June 2, 2015

Re: Request for Qualifications – Utilities Project Commissioning Services
West Campus Energy Plant – Construct Facility
UI Project Number 0549701
University of Iowa

The University of Iowa, located in Iowa City, Iowa, intends to retain the services of a qualified Commissioning Agent (CxA) to provide Commissioning (Cx) Services during the Design Phase for the above project. The University intends to retain the selected firm for Cx Services during Construction, Acceptance, and Occupancy / Operational Phases. CxA firms are invited to submit a proposal based on the scope of services described below.

1.0 Background

This project establishes a new West Campus Energy Plant to supplement utility services provided by the Main Campus Power Plant. The new plant will provide critically important redundancy and future growth options at a location away from the Iowa River flood plain and in proximity to the University of Iowa Hospitals and Clinics (UIHC) complex and a majority of University research-related facilities. The project will establish a new Combined Heat and Power (CHP) facility on the west side of the University main campus and will be connected to the existing campus utility distribution system.

The new CHP facility will be located adjacent to the new UIHC back-up power facility being constructed on the north side of the Finkbine Commuter Lot (lot 65). This project will install a natural gas packaged boiler capable of generating 170 klb/hr of steam at 825 psig and 760 degrees F. The CHP will be capable of delivering 150 klb/hr of steam at 155 psig and 410 degree F to campus either through a backpressure turbine generator capable of producing 6 MW of electrical power at 13.8 kV or through steam conditioning equipment. Additionally, a natural gas reciprocating engine generator will produce 4 MW of electrical power at 13.8 kV to black start the facility as well as provide back-up power to campus. In general, the CHP will be equipped with N+1 redundancy in auxiliary equipment such boiler feed pumps, condensate pumps, condensate polishing system, reverse osmosis make-up water system, and air compressors. The facility’s distributed control system will provide stand-alone operation of the CHP as well as allow remote operation of this facility from the existing Power Plant and control of the Power Plant from this facility. It is anticipated the CPH will be constructed to aid a second boiler, steam turbine generator, three additional reciprocating engine generators and expand the plant auxiliaries to maintain N+1 redundancy without altering the building footprint. While the facility will be fueled by natural gas, the proposed building site allows options for future biofuel sources via the adjacent rail line.
The existing west campus utilities distribution systems will be upgraded and extended to the CHP facility as part of the project. Direct buried, redundant steam and condensate lines will be installed to serve the steam produced at the CHP facility. Existing steam lines and vaults will be replaced and resized to address current and future loads. The new distribution system will also include extending water distribution piping. The CHP facility will be connected to the nearby electrical Substation U (one of two serving power to the University campus) through new electrical duct banks. Natural gas and sanitary sewer lines will connect the CHP facility to existing regional distribution lines located at Melrose Avenue. Additionally, a condensate collection and return system will be located on the west campus to manage condensate return to new CHP and existing Power Plant. (Refer to proposed utility routing drawing.)

The West Campus Energy Plant program will likely be delivered in four construction and multiple procurement packages:

1. Construction packages:
   a. Utility distribution system.
   b. Plant site work and foundations.
   c. Plant general construction.
   d. Condensate collection and return.

2. Procurement packages:
   a. Packaged steam generator (boiler).
   b. Steam turbine generator.
   c. Reciprocating engine generator.
   d. 15 kV switchgear.
   e. Power transformers.
   f. Distributed control system.
   g. Continuous emissions monitoring system.
   h. Pre-engineered piping systems.

Final determination of the number of construction and procurement packages will occur during schematic design.

Project is seeking LEED 2009 certification.

The 01.01.2015 University of Iowa Design Standards and Procedures apply to this project.

2.0 Scope of Work

The primary role of the successful CxA is to:
1. Develop and coordinate the execution of a quality assurance plan pertaining to commissioned equipment and systems;
2. Perform technical and operational design reviews;
3. Observe and document construction progress;
4. Coordinate and document the startup and functional performance of the systems;
5. Document Standard Operating Procedures;
6. Train Operations Staff;
7. Verify training of Maintenance Staff;
8. Assist in system tuning and optimization.

