The University of Colorado at Colorado Springs seeks a qualified firm to provide a Design/Build installation of a thin film photovoltaic system for the Science Engineering building.

A. VOLUNTARY PRE-BID MEETING

A voluntary pre-bid meeting and walkthrough will be held at the following location, date, and time:

Date: January 20, 2009
Time: 2:00 PM
Location: Campus Building Services Conference Room
Parking is available in Visitor Parking in the Parking Garage. A map of the campus is available online at http://www.uccs.edu/map.html.

B. DUE DATE FOR THIS BID IS: February 3, 2009 at 2:00 PM

Please provide 3 copies to the following address:

Rhea Taylor
University of Colorado at Colorado Springs
Facilities Services
1420 Austin Bluffs Parkway
Colorado Springs, CO 80918
Phone: 719/262-3505
Email: rtaylor@uccs.edu

Late bids may be considered if it is in the best interest of the University.

C. INQUIRIES:

Due date for inquiries is: January 23, 2009 at 1:00 PM.

Prospective offerors may make written inquiries by mail, email or fax before the written inquiry deadline concerning this bid to obtain clarification of requirements. There will be opportunity to make inquiries during the voluntary pre-bid meeting, if any. No inquiries will be accepted after the deadline. Inquiries regarding this bid (be sure to reference the bid number) should be referred in writing to: Rhea Taylor, rtaylor@uccs.edu.

Responses to offerors’ inquiries will be published as a modification on the website www.uccs.edu/facsrvs by January 27, 2009. Offerors cannot rely on any other statements that clarify or alter any specification or other term or condition of the bid.

Should any interested offeror, sales representative, or manufacturer find any part of the listed specifications, terms and conditions to be discrepant, incomplete, or otherwise
questionable in any respect, it shall be the responsibility of the concerned party to notify the contact person of such matters immediately upon discovery and prior to the bid opening.

D. ACCEPTANCE OF BID CONTENT:

The contents of the bid (including persons specified to implement the project) of the offeror will become contractual obligations if acquisition action ensues. Failure of the successful offeror to accept these obligations in a contract, purchase order, or similar authorized acquisition document may result in cancellation of the award and such offeror may be removed from future solicitations.

This solicitation is being made with the understanding that the University is still securing necessary approvals. No work shall be authorized before all approvals from the State of Colorado are secured.

Minimum Qualifications

Qualified applicants will be determined as those that can meet the criteria that will be used for selection by the University of Colorado Facilities Services staff. These criteria include: (1) recent, direct experience with projects of a similar scope and budget. (2) Design and understanding of the project. (3) Demonstrated ability to plan, schedule, and manage this project or one of similar scope and budget. (4) Demonstrated understanding of the financial constraints of this project. (5) Minimum of 2 years experience in the Colorado area. The successful applicant will demonstrate broad-based experience in all phases of project planning, construction and management on thin film photovoltaic projects. Those interested in providing these services should submit three (3) copies of a packet with a concise letter of interest providing a summary of qualifications, and a description of the applicant or firm and its consultants including credentials, experience, three current references, and a quote for the cost of the Work. Submittals will be reviewed by UCCS Planning, Design, and Construction. The firm felt to be most appropriate for undertaking this work will be selected and contacted.

E. RFP SUBMITTAL REQUIREMENTS

- System Specifications
- Component Pricing Summary
- Total Cost
- Estimated Savings (Use $0.065/kWh as cost of electricity)
- System Production (instantaneous (kW) and annually (kWh))
- Payback period (Use $0.065/kWh as cost of electricity)
- Project timeline including relevant milestones
- Associated training and support
Monitoring and reporting plan
State completion, full inspection and full operational date.

F. SUBMITTAL EVALUATION

Submittals will be evaluated based on the criteria identified in Appendix A.

