ownership of the Project identified in this document. Bidders shall submit a proposal for EPE’s purchase of the Project with a total output up to two MW<sub>AC</sub>.

EPE will evaluate proposals taking into consideration overall Project cost and Bidder experience. EPE also requires that the proposal utilize local distributors and contractors where possible and requires that the Bidder provide details on how it will accomplish this requirement.

### 1.1 Purpose

EPE seeks a proposal (“Proposal”) for the complete design, procurement of all material and equipment, construction and startup of a Project which will be located in Dona Ana County, New Mexico. Project should target maximum energy output and minimum levelized cost of energy. The Project will be owned by EPE and EPE intends to take advantage of the price benefit provided by any applicable Tax Credits effective at the end of 2019. Project must be on-line and generating electricity as stated in RFP Schedule. EPE will take into consideration the overall cost of the Project, Bidder’s experience including megawatts of financed projects, partnerships with financial entities and Bidder’s use of local distributors/manufacturers and contractors.

#### Eligibility of Sites

For the purpose of this solicitation, EPE will NOT consider any proposal for Project to be developed on a site different than the site provided by EPE.

## 1.2 Communications

All communications from Bidders to EPE, including questions regarding this RFP, must be submitted via email. Based upon the nature and frequency of the questions EPE receives, EPE will choose to respond to Bidders either directly or address the question through a conference call.

All submittals, inquiries, and communications related to this RFP should be directed solely to the following EPE point of contact:

Julie Bañuelos  
Contract Negotiator  
P.O. Box 982  
El Paso, Texas 79960  
Fax: (915) 543-2209  
E-mail: [julie.banuelos@epelectric.com](mailto:julie.banuelos@epelectric.com)  
And E-mail: [scm@epelectric.com](mailto:scm@epelectric.com)

**All communications between Bidder and EPE shall be conducted via email. Oral communications are discouraged and shall not be binding upon EPE.**

## 1.3 Confidentiality of Responses

EPE will consider proposals and associated information submitted by Bidders to be confidential only if such materials are clearly designated as “Confidential.” Bidders should be aware that information received in response to this RFP will be subject to the review of applicable local, state and/or federal regulatory agencies, specifically including, but not limited to, the New Mexico Public Regulation Commission (“NMPRC”). Information submitted in response to this RFP may become subject to federal or state laws pertaining to public access to information as a result of any reviews conducted by the aforementioned agencies. EPE shall not be liable for the release of any information subject to disclosure under any laws pertaining to public access to information. Except as required by regulatory reviews, EPE will use reasonable efforts to avoid disclosure of information designated as confidential to persons other than those involved with the evaluation, selection and any subsequent negotiations. EPE will also propose that any confidential information be provided under a protective order. If a Bidder’s proposal is selected by EPE, the Bidder shall cooperate with EPE in making technological descriptions, pricing, and other contract terms available for review as part of any regulatory approval process as EPE deems necessary or appropriate. EPE will follow applicable orders and rules of the NMPRC, and/or other applicable agency, including any Protective Orders issued, such as disclosure of price, terms, or other information as required.

## **2.0 EL PASO ELECTRIC COMPANY SYSTEM DESCRIPTION**

### **2.1 Company Overview**

EPE is a public utility engaged in the generation, transmission and distribution of electricity in an area of approximately 10,000 square miles in the Rio Grande Valley in west Texas and south central New Mexico as illustrated in Figure 1. EPE serves approximately 421,000 residential, commercial, industrial and wholesale customers. EPE distributes electricity to retail customers principally in El Paso, Texas and Las Cruces, New Mexico utilizing remote and local generating stations.

### **2.2 Existing Generation Resources**

As of 2017, EPE owns approximately 2,082 MW of net installed capacity. EPE owns 633 MW of generating capacity at the Palo Verde Nuclear Generating Station. Of EPE's net total installed capacity, EPE owns 1,443 MW of local natural gas fired generating resources which include 64 MW at its Copper Generating Station, 275 MW at its Rio Grande Generating Station, 752 MW at its Newman Generating Station and 352 MW at Montana Power Station. EPE also receives a total of approximately 115 MW of solar capacity from several solar projects located in its service territory.

### 2.3 El Paso Electric Property



Figure 1 - EPE Service Territory and Electric System

### **3.0 ELIGIBLE PROJECT INFORMATION**

#### **3.1 Eligible Project Structures**

EPE will own the Project contracted through this solicitation process. EPE is interested in selecting the project that meets all stated requirements and provides the best value for EPE to include bidder experience in building similar types of utility-scale photovoltaic facilities, quality of major equipment, and lowest total cost over the life of the facility for the expected energy output.

#### **3.2 Eligible Generation Resources**

Technology Requirements: The Project must utilize a proven reliable form of solar technology; including photovoltaic systems. For photovoltaic submittals, the facility must utilize either crystalline or thin-film solar photovoltaic (“PV”) technology in a single axis tracking configuration. All major equipment and components must be tier-one rated. In order to be considered, the type of technology and key components proposed must have a minimum of twelve (12) months of established production and use at a single plant location at a scale greater than or equal to the capacity of the facility to be built.

EPE will consider the proposal for the facility to be located at the location described in this RFP at Design Point Conditions (DPC) as specified by EPE in the attached EPC agreement applicable to the facility. The net capacity must represent the expected capacity during the first year of operation, less any losses once the energy is delivered to the facility meter on the project site. The DPC shall be 1000w/m<sup>2</sup> and 65° Celsius module cell temperature. Bidders should also identify the expected annual degradation factor.

Standards in Appendix 8.3 apply to this Project.

#### **3.3 Project Site**

The Project site is described in attachment 8.2. Bidder will have access to applicable land agreement terms and will be expected to comply with the terms of such agreements. The proposal shall be predicated on the use of the specified project site. The enclosed survey or site map in attachment 8.2 show the approximate acreage designated for the development of the Project. Bidder is responsible for complying with all permitting requirements. IF AVAILABLE, Bidder will be provided with Phase I Environmental Site Assessments (“ESA”) for the project site.

**4.0 BIDDER TERMS**

**4.1 Pricing**

- a. Proposal shall include all costs necessary to deliver capacity and energy from the facility to the EPE system including, but not limited to, construction of the facility in accordance with the negotiated EPC agreement. All proposal terms, conditions and pricing are binding through the final selection notification and subsequent negotiations, as well as regulatory approvals.
- b. By submitting a proposal, Bidder agrees to make available to the Company at any point in the bid evaluation process any financial data associated with the Bidder and its proposed project, so the Company may independently verify the Bidder submitted information. Financial data may include, but shall not be limited to, data supporting the economic life of the facility, the fair market value of the facility, and any and all other costs (including debt specific to the asset being proposed) associated with the Bidder’s proposal. The Company may also use financial data contained in the Bidder’s financial statements (e.g. income statements, balance sheets, etc.) as necessary.

