

VA701-12-R-0108 Amendment A00004 – ATTACHMENT 1: REVISED STATEMENT OF WORK

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 site:

- Site 1: Parking Lot 9

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 offsite storage – staging area.

NOTE: Contractors shall propose a minimum system size of 100 kW (DC) for the site indicated. 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.

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.

The PV metering system shall be configured for connection to the VA Nationwide Metering System (proprietary Schneider System). Metering systems which can be interconnected with this system without additional hardware or software modifications shall be required. Meters such as the ION 7650/7550 for AC or similar are recommended. Campus has an existing metering system in place which is interconnected with the VA Nationwide Metering System.

The system shall have Main Metering capabilities for the site indicated.

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.

- Provide remote monitoring of real-time system performance data (as outlined above) on a web-based portal. All service fees associated with data collection, transmission, monitoring, and hosting shall be borne by the contractor for a period of five years from system startup.

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. System shall be capable of economically reporting all combiner box parameters every 15 minute and retaining information for at least 5 years
11. 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). When directed by the VA, contractor shall pay any application fee(s) for SWEPCO rebate(s) and will be reimbursed upon 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 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 California Energy Commission (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 when the Government accepts the system after final test reports are approved.
 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.

Contractor shall assess existing site lighting by measuring light levels prior to the removal of any existing lighting. For areas impacted by the removal of existing lighting, additional lighting shall be provided in

areas where light levels (after canopy lighting installation) will less than required by VA Design Standards, regardless of canopy coverage.

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.

3.0 FORMAL REJECTION AND ACCEPTANCE OF DELIVERABLES

The Government will have fifteen (15) business days to review each document and provide feedback/comments. The contractor shall have five (5) business days to incorporate comments. After delivery of the final document with comments the Contractor will be notified within ten (10) business days whether the document is accepted. Delivery of the final document with incorporated comments shall not constitute acceptance by the Government.

3.1 Deliverables and Tasks

Satisfactory completion of the contract shall be measured by completion of the listed deliverables and tasks identified. Completion of deliverables shall remain within the scope of the approved Statement of Work.

4.0 DELIVERY SCHEDULE/PERIOD OF PERFORMANCE

Period of Performance: 300 calendar days from Notice- to- Proceed to complete and commission installation. Period of performance to include, but not limited to: post-award/installation review; submittal process; installation phase and punch-list and close out.

4.1 Deliverables – Submittals – Schedules:

4.1.1 Contractor shall submit the following installation documentation and all catalog material to the COR for approval *before a notice to proceed is issued* by the Contracting Officer. Submissions shall include:

1. Provide a schedule that demonstrates complete fulfillment of all contract requirements. The schedule shall include milestone dates, including equipment ordering and delivery dates, activity start and end dates, man-loading estimates, and activity description. The schedule shall be submitted as part of the design and shall be approved prior to receiving the notice to proceed. An updated schedule shall be submitted prior to progress meetings as work progresses.
2. Contractor shall submit all permits associated with the installation project prior to receiving notice to proceed.

4.1.2 The following submittals shall be approved *prior to ordering any equipment*:

1. Manufacturer's complete technical literature for the selected panel, including net peak capacity;
2. Inverter, including required DC voltage and how the proposed PV arrays will operate within the Maximum Power Point (MPP) of the inverter at different cell temperatures using Little Rock, AR weather data.

4.1.3 Individual panels shall be tested *prior to installation on mounts*. Record open-circuit voltage and short-circuit current for each panel. Submit these test results to the COR.

4.1.4 Provide 50% and 100% installation designs for approval. All final installation designs shall be reviewed and approved by the government COR. The drawing submissions will be CAD-based and include specific locations, routings, etc typical of an installation submission.

