Request for Bids
Curry Public Library Photovoltaic System Plus Storage
Issued March 7, 2022

Contact Person:
Jeremy Skinner, Library Director
Curry Public Library District
94341 3rd Street
Gold Beach, OR 97444
Voice: 541-247-3452
Email: jeremy@cplib.net

Timeline:
Advertisement Posting Date: March 7, 2022
Submission Due Date: April 18, 2022
Bid Walk (non-mandatory walk for prospective bidders): March 24th at 2:00 pm
Notification: April 21, 2022

Introduction:
Curry Public Library District is seeking the services of a qualified solar power installer to procure, permit, and install a photovoltaic system with hybrid inverters and a battery bank according the attached specifications. The District requested bids for this project in November 2021, and received two qualified bids, both of which far exceeded the District’s budget for the project. After reviewing market rates for similarly scaled projects, we have decided to re-issue this request for bids.

Project Description:
See attached description.

Requirements:
• The system must meet, at a minimum, the specification capacity included on the Project Description.
• Bidders must meet the performance requirements included in the Project Description trimline and project management sections. It is understood that specific equipment described in the Project Description may not be available, and equivalent substitutes are acceptable with explanations.
• Bidders must include total price of the contract including:
  o All required equipment, conductors, permitting and labels
  o All project management, permit and net metering application
  o Full commissioning
  o 2-year workmanship warrantee

Proposal Requirements:
1. Provide a cover letter stating the firm’s legal name, address, and phone number.
2. Provide the resume for bidder, including appropriate Oregon licensure numbers.
3. Provide a list of recent, comparable photovoltaic projects the bidder has completed (limit response on this item to one page maximum).
4. Briefly describe the plan for this project. Include a summary of proposed equipment to be installed, and a project timeline.
5. Provide a not-to-exceed bid for this project. Include all costs in the fee proposal, both direct and indirect, as well as all reimbursable expenses.

Proposal Submission:
Proposals must be delivered by 5pm on April 18 to

Jeremy Skinner
Library Director
Curry Public Library District
94341 3rd Street
Gold Beach, OR 97444
Voice: 541-247-3452
Fax: 541-247-4411
Email: jeremy@cplib.net

Emailed or faxed proposals are acceptable for this project.

Contract Award:
Curry Public Library District will award this project to the bidder offering the best combination of qualifications, experience, and cost.

Curry Public Library District may reject any submittal not in compliance with all prescribed procedures and requirements, or that exceeds the District’s allocated resources for this project, and may cancel this solicitation or reject, for good cause, all responses upon a finding by Curry Public Library District that it is in the public interest to do so.

Please note that throughout this procurement, Curry Public Library District will not accept responses or queries that require Curry Public Library District to pay the cost of production or delivery.
CURRY PUBLIC LIBRARY
PV PLUS STORAGE

Project Description
1. INTRODUCTION

The Curry Public Library District (District) completed construction on an expansion of its Gold Beach Library (Library) in 2017. The expansion project was designed to incorporate a solar electric installation that would exceed 1.5% GET expenditure compliance, maximize southern roof solar access and accommodate future battery storage. In order to determine the final scope of the installation the District requested an extension of time for compliance with the 1.5% GET requirement in order to assess available funding. The expansion project was constructed Solar Ready.

The Library is located in Gold Beach. As the county seat and home to the only hospital in Curry County, Gold Beach serves as the organizational hub for governance, healthcare and catastrophe response. In the past five years, Gold Beach has experienced a tsunami, stationed command centers for three mega fires and experienced several temporary isolations due to landslide related failures of Highway 101. Additionally, the community experiences low graduation rates and is seeking opportunities to bolster the resiliency of shelter and gathering spaces.

Due, in part, to the conditions listed above, the Library addition expanded the capacity to serve the Gold Beach community by adding:

- a community gathering space and meeting room with full service communications connectivity capabilities
- a technology resource room designed for after school hour student support and engagement
- a kitchen

Since the completion of the construction the Library has succeeded in targeted outreach to “latch key” and other students in the area as a free, comfortable space to complete homework, research, communicate on line, meet other students and connect with adult mentors. Likewise, the community room enjoys regular use and is now an integral part of a more connected and informed citizenry. Many residents of the area live at or below the poverty line experiencing both housing and energy security. For those, the Library offers a safe and comfortable space to access communication and information technology. It is the vision of the District to extend some of these services to periods of utility outage and/or public distress.