**5.0 RFP SCHEDULE**

The following schedule and deadlines apply to this solicitation:

RFP Issuance Date	October 26, 2018
<b>Proposal Due Date</b>	<b>November 12, 2018</b>
Questions Submitted to EPE	October 31, 2018
EPE Selection of Project Tentative Date	November 2018
Contract Negotiations and execution of EPC agreements Tentative Date	December 2018
Target Commercial Operation Date:	2019

EPE reserves the right to modify, cancel or withdraw this RFP and to revise the schedule specified above if, at EPE's sole discretion, such changes are necessary. To the extent reasonably possible, EPE will inform Bidder of any schedule change.

## 5.1 RFP Issuance

EPE will extend an invitation to participate in its New Mexico Community Solar RFP process via e-mail to all participants who previously participated in past EPE Community Solar RFP's. EPE will post its New Mexico Community Solar RFP in EPE's website ([www.epelectric.com](http://www.epelectric.com)) on the RFP issuance date.

Bidders who intent to bid must confirm receipt of the RFP invitation via e-mail to EPE's point of contact, Julie Bañuelos at the following e-mail addresses:

[julie.banuelos@epelectric.com](mailto:julie.banuelos@epelectric.com)  
[scm@epelectric.com](mailto:scm@epelectric.com)

## 5.2 Final Submission of Bidder Questions

All questions related to the RFP must be submitted by October 31, 2018, via email to the following EPE representative to ensure a response prior to the proposal due date.

Julie Bañuelos  
Contract Negotiator  
100 North Stanton Street  
El Paso, Texas 79901  
Fax: (915) 543-4073  
E-mail: [julie.banuelos@epelectric.com](mailto:julie.banuelos@epelectric.com)

EPE will prepare responses to questions received and distribute the questions and responses to Bidders. Any questions related to the RFP must be submitted in writing via email.

### **5.3 Proposal Due Date**

Proposal must be received at EPE's offices to the attention of Julie Bañuelos Contract Negotiator, by 12:00pm Mountain Time (MT) on November 12, 2018. Bidders who intent to bid and confirm receipt of RFP invitation will be emailed instructions on where to submit bid proposal(s) prior to the due date. Any proposal submitted after the due date will be excluded from consideration. The proposal should be as complete as possible.

Two hard copies of the proposal must be submitted. In addition, a soft copy of the proposal must be submitted on a USB. Facsimile submittals shall be excluded from consideration.

Bidder is solely responsible for ensuring the proposal is received by EPE in accordance with the RFP instructions prior to the date and time specified, and at the place specified. EPE shall not be responsible for any delays in mail, or by common carriers, by transmitting errors, delays, or mislabeling.

### **5.4 Tentative Date for Selection of Project**

Following a review of technical, economic and potential environmental factors, EPE will make a determination if the project best meets its objectives and may initiate negotiations with Bidder. EPE intends to select a project for recommendation for approval by the NMPRC by November 27<sup>th</sup>, 2018.

### **5.5 Tentative Date for Contract Discussions**

Should EPE choose to initiate negotiations with Bidder, the tentative date for commencement of contract negotiations with the Bidder is the later of December 1, 2018 or as directed by the NMPRC in its resolution of Case No. 18-00099-UT. Any contract between EPE and Bidder will be conditioned upon approval by EPE's board of directors and prior regulatory approval by the NMPRC. EPE, at its sole discretion, reserves the right to reject any proposed contract(s) that result from this RFP for any reason including if subsequently issued regulatory approvals or authorizations are subject to conditions, including ratemaking treatments, which are unacceptable to EPE.

## **5.6 Proposal Validity**

Bidder must hold its proposal open and valid for a period of two hundred forty (240) days following the submittal and during the time necessary to complete state regulatory approvals.

## **5.7 Proposal Information Requirements**

Flexibility is afforded to Bidder regarding the facility's characteristics, as may be necessary to meet the requirements of the RFP. The proposal for the Project whose production bid amounts would exceed EPE's required AC capacity will not be considered.

The proposal must also provide an available energy profile (MWh or kWh) on an hourly basis for an average day in each month using the template provided by EPE as Attachment 8.4. EPE reserves the right to request additional information from the Bidder regarding limitations or any other details related to the proposal.

EPE is responsible for obtaining any required NMPRC approvals. Bidder is responsible for acquiring and maintaining all applicable present and future federal, state and local approvals, licenses, permits or variances, and meeting specific requirements to construct and/or operate any generation facility and any associated interconnection facilities.

Bidder must provide a specific cost forecast for ongoing operations and maintenance ("O&M"). An O&M manual must be provided to EPE that details the maintenance schedule and cycle for the solar facility's components. EPE is also interested in receiving a proposal that includes ongoing O&M performed by Bidder or a third-party contractor under an O&M contract. Bidder should specify contract terms and operating cost guarantees for this option.

## **5.8 Interconnection Requirements**

A meeting will be scheduled with the selected Bidder to discuss the interconnection requirements and associated costs.

The facility must deliver capacity and energy by directly interconnecting to the EPE specified location.

For interconnection inquiries relating to this RFP, Bidder must pose questions via email or facsimile to EPE's point of contact:

Julie Bañuelos  
Contract Negotiator  
Fax: (915) 543-4073  
E-mail: julie.banuelos@epelectric.com

## 6.0 SUBMITTAL PREPARATION INSTRUCTIONS

### 6.1 General Information

a. Currency

Prices and dollar figures must be clearly stated in nominal United States Dollars.

b. Schedule

Proposal shall be submitted in strict accordance with the RFP schedule.

c. Extensions

EPE will not grant any extensions to the RFP schedule and will not accept a late proposal. Any proposal received after the Proposal Due Date will not be considered and the Bidder will be notified of its elimination.

d. Reservation of Rights

EPE reserves the right to accept or reject, at its sole discretion, any proposal for any reason at any time after submittal. EPE also reserves the right to select an offer that is not the lowest price, if EPE determines that to do so would result in the best value to EPE's customers.

e. Failure to Comply

Failure to comply with all requirements of this RFP may result in the rejection of the applicable proposal at EPE's sole discretion.

f. No Liability

Bidder that submits a proposal does so without legal recourse against EPE or its directors, management, employees, agents, contractors or independent monitor based on EPE's rejection of any proposal or for failure to execute any agreement in connection with this law or equity, for any reason whatsoever relating to EPE's acts or omissions arising out of or in connection with this RFP. EPE shall not be liable to Bidder or to any other party in law or equity, for any reason whatsoever relating to EPE's acts or omissions arising out of or in connection with this RFP. EPE further declares that it will incur no financial liability or obligation for Bidder's costs in preparing proposals.

g. Return of Documents

None of the materials received by EPE from Bidder in response to this RFP will be returned. Proposal and exhibits will become the property of EPE, subject to the provisions for confidentiality described in this document.

**6.2 Proposal Content**

The proposal must be prepared in accordance with the guidelines set forth in this section. Failure to follow the preparation instructions may result in the exclusion of the proposal from consideration. EPE reserves the right to conduct any further due diligence it considers necessary to fully understand and evaluate the proposal.

