

2.0 STATEMENT OF WORK

Veterans Health Care System of the Ozarks, Fayetteville, AR VA Grid Tied Solar PV System

2.1 Project Overview

The Department of Veterans Affairs (VA) intends to procure solar photovoltaic (PV) systems via Open Market Construction contract at the V.A. Fayetteville at 1100 N. College Avenue, Fayetteville, Arkansas 72703.

The VA Fayetteville Medical Center has chosen to pursue the following sites:

- Site 1: Parking Lot 9
- Site 2: Parking Lots 15, 17, 18, 20 **(OPTION)**

Figure 1 (Appendix B) displays the potential PV parking lot areas. A detailed proposal shall be submitted for each indicated area; however, VA reserves the right to select priority options based on final pricing. The optimal configuration of priority areas and sizes of PV power (DC rating) shall be proposed by the contractor and shall be based on the system which provides the best economic returns for the VA.

Figure 1 shows a limited lay down – storage area, whereby the contractor can place contractor furnished Con-Ex's for storage. Any additional room the contractor deems necessary for storage - staging must be procured off site from VA premises. Contractor is responsible for all costs associated with procuring an off site storage – staging area.

NOTE: Contractors shall propose a minimum system size of 100 kW (DC) for all sites combined. However, due to unforeseen site conditions, inaccurate estimation, new developments, or technology improvements, the actual energy delivered by solar systems at the various proposed sites may vary considerably from the estimated amounts listed in Appendix B. These estimates are not given as targets which are to be met for each individual site, but rather as order-of-magnitude estimates. Therefore, the offeror is asked to design a technically superior system according to the specifications given in this document, which will be evaluated according to the evaluation criteria listed in the paragraph "Evaluation and Award."

2.3 Description of Work

This work involves the complete design and construction of a fully functioning Solar PV system including, but not limited to the equipment selection, carport structures, permitting, interconnections, bonding and construction of a photovoltaic system.

The proposal shall describe how solar power is interconnected to the campus electrical distribution system. Contractor shall assess the proposed site areas, provide construction details and plans to ensure topographical conditions are suitable for the proposed construction. The plan shall at a minimum, identify the array plan view, possible shadow zones, inverter/transformer locations, carport spacing, number of affected parking spaces, carport structural details, roof mount details, VA owned panel/switchgear/transformer interconnection points and (above and below grade) wire routing. All site preparation work shall be accomplished by the contractor and schedules shall be approved by the government Project Manager and Contracting Officer Representative (COR) prior to commencing work.

SITE 1: PARKING LOT 9

The contractor shall construct car-port style parking structure PV arrays. Site 1 parking lot is approximately 65,000 square feet and includes the patient/employee parking area. The parking lot is composed of multiple parking aisles of various lengths. The center aisles in each of the lots contain face-to-face on diagonal double parking (40 feet wide) and the outer aisles contain single parking (18 feet wide) on the perimeter.

SITE 2: PARKING LOTS 15, 17, 18, 20 12 (OPTION)

The contractor shall construct car-port style parking structure PV arrays. Site 2 parking lots are approximately 62,000 square feet and include both a patient/employee parking area. The parking lot is composed of multiple parking aisles of various lengths. The center aisles in each of the lots contain face-to-face double parking (40 feet wide) and the outer aisles contain single parking (18 feet wide) on the perimeter.

Contractor shall coordinate with the COR and the Facility Manager for proper phasing of the work in order not to hinder or aggravate traffic and parking conditions at the VA Medical Center, Fayetteville Campus.

Contractor shall coordinate fully with the COR and the Facility Manager for all power shut down requirements.

The final system configuration shall allow automatic operation without operator intervention. System design and equipment specifications shall minimize maintenance requirements. It is the intention of VA to connect this PV metering system into a nation-wide meter data aggregation system in the future. Metering systems which facilitate interconnection with this data aggregation system will be preferred. Meters such as the ION 7650/7550 for AC or similar are recommended.