Refer to ASHRAE Guideline 0-2005 for acceptable standard of care and definitions.
2.1 Design Phase

Commissioning during the Design Phase is intended to ensure that the Owner’s Project Requirements are documented and captured within the Contract Documents. The CxA shall complete the following:

1. General requirement for each scope of work phase:
   a. Coordinate with the Owner and supervise the commissioning process during design.
   b. Submit review comments on the form provided by the Owner’s Representative.
   c. Participate in design progress and review meetings.

2. Schematic Design Phase:
   a. Assist with review and development of the Owner’s Project Requirements (OPR).
   b. Develop commissioning section of OPR to include, but not limited to:
      i. System commissioning flow chart: Graphically indicate the logical system, equipment, and component startup and commissioning sequence required to maximize schedule efficiency. Contractor shall be responsible for task durations.
      ii. Initial training requirements.
      iii. Initial Standard Operating Procedures (SOP) outline.

3. Design Development Phase:
   a. Verify compliance with OPR.
   b. Develop a LEED compliant commissioning plan to be included as section in OPR.
   c. Submit Commissioning Specification to the design Professional for review and inclusion in the Construction and Procurement Documents.
      i. Specifications shall include all responsibilities and deliverables identified in the Commissioning Plan.
      ii. Submit references for inclusion into the technical equipment and systems specification sections.
      iii. Submit specifications to the Design Professional in electronic format.
      iv. Include the following:
         1. List of systems, equipment, and components to be commissioned.
         2. Cross-references to applicable and related technical specification sections.
         3. Systems, Equipment, and Component testing criteria including:
            a. Roles and responsibilities of the CxA, Design Professional, and Contractor.
            b. Test protocols
            c. Acceptance metrics.
         4. Deferred testing requirements.
   d. Construction packages:
      i. Review Design Professional design submittal.
ii. Verify maintenance and service accessibility to systems, equipment, and components.
iii. Verify sequences of operations for systems, equipment, and components.
iv. Participate in review meeting.

e. Procurement packages.
   i. Provide commissioning specification.
   ii. Finalize training requirements.
   iii. Review Design Professional design submittal.
   iv. Participate in review meeting.

f. Back-check design submittal to verify the agreed upon commissioning related corrections were implemented.

4. Construction Documents Phase:
   a. Verify compliance with OPR.
   b. Furnish final system commissioning flow chart for inclusion in construction packages.
   c. Construction packages:
      i. Review documents:
         1. Furnish commissioning specification.
         2. Finalize training requirements.
      ii. Review Design Professional design submittal.
      iii. Verify maintenance and service accessibility to systems, equipment, and components.
      iv. Verify sequences of operations for systems, equipment, and components.
      v. Participate in review meeting.
   d. Develop initial SOPs. Refer to existing SOPs documentation for format and expected level of detail.

5. Bidding Phase:
   a. Attend prebid meeting for each construction contract.

2.2 Construction Phase

The Construction Phase scope of work will be established during the Construction Document Phase of design. Anticipated scope of work is as listed below.

Commissioning during the Construction Phase is intended to assure that the Owner’s Project Requirements, as expressed by the contract documents, are met and achieve their specific objectives. The CxA shall complete the following tasks:

1. Attend Preconstruction Meetings for each construction package.
2. Conduct kick-off meetings with the Contractors, including installation subcontractors, to discuss Commissioning scope, plan, coordination and schedule. Prepare and submit meeting minutes.
3. Coordinate with the Owner, Design Professional and Contractor(s) to ensure that commissioning activities are included in the master construction schedule. As a minimum, identify the following:
   a. Commissioning Team Meetings;
   b. System startup and commissioning as identified in the flow chart.
c. Substantial completion dates;
d. Training session dates;
e. Warranty walkthrough date (two (2) months prior to end of warranty);
f. Lessons learned meeting.

4. Review 50% Construction Operation and Maintenance Manuals.

5. Review applicable Contractor submittals concurrent with the Design Team reviews. CxA shall review submittals to create Commissioning Checklists and Functional Performance Testing forms.

6. Finalize project specific Construction Checklists. Incorporate the manufacturer’s pre-start and start-up checks into the Construction Checklists. Submit Checklists to contractors within two weeks after product submittal approval.

7. Verify Construction Checklists are completed and submitted prior to functional performance testing.

8. Submit updated SOPs. SOPs shall contain operator procedures for anticipated normal and non-normal operating conditions.