4.1.5 After award Contractor shall submit:

1. **Performance and Payment Bonds** – Due to VA 10 Calendar Days after award.
2. **Proof of Insurance** – Due to VA 10 Calendar Days after award.
3. **Submit quality control, safety, and environmental plans.**
 - a. Contractor Quality Control Plan (CQCP): The contractor shall develop a quality control plan and shall furnish to VA for review no later than 30 calendar days after the receipt of notice to proceed. The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. VA will consider an interim plan for the first 45 calendar days of operation. Installation will be permitted to begin only after acceptance of the CQCP or acceptance of an interim plan applicable to the particular feature of the work to be started. Work outside of the features of the work included in an accepted interim plan will not be permitted to begin until acceptance of a CQCP or another interim plan containing the additional features of the work to be started. After acceptance of the CQCP, the Contractor shall notify the Contracting Officer Representative in writing of any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

- b. Safety Plan: Comprehensive safety plan shall be implemented by the Contractor to eliminate injuries occurring relative to providing the design and installation services for this project. *Installation will be permitted to begin only after VA's acceptance of the Safety Plan.* Contractor is responsible for providing enough project lead time to allow for VA review of Safety Plan before acceptance. The Department of Labor OSHA requires that all Contractors involved in installation on VA owned or leased property comply with the Incorporation of General Industry Safety and Health Standards applicable to Installation Work and Technical Amendments, Final Rule 29 CFR Parts 1910 and 1926 as published in the Federal Register Volume 58, No. 124, June 30, 1993. In addition, any Contractor that performs construction type work on any VA project as defined by the Scope of the referenced regulation is required to; (1) Provide and maintain his own protective equipment and devices, etc; and (2) Require all sub-contractors used on site to follow these same provisions in the regulation.
- c. Environmental Plan: Comprehensive environmental plan shall be implemented by the Contractor to prevent environmental pollution during, and as result of, construction operations under this contract. *Installation will be permitted to begin only after VA's acceptance of the Environmental Plan.* Contractor is responsible for providing enough project lead time to allow for VA review of Safety Plan before acceptance. The plan shall include the identification and resolution of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life or affect other species of importance to human.

4.1.6 The performance periods and submission schedules for each phase of design are indicated below.

1. Contractor shall submit Preliminary 50% design analysis, drawings, and specifications to the VA for review and approval *no more than 45 calendar days after NTP* is issued. This submittal will include drawings, outline specifications, design analysis, a design documentation report, quantity and cost estimates, an installation cost estimate, a proposed installation schedule, site plans identifying all right of ways, a complete order of work clause describing the required sequence of installation operations, and other supporting documents.
2. The Contractor shall submit 100% design analysis, drawings, and specifications for the VA review and approval with implementation/rejection of comments provided by the VA during 50% review *no more than 45 calendar days after receipt of preliminary design review comments.* This submittal will include detailed working drawings and specifications necessary for the effective coordination and efficient execution of the installation work. The final design shall also include a installation contractor submittal register, design analysis, a design documentation report, quantity and cost estimates, an installation cost estimate, a proposed installation schedule, site plans identifying all right-of-way (for installation and perpetual operations), and other supporting documents.
3. The Contractor shall submit final design analysis, drawings, and specifications with implementation/rejection of the VA comments provided during 100% for review and approval, *28 calendar days after receipt of final design review comments.* This submittal will include same items that are required for the final design submittal.

4.1.7 During the installation phase, Contractor shall submit Coordination (Shop) Drawings to the VA for review and approval.

4.1.8 In addition to the elements mentioned above, the contractor shall submit to the VA

1. Progress reports to the VA.
2. Inspection report.
3. Test reports.
4. Upgraded schedule.
5. Contractor shall provide for review and approval by VA, any stand-by power provisions or partial requirements standards required by the local utility and required as part of this installation.

Provide cost information relative to the agreements and any other equipment that may be required by the utility and proposed system installation.

4.1.9 During the completion of the project, the Contractor shall submit

1. Punch-list to the VA for review.
2. Final inspection report.
3. O & M manual.
4. Warranty documents.

4.1.10 Upon completion of the project, the Contractor Shall Submit

1. Engineering calculations used to determine design characteristics of the PV system, and sizing and selection of system components. Engineering calculations include, but are not limited to, structure, module operating temperature, conductor sizing, and over-current device ratings. Calculations shall be on 8 ½ inch by 11 inch sheet, suitable for side binding.
2. Detailed drawings of the PV mounting system and how it is integrated to the canopy support structure; submit engineering calculations used to determine the canopy's structural integrity considering appropriate wind loads.
3. Connection Wiring Diagram: Provide a wiring diagram for complete system installation. Diagram shall show how components are wired; including but not limited to terminal blocks, wire sizes, wire connections, connection to external devices and ground connections.
4. Engineering data and calculations indicating acceptable system load limits are met for each site.

