



**Boulder County Purchasing
1325 Pearl Street
Boulder, CO 80302**

SUBMISSION INSTRUCTIONS

Reference Number: RFP-017-23

Project Name: Southeast Community Hub Solar PV System

Background:

Boulder County is soliciting proposals from a qualified contractor to design, fabricate, deliver, install, and maintain a rooftop utility-interactive solar photovoltaic system that shall produce a minimum of 100 kW. Larger capacity systems that produce more than the minimum are an alternative and will be evaluated but the proposed system shall not produce more than 150 kW.

List of Abbreviations and Acronyms

AC	alternate current
A/E	architects/engineers
ANSI	American National Standards Institute
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
CDs	compact disks
CM	construction management
CSI	Construction Specifications Institute
DC	direct current
EPA	Environmental Protection Agency
ETL	ETL Testing Laboratories
FM	Factory Manual
IEC	International Electrotechnical Commission

IEEE	Institute of Electrical and Electronics Engineers
kWh	kilowatt-hour
kW	kilowatt
kV	Kilovolts
LED	light emitting diode
MDP	main distribution panel
MPPT	maximum power point tracking
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NRCA	National Roofing Contractors Association
POA	plane of array
POI	point of interconnection
PV	photovoltaic
QCP	Quality Control Plan
RECs	renewable energy certificates
SB1	California Senate Bill 1
STC	standard test conditions
TRECs	tradable renewable energy certificates
UL	Underwriters Laboratories
WREGIS	Western Renewable Energy Generation Information System
V	volts

1. PROJECT IDENTIFICATION

1.1. Project: Roof Mounted, Grid Tied PV System

1.2. Location: 1755 South Public Road, Lafayette, CO 80026

2. BACKGROUND

2.1. Objective. Contractor shall provide a total “turnkey” project including all necessary equipment, materials, design, manufacturing, and installation services for the installation of a roof mounted utility-interactive photovoltaic system that shall produce a minimum of 100 kW. Larger capacity systems that produce more than the minimum are an alternative and will be evaluated but the proposed system shall not produce more than 150 kW. The contractor should prepare system summary detailing applicable equipment/size and predicted system energy production. This project shall meet all requirements of this Statement of Work and other specifications included that apply.

2.2. Scope. The contractor shall perform all professional services as necessary to provide Boulder County with a complete design package including the requirements outlined in this Statement of Work. The contractor shall install the project such that it is operational and compliant with all applicable standards, building codes, UTILITY interconnection requirements, and STATE requirements. The contractor shall include specifications, calculations, and drawings in the design package, and turn it over to Boulder County. After approval by Boulder County of the final design package, the contractor shall provide all necessary construction to successfully complete the photovoltaic system installation. The awarded contractor shall research all applicable solar PV incentives, including but not limited to Colorado State program incentives, utility program incentives, and Federal tax credits. In addition, awarded contractor shall provide supporting documentation and apply on behalf of Boulder County for applicable incentives. Boulder County Building Services (BCBS) has staff electricians that will provide conduit/raceway from roof locations to electrical rooms as well as installing cabling to electrical panels and switchgear. Cabling sizes will be determined by the contractor.

2.2.1. Design Guidelines for Roof Mounted PV System.

Design Guidelines for Rooftop PV. Contractor shall develop a design for a new photovoltaic system at Boulder County SE Community Hub located at 1755 S. Public Road, Lafayette. See attached drawings indicating available areas for installation and existing roof structure plans.

NOTE: There are two sets of structural plans. The original construction set, and the new construction set which shows reinforcing installed for new rooftop equipment. Overall building loading should be per the original construction set.

- Mounting system shall limit roof penetrations and shall be either building integrated roof PV or fully ballasted. Mounting system design needs to meet applicable local building code requirements with respect to snow, wind, and earthquake factors.

- Conduit penetrations shall be minimized.
- System layout shall meet local fire department, code, and ordinance requirements for roof access.

2.2.2. Performance Criteria. The following performance criteria shall be met for all arrays:

- The STC-rated power value will be entered into PVWatts (<http://pvwatts.nrel.gov/>) using the nearest weather file to determine estimated energy delivery in kWh AC. A default value for the system losses of 14% shall be used.
- PV array shall mean one or more PV modules having that same orientation and on the same maximum power point tracking (MPPT) system. Every array with differing orientation shall have a separate MPPT system.
- All PV hardware components shall be either stainless steel or aluminum. PV structural components shall be corrosion resistant (galvanized steel, stainless steel, composites, or aluminum).
- The project, including supports and power conductors, shall not interfere with roof drains, water drainage, expansion joints, air intakes, existing electrical and mechanical equipment, existing antennas, life safety fixtures, egress paths, and planned areas for future installation of equipment shown on drawings.

2.2.3. Production Metering. The project shall have:

- At least one production meter at POI.

2.3. Technical Requirements and Reference Materials

2.3.1. Code Compliance. Installation and equipment shall comply with applicable building, mechanical, fire, seismic, structural, and electrical codes. Only products that are listed, tested, identified, or labeled by UL, FM, ETL, or another Nationally Recognized Testing Laboratory shall be used as components in the project. Non-listed products are only permitted for use as project components when a comparable useable listed component does not exist. Non-listed products proposed for use as components must be identified as such in all submittals.