9. Prepare final Functional Performance Test procedures. Submit for Owner and Contractor review two (2) months prior to functional testing in the field. Test procedures shall model the updated SOPs.

10. Perform site visits as needed, but at least every other week, during construction to observe component and system installations. Attend planning and job-site meetings to obtain information on construction progress as requested by Owner. Review construction meeting minutes for revisions to the Owner’s Project Requirements. Assist in resolving any discrepancies identified during regular site inspections.

11. In conjunction with required site visits, conduct on-site Cx meetings to review progress, coordination, and issues resolution.

12. Coordinate with the contractor to witness manufacturer startup of equipment.

13. Review the third party and/or manufacturer certified test reports to verify the test results meet the applicable industry standards and project requirements.

14. Review Requests for Information (RFI), Instructions to Contractor (ITC), and Change Orders for impact on commissioning and the Owner Project Requirements.

15. Maintain Commissioning Issues Log containing any items that do not meet the OPR or Contract Documents. The log must be detailed enough to provide clarity and point of future reference for the comment. CxA shall update and issue the Log within two (2) days following a site visit and two (2) days prior to Cx meeting.

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2.3 Acceptance Phase (Prior to Substantial Completion)

Commissioning during the acceptance phase is intended to demonstrate the performance of the equipment and systems installed during the construction phase meet the requirements of the Contract Documents. The acceptance phase must occur prior to Substantial Completion. The CxA shall complete the following:

1. Conduct functional testing to demonstrate that systems, equipment and components are operating according to the Owner’s Project Requirements, University Design Standards, Contract Documents and applicable industry standards. Functional testing shall include operating the system and components through each of the written sequences of operation, and verification of proper integration to other system or systems as required.
2. Update Commissioning Issues Log with functional testing items that do not meet the OPR or Contract Documents. Submit Log, test results and recommendations to the Owner and Contractors.

3. Coordinate retesting as necessary.

4. Verify Owner Maintenance Staff training schedule and format. Owner maintenance staff training will be conducted by Manufacturer’s Representatives, Installers, and/or the Design Professional. Refer to ASHRAE Guideline 0-2005 for expected standard of care.

5. Conduct Owner Operator Staff training.
   a. Review normal and non-normal operating procedures as documented in the SOPs.
   b. CxA will be responsible for conducting the Operator Staff training. Training will be conducted for multiple groups over multiple sessions to allow for multiple staff shifts.


7. Submit electronic copy of Commissioning Report at Substantial Completion. Report to include, at a minimum, the following:
   a. List of incomplete commissioning milestones with anticipated completion dates. Include seasonal and/or deferred testing milestones.
   b. List of systems and equipment successfully commissioned to date. List shall not include systems or equipment with outstanding issues.
   c. Updated Commissioning Issues Log. Include anticipated resolution date for open items.
   d. Recommendations for continuous commissioning activities for verifying on-going energy conservation.


9. Transmit to the Contractors one (1) electronic copy of Commissioning Documentation to be inserted into the Operation and Maintenance (O&M) Manuals.
   a. Coordinate format and organization of O&M Manuals with Contractor. Like systems are to be submitted together under a single binder tab or heading. Refer to standard Specification Section 01 78 23 OPERATION AND MAINTENANCE DATA.
   b. Commissioning Documentation for a given system or piece of equipment is to be modeled after ASHRAE Guideline 4-2008 and shall include, as applicable:
      i. Executive summary of system and major components.
      ii. Completed functional test reports, including as-commissioned setpoints, operating parameters, etc.
      iii. Ongoing optimization guidelines and detailed, equipment specific maintenance recommendations.

10. Transmit to the Owner one (1) electronic and four (4) hard copies of the final Standard Operating Procedures. Update SOP based on results of functional performance testing and owner training.

2.4 Occupancy / Operations Phase

Commissioning during the Occupancy / Operations Phase is intended to assist the facility operating staff in identifying any defects in the installed equipment or system operation. The CxA shall complete the following:
1. Schedule and attend seasonal and/or deferred systems testing. Submit reports to Owner for inclusion into O&M Manuals.
2. Participate in Lessons Learned meeting.
3. Schedule and attend warranty walkthrough two (2) months prior to end of warranty period.