The District has secured funding for a solar electric installation that will exceed its 1.5% GET requirements and is seeking additional funds for the accommodation of battery backup within the scope of that project.

The District has completed construction and is occupying the addition to the library upon which the solar array will be mounted. Conduits from the roof space to photovoltaic disconnect switches and to locations of batteries and potential interconnection to desired backed up load panel in the community kitchen area have been installed during addition construction.
2. System Feasibility and Generation

2.1 System Feasibility and Resource

A photovoltaic system with nameplate capacity of 15.4 kW DC, 15.2 kW AC PV has been designed for flush roof mounting on the southern sloping standing metal seam roof of the library addition. Two 120V hybrid inverters will convert DC electricity from the array and two of the three phases through newly installed panel boards. Should adequate funding be secured, each of the inverters will service a 9.8 kWh Lithium Ion battery bank to provide electricity to back up loads during utility outages.

The inverters are designed to auto isolate the utility from the back up load panels during an outage but facilitate net metering during normal operations when solar generation exceeds load demand.

![Figure 1 Roof Mounted Array on Newly Constructed Addition Relative to Shading](image)

System Components must meet or exceed performance values of below specified components:
- 15.4 kW PV array of 44 ct. 350 Wdc Modules
- Solar Edge module mounted optimizers 370W rating
o Flush mount roof racking to existing standing seam roof, installed 2018 with solar accommodation in structural and attachment

o Two StoreEdge 7600A US Inverters with battery backup capacity and auto switch isolation from utility service during outage

o Two Autoformers for 124/240 conversions during utility outage

o One Back Up load panel for lighting, refrigeration and communications

o Two LG Chem RESU 10H battery banks at 9.3 kWh usable storage each

The module location will enjoy excellent solar access with a Total Solar Resource Fraction of just over 94% and will operate year-round. It is automated to generate electricity during periods of solar exposure, net meter surplus generation, maintain battery storage, isolate from utility service and supply backed up loads via battery storage during utility down time.

<table>
<thead>
<tr>
<th>Description</th>
<th>Tilt</th>
<th>Azimuth</th>
<th>Modules</th>
<th>Nameplate</th>
<th>Shaded Irradiance</th>
<th>AC Energy</th>
<th>TOF</th>
<th>Solar Access</th>
<th>Avg TSRF ²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Segment ?</td>
<td>18.4°</td>
<td>208.8°</td>
<td>44</td>
<td>15.4 kWp</td>
<td>1,686.7 W/m²</td>
<td>22.1 MWh</td>
<td>95.1%</td>
<td>99.0%</td>
<td>94.2%</td>
</tr>
<tr>
<td>Totals, weighted by kWp</td>
<td>44</td>
<td>15.4 kWp</td>
<td>1,686.7 W/m²</td>
<td>22.1 MWh</td>
<td>95.1%</td>
<td>99.0%</td>
<td>94.2%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

² Based on location optimal PEA irradiance of 1,300 W/m² at 35° N and 15° E azimuth

<table>
<thead>
<tr>
<th>Description</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Segment ?</td>
<td>96%</td>
<td>99%</td>
<td>99%</td>
<td>99%</td>
<td>99%</td>
<td>99%</td>
<td>99%</td>
<td>99%</td>
<td>99%</td>
<td>99%</td>
<td>99%</td>
<td>99%</td>
</tr>
<tr>
<td>Solar Access, weighted by kWp</td>
<td>96.5%</td>
<td>98.6%</td>
<td>99.3%</td>
<td>99.3%</td>
<td>99.4%</td>
<td>99.3%</td>
<td>99.4%</td>
<td>99.5%</td>
<td>99.5%</td>
<td>99.3%</td>
<td>97.7%</td>
<td>96.3%</td>
</tr>
<tr>
<td>AC Power (kWh)</td>
<td>838.0</td>
<td>1,130.0</td>
<td>1,786.0</td>
<td>2,065.1</td>
<td>2,738.2</td>
<td>2,406.8</td>
<td>2,816.6</td>
<td>2,565.9</td>
<td>2,204.4</td>
<td>1,634.3</td>
<td>1,102.5</td>
<td>812.3</td>
</tr>
</tbody>
</table>

Figure 2 Solar Resource and Annual Operations Summary

2.2 Utility Interconnection and Safety

The system will connect to the Coos Curry Electric Cooperative utility grid and operate in parallel with that system. Interconnection will occur through Library load panels with utility shut off disconnects previously installed and located adjacent to the utility meter. No upgrades to the existing system are anticipated.