G. SCHEDULE

The university has received a grant from the Governor’s Energy Office (GEO) for $20,374. The installation must be installed, fully operational and final payment made before June 30, 2009. Only those suppliers who can meet this schedule should submit. **A penalty in the amount of the GEO grant of $20,374 will be part of the final contract.**

Following is a detailed schedule of events for the Proposal Process:

<table>
<thead>
<tr>
<th>No</th>
<th>Action</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Request for Proposal/Opportunity Announcement</td>
<td>January 9, 2009</td>
</tr>
<tr>
<td>2.</td>
<td>Voluntary Pre-Bid Meeting</td>
<td>January 20, 2009; 2:00PM</td>
</tr>
<tr>
<td>3.</td>
<td>All Inquiries Due</td>
<td>January 23, 2009; 1:00PM</td>
</tr>
<tr>
<td>4.</td>
<td>Submittal of Bids - Deadline</td>
<td>February 3, 2009; 2:00PM</td>
</tr>
<tr>
<td>5.</td>
<td>Award Notification</td>
<td>February 6, 2009</td>
</tr>
<tr>
<td>6.</td>
<td>Contract Signed</td>
<td>February 20, 2009</td>
</tr>
<tr>
<td>7.</td>
<td>Design/Engineering Completed</td>
<td>March 6, 2009</td>
</tr>
<tr>
<td>8.</td>
<td>Construction Start</td>
<td>March 9, 2009</td>
</tr>
<tr>
<td>9.</td>
<td>Construction Completed/Operational</td>
<td>June 12, 2009</td>
</tr>
<tr>
<td>11.</td>
<td>Final Invoice</td>
<td>June 19, 2009</td>
</tr>
</tbody>
</table>

H: Contract

Although this is a Design/Build RFP, the final contract version will use the States Design/Bid/Build Contractors Agreement (SC 6.21) and General Conditions of the Construction Contract Design/Bid/Build standard format Contract (SC 6.23).
II Submittal Requirements

Specifications for Solar Water Heating Systems

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

IEEE 1262
UL 1703 Flat Plate Photovoltaic Modules
NEC Article 690 Photovoltaic Systems

1.2 DEFINITIONS

The term "solar" for the purposes of this specification, covers systems that intercept solar radiation and convert it to electrical energy.

1.3 SYSTEM DESCRIPTION

1.3.1 Design/Build Requirements

Design, furnish and install new thin film photovoltaic system. Supplied equipment must be of a type suitable to the climate of the site and must be rated and warranted to withstand and operate under lowest-record-low and highest-record-high temperature for the location. The system must also be certified to withstand winds as defined by local code and hail as experienced in the region. It is the intent to use the system for educational purposes related to the benefits and use of renewable energy, so appearance and quality are considerations in design decisions.

Solar collectors are to be mounted on the roof using the existing structure as suitable for a “directly adhered to the roof” system. The system must be able to be applied to roof types such as EDPM or TPO.

Include with each system, components that consist of a solar collector array, electrical wiring collection system, and all other accessories and equipment required for the proper operation and integration of the solar system with the existing electrical system.

Include with system all labor, supervision, equipment inside and outside the building, tools, materials and incidentals necessary to layout, design, procure, install, checkout and place into operation a complete solar system ready for use for the building.

1.3.2 Performance Requirements

Solar system must be safe, reliable, require no operator intervention for normal operation, be visually unobtrusive, and be designed and installed in accordance with all applicable codes. Design and size the system so that solar energy supplies at least 13.0 kW at peak production.

1.4 SUBMITTALS
Submit the following:

1.4.1 Approval drawings and Data

1.4.1.1 Commercial Products Data with Performance Charts and Curves

Provide manufacturer data sheets on each product that is to be part of the system.

Annotate descriptive data to show the specific model, type, size, handling requirements and installation methods of each item.

Provide manufacturer detailed testing data.

Provide samples upon request.

Shop drawings should include wiring diagrams for the array and any inter-connecting hardware and equipment. Show connection and location of equipment.

1.4.1.2 Solar System Design

Submit calculations of solar system performance leading to the proposed design. Submit reports resulting from the use of any design or performance simulation software used in the design.