The proposal should be organized by section as described below. Each page of the proposal shall have the following information in top right corner.

- 2018 New Mexico Community Solar Project RFP
- Bidder Name

All of the following sections shall be completed or identified as “Not Applicable”.

A complete proposal will include a thorough written discussion about the project, assembled in the following format:

- Tab 1 - Executive Summary
- Tab 2 - Project Description and Technical Information
- Tab 3 - Project Costs
- Tab 4 - Experience and Qualifications
- Tab 5 - Distribution and Interconnection
- Tab 6 - Company Financial Information

**Tab 1 - Executive Summary**

The Executive Summary should provide an overall description of the proposal. The description should include details about the type of solar energy project being proposed and key benefits to EPE. At a minimum, the summary should specify the technology, size of project, first year energy output, project costs and an explanation of how and to what extent the Bidder intends to use local distributors/manufacturers, and contractors where possible to construct the solar generating facility.

## **Tab 2 – Project Description and Technical Information**

The proposal must include a thorough description of the project including, but not limited to, the following:

### **Project Description**

The proposal must provide a comprehensive description of the project, including project name, location, nameplate AC capacity rating, accredited capacity, in-service date, equipment and configuration, permitting, interconnection plan, milestones, meteorological studies/performance simulation data and any other pertinent information.

### **Equipment Description**

At a minimum, the proposal should indicate for all major equipment the: (1) manufacturer; (2) model name and number; (3) key metrics and characteristics of the equipment; (4) performance history of the equipment; (5) terms of product, workmanship, performance and any other warranties and/or guarantees; (6) contracting status; and, (7) availability of equipment and planned delivery dates. Bidder should highlight any smart inverter features that add operational and resilience value to the project.

The following technical information should be discussed in this section, as applicable for the project proposed.

- Major equipment manufacturers
- Description of technology and configuration
- Summary of the commercial operating experience of the equipment used or to be chosen
- Solar system layout and characteristics
- Electrical interconnection metering
- Level of efficiency
- AC capacity rating
- Communications, control and instrumentation
- Facility limitations that may constrain operation
- Hourly energy profile spreadsheet (Attachment 8.4)
- Proposed construction period
- Project Management
- Quality assurance plans
- Performance guarantees and warranties
- Start-up testing
- Factory and performance tests
- Design life loading (wind, seismic, etc.)
- Description of pre-operational milestones (i.e., construction financing, commencement, installation, testing and completion dates)

- Description of frequency and duration of scheduled maintenance of facility
- Any other information that could impact the cost, construction schedule or output capability of the project
- Annual degradation rate

### **Project Schedule**

The proposal must provide a detailed schedule of project development activities and target completion dates for financing, engineering, permitting, equipment procurement, construction, startup and commissioning. Bidder should also describe the overall development strategy and work plan that will ensure that the project can be developed in time to meet the proposed commercial operation date.

Bidder must provide a high-level project development and completion schedule along with key milestone dates for the submitted proposal.

### **Risk Management and Insurance Program**

Bidder shall provide a list of existing insurance contracts, listing policies by coverage, expiration date, insurer and limits per policy. Also, on a per coverage basis, provide current experience modifier and prior Loss History for the last three (3) years. Bidder shall also describe their Risk Management program if insurance coverage will derive from a parent company. Additional information may be requested based on information provided with the original proposal.

### **Operations and Maintenance (“O&M”) Plan**

Bidder shall describe the operations and maintenance plans or services for the generation facilities associated with their proposal. Discuss the current or expected O&M plan, including staffing, budget, management and control over any facility, authority over the O&M budget, and guarantees on O&M costs. Provide a description of the basic philosophy for performing O&M and include a discussion of contracting for outside services if applicable. Bidder is required to submit the cost of a three-year O&M service plan.

### **Permitting Status**

Proposal must describe all federal, state and local permits that will be required for the project and state whether any permits have been secured, and if not, whether applications have been filed. Proposal must report on the status of any pending applications and any feedback from permitting agencies and describe the expected time frame to obtain the necessary permits after application submittal to agencies.

### **Regulatory and Environmental Compliance**

Bidder is exclusively responsible for meeting all required federal, state and local permits, licenses, approvals and/or variances, current or future. Bidder is required to demonstrate that all required permits have been attained or provide a specific timeline for future permit approval.

Provide information on the following as applicable.

- Regulatory permits
- Environmental Clearance for sensitive resources (such as cultural, protected species, etc.)
- Other applicable permits

### **Tab 3 -Project Cost**

The proposal must clearly state the all-in turnkey installed project cost minus any interconnection costs. Bidder must provide a breakout of the costs such as modules, inverters, transformers, balance of plant, installation labor, engineering, credit support, etc. Bidder must offer project costs valid for at least two hundred forty (240) days following the proposal due date and during the time required for EPE to obtain NMPRC approval.

### **Tab 4 - Experience and Qualifications**

The capability and experience of Bidder must be demonstrated to provide assurance that the Bidder, and any other party involved in the proposal, has adequate competence, resources and skill. Each proposal must include the following information as a minimum.

- Description of technical experience, specifically with respect to solar energy facilities similar to those proposed and collaboration efforts with electric utilities, if any
- Description of operations and maintenance experience including megawatts monitored and maintained, years providing O&M services, experience with different types of panels and technologies and number of team members dedicated to O&M services
- Description of completed projects, total megawatts installed and customers with a specific identification of projects on which the Bidder has served as an EPC contractor or similar role.
- Years in business
- Description of financial backing
- Description of major components directly manufactured by bidder and those that will be procured from another company
- Description of licenses applicable at project location
- References for similar projects

## **Tab 5 – Transmission, Distribution and Interconnection**

EPE will identify the interconnection points.

## **Tab 6 – Financial Information**

The financial viability of any proposal must be demonstrated to provide assurance that the Bidder, and any other party involved in the proposal, has adequate financial capability. Each proposal must include the following information at a minimum:

- Most recent financial report for the Bidder and any other parties involved, or most recent copy of CPA audited (or Reviewed) income statement, balance sheet and cash flow statement
- Provide Annual reports for the three most recent fiscal years that include CPA audited (or Reviewed) financial statements or CPA audited (or Reviewed) consolidated income statement and balance sheet for the three most recent fiscal years
- Investment rating of Bidder or its parent company by Moody's and/or Standard & Poor's as applicable
- Description of any current credit issues raised by rating agencies, banks, or accounting firms
- Partnerships within the financial community
- Description of construction financing for the project, include any financing commitments and available lines of credit
- Megawatts of past financed projects
- Financial guarantees from affiliates or others, as appropriate
- Note: EPE may request points of contact for financing partners/institutions and manufacturers providing lines of credit, a list of all lawsuits, regulatory proceedings, or arbitration in which the Bidder or its affiliates or predecessors have been or are engaged in that could affect Bidder's performance of its bid. Identify the parties involved in such lawsuits, proceedings, or arbitration, and the final resolution or present status of such matters.