In addition to rapid module level shutdown through the utility disconnect, located on the outside of the building, the hybrid inverter is designed to automatically isolate solar generation from the utility during an outage.

2.2 Net Energy Generation

The system was modeled using Helioscope software to define the projected annual production as corrected for anticipated system losses due to soiling, irradiance, shading, resistance and those inherent in the balance of the electrical system.
Battery storage losses have not been incorporated into this model but based on normal utility functioning should remain below 5% ranging to 10% during battery backup cycle periods.

3. System Longevity and Environmental Attributes

3.1 Longevity
System components vary with respect to anticipated lifecycle. Warrantees range from 10 years of battery bank service to over 25 years of pv module production. The system will remain in operation well over five years.

3.2 Environmental Aspects

The system will be located on the south coast of Oregon where all of the electricity is imported from Bonneville Power Authority (BPA). Estimates of power losses through transmission to this part of the state are between 100 and 200% losses (ie, each kWh delivered requires 2 or 3 kWh to be produced).

The system will serve a customer of Coos Curry Electric Cooperative, Inc which imports 100% of its electricity from hydro power. While hydro power does not contribute to GHG emissions, it can be a source of detriment to salmonid habitats and the passage of migratory fish in general. Generation of solar electricity at the Library will reduce demands upon hydro plants to the north.

At the end of the usable life of the battery bank, the batteries will be recycled through either a regionally located resource or the battery manufacturer, LG, who encourages and offers recycling resources.

4. Management Plan

4.1 Project Schedule

Present Day: Funding for the project has been secured by the applicant to complete the solar generation portion of the system.

November, 2021: Issue Request For Proposal for the construction of the project to meet or exceed specified capacity and performance of solar plus storage.

December, 2021: Receive and review proposals.

January, 2022: Contractor selection and award.


April, 2022: System installation pending weather and equipment availability.

June, 2022: Inspections and commissioning

July, 2022: Operation Date

4.2 Commissioning, Operations and Maintenance
After completing jurisdictional inspections for the associated electrical and structural permits, the utility will be notified to schedule site verification and complete smart meter installation.

Once utility verification has been completed and the net metering agreement enacted, the system will be fully commissioned as follows:

- During solar harvesting hours, the system will be turned on in full net metering and battery management mode. Solar insolence will be recorded and compared against system performance.
- The system will be synchronized through the Library wifi to the manufacturer’s remote monitoring and data recording software. The contractor will confirm software upload to the Library staff and verify connectivity to the system performance program.
- In coordination with Library staff, the utility disconnect will be activated to isolate the system from the utility grid and confirm correct operation of the battery bank in supplying the backed up loads.
- Pending Library staff accommodation, it is ideal for the battery backup capacity to be tested for a minimum of 4 hours to allow for a deeper discharge and to bridge solar harvest and non-harvest periods.
- Once proper operation is confirmed, District staff will be trained in observing the system operations directly and remotely and provided with a systems manual which will include:
  - System schematic
  - Equipment specification sheets and warranties
  - Contractor warrantee and contact information
  - Start up and shut down procedures
  - Basic trouble shooting instructions and manufacturer support
  - Recommended array cleaning methods and frequency
CURRY PUBLIC LIBRARY – BUILDING ADDITION
Oregon State Structural Specialty Code 2014
Building Construction Type:
Original 2007 Drawings
Type IIIB
Proposed
Type 5B
Type of Construction, 602.3 Type IIIB, Table 901. Exterior walls to be 2-hour, with fire-resistant treated wood framing, per Section 2303.2. Wall construction to be per Table 721.1(2), first floor. Interior wall non-rated.
Accessible area:
A-1, Type III B (existing construction) + 3300 sf plus increase + 16,206 square feet = 23,527 sf. Actual area = 23,623 sq ft (per Table 902). However, Section 902.1 (F) 602.3-1.3 Group A-1 – openings required for area exceeding 12,000 sf therefore minimum sprinkler system required unless the addition is separated from existing building with a 2-hour fire wall.
Area of addition = 4,618 sf first floor
2,186 sf, includes unfinished mechanical room attic space 346 sf.
Accessible area for Type 5B = 6,000 sf per floor.
Exits:
Chapter 10.
Interior Exit Stairway, 1022.1 shall lead directly to the exterior, and enclosure shall be 1-hour construction. Exit shall terminate at public way. Basements containing 10 or more openings, with 100 square feet from less openings, unless testing confirms fire resistance of barrier walls and enclosures.
Plumbing Fixtures, Table 2902.1
Assembly A-3, Auditoriums, lecture halls, theaters:
Toilets: Male = 1 per 125, Female = 1 per 65.
Lavatories: Male = 1 per 200, Female = 1 per 200.
Occupants: From original building code summary, 2007, plus Building Addition occupants.
Total 3rd Floor:
Male = 184 / 125 = 1.47 toilets required (10) may be substituted with urinals, 2 toilets plus 1 urinal provided.
Female = 184 / 65 = 3 toilets required, 3 toilets provided.
Unisex: 1 provided (1 toilet, 1 lavatory)
Accessibility, Chapter 11.
11.04.4 Multilevel buildings and facilities. At least one accessible route shall connect each story. (private buildings allow exception if under 3000 sf.) Area second floor = 1,815 sf. Elevator provided. Elevator not required.
Exits required.
Unisex: 1 provided (1 toilet, 1 lavatory)

