

Scope of Work for the Design-Build of New White Substation

I. OVERVIEW AND PURPOSE OF THE PROJECT

Ocala Electric Utility (OEU) provides electric service to customers within the City of Ocala and portions of Marion County, Florida. OEU is a public electric utility with over 42,600 residential customers, 8,300 commercial customers and 1,048 large industrial customers in a 160-square mile service area. White Substation is a Dual Transformer Substation with 8 feeder bays served by 12.47 / 7.20kV. It is OEU's oldest active substation. Due to its age it no longer meets National Electric Safety Code (NESC) Standards. OEU is currently seeking proposals from general contractors for the design and construction of a new distribution substation. The new substation will be built directly to the east of the current substation (see Exhibit B) and will have a decorative screen wall (similar to Exhibit C) around it. Contractor is to provide all labor, materials, and provisions necessary to successfully complete the project. The awarded contractor will also provide the OEU project team a comprehensive and detailed Statement of Work (SOW) at project kick-off. The SOW will contain the project plan, and schedule which will include dates for milestones and deliverables.

NOTE: This is a qualifications based solicitation per FS 287.055

Non- Mandatory Pre-Bid Meeting/Site Investigation

A **non-mandatory pre-bid meeting** will be held on **October 2, 2019 at 10:00 a.m. EST** at **1805 NE 30th Ave Bldg. 400 Ocala, FL. 34470.** **Following the meeting a site visit to White Substation will be held at 1101 SE 1st Ter Ocala, FL. 34471.**

1. Project Specifications:

Project Budget: Max amount available is 3.8 M.

- A. OEU will provide 2 41.6 MVA Transformers, 2 69kV Circuit Breakers, 11 15kV Circuit Breakers, and the specifications of the equipment to the contractor

- B. Keeping in mind delivery time for the transformers and circuit breakers, the contractor will coordinate with OEU Project Team to ensure the materials are ordered and onsite when ready to be installed.
- C. The rest of the project will be Turnkey and the contractor will be responsible for the following:
 - 1. Engineering Design
 - 2. Procurement of all other materials
 - 3. Construction of the new substation
 - 4. Permitting
 - 5. Site Survey
 - 6. Utility locates
 - 7. Site remediation
 - 8. Access road design
 - 9. Geotechnical report
 - 10. Commissioning and testing
 - 11. Foundation design
 - 12. 69kV Transmission line design
 - 13. Curb-cuts or modifications to existing roads

II. DESIGN-BUILD CRITERIA

1. Engineering Design Specifications:

- A. Preliminary Design will be reviewed by OEU at 30% completion and will include at a minimum:
 - 1. Switching Single Line Diagram
 - 2. Metering and Relaying Single Line Diagram
 - 3. General Arrangement Plan
 - 4. Section and Elevation Drawings
 - 5. Control Enclosure Plans and Elevations
 - 6. 69kV-Class, three-pole, gang-operated disconnect switch specification, with and without motor-operator

7. 12.47kV-class, single-pole, hook disconnect switch specification
 8. Potential Transformer specification
 9. Relay and Control Panels specification
 10. Pre-fabricated (size to be proposed by the contractor) Control Enclosure specifications to include:
 - AC and DC power panels
 - 125VDC battery and charger
 - HVAC unit
 - Lighting and convenience power
 - Fire and smoke detection
 - Structural steel, bus, and insulators procurement specification
- B. Design Development will be reviewed by OEU at 60% completion and will include at a minimum:
1. All items provided in the Preliminary Engineering deliverables, revised per OEU Comments
 2. Underground Raceway Plan
 3. Underground Raceway Details
 4. Grounding Plan
 5. Grounding Details
 6. Ground Grid Design
 7. AC Schematics
 8. DC Schematics
 9. Relay Panel Front View and BOM
 10. Communications Block Diagram
 11. Conduit and Cable Schedule
 12. 12kV Underground Feeder Plan
 13. 12kV Overhead Feeder Plan
 14. 12kV Overhead Feeder Removal Plan
 15. Yard Lighting Plan
 16. Calculations to include:
 - Fault current analysis
 - Station battery sizing
 - Lightning protection
 - Grounding

- Raceway fill
17. Civil Design to include:
- Site/Horizontal control plan
 - Grading plan and details
 - Drainage plan and details
 - Fence plan and details
 - Erosion control plan and details
 - SWPPP report
18. Structural below-grade drawing package containing:
- Foundation plan and details
 - Control house foundation details
 - Oil containment plan
19. Structural above-grade drawing package containing:
- Procurement specifications for structural steel, bus, and insulators
- C. Construction Documents will be reviewed by OEU at 90% completion and will include at a minimum:
1. All items provided in the design development deliverables, revised per OEU Comments
 2. AC station service panel schedule
 3. DC distribution panel schedule
 4. Interconnection wiring diagrams
 5. Equipment nameplate drawings
 6. Point-to-point panel wiring diagrams
 7. Relay coordination study for substation equipment using ETAP
 8. Relay settings, provided in electronic AcSEerator format
 9. Construction project schedule
- D. Record Drawing will be provided to OEU in AutoCad 2018 and a hard copy at the completion of the project to ensure all as-builts have been incorporated

2. **Procurement Specifications:**

- A. During the Engineering Design phase of the project, the contractor will ensure all parts are on order following specification approval from OEU. This will ensure that construction can began as soon as the Construction Documents have been approved.