## **7.0 EVALUATION PROCESS**

EPE will assess the proposal, pursuant to the requirements of the RFP and the evaluation criteria developed by EPE. EPE will evaluate the bid based on all-in turnkey installed cost, overall cost per kWh and life cycle cost on a net present value basis, utilization of local inputs and other relevant factors. The assessment will consider economic and technical factors.

## **Proposal Review**

EPE will use both quantitative and qualitative criteria to evaluate the proposal. EPE will first determine if the proposal satisfies the threshold requirements summarized below. If at any time during the evaluation process, EPE determines that the proposal does not meet its requirements, including timely submission of all documents pursuant to this RFP, such proposal will no longer be considered for this RFP and EPE will notify the Bidder accordingly during its notification process.

Favorable proposal characteristics include:

- Solar Project – EPE seeks a project utilizing established solar energy technologies
- Low Cost – EPE seeks a proposal that will provide low-cost energy
- High Efficiency and Performance – the proposal should provide high efficiency and performance and will provide additional value to EPE
- Completeness and Responsiveness – The proposals must meet all criteria set forth in the RFP. A thorough explanation of all aspects of the proposal should be included. Detailed Project Engineering should be provided.
- Financial Viability and Creditworthiness – Success of the project relies on the financial capabilities of all parties involved; Bidder should have a proven financial track record and be able to provide documentation that demonstrates access to financial resources required to complete the project
- Experience – EPE seeks a proposal from Bidder that possess extensive engineering, construction, technical, operating and maintenance experience, and a history of successful projects of a similar nature
- Compliance with New Mexico and federal regulations

## **Threshold Evaluation**

### **Step 1 – Bid Eligibility Determination**

The proposal will be reviewed to determine if it meets the requirements outlined in this RFP.

The Company reserves the right to reject any proposal received for failure to meet any criteria set forth in this RFP.

- The proposal must be submitted on time and comply with the submission instructions.
- The corresponding application fee must be submitted as instructed

### **Step 2 – Initial Bid Screening Process**

The Company will calculate the levelized cost in U.S. Dollars per megawatt hour (“\$/MWh”) for each bid based on information provided in the proposal. Bidder is advised that total life cycle cost will be a major factor in EPE’s evaluation, but EPE may consider other qualitative and quantitative factors.

### **Step 3 – Due Diligence**

The Company will conduct due diligence as part of the overall bid evaluation process, including, but not limited to, consideration of the following proposal characteristics:

- Bidder or developer experience
- Financial strength/credit worthiness of the bidder
- Reasonableness of the generation profile proposed
- Financing plan
- Development, construction and operation experience
- Solar technology, availability, and warranties
- Risk Management, coverages, loss histories, description of program
- Environmental permitting and compliance
- Safety record
- QA/QC experience
- Project operational characteristics
- Supply-Chain risk
- Counterparty viability
- Transmission or distribution access plan feasibility and arrangements
- Transmission or distribution upgrades schedule assessment
- Construction and equipment supply plans and arrangements
- Operations & Maintenance Plan
- Project execution planning
- Bidders ability to complete multiple projects within the proposed schedule
- Environmental impact and profile
- Contract risk related to the development of the project
- Bidder’s performance on previous projects with the Company

#### **7.1 EPE’s Selection of Bid and Discussions with Bidder**

##### **a. Meetings**

EPE may conduct meetings to gain a greater understanding of the structure and components of each proposal. EPE may also require Bidder to submit project and/or Bidder-specific pro forma financial statements by year for the applicable facility development and construction period, including income statements, balance sheets and statements of cash flows. EPE will reevaluate any significant changes to the proposal based on new understanding of Bidder’s proposal as a result of the meetings. Such meetings will not occur until after EPE receives approval to move forward with a selection in NMPRC Case No. 18-00099-UT.

##### **b. Right to Terminate Negotiations**

If EPE cannot reach acceptable EPC agreement terms with Bidder EPE reserves the right to terminate negotiations with Bidder and begin a new solicitation or cancel this RFP. Furthermore, EPE at its sole discretion, reserves the right to not select any proposal for negotiation of an EPC agreement if warranted by its evaluation.

## Notice of Disclaimer

EPE has prepared the information provided in this RFP to assist interested persons and entities in making a decision whether to respond with a proposal. EPE reserves the right to modify, change, supplement or withdraw the RFP at its sole discretion. No part of this document or any other correspondence from EPE, its employees, officers or consultants shall be taken as legal, financial or other advice, nor as establishing a contract or any contractual obligations. All communication between Bidder and EPE shall be conducted in writing.

EPE makes no representations or warranties regarding the completeness of the information contained within the RFP and does not purport that this RFP contains all of the information needed for Bidder to determine whether to submit a proposal. Neither EPE nor its employees, officers or consultants will make, or will be deemed to have made, any current or future representation, promise or warranty, expressed or implied, as to the accuracy, reliability or completeness of the information contained within the RFP or any other information provided to Bidder.

Bidder who submits a proposal does so without legal recourse against EPE, or EPE's directors, management, employees, agents or contractors, due to EPE's rejection, in whole or in part, or their proposal or for failure to execute any agreement with EPE. EPE shall not be liable to any Bidder or to any other party, in law or equity, for any reason whatsoever related to EPE's acts or omissions arising out of, or in connection with, the RFP process.

EPE reserves the right to reject, for any reason, any and/or all proposals. EPE further reserves the right to waive any irregularity or technicality in proposals received, or to consider alternatives outside of this solicitation, at its sole discretion, to satisfy its capacity and energy needs. In addition, EPE reserves the right, at its sole discretion, to modify or waive any of the criteria contained herein and/or the process described herein.

No Bidder will have any claim whatsoever against EPE, its employees, officers, or consultants arising from, in connection with, or in any way relating to this RFP. Without limiting the generality of the foregoing, each Bidder agrees, by and through its submission of a proposal, that rejection of a proposal will be without liability on the part of EPE, its employees, officers or consultants, nor shall a Bidder seek recourse of any kind against any of the foregoing on account of such rejection. The filing of a proposal shall constitute an agreement of the Bidder to each and all of these conditions. Each Bidder and recipient of this RFP is responsible for all costs incurred in evaluating, preparing and responding to this RFP. Any other costs incurred by any Bidder during negotiations are also the responsibility of the Bidder.