### LEVEL 1 FLOOR PLAN CODE

- **Exit:** 4
- **Entrance:** 1

### LEVEL 2 FLOOR PLAN CODE

- **Exit:** 3
- **Entrance:** 1

### OCCUPANT LOAD TABLE

<table>
<thead>
<tr>
<th>ROOM NO.</th>
<th>ROOM NAME</th>
<th>FLOOR AREA</th>
<th>FLOOR AREA PER OCCUPANT (5006.5.1)</th>
<th>OCCUPANT OVERCROWD ROOM</th>
</tr>
</thead>
<tbody>
<tr>
<td>000</td>
<td>Existing Exit (room summary, 5007)</td>
<td>3112</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>001</td>
<td>Existing Addition</td>
<td>3112</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Main Hall</td>
<td>1,815</td>
<td>1,815</td>
<td>2</td>
</tr>
<tr>
<td>101</td>
<td>Meeting Room</td>
<td>2,330</td>
<td>13, 1 actual seats, whichever is higher</td>
<td>180</td>
</tr>
<tr>
<td>102</td>
<td>Library</td>
<td>880</td>
<td>880</td>
<td>10</td>
</tr>
<tr>
<td>103</td>
<td>Lobby (ball corridor preview)</td>
<td>600</td>
<td>600</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Second Floor</td>
<td>2,186</td>
<td>2,186</td>
<td>2</td>
</tr>
<tr>
<td>201</td>
<td>Technology Room</td>
<td>620</td>
<td>620</td>
<td></td>
</tr>
<tr>
<td>202</td>
<td>Conference Room</td>
<td>320</td>
<td>320</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Note: 1st floor required/allowed in second floor, less than 49 occupants, Table 3023.221.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL OCCUPANTS (Existing and Addition)</td>
<td>663</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**OSU:** 1/16" = 1'-0"
LEVEL 2 FLOOR PLAN

A LEV. 201

B LEV. 202

C LEV. 203

D LEV. 204

ATTIC

EXISTING ATTIC

MEETING RM. BELOW

2ND FLR LOBBY

CONFERENCE

STORAGE

IT OFFICE

TOILET

CUST.

TECHNOLOGY

MECH.

DATA RACK

14' - 2 11/16"

3' - 0"

1 LEVEL 2 FLOOR PLAN
### PLUMBING CONNECTION SCHEDULE

<table>
<thead>
<tr>
<th>Fixture Type</th>
<th>Number of Fixtures</th>
<th>Water Service</th>
<th>Total</th>
<th>Drainage</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drinking Fountain / Water Cooler (General Use)</td>
<td>0</td>
<td>0.5</td>
<td>0</td>
<td>0</td>
<td>0.5</td>
</tr>
<tr>
<td>Kitchen Sink (One 1-1/2'' Trap)</td>
<td>0</td>
<td>1.5</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Lavatory (Single)</td>
<td>5</td>
<td>1</td>
<td>5</td>
<td>3.75</td>
<td>3.75</td>
</tr>
<tr>
<td>Service Sink</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>4.5</td>
<td>4.5</td>
</tr>
<tr>
<td>Urinal (1.0 GPF, General Use)</td>
<td>1</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Water Closet (1.6 GPF Flushometer Tank-Private)</td>
<td>7</td>
<td>2.5</td>
<td>17.5</td>
<td>0</td>
<td>21</td>
</tr>
<tr>
<td>Hose Bibb (First One)</td>
<td>1</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>---</td>
</tr>
<tr>
<td>Hose Bibb (Each Additional)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>---</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>17</strong></td>
<td><strong>36</strong></td>
<td><strong>33.25</strong></td>
<td><strong>2.25</strong></td>
<td><strong>34</strong></td>
</tr>
</tbody>
</table>