The PV metering system shall be connected into the VA Corporate-Wide Advanced Utility Metering Database (proprietary Schneider System). Metering systems which interconnect with this system shall be required. Meters such as the Power Logic ION units for AC or similar are recommended. Campus has an existing metering system in place which has an interconnection with the VA National metering system. The contractor will be responsible for interconnecting with the existing system for data transfer. The system shall have Main Metering capabilities for each individual site.

In addition, metering shall be provided to monitor performance of the arrays within each site, with the data to be used by facility personnel. This metering shall measure the output of each combiner box, and may be located at each re-combiner box. This monitoring is for the purpose of tracking performance and alarming conditions of individual arrays that are under-performing. Performance shall be logged every 15 minutes. This monitoring shall be connected to existing VA local metering system via a wired RS485 and if necessary a fiber connection to all re-combiner boxes.

Metering system shall:

- Be revenue grade (ANSI C12.20 - 0.2)
- Comply with EN50160, EC 61000-4-30 Class A, and IEEE 1159
- Be capable of disturbance direction detection
- Contain at least 5MB of onboard memory with data logging and event recording capacity to account for network outages and downtime
- Contain a minimum of 5 digital inputs
- Contain multiple electromechanical and solid-state outputs to allow a high level of integration with 3rd party devices and systems

- Include LAN (Ethernet or wireless) connectivity which allows remote monitoring and troubleshooting and for connection with a utility metering data aggregation system
- Collect and transmit system performance data to include at a minimum solar irradiance, DC power, AC real power, AC current, AC voltage, and power factor; ambient air temperature, PV cell temperature and AC energy produced (hourly, daily, monthly, yearly)
- Be capable of integration with the VA Corporate-Wide Advanced Utility Metering Database located at the Schneider Electric facility located in St. Louis, Mo. Contractor will be responsible of coordinating this effort with the Successful Contractor awarded the contract for integrating existing meters at all VA facilities nationwide. That successful contractor will be identified prior to installation of metering system.

Combiner Box Metering system shall:

1. Monitoring instantaneous and average DC current of each combiner box
2. Capable of reporting individual, total, and average of each combiner box every 15 minutes
3. Capable of setting alarming points for out of range performance
4. Accuracy of +/- 1%
5. Communicate via a two wire RS485 Modbus to local VA Data Acquisition Metering (DAS) Automatic Metering System (AMR)
6. Be capable of being viewed on web based portal
7. RS485 terminals shall be electrically isolated for safety
8. Current Transformers (CTs) capable of measuring the full output of each combiner box
9. Be suitable for outdoor construction in NEMA cabinet and cooling fans provided if needed for circuitry protection
10. Report of Printed Circuit Board (PCB) Temperature
11. System shall be capable of economically reporting all combiner box parameters every 15 minute and retaining information for at least 5 years
12. Metering logging and communication may be independent from the Main Individual Site Metering system

The Contractor shall:

1. Be solely responsible for compliance to federal, state and local Safety (OSHA, etc.), Life and Fire Safety (NFPA, etc.) and Environmental (EPA, etc) rules and regulations. Contractor shall submit all required programs, plans and documents with respect to regulatory compliance (Project Specific Safety Plan, etc.).
2. Be solely responsible for the verification of existing conditions ensuring to ascertain the site conditions that may affect required equipment clearances, electrical, metering, control and mechanical requirements of the contract
3. The contractor shall comply with, review, and incorporate any interconnection agreements, utility-required disconnects, and utility-grade meters into this project.
4. The contractor shall assist the VA Medical Center energy engineer to apply for and obtain the maximum applicable state grants or incentives for a photovoltaic construction for their site from the local utility provider, Southwestern Electric Power Company (SWEPCO). Contractor shall pay any application fee(s) for SWEPCO rebate(s) and will be reimbursed after completion of the project.
5. Determine the techniques, means, method, and materials of construction to meet the requirements of this contract and provide a proposal to accomplish the work described herein.
6. Provide all labor, materials, equipment, supervision and management required to implement the proposal and to provide a fully operational system.
7. Provide all general construction work. Any structural and architectural work must be approved by the VA's Contracting Officer's Technical Representative (COR) prior to construction. Also,