### 2.5 Potential Systems to be Commissioned

1. Facility electrical systems including CHP internal power systems and Uninterruptible Power System.
2. Compressed air system.
3. Distributed Control System.
4. Natural gas supply system.
5. Combustion air make-up systems.
6. Make-up water including reverse osmosis, storage and transfer system.
7. Remote condensate collection and return system.
8. Raw condensate storage and transfer system.
9. Condensate polishing system, storage and transfer system.
10. Deaerator and feedwater systems.
11. Steam generator (boiler) including burner management, feedwater control, furnace pressure control, combustion control, blowdown control, steam attemperator and steam banking control.
13. Emission control system.
14. Steam conditioning equipment.
15. Electrical generation gear.
16. Steam turbine generator.
17. Reciprocating engine.
18. Electrical generation dispatch and switching systems.
19. Ancillary building systems including HVAC, lighting, fire detection, fire suppression, access control, CCTV and plumbing.

### 3.0 Schedule

The project is currently in the Program Development phase.

The project anticipates the following schedule (Dates subject to change):

- Program Development completion: June 2015.
- Schematic Design completion: August 2015.
- Iowa Board of Regents Approval of Schematic Design: October 2015.
- Design Development including procurement packaged completion: December 2015.
- Construction Documents Completion: March 2016.
- Bidding complete: June 2016.
- Substantial completion: June 2018.
- Operational phase completion: September 2018.

### 4.0 Commissioning Qualifications

It is the Owner’s intent that the person designated as the commissioning authority (CxA), and the key staff members, exhibit the following:
1. Acted as the principal Commissioning Authority for at least five similar projects including:
   a. Combine Heat and Power facilities utilizing steam generators operating above 500 psig of pressure.
   b. Complex 15-kV dispatch and switching schemes.
   c. Compliance to ASME Performance Test Code requirements.
2. A bachelor’s degree in Engineering is strongly preferred. P.E. license in the State of Iowa is desired. Other technical training, past commissioning, and field experience will also be considered.
3. Hold ASHRAE CPMP Certification, NEBB BSC Accreditation, University of Wisconsin CxAP, or BCxA CCP Certification.
4. Exhibit extensive field experience. A minimum of five full years in this type of work is required.
5. Exhibit excellent verbal and writing communication skills. Highly organized and able to work with both management and trade contractors.

5.0 Statement of Qualifications Requirements

The proposal shall:
1. Describe your proposed approach to managing the project.
2. Provide an organization chart indicating proposed project team.
3. List the individual who will be the CxA.
4. Provide resumes for key staff members.
5. Describe relevant experience of the proposed team in the design and commissioning of the following:
   a. Combine Heat and Power facilities utilizing steam generators operating above 500 psig of pressure.
   b. Complex 15-kV dispatch and switching schemes.
   c. Compliance to ASME Performance Test Code requirements.
6. Identify third party sub-consultants or testing agencies.
7. Provide three (3) project references and contact information.
8. Be limited to twenty (20) single sided pages. Total page count includes Letter of Proposal, resumes, cover, table of contents, and all supporting materials.

6.0 Proposal Evaluation and Award

1. The Owner will consider and evaluate the following proposal components:
   a. Firm experience, qualifications, and ability to react to changing workloads;
   b. Project approach;
   c. Key personnel experience and qualifications;
   d. Firm location;
   e. Proposal quality;
2. The Owner reserves the right to negotiate and accept any proposal, or to reject all proposals, and to offer to accept any proposal subject to the deletion of any item or group of items of work from the scope of work.
3. The Proposer shall be prepared to attend an interview as part of the evaluation process. The Proposer shall bear all costs associated with preparing the RFP and subsequent interviews.
4. The successful firm shall provide a written proposal on the University of Iowa Letter of Proposal form found on the University’s Facilities Management/Consultants web site.

http://www.facilities.uiowa.edu/pdc/consultants/agreement-form.html

Firms interested in providing services for the program shall submit the requested materials one (1) single PDF file by no later than 12:00 p.m. (CDT) on Tuesday, June 16, 2015 to:

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Electronic file may be submitted via email and shall be label as follows:
0549700_150616 Statement of Qualifications – <firm name>.pdf

Contact Jeffery Gambrall at jeffery-gambrall@uiowa.edu with any comments.