**WASTE SIZE:** 4

---

### PLUMBING CONNECTION SCHEDULE

<table>
<thead>
<tr>
<th>Fixture Type</th>
<th>Number of Fixtures</th>
<th>Water Service</th>
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<td>Lavatory (Single)</td>
<td>5</td>
<td>1</td>
<td>5</td>
<td>3.75</td>
<td>3.75</td>
</tr>
<tr>
<td>Service Sink</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>4.5</td>
<td>4.5</td>
</tr>
<tr>
<td>Urinal (1.0 GPF, General Use)</td>
<td>1</td>
<td>4</td>
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<td>4</td>
<td>2</td>
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<td>21</td>
</tr>
<tr>
<td>Hose Bibb (First One)</td>
<td>1</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>---</td>
</tr>
<tr>
<td>Hose Bibb (Each Additional)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>---</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>17</strong></td>
<td><strong>36</strong></td>
<td><strong>33.25</strong></td>
<td><strong>2.25</strong></td>
<td><strong>34</strong></td>
</tr>
</tbody>
</table>

**WASTE SIZE:** 4

---

### PLUMBING LEGEND

- **BROWN FLOORS:** Tiled floor
- **BROWN WALLS:** Colored wall
- **BROWN DOORS:** Colored door
- **BROWN TRIM:** Colored trim
- **BROWN FIXTURES:** Colored fixture
- **BROWN ACCESSORIES:** Colored accessory
- **BROWN EQUIPMENT:** Colored equipment
- **BROWN HOSES:** Colored hose
- **BROWN PIPE:** Colored pipe
- **BROWN JOINTS:** Colored joint
- **BROWN CONNECTORS:** Colored connector
- **BROWN FITTINGS:** Colored fitting
- **BROWN VENTS:** Colored vent
- **BROWN OUTLETS:** Colored outlet
- **BROWN TRAPS:** Colored trap
- **BROWN VALVES:** Colored valve
- **BROWN PUMPS:** Colored pump
- **BROWN HEATERS:** Colored heater
- **BROWN CONDENSERS:** Colored condenser
- **BROWN COILS:** Colored coil
- **BROWN COIL CONNECTIONS:** Colored coil connection
- **BROWN COIL FITTINGS:** Colored coil fitting
- **BROWN COIL VENTS:** Colored coil vent
- **BROWN COIL OUTLETS:** Colored coil outlet
- **BROWN COIL TRAPS:** Colored coil trap
- **BROWN COIL VALVES:** Colored coil valve
- **BROWN COIL PUMPS:** Colored coil pump
- **BROWN COIL HEATERS:** Colored coil heater
- **BROWN COIL CONDENSERS:** Colored coil condenser
- **BROWN COIL COILS:** Colored coil coil
- **BROWN COIL CONNECTIONS:** Colored coil connections
- **BROWN COIL FITTINGS:** Colored coil fittings
- **BROWN COIL VENTS:** Colored coil vents
- **BROWN COIL OUTLETS:** Colored coil outlets
- **BROWN COIL TRAPS:** Colored coil traps
- **BROWN COIL VALVES:** Colored coil valves
- **BROWN COIL PUMPS:** Colored coil pumps
- **BROWN COIL HEATERS:** Colored coil heaters
- **BROWN COIL CONDENSERS:** Colored coil condensers
- **BROWN COIL COILS:** Colored coil coils
- **BROWN COIL CONNECTIONS:** Colored coil connections
- **BROWN COIL FITTINGS:** Colored coil fittings
- **BROWN COIL VENTS:** Colored coil vents
- **BROWN COIL OUTLETS:** Colored coil outlets
- **BROWN COIL TRAPS:** Colored coil traps
- **BROWN COIL VALVES:** Colored coil valves
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