- Contractor shall comply with local and VA building code requirements and have an Arkansas Licensed Structural Engineer review and stamp solar construction.
8. Coordinate with VA and local authorities to minimize pedestrian and traffic disruptions during delivery and construction.
 9. Provide manufacturer start-up, testing and document final operation.
 10. Provide as-built documentation, record drawings, Operation and Maintenance (O&M) manuals and operator training.
 11. PV modules shall have minimum 25-year limited warranty that modules will generate no less than 80% of rated output under Standard Test Conditions (STC). PV modules that do not satisfy this warranty condition for any reason shall be replaced within two (2) weeks. Warranties on any replacement PV modules shall be for 20 years from date of replacement. The respective shippers shall prepay shipping costs in each direction. Panels shall be part on the CEC list of approved modules.
 12. All PV systems shall carry a five-year warranty from both the manufacturer and the installer, including parts and labor. Warranty shall start on the date of Substantial Completion.
 13. Provide the VA a complete turn-key, commissioned and warranted system as outlined in this contract.

2.4 Technical Requirements

The contractor is solely responsible for determining the techniques, means, methods, and materials of construction to meet the requirements of this contract. All work shall comply with OSHA, VA Specifications and local code requirements including seismic requirements. VA Specifications can be located at the following link: <http://www.cfm.va.gov/til/spec.asp>. All products that are listed, tested, identified, or labeled by Underwriters Laboratories (UL), Facilities Managers (FM), Edison Testing Laboratories (ETL), or other National Testing Organization shall be used when available. With Contracting Officer approval, non-listed products are only permitted when listing does not exist. Disconnects and switches shall be DC rated when used in DC applications.

The inverter(s) disconnects and associated electrical equipment must be located in an area that is accessible, weather-protected and secure. Disconnects and over-current devices shall be mounted in approved boxes, enclosures, or panel boards. Metal enclosures/boxes shall be bonded to the grounding conductor. An electrical meter with built-in modem shall be provided that is capable of recording kWh produced by the PV system and instantaneous kW of the system.

Transformers, if required, shall have an efficiency of greater than 97%. Transformers shall be housed in a NEMA 3R enclosure.

Inverters shall be UL 1741 Certified. Inverters shall have a minimum 5-year warranty. Inverters shall not be located in direct sun.

The proposed carport structure shall be a double cantilever configuration for 2 row (back to back) parking areas and single cantilever for single row parking areas with a minimum clearance from the ground of 11'0". Concrete pilaster supports for the carport structures shall be provided with an over height of 36" above finished grade. Carport components shall be constructed of industrial /commercial grade materials properly rated, protected and suitable for the application. Structural calculations and carport design shall be submitted to VA for approval prior to final design. Minimum canopy vehicle clearance heights shall be explicitly identified in the proposal and approved by VA prior to final design and construction.

The PV carports shall not affect typical traffic ingress and egress to the parking areas and minimize the loss of parking spaces to accommodate the structure. Existing lighting shall be removed and under canopy (LED or Induction) lighting shall be installed to suitably illuminate the covered parking areas during night time hours. All lighting shall be controlled with both night set-back proximity sensors that can recognize people and vehicles and with photo-cells for daylight/night operations. During normal

operation, activation of the photocell shall cause the light fixtures to energize at a reduced light level. Activation of an occupancy sensor that controls the light fixture shall cause the light fixture to go to full brightness. Time delay to return to a reduced light level shall be field adjusted from 30 seconds to 30 minutes with final settings determined at the time of final testing.

The PV solar panel mounting structure shall be corrosion-resistant.

A maximum of 60 parking spaces may be taken out of service during the period of Monday – Friday from 7:00 a.m. to 5:00 p.m. The intent is to have all spaces available for parking during this timeframe except for 60 spaces. Outside these hours, the contractor can expect the lots to be about 30% occupied.

Trees may be trimmed following the national arbor society guidelines to remove low branches that affect solar cell performance. No trees will be removed. No trees will be trimmed severely to allow the sun to strike the panels fully during the summer months.