4.1.11 Upon completion of the installation, the contractor shall demonstrate the performance of the system to the Field Inspector and COR and shall submit the documentation, items and other information listed below.

1. The contractor shall provide all information pertinent to the equipment for preventative maintenance and replacement. Include full product documentation from manufacturer, installer and/or supplier. Data shall be both electronic (PDF, Word or AutoCAD) and hard-copy, on 8 1/2 inch by 11 inch sheet, suitable for side binding. Include 3 copies of the items listed below and other features as recommended by the manufacturer.
 - a. As-built versions of the submittals and drawings shall be both electronic and hard copy.
 - b. Installation drawings and field wiring diagrams.
 - c. Operators manuals for each system component including detailed instructions on how to operate the system, programming and installation instructions, emergency operating procedures, default program values and set points, listing of field programmed variables and set points, equipment wiring diagrams, product model number, with Name, Address and Telephone number of local representative, starting, operating, and shut down procedures. Include normal and emergency shutdown procedures, schedule of maintenance work, if any, recommended cleaning agents and methods, replacement parts list, including internal fuses, and warranty information.
 - d. Provide a formal 2-hour on-site training session instructing operators at the medical center in the operation and maintenance of the new system, including operation and maintenance of inverters, disconnects and other features as requested by VA. VA shall be permitted to video tape this training for official use. Contractor shall instruct the VA personnel in removal and installation of panels, including wiring and all connections. At the time of training the Contractor shall furnish, for the equipment specified, operation and maintenance manuals, record drawings and recommended spare parts lists identifying components adequate for competitive supply procurement for operation and maintenance of system. The operation and maintenance manuals shall include maintenance schedules for all equipment.
 - e. Provide the VA with written instructions and procedures for all components of the system. At the time of training the Contractor shall furnish, for the equipment specified, operation and maintenance manuals, record drawings and recommended spare parts lists identifying components adequate for competitive supply procurement for operation and

- maintenance of system. The operation and maintenance manuals shall include maintenance schedules for all equipment.
- f. Start up report including system and individual panel performance. System and individual panel performance shall be compared to expected performance and shall include at a minimum solar irradiance, DC energy, AC energy, ambient air temperature and PV cell temperature. System performance shall be measured and reported for at least one full day.
 - g. If the performance monitoring of the installed array indicates the array is not meeting its required performance predictions it shall be corrected by the Contractor at the Contractor's expense within thirty (30) calendar days of notification. Following correction, performance monitoring will again be performed until the array meets required performance predictions. Measurements made under actual installation and temperature will be normalized to STC.

4.2 Project Acceptance

Project Acceptance: All submittals and deliverables must be received and approved by the COR before final acceptance of the line item will be made.

5.0 DEFINITIONS

1. **Distribution of Submittals:** Deliverables for each phase of design shall include a complete set of electronic files and hard copies of all drawings. All other documents including narrative and text documents, specifications, design analysis and cost estimates shall be furnished on recordable compact discs.
2. **VA Review and Comment Resolution:** The VA will review all submittals identified under this contract. Formal comments generated by the VA during the review will be provided to the Contractor. Reviews of design documents, shop drawings, and product data by the VA are not to be interpreted as an approval of the Contractor's selections or progress toward meeting contract requirements.

The Government will have fifteen (15) business days to review each document and provide feedback/comments. The Contractor shall provide a response to VA comments within five (5) business days. Both parties will discuss the comments, if necessary, and attempt to resolve any unsettled issues that may arise from the review. After delivery of the final document with comments the Contractor will be notified within ten (10) business days whether the document is accepted.

3. **Amended Plans and Specifications:** The Contractor shall provide revised plans, if any, which include all amendment changes, fifteen (15) calendar days after opening.
4. **Shop Drawings and Product Data:** The Contractor shall submit shop drawings and product data (catalog cuts, etc.) as stipulated herein. Shop drawing/product data submissions to the VA shall be made after review and approval by the Contractor's Design firm. This is in addition to and separate from specification submission material. Shop drawings/product data shall be delivered to the VA within thirty (30) calendar days following the VA's review of final document design and/or the Contractor's establishment of subcontract agreements to provide involved work. Shop drawing and product data submissions shall be made as directed by the Contracting Officer and shall include three (3) copies of all materials.
5. **Design-Build (DB):** as used herein, means combining design and construction in a single contract with one contractor.