1.4.1.3 Statements

Prior to installation, submit data showing that the Contractor has successfully designed and installed systems of the same type and design as specified herein and proposed by the contractor.

1.4.1.4 Drawings

Provide drawings for the system type and size containing a system schematic diagram; a collector layout and roof plan; a schedule of operation and installation instructions; and a schedule of design information including collector length and width, number of collectors, number of collectors to be grouped per bank, gross area of collector. Include in the drawings, complete wiring and schematic diagrams, and any other details required to demonstrate that the system has been coordinated and will properly function as a unit. Show proposed layout and anchorage of equipment and appurtenances, and equipment relationship to other parts of the work, including clearances for maintenance and operation.

1.4.2 Final Drawings and Data

1.4.2.1 Instructions

Submit construction diagrams, instructions, and other sheets, including a system schematic, wiring and control diagrams, and a complete layout of the entire system. Include with the instructions, in typed form, condensed operating instructions explaining preventive maintenance procedures, methods of checking the system for normal safe operation and procedures for safely starting and stopping the system, methods of balancing and testing flow in the system, and methods of testing for control failure and proper system operation. Include stamped drawings as required.

1.4.2.2 Operating and Maintenance Manuals
Submit manuals that detail the step-by-step procedures required for system startup, operation, and shutdown. Include in the manuals the manufacturer's name, model number, service manual, parts list, and brief descriptions of all equipment and their basic operating features. List routine maintenance procedures, possible breakdowns and repairs, recommended spare parts, troubleshooting guide, and simplified wiring and control diagrams of the system as installed.

1.4.2.3 Field Test Reports and Quality Assurance

Submit results of system performance testing.

The photovoltaic system shall be from one supplier; including the array and all supporting equipment to ensure one point of responsibility.

Provide adequate protection for all system components during shipping, storage, installation and testing until such time as the system is turned over to the Owner.

Electrical components, devices, and accessories shall be listed with an approved agency such as UL, ETL, FSEC or FM.

Comply with the following codes:

NFPA 70, National Electric Code, Section 90-7, 690, 705

IEEE 519

FOC Part B, 15B

1.4.2.4 Warranties

Provide warranties for all installed equipment. Provide a minimum of a 20 year warranty for all labor and material for the system. Indicate if the roof warranty will be altered by this installation. Failure of a panel or the system to produce at least 80% of the stated rated power shall indicate that the panel or system shall be repaired under the warranty provisions. If warranties for sub-system components are less than 20 years then indicate warranties for these components.

PART 2 PRODUCTS

2.1 GENERAL EQUIPMENT REQUIREMENTS

2.1.1 Standard or Pre-approved Products

Furnish materials and equipment that are the standard products of a manufacturer regularly engaged in the manufacture of such products and which essentially duplicate items that have been in satisfactory use for at least 1-year prior to bid opening.

2.1.2 Nameplates

Secure to each major item of equipment the manufacturer's name, address, type or style, model or serial number, and catalog number on a plate.
2.2 WIRING SYSTEM

Provide a wiring system complete with wiring conveyance devices, hangers, supports, anchors, guides, sleeves, and accessories with this specification and the drawings.

2.3 COLLECTOR SUBSYSTEM

2.3.1 Solar Collector Construction

A general description of the thin film collector array is an encapsulated system in durable ETFE high light-transmissive polymer with no glass. Each array, if consisting of sub-cells, shall allow the array to continue to operate if any individual sub-cell fails.

2.3.2 Collector Warranty

Provide a minimum 20-year warranty for the following: failure of panels or any components of the system. If the warranty of any component is less than 20 years it shall be noted in the bid submittal.

2.3.3 Solar Collector Performance

Provide data showing instantaneous and annual performance based on the placement of the array on the east wing of the roof of the Science Engineering building on the University of Colorado at Colorado Springs campus.

2.4 SOLAR COLLECTOR ARRAY

2.4.1 Net Absorber Area and Array Layout

Space collectors arranged in multiple rows allowing for roof curb shadowing, existing roof equipment, access for maintenance. Layout should minimize wiring distances and number of inter-connections. Provide a diagram showing individual panel layout.