Veterans Health Care System of the Ozarks is currently undergoing extensive construction and expansion work affecting underground utilities. Though the documents in the attachment are the best information available for the location of existing underground utilities, some utilities indicated may not yet be installed. The contractor shall coordinate with the COR prior to commencing any excavation activities. The contractor will be required to contact Arkansas One Call at 800-482-8998 or by dialing 811 from within the Arkansas area codes. Arkansas One Call is the state program for locating utilities before you dig. Arkansas One Call will locate private utilities for a fee. This will be required to cover any digging to be done.

NOTE: The contractor shall stage all contract work with the COR and Engineering representative to minimize system downtime (i.e. electrical shutdown). Any system downtime (i.e. electrical shutdown) shall be scheduled during weekends and/or after business hours. Downtimes shall be approved by the COR and Engineering representative at least two weeks prior to the shutdown. Coordinate all work with the COR and Engineering representative.

2.5 Roles and Responsibilities

a. **Documentation:** The Department of Veterans Affairs (VA), COR will provide the contractor with copies of existing site documents based upon availability and need.

The contractor shall request other government documentation deemed pertinent to the work accomplishment directly from the COR. The contractor shall consider the COR as the final source for needed government documentation when the contractor fails to secure the documents by other means. The contractor is expected to use common knowledge and resourcefulness in securing all other reference materials, standard industry publications, and related materials that are pertinent to the work.

b. **Communications:** The contractor shall maintain frequent communications with the COR and other designated Veterans Health Administration (VHA) staff and the VA Team to conduct work in progress reviews. Progress reports shall be delivered to the COR and other authorized assigned VA representative or designee on a monthly basis via electronic mail.

c. **Credits/Incentives or Grants:** VA will retain all REC (Renewable Energy Credits), Incentives and/or associated with the scope of work in this solicitation.

2.6 Contractor Requirements, Confidentiality and Non-Disclosure

- a. The contractor shall follow all Government rules and regulations regarding information security to prevent disclosure of sensitive information to unauthorized individuals or organizations.
- b. Contractor staff and management may have access to some privileged and confidential materials of the United States Government such as budget and strategic plans. These printed and electronic documents are for internal use only, are not to be copied or released without permission, and remain the sole property of the United States Government. Some of these materials may be protected by the Privacy Act of 1974 (revised by PL 93-5791) and Title 18. Unauthorized disclosure of Privacy Act or Title 18 covered materials is a criminal offense.
- c. Regulatory standard of conduct governs all personnel directly and indirectly involved in procurements. All personnel engaged in procurement and related activities shall conduct business in a manner above reproach and, except as authorized by statute or regulation, with complete impartiality and with preferential treatment for none. The general rule is to avoid strictly any conflict of interest or even the appearance of a conflict of interest in Government-contractor relationships.

2.7 Other Personnel Considerations

- a. Personnel assigned by the contractor to the performance of work on this contract shall be acceptable to VA in terms of personal and professional conduct and technical knowledge. Should the assignment to this contract of any person by the contractor be deemed to conflict with the interests of VA, or in the event performance is deemed to be unsatisfactory at anytime during the life of the contract, the Contracting Officer may notify the contractor and request the person be immediately removed from the assignment. The reason for removal will be documented and a request to receive personnel replacement within three (3) business days of the notification will be made. Replacement personnel qualifications shall be equal to or greater than those of the personnel being replaced. Employment and staffing difficulties will not be justification for failure to meet established schedules.
- b. The contractor must notify Veterans Health Administration (VHA) ten (10) calendar days in advance and the Project Manager (PM) and COR will approve or reject new proposed contractor key personnel for the performance of this contract. The contractor shall submit a resume of qualifications and the Contractor Personnel Change Control form to the PM and COR and all other direct employees proposed for the project. The PM and COR will approve all contractor employees prior to bringing on duty via Contractor Personnel Change Request Form, at any time from date of award to the end of the contract, contractor personnel are no longer available, the VHA will approve the qualifications of proposed replacement personnel and will reject individuals who do not meet the qualifications set forth herein. All contractor employees are subject to immediate removal from performance of this contract when they are involved in a violation of the law, VA security, confidentiality requirements, and/or other disciplinary reasons.