## 8.0 ATTACHMENTS

**8.1 Project Data** (provide a detailed description of the solar project)

## 8.2 NEW MEXICO COMMUNITY SOLAR Project Site

### LAND

A tract of land situated south of the corporate limits of the city of Las Cruces, Dona Ana County, New Mexico, being Lots 5, 6 and 7, Block 7, Elephant Butte Land and Trust Company Subdivision "B", as shown and designated on the plat thereof filed August 4, 1911, in Book 4 Page 24 of Plat Records and being more particularly described as follows, to wit:

Beginning at an iron rod set for the northwest corner of this tract being the identical same northwest corner of Lot 7, Block 7, of the above described subdivision, whence a brass cap monument at New Mexico Highway Station 191+00.00 set in a concrete monument on the east line of Las Alturas Drive bears the following four courses and distances:

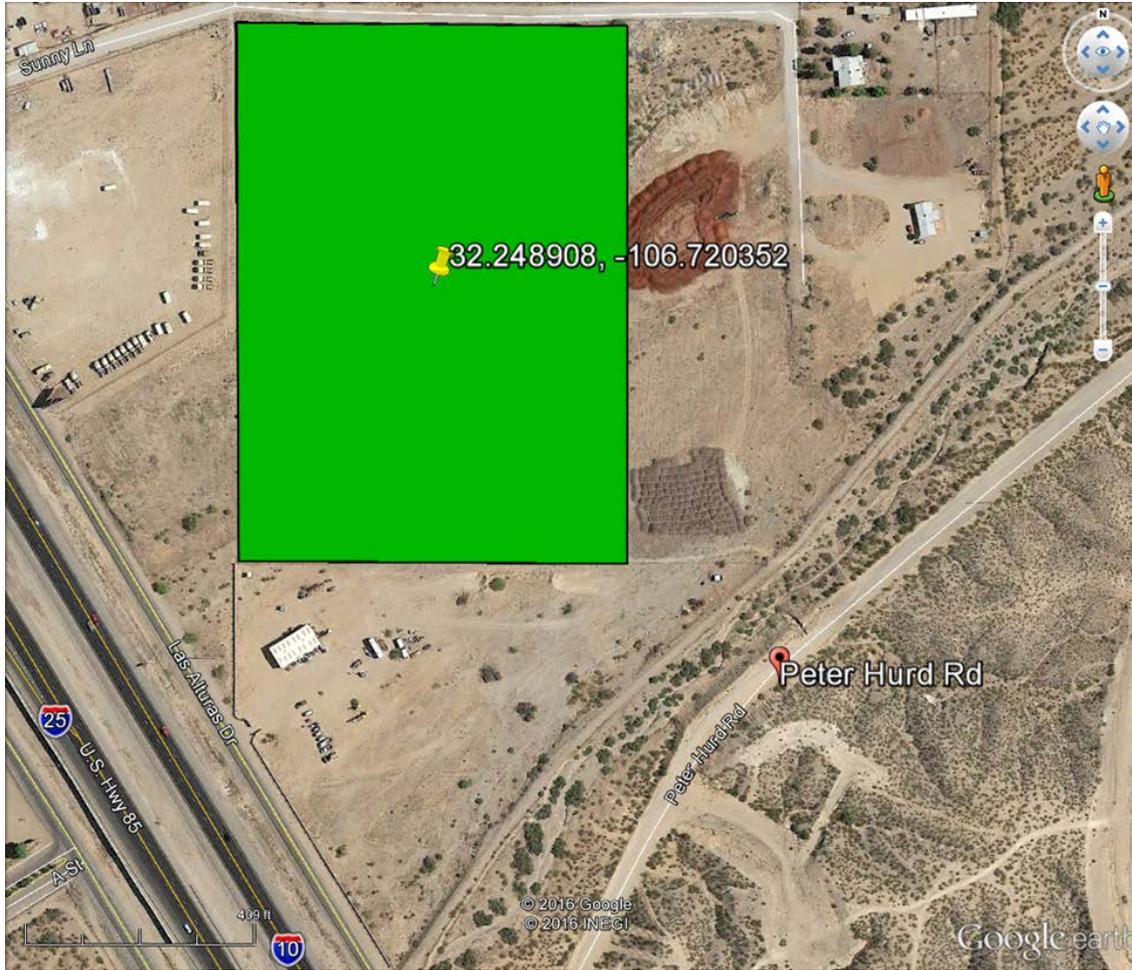
S.75°03'08"W., a distance of 20.72 feet to a road intersection;  
 Thence S.72°03'16"W., a distance of 634.92 feet to the northwest corner of an 8.582 acre tract;  
 Thence S.31°26'02"E., a distance of 57.36 feet;  
 Thence S.58°48'33"W., a distance of 16.01 feet;

Thence from the point of beginning, along the north line of a 50 foot wide road and utility easement, being identical to the north line of said Lot 7, N.89°59'25"E., a distance of 659.96 feet to an iron rod set for the northeast corner of this tract;

Thence S.00°08'44"W., a distance of 980.02 feet to an iron rod found for the southeast corner of this tract being the identical same southeast corner of Lot 5, Block 7, of said subdivision;

Thence along the south line of Lot 5, N.89°56'11"W., a distance of 660.06 feet to an iron rod set for the southwest corner of said Lot 5 being the same southwest corner of this tract;

Thence along the east line of a 20 foot wide platted road easement N.00°09'06"E., a distance of 979.18 feet to the point of beginning containing 14.843 acres of land, more or less.



### **8.3 Solar PV Project Requirements and Technical Specifications**

#### **8.3.1 General:**

- 8.3.1.1 System designed per latest NEC and referenced sections adopted in the state where the site is located.
- 8.3.1.2 Prior to equipment procurement and construction activities, Contractor shall submit to Owner the project drawings and design documents for approval. The design shall comply with state and local codes and have a 30-year system design life.
- 8.3.1.3 System must be ground mounted.
- 8.3.1.4 Facility DC capacity is defined as the sum of the DC nameplate capacities of the solar modules under Standard Test Conditions.
- 8.3.1.5 Facility AC capacity is defined as the sum of the nameplate AC capacities of the inverters.
- 8.3.1.6 Installation of all system components will be carried out in accordance with manufacturer warranty and recommendations as well as to the requirements listed in this document. All systems and components installed must be compatible.
- 8.3.1.7 Certified stamped electrical, mechanical, and civil drawings must be provided by professional engineer(s) who are licensed in the state where the site is located.

#### **8.3.2 Equipment:**

- 8.3.2.1 Contractor shall provide all required equipment, materials, and services for the successful completion of the project.