The contractor shall use project components that are or are made of materials that are recyclable, contain recycled materials, and that are EPA or Energy Star rated if they are available on the market.

- FM Approved – Fire Protection Tests for Solar Component Products
- IEC 62446 Grid Connected Photovoltaic Systems- Minimum Requirements for System Documentation, Commissioning Tests, and Inspections

2.4. Roles and Responsibilities.

2.4.1. Contractor. The contractor is required to provide:

- Design concepts
- Construction documents and engineering calculations that are signed and sealed by a licensed architect or engineer.
- Submittals for materials and products
- Construction materials, equipment, and labor (raceway, cabling and final electrical connections by BCBS).
- Design and construction supervision / contract management
- Permitting
- Inspections and tests
- Manuals (design calculations, operation/maintenance, shop drawing, etc.)
- Commissioning of project
- Training building operating staff for operation and maintenance.
- Operation and Maintenance during first year and optional service plan after the first year

3. PROPOSAL CONCEPT DRAWINGS AND SPECIFICATIONS SUBMISSIONS

3.1. Concept Drawings. The successful contractor shall provide Boulder County with concept drawings with the proposal. The drawings must indicate the proposed location of the PV array(s) and access points along with a one-line electrical diagram showing inverters, transformers, meters, and interconnection locations. All drawings shall be submitted with dimensions shown in English units.

3.2. Concept Information. The proposal shall include major equipment information, proposed installation/interconnection information, applicable incentive information, and performance characteristics of the system. Identify an appropriate location for the solar PV inverter equipment and its related components and environmental control systems that will meet the following criteria:

- Ease of maintenance and monitoring
- Efficient operation
- Low operating losses
- Secured location and hardware

- Compatibility with existing facilities
- Visual harmony

At a minimum, the proposed concept information shall include:

Equipment Information:

- System description
- Layout of installation
- Selection of key equipment and layout of equipment
- Performance of equipment components, and subsystems
- Specifications for equipment procurement and installation
- All engineering associated with structural and mounting details
- Controls, monitors, and instrumentation
- Operation and maintenance service plan

Installation Interconnection Information:

- Solar electric array orientation (degrees)
- Solar electric module tilt (degrees)
- Electrical grid interconnection requirements
- Integration of solar PV system with other power sources
- System type and mode of operation (utility interactive)

Performance Characteristics

- Shading calculation documentation
- Total system output
- Estimated kWh/month per array (shown over a 12-month period)
- Warranties and guarantees.

Applicable Incentives

- Identify all applicable incentives.
- Project shall be designed and constructed to comply with requirements of all other benefits programs for which it might qualify such as accreditation for RECs, green tags, and tradable renewable energy certificates (TREC).

Interconnection Agreement

- Provide confirmation that the PV systems will be designed to comply with applicable UTILITY interconnection requirements.
 - The contractor shall coordinate with UTILITY to ensure that the project satisfies all UTILITY criteria for interconnection of the project to the UTILITY electric distribution system. This includes coordinating all negotiations, meeting with UTILITY, design reviews, and participating in any needed interaction between UTILITY and Boulder County.
 - The contractor is responsible for preparing required submissions for obtaining the Net Energy Metering (NEM) and interconnection agreement from the utility. Boulder County will sign the NEM and interconnection agreements, not the contractor.

Cost

- Total bid price of project including operation and maintenance for the first year, and optional service plan after the first year.

Instructions:

Boulder County uses a Bonfire portal <https://bouldercounty.bonfirehub.com/> for accepting and evaluating proposals digitally:

- To post the Proposal
- To receive any questions or inquiries
- To issue any associated addenda
- To post award notices

Proposals must be submitted electronically on or before the Close Date at <https://bouldercounty.bonfirehub.com/>. **Submissions will not be accepted by email, fax or hand-delivery; unless otherwise noted.**

Documents should not be embedded within uploaded files, as the embedded files will not be accessible or evaluated.

Contact:

To contact Boulder County Purchasing or ask questions in relation to this proposal, respondents must register on <https://bouldercounty.bonfirehub.com/> and initiate the communication electronically through the **Vendor Discussions** or the **Ask a Question** feature.

All questions must be received on or before the Deadline for Submission of Clarifications, as specified in the Schedule of Events. Boulder County will not accept any respondent's communications by any other means, except as specifically stated in this proposal.

Addendum:

At any time prior to the Close Date, Boulder County may alter, clarify, amend, delete or add to, in whole or in part, any terms or provisions of this proposal.

In order to afford the Bidders a reasonable time for taking into account a material amendment (the materiality of which Boulder County in its own discretion may determine) or for any other reason, Boulder County may, at its own discretion, extend the Close Date.

For the most up-to-date project information refer to our Bonfire portal.

All vendor submissions may be amended, but only before the Close Date on <https://bouldercounty.bonfirehub.com/>.

Need Help:

To assist with registration and submission of responses, learn how to get started with Bonfire, watch this [5 minute training video](#). For questions or support when using the platform, [access the Bonfire online knowledge base](#), search the FAQ or contact the Bonfire support team at support@gobonfire.com.

Americans with Disabilities Act (ADA): Americans with Disabilities Act: If you need special services provided for under the Americans with Disabilities Act (ADA), please contact the Boulder County ADA Coordinator or Human Resources office at (303) 441-3525 as soon as possible to allow sufficient time for service delivery ahead of applicable due dates.