3. Construction Specifications:

- A. Minus the material being supplied by OEU, the project will be full turnkey.
- B. Contractor shall be responsible for all permits required for successful completion of the project.
- C. The City will not provide restroom facilities for use during construction.
- D. Contractor will ensure all employees on-site wear shirts that are clearly marked, to include subcontractors.
- E. Contractor will ensure all vehicles are clearly marked, to include subcontractors.
- F. The following codes and standards shall be used in the design of the substation unless superseded by specific requirements in the Design Criteria Document:
 - 1. RUS BUL. 1724E-300 – Design Guide for Rural substations
 - 2. NESC – National Electrical Safety Code
 - 3. NFPA - National Fire Protection Agency
 - NFPA-70 – NEC/National Electrical Code (Control Enclosure)
 - 4. IEEE - Institute of Electrical and Electronic Engineers
 - IEEE Std. 605- IEEE Guide for Design of Substation Rigid Bus Structures
 - IEEE Std. 80 – IEEE Guide for Grounding in AC Electric Substations
 - 5. ASTM – American Society for Testing and Materials
 - ASTM A-123 – Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
 - ASTM A-992 – Standard Specification for Structural Steel Shapes
 - 6. ASCE – American Society of Civil Engineers
 - Substation Structure Design Guide No.113

4. Screen Wall Specifications:

- A. Contractor will design, procure, and install a pre-cast screen wall, fencing, gates, and associated foundations and ensure proper grounding.
- B. The screen wall shall be a minimum of 8'-0" in height and materials will consist primarily of precast concrete and wrought iron.
- C. The wall color shall be a sand or tan color.
- D. A black, wrought iron type arch bar with a spiked end, or pike type bar, shall be installed along the top of the screen wall. The pikes shall be a minimum of 12" in height and shall face out.

- E. The wall will have 3 black wrought iron type rolling gates (1 gate will be motor operated) which will have vertical pikes that match the wall pikes.

III. PROPOSER / D-B TEAM RESPONSIBILITIES

1. Security:

Contractor will coordinate with OEU's security contractor to ensure materials necessary for the substation's security are installed prior to the completion of the substation.

2. Working Hours:

Standard working hours for this work will be from 7:00 a.m. to 5:00 p.m., Monday thru Friday, excluding City observed holidays (Saturdays can be available with advanced notice). Any work outside of these hours must be approved by the City Project Manager prior to the work being performed.

3. Site Housekeeping and Cleanup:

Contractor must provide approved containers for collection and disposal of waste materials, debris, and rubbish. At least once a week dispose of such waste materials, debris, and rubbish off-site.

1. At completion of work, contractor shall remove from the building and site: all tools, surplus materials, debris, temporary facilities, and equipment. Leave the work and adjacent areas affected in a cleaned condition satisfactory to the City.
2. The areas of work shall be swept thoroughly and all marks, stains, rust, dirt, paint drippings, and the like shall be removed from all new and existing work, to the satisfaction of the City. Hose clean sidewalks and concrete exposed surfaces.
3. Removal and disposal of old equipment and material shall be the contractor's responsibility. Contractor shall dispose of debris, equipment, and material in a legal manner.

IV. DELIVERABLES

1. Substantial Completion:

When the contractor considers the work as substantially complete, the contractor shall submit to the City:

- A. A written notice that the work or designated portion thereof, is substantially complete.
- B. A list of items to be completed or corrected.
- C. Within a reasonable time after receipt of such notice, the City will make an inspection to determine the status of completion.
- D. Should the City determine that the work is not substantially complete:
 - a. The City will promptly notify the contractor in writing, giving the reasons therefore.
 - b. The contractor shall remedy the deficiencies in the work and send a second written notice of substantial completion to the City.
 - c. The City will re-inspect the work.
- E. When the City finds that the work is substantially complete, the City shall prepare a Certificate of Substantial Completion with a list of items to be completed or corrected before final payment.

2. Final Inspection:

- A. When the contractor considers the work complete, the contractor shall submit written certification that:
 - 1. Contract documents have been reviewed.
 - 2. Work has been inspected for compliance with contract documents.
 - 3. Work has been completed in accordance with contract documents.
 - 4. Equipment and systems have been tested in the presence of the City representative and are operational.
- B. The City will conduct an inspection to verify the status of completion with reasonable promptness after receipt of such certification.
- C. Should the City consider that the work is incomplete or defective:
 - 1. The City will promptly notify the contractor in writing, listing the incomplete or defective work.
 - 2. The contractor shall take immediate steps to remedy the stated deficiencies, and send a second written certification to the City that the work is complete.
 - 3. The City will re-inspect the work.
- D. When the City finds that the work is acceptable under the contract documents, the City shall request the contractor make closeout submittals. (As Built Plans).

3. Contractor's Closeout Submittals to Owner:

- A. Completion of all submittals as required by contract documents.

- B. Evidence of payment to all subcontractors.
- C. Warranties and operational manuals (2 copies).