2.4.2 Wiring

Connect array wiring between solar collectors in an organized manor using a system applicable to thin film, roof adhered systems.

2.4.3 Inverter and Building Connection

Provide proper electrical conversion to inter-connect to the building’s electrical system and all necessary components to ensure proper automatic interoperation.

2.7 CONTROL AND INSTRUMENTATION SUBSYSTEM

2.7.1 Control

The system shall be automatically controlled through appropriate instrumentation as part of the complete system. Diagnostic tools shall be indentified that allow access through the university’s intranet and allow analysis of various failure modes.

2.7.2 Instrumentation

Provide an LCD or similar display that remotely displays the systems operation. The location of the display shall be designated by the Owner. The display shall be flexible
and configurable to Owner's requirements. The system shall also be intranet accessible for educational purposes.

PART 3 EXECUTION

3.1 PREPARATION

Install thin film solar panels or modules as recommended by the equipment manufacturer and as required for proper operation. Provide proper storage and equipment staging according to standard construction and installation practice of the equipment manufacturer. Provide adequate supports for installation and provisions for attachments of solar panels to roofing surface. Do not begin installation until the roof surface and other mounting surfaces have been properly prepared.

3.2 INSTALLATION

Install in accordance with manufacturer’s instructions and NEC standard. Refer to contract drawings and installation manuals and building construction documents. Install the thin film technology according to roofing manufacturer protocol in order to maintain waterproofing and manufacturer warranty.

3.3 TESTING

Check voltages and polarities at selected locations. Verify that all system components are properly installed and working properly. Provide an electrical inspection and approval as required by code and include in post-installation Operation and Maintenance manual. Operationally test the system over a period of 48 consecutive hours with sufficient solar insolation to cause activation of the solar energy system during daylight hours.

Demonstrate the solar system will operate properly while unattended for a period of at least one week.

3.4 Code Review and Code Approval

The supplier must provide appropriately approved drawings and specifications before installation begins and must have the system inspected and approved per code requirements.

3.5 FIELD TRAINING

Provide a field training course for operating and maintenance staff members, after the system is functionally complete. Include in the training a discussion of the system design and layout and demonstrate routine operation, maintenance and troubleshooting procedures.

END OF SECTION
Appendix A – Design and Evaluation Criteria

APPENDIX A

I.) Design Criteria

Location: East Wing of Science Engineering
Production: Instantaneous – minimum 13.0 kW
Annual – minimum 26,000 kWh

Covered Area: The university is submitting for LEED. Part of LEED is to have a certain percentage of the roof that meets LEED requirements. Thus, the area covered by the thin film array and supporting components cannot exceed 2,300 square feet of surface area.

Structural: No structural changes are to be needed
Roof: Penetrations shall be in accordance with roofing manufacturer’s requirements
Display: Remote display providing data on system operation.
Contract: In accordance with State contract requirements and General Conditions
Schedule: The system must be installed and fully operating by June 12, 2009

II.) Evaluation Criteria for solar provider selection

<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Prior relevant experience and performance</td>
<td>30%</td>
</tr>
<tr>
<td>Successful and significant experience with design and installation of solar photovoltaic thin film systems, experience of staff assigned to this project, references, training provided to owner, and location/access.</td>
<td></td>
</tr>
<tr>
<td>2. Schedule and timeline for completion</td>
<td>Pre-requisite</td>
</tr>
<tr>
<td>The ability to obtain materials and complete the project in a timely manner.</td>
<td></td>
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<tr>
<td>3. eEnergy Performance/Life Cycle Cost</td>
<td>40%</td>
</tr>
<tr>
<td>Ability to demonstrate that system will meet or exceed UCCS energy goals for this system.</td>
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</tr>
<tr>
<td>4. Cost</td>
<td>30%</td>
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<tr>
<td>Final List</td>
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</table>