#### **8.3.3 Solar PV Modules:**

- 8.3.3.1 PV modules compliant with UL1703.
- 8.3.3.2 Crystalline modules IEC 61215 certified.
- 8.3.3.3 Thin film modules IEC 61646 certified.
- 8.3.3.4 Latching or locking type connectors compliant with UL8703.
- 8.3.3.5 Manufacturer ISO9001 and ISO14001 certified.
- 8.3.3.6 Acceptable vendors are the following:

- 8.3.3.6.1 Canadian Solar

- 8.3.3.6.2 First Solar
- 8.3.3.6.3 Hanwha
- 8.3.3.6.4 JA Solar
- 8.3.3.6.5 Jinko Solar
- 8.3.3.6.6 Kyocera
- 8.3.3.6.7 LG
- 8.3.3.6.8 Panasonic
- 8.3.3.6.9 REC Solar
- 8.3.3.6.10 Renesota
- 8.3.3.6.11 SolarWorld
- 8.3.3.6.12 SunPower
- 8.3.3.6.13 Trina
- 8.3.3.6.14 Yingli
- 8.3.3.6.15 Other equivalent

#### 8.3.4 Tracking Systems:

- 8.3.4.1 The tracking system shall include the racking structure, mounting hardware, drive motors, controller system, and weather stations equipped with wind speed and irradiance sensors at minimum.
- 8.3.4.2 Tracking systems must be compliant with UL3703.
- 8.3.4.3 Racking structure, mounting hardware, grounding/bonding components and clamping and retention must be compliant with UL2703. EPC Contractor shall supply and manage the installation of the mounting system for the solar modules sufficient to support all solar modules and meet all applicable licensing and Permit requirements. The system shall be composed of galvanized steel or aluminum. The racking manufacturer will supply a minimal 10 year warranty for the installed structure and the racking design will be certified by the racking manufacturer. The tracking system should have a 30-year design lifetime.

8.3.4.4 The tracking system must have the “stow” feature to meet wind loads design requirements. A backup energy source shall be installed for the trackers to stow during excess winds and grid power outage.

8.3.4.5 Tracking system vendor shall have installed a minimum of 50 MW of capacity in utility-scale projects. Acceptable tracking system vendors are the following:

8.3.4.5.1 Arctech Solar

8.3.4.5.2 Array Technologies

8.3.4.5.3 NexTracker

8.3.4.5.4 Soltec

8.3.4.5.5 SunPower

### 8.3.5 Combiner Boxes:

8.3.5.1 Combiner boxes shall be rated for maximum system voltage and maximum system continuous and short-circuit currents.

8.3.5.2 Combiner boxes must comply with the latest NEC adopted in the state the site is located.

8.3.5.3 Enclosures shall be NEMA 4 rated and have integral key lock or provisions for padlocking.

8.3.5.4 DC inputs shall be fused and fuses shall have a blown fuse indication.

8.3.5.5 Combiner box output shall have a means to be externally disconnected.

8.3.5.6 If the combiner box has a lightning protection device, the device should include a visual trip indicator.

### 8.3.6 Inverters:

8.3.6.1 Inverters shall be utility grade, be specifically designed for PV installations, and meet the following minimum standards.

- 8.3.6.2 UL1741 – Standard for Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed Energy Resources.
- 8.3.6.3 IEEE 929-2000 Recommended Practice for Utility Interface of Photovoltaic Systems.
- 8.3.6.4 IEEE 1547-2003 – IEEE Standard for Interconnecting Distributed Resources with Electric Power Systems.
- 8.3.6.5 Inverters shall have voltage and frequency ride-through functionalities, as well as be capable of actively regulating voltage levels by adjusting active and reactive power.
- 8.3.6.6 Have a maximum harmonic distortion of less than 3% of the total harmonic distortion at rated power output.
- 8.3.6.7 Have an efficiency greater than 97.5% without MV step-up transformer.
- 8.3.6.8 Be capable of reaching rated output at 50 degrees Celsius or higher.
- 8.3.6.9 Have a 30-year design life and carry a minimum 5-year standard warranty with options of at least 20-year extended warranty.
- 8.3.6.10 Inverters shall be equipped with data collection and communications to SCADA.
- 8.3.6.11 Inverter blocks shall be configured in identical MW increments, if possible.
- 8.3.6.12 Skid mounted solutions containing inverters, step-up transformers, and other power conditioning equipment and systems are preferred.
- 8.3.6.13 Inverter vendor shall be certified to ISO 9001 and ISO 14001 standards and have supplied a minimum of 50 MW capacity in utility-scale projects.
- 8.3.6.14 Acceptable inverter vendors are the following:
  - 8.3.6.14.1 ABB
  - 8.3.6.14.2 Advanced Energy
  - 8.3.6.14.3 Eaton

8.3.6.14.4 General Electric

8.3.6.14.5 Schneider Electric

8.3.6.14.6 SMA

8.3.7 Transformers:

8.3.7.1 Step-up transformers must comply with **EPE specification G&I 088-010 to 088-400** except for any variances noted in this section

8.3.7.2 Interconnecting transformers shall step-up inverter output voltage to the Site nominal voltage.

8.3.7.3 The end of the transformer(s) series connection shall have surge arrestors on the high voltage side with a voltage rating suitable for the application.

8.3.7.4 Transformers shall meet C57.12.34 - IEEE Standard Requirements for Pad-Mounted, Compartmental-Type, Self-Cooled, Three-Phase Distribution Transformers.

8.3.7.5 Transformer warranty to be provided by Contractor once the transformer is selected, which shall be from El Paso Electric Co.'s list of approved transformers:

8.3.7.5.1.1 ABB

8.3.7.5.1.2 EATON - Cooper

8.3.7.5.1.3 ERMCO

8.3.7.5.1.4 Howard

8.3.7.6 Step-up transformer(s) configuration shall be: Primary wye-grounded, secondary delta.

8.3.7.7 Transformer(s) shall comply with the 2016 DOE standard efficiency or latest.

8.3.7.8 Transformer(s) color shall be Munsell 7GY3.29/1.5 pad-mount green.

8.3.7.9 Transformer(s) shall accommodate a padlock on top of the required pentahead security bolts.

- 8.3.7.10 Transformer(s) shall be compatible with EPE transformer pad (Pad B).
- 8.3.7.11 The high side bushings shall comply with IEEE C57.1234 Figure 16 (loop configuration).
- 8.3.7.12 The low-voltage terminal location and arrangement shall conform to Figure 8(a) of IEEE C57.12.34.
- 8.3.7.13 The transformer shall be supplied with a sticker stating the nature of the coolant.
- 8.3.7.14 Required warning stickers are shown in Figure 2 on page 14 of **EPE Specification G&I 088-010 to 088-400**.
- 8.3.7.15 The primary voltage, secondary voltage, and kVA rating shall be located on the outside of the transformer. These stenciled numbers shall be 1 ¾" in height. See page 14 of **EPE Specification G&I 088-010 to 088-400**.
- 8.3.7.16 The transformer shall include two nameplates (one inside, and one outside) with the following information: KVA, primary voltage, secondary voltage, serial number, date of manufacture, Impedance, X/R ratio, gallons of oil, weight, and shall state that the transformer oil contains less than 1 ppm PCB.
- 8.3.7.17 The transformer shall include the approved Non-PCB sticker. See section 7.8 on page 5 and figure 1A on page 14 of **EPE Specification G&I 088-010 to 088-400**.
- 8.3.7.18 A ground lug should be included in the ground provision on the high-voltage side of the tank.
- 8.3.7.19 The low voltage terminals shall be suitable for the application of bushing mounted current transformers. The transformer secondary compartment shall contain studs, to be used for mounting current transformers.
- 8.3.7.20 EPE minimum clearances shall be met regarding the LV and HV bushing distance with respect to the HV-LV barrier and the cabinet wall. Refer to Figure 3 in **EPE Specification G&I 088-010 to 088-400**.
- 8.3.7.21 EPE has a preference for non-load break 200 A bushings.
- 8.3.7.22 Tap changer shall be rated for operation under load.