6. **Contracting Officer (CO):** The VA's Contracting Officer (CO) has the authority to enter into, administer and/or terminate contracts and may make related determinations and findings. The CO will designate to the Contractor in writing the roles and responsibilities of other VA officials as they relate to the execution of this contract.
7. **NEBC Project Manager:** The Project Manager is responsible for administering contracts under the immediate direction of the Contracting Officer.
8. **Contractor:** The Contractor is solely responsible for the management (planning, supervision and contract coordination), design (professional) services and installation (including all labor, equipment, materials and inspections) to meet requirements of this contract.
 - a. *Management:* The Contractor shall provide individuals in the capacities of Contractor Project Manager and Installation Superintendent. The Contractor Project Manager shall have legal (on-site signature) authority to represent the Contractor. The Project Manager shall be the initial point of contact for coordinating with the VA. The Installation Superintendent shall coordinate installation work and associated contracts.
 - b. *Professional Services:* The Contractor shall provide required design and consultant services. Design and specialty consultant principals shall have legal authority to represent associated firms. Lead Designers have design sign-off authority for involved disciplines. Senior architects and engineers are those who have significant influence over design development.
9. **Design:** This term, as used herein, refers to the Design services ancillary to the installation and maintenance of fully functioning Solar (PV) systems.
10. **Contracting Officer's Representative (COR):** The COR will serve as Contracting Officer's Technical Representative and, as well, a Project Manager will be assigned to represent the Contracting Officer as identified in the respective delegation letters. The respective duties will be described thereto.
11. **Construction:** This term, as used herein, refers to construction means construction, alteration, or repair (including dredging, excavating, and painting) of buildings, structures, or other real property for the purpose of delivering a fully functional Solar PV system.
12. **Commissioning:** Commissioning is required for this project to verify that the intended design as reflected in the contract documents has been achieved. Commissioning shall be the responsibility of the VA. Commissioning shall be conducted in a manner to include full range of checks and tests carried out to determine if all components, subsystems, systems and interfaces between systems function in accordance with the design intent, as identified in the contract documents. In this context, "function" includes all modes of operation, all conditional control responses, and all specified responses to abnormal emergency conditions. Although not desirable, it may sometimes be necessary and acceptable to postpone testing, pending the appropriate climatic condition provided all parties understand the contractual implications. The contractor shall be on site to assist during the commissioning process.

Commissioning testing will include all necessary tests to verify system performance, and modeling to forecast expected first-year AC energy delivery. In the case that the PV system as constructed does not meet the AC energy delivery as quoted by the contractor, the contractor shall remedy by upgrading the system, in a manner acceptable to VA, to achieve the contracted AC energy delivery target.

6.0 SPECIAL CONTRACT REQUIREMENTS

6.1 This is a "Turn-Key" project. The contractor shall be responsible for all phases of the project, with the exception of commissioning, and each phase shall be subject to VA approval at designated project

milestones. This project includes (but is not limited to) all labor, material, supplies, equipment, services, permits and zoning processes, design, installation of all structural, roofing, electrical, and mechanical components, to furnish, install and commission the solar system; including all necessary devices and connections between the inverter and main electrical service including all connectors necessary for complete turn-key.

This Solar PV project will be completed in the following phases:

1. Design
2. Construction
3. 3rd Party Independent Commissioning

The entire activity of the project will follow the following sequence of events:

1. Pre-proposal site visit
2. Submit Quote
3. Award
4. Bonding/Insurance
5. Notice to Proceed (NTP)
6. Design review for drawings and specs (50% and 100%)
7. VA approval of design documents
8. Submission of construction related documents – permits, QC plans, environmental plan, safety plan, etc
9. Commissioning
10. Roof System Integrity Inspection – Receipt of letters of warranty continuation from warranty agents.
11. Acceptance
12. Training
13. Payment
14. Warranty

All contractor developed design analysis, specifications, drawings and any relevant documents pertaining to the design of the project shall be reviewed and approved by VA before the next sequence of events. The approval of the design documents by the VA does not nullify the Contractors' contractual requirements herein.

The contractor shall be responsible for the verification of existing site conditions that may affect required roof membrane integrity, equipment clearances, electrical, control, mechanical, structural and federal, state and local requirements of the contract.