8.3.7.23 Secondary terminations: 12-hole spades.

8.3.7.24 Only the last step-up (MV) transformer (going downstream) will be equipped with surge arrestors.

8.3.7.25 Envirotemp FR3 and Mineral Oil are both accepted.

8.3.7.26 S Taps – two 2.5% taps below nominal and two above nominal.

### 8.3.8 Metering:

8.3.8.1 EPE is responsible for providing metering equipment. The metering equipment is to be contained in a separate enclosure upstream of the switchgear enclosure. Metering equipment includes CTs, PTs, PQ and revenue meter.

### 8.3.9 Communications and Data Acquisition System:

8.3.9.1 Contractor shall design and specify all communications hardware and software required for system protection and remote monitoring and control.

8.3.9.2 The design shall include utility grade metering and monitoring provisions equipped with weather station(s) including remote “real time” monitoring of system performance and data collection over the internet via the Data Acquisition System (“DAS”).

8.3.9.3 The monitoring system shall provide real time energy generation data, historical data and meteorological data. The contractor shall provide meteorological station(s) that will provide real time weather data.

8.3.9.4 The data shall be collected at hardwired locations and transmitted wirelessly via a cellular modem to be provided and installed by the Contractor.

8.3.9.5 The monitoring system(s) shall include a web-based interface available for Owner to access remotely. The interface shall display site status and equipment status e.g. inverters, trackers. It shall also display alarms and send automatic e-mail notifications in cases of emergency i.e. system outages.

8.3.9.6 The Contractor shall test the installed communications systems to demonstrate its ability to meet the requirements. Testing shall be conducted when the final system connections have been made.

8.3.10 Switchgear (up to 5 MW):

- 8.3.10.1 600-amp continuous and loadbreak.
- 8.3.10.2 12.5kA sym. maximum interrupting rating.
- 8.3.10.3 1000:1 internally mounted current transformers used for over current protection.
- 8.3.10.4 600-amp Deadbreak Apparatus Bushings per IEEE 386 figure 11.
- 8.3.10.5 600-amp Deadbreak interface to IEEE 386 200-amp (bushing extender combo).
- 8.3.10.6 Front Access to switch operators and bushings on front and back
- 8.3.10.7 Welded stainless steel mechanism cover painted light gray (ANSI 70).
- 8.3.10.8 Galvanized steel frame.
- 8.3.10.9 Parking stands for all bushings.
- 8.3.10.10 12-gauge galvanized steel padmount enclosure with 24" cable compartment. Meets ANSI C37.72 & C57.12.28 standards.
- 8.3.10.11 Enclosure painted Padmount Guardian Green, Munsell #7.0GY3.29/1.5.
- 8.3.10.12 36" minimum bushing height.
- 8.3.10.13 ½"-13 NC grounding provisions.
- 8.3.10.14 Padlockable operating mechanism.
- 8.3.10.15 Green/ OPEN - Red/ CLOSED labeling.
- 8.3.10.16 12-gauge galvanized steel low voltage enclosure.
- 8.3.10.17 The switch must fit EPE approved concrete pad.
- 8.3.10.18 Switch equipped with quantity one auxiliary Form C contacts wired to the control cabinet for use by the control.
- 8.3.10.19 NEMA 4X control cabinet, including: SEL751 feeder protection relay (751402BCBCBOX810621) to provide three phase overcurrent protection(50/51), under voltage protection(27), over voltage protection (59), frequency protection (81U, 81O),

directional power, IEC cable/line thermal, vector shift, sensitive earth fault (SEF), and load encroachment elements; Provisions for mounting CISCO 2520 connected grid switch of dimensions 1.75 “H X 17.50 “W X 14.00 “D; 24 V DC Provisions for powering the CISCO 2520 connected grid switch; (2), Two-strain reliefs and necessary accessories for installing fiber based on diameter of fiber to be used.

8.3.10.20 Stationary motor control using SEL751 relay, the control shall be equipped with 120 VAC Power supply, PWR-IE170W-PC-AC and 55 AH batteries used for battery backup; the motor control shall have remote operation capability.

8.3.10.21 Applicable Industry Standards: Load Break Switch Ratings, IEEE C37.74; Fault Interrupter Ratings, IEEE C37.60; Bushings: IEEE 386; Padmount Enclosure: IEEE C57.12.28.

8.3.10.22 Solar Switch Termination must conform with **EPE Distribution Standard DSU-554.**

8.3.10.23 Switchgear Vault to be constructed in conformance with **EPE Distribution Standards UD300 and DSU 1235.**

8.3.10.24 Approved switchgear vendors:

8.3.10.24.1 G&W Electric

8.3.10.24.2 S&C Electric

8.3.10.24.3 Elastimold

8.3.11 Communication Field Switches:

8.3.11.1 Switch: CISCO IE-2000-16PTC-G-E

8.3.11.2 Software: (Lan Base License)

8.3.11.3 Power Supplies: 2 x PWR-IE170W-PC-DC=

8.3.11.4 Optics: SFP-GE-L=1000BASE-LX/LH

8.3.12 SCADA Points:

8.3.12.1 Any Breaker Status (Open/Closed).

8.3.12.2 Any MOD Status that would be used for isolation (Open/Closed)

- 8.3.12.3 All applicable alarms for the GSU and breaker(s)
- 8.3.12.4 Both Net and Station Service Analogs (MW, MVA, and MVAR)
- 8.3.12.5 Phase Currents and Voltage
- 8.3.12.6 Accumulators – for both Net and Station Service
  - 8.3.12.6.1 MWh-In
  - 8.3.12.6.2 MWh-Out
  - 8.3.12.6.3 MVARH-In
  - 8.3.12.6.4 MVARH-Out
- 8.3.12.7 Weather Station Signals
  - 8.3.12.7.1 Ambient Temp
  - 8.3.12.7.2 Solar Irradiance
  - 8.3.12.7.3 Back Panel Temp
  - 8.3.12.7.4 Wind Speed
  - 8.3.12.7.5 Wind Direction
  - 8.3.12.7.6 Humidity
- 8.3.12.8 Tracker Data Points
  - 8.3.12.8.1 Tilt Angle
  - 8.3.12.8.2 Tracker Status
- 8.3.12.9 Transformer
  - 8.3.12.9.1 Status Indicators
  - 8.3.12.9.2 Oil temperature
- 8.3.12.10 Two isolated networks will provide site data access
  - 8.3.12.10.1 Monitoring entity to have direct access to weather station, transformer, and tracker data; transferred to EPE via DNP3

8.3.12.10.2 Inverter and meter data to be provided to monitoring entity via Modbus after being collected through an EPE secure data connection to site

8.3.12.11 UPS powering SCADA server and weather station required

8.3.13 Conduit:

8.3.13.1 Above ground conduit, in places where conduit could be subject to physical damage, the conduit shall be PVC schedule 80. Underground conduits are to be schedule 40 PVC with PVC sweeps direct buried rated or concrete encased rated. Underground conduits may be direct buried in areas that do not require concrete encased duct banks for structural considerations.

8.3.13.2 All metal conduit must be hot dipped galvanized.

8.3.13.3 In no case shall conduit design be less than that called for by NEC 2014 or latest adopted in the state where the site is located.

8.3.13.4 EMT shall be manufactured to UL797 and ANSI C80.3.

8.3.13.5 Module-to-module interconnection wiring within a string and string home-run wiring to combiner boxes shall be neatly bundled and routed below modules such that it is protected from damage and decay. Exposed DC wire shall be compliant with UL4703.

8.3.13.6 For Power Cable Conduit up to 25kV refer to **EPE Distribution Standard DSU 1645 Duct Sizes For Use On Underground Cable Runs.**

8.3.14 Wire & Conductors:

8.3.14.1 Underground Power Cable for operation at 60Hz three phase in solidly grounded wye systems rated up to 25kV phase to phase must conform with EPE specification **GI013-306 to 013-313.**

8.3.14.2 Both DC Side and AC side underground conductors must be in conduit.

8.3.14.3 All conductors must be aluminum or copper rated XHHW-2 or greater as required.

- 8.3.14.4 Single conductor wire and cable shall be rated 600 V or 1000 V, 90°C for XLP and 90°C or 105°C for EPR insulation. Single conductor 600 V or 1000 V tray cable greater than #1/0 AWG shall have EPR insulation with a PVC, CPE or CSPE cable jacket. Non-jacketed FREP insulation with appropriate UL flame test may also be used for large single conductor cables.
  - 8.3.14.5 Single pair instrument cable shall be rated 600 V or 1000 V, XLP or PVC insulation, twisted shielded pairs with drain wires and a PVC, CPE or CSPE cable jacket.
  - 8.3.14.6 Multi-pair instrument cable shall be rated 600 V or 1000V, XLP or PVC insulation, twisted shielded pairs with drain wires, overall shield, and a PVC, CPE or CSPE cable jacket.
  - 8.3.14.7 Wiring runs between major items of equipment and system modes (i.e., a string, combiner boxes, disconnects, inverters, utility interconnection, and energy monitoring system (EMS) devices shall be continuous, unless unavoidable. Pull boxes shall be used for long runs as per conductor technical specification.
  - 8.3.14.8 When in conduit, conductors shall be USE-2 or THWN-2 (Thermoplastic Heat and Water Resistant Nylon Coated wire is permitted) or of a higher standard.
  - 8.3.14.9 All conductors shall be sized per the most current NEC code.
  - 8.3.14.10 Conductors used for data communication will be a stranded copper #18-22 twisted pair shielded wire (Belden 1120A or approved equivalent).
  - 8.3.14.11 Plastic zip ties used for exposed wire management must be UV stabilized.
- 8.3.15 Fuses:
- 8.3.15.1 Fuses for disconnects to be current limiting UL class J, RK1 or RK5 and of the appropriate voltage, delay or non-delay characteristic, and current rating to provide complete short circuit and overload protection per NEC sections regarding component selection.
  - 8.3.15.2 Fuses located in the combiner boxes protecting PV string branch circuits shall be UL listed, DC voltage rated based on branch circuit voltage, be in “finger-safe” type fuse holders providing load break disconnect capabilities when changing fuses. Midget

fuses and fuse holders used in these circuits must be fully DC rated and adequate DC short circuit withstands and let-through capability must be provided for all power situations including “back-fed” conditions.

8.3.16 Enclosures:

- 8.3.16.1 Indoor enclosures shall be NEMA 3R or better.
- 8.3.16.2 Outdoor enclosures shall be rated NEMA 3R or better. A NEMA 4 rating is required for enclosures housing control equipment, fused DC combiners, data acquisition components, monitoring equipment, switchgear, and any sensitive equipment associated with the inverters.
- 8.3.16.3 Enclosures containing monitoring equipment such as dataloggers, meters, and network communications shall be located indoors if at all possible.
- 8.3.16.4 Switchgear, motor controls, inverters, battery and charger systems, DC and AC distribution panels shall be pad mounted and fenced.

8.3.17 Nameplates:

- 8.3.17.1 Engraved phenolic nameplates are required for all equipment, panels and enclosures. Proposed nameplates must be submitted for approval prior to installation and shall match drawing naming convention.
- 8.3.17.2 Signs shall be weather-proof, corrosion-proof, UV-stabilized and fade-resistant. Signs shall be attached using non-corrosive materials throughout. Any degrading signage, or failing attachment mechanisms, will be subject to warranty replacement.
- 8.3.17.3 Signs must be installed at appropriate locations warning that the Project is operational and that there are potentially multiple onsite power sources.
- 8.3.17.4 DC power circuits shall be identified on switches and individual module strings shall be identified in DC combiner boxes. Positive DC circuit wire should be color coded red and negative DC circuit wire should be color coded black.

8.3.17.5 Signage shall include that called out in NEC 2014 article 690 unless overridden by applicable local law or authorities having jurisdiction.

8.3.17.6 EPC Contractors or Subcontractor's brand or contact information is allowed only on temporary construction signage, or on equipment or components of the Project manufactured by Contractor, Subcontractor or its affiliates.

8.3.18 Fencing:

8.3.18.1 Contractor shall provide a permanent fencing structure around the perimeter of the project. The fencing shall include a 7-foot high chain link fence with a 1-foot top guard of three strands of nine-gage barbed wire.

8.3.18.2 The perimeter fence shall include two locked gates: one with a width of 20 feet for vehicles and one pedestrian entrance with a width of 4 feet. Fencing shall meet state and local codes.

8.3.18.3 Signage shall be installed along the fence every 65 feet and on all gates. Signage shall be installed five feet above ground level.

8.3.19 System Commissioning:

8.3.19.1 Commissioning tests, documentation, and inspection should comply with IEC 62446 at a minimum.

8.3.19.2 The system performance report shall include a PVSyst report, an 8760 output in Excel format, and a capacity test model based on ASTM E2848-13 (or later) Standard Test Method for Reporting Photovoltaic Non-Concentrator System Performance.

8.3.19.3 Once mechanical and electrical completion is achieved, and the system is energized and interconnected to Owner's grid, Contractor may start with test energy production (with Owner's consent). Once the system achieves rated capacity and all communications systems are complete, the 5-day capacity test may begin. The system must pass the capacity test to be commissioned and begin commercial operation.

**8.4 Energy Profile Spreadsheet (Editable Electronic Excel File to be provided to Bidders)**