



DATE: Monday, September 27, 2021

SUBJECT: **Request for Letters of Interest (R/LOI) – Architect/Engineer (A/E) Team Selection Master Plan Study for East Campus Chilled Water Plant (ECCP) and Chilled Water (CHW) Thermal Energy Storage (TES)**
The Pennsylvania State University – University Park Campus
PSU Project No: 00-07057.00

TO: Interested Architectural/Engineering Firms

The Pennsylvania State University (PSU) is excited to begin the Architecture/Engineering (A/E) team selection process for the master plan development for the East Campus Chilled Water Plant (ECCP) and Chilled Water (CHW) Thermal Energy Storage (TES) project. This master plan development will guide a future capital project for the University that will be procured separately. PSU is utilizing our standard qualification-based A/E team selection process for this project. The University is seeking a cohesive A/E team that is strong in both architecture and engineering for this study to be a success.

PROJECT OVERVIEW

The new ECCP and CHW TES facilities are planned as new freestanding facilities and interconnected to the existing campus chilled water system. The intent of this project is to develop an overall facility master plan along with anticipated total project costs, projected site development, and phased design and construction schedule.

The University currently operates three campus chilled water (CCHW) plants and numerous individual building chillers. Centralization began in the late 1990s and has continued to grow to meet campus demand and replace individual building chillers. PSU has seen significant energy and maintenance savings by utilizing a centralized system which operates 24/7/365 and serves about 150 buildings. The three central CCHW plants are located on campus as shown in Figure 1 – *Existing Campus Chiller Plants*, with a total operating capacity of 25,131 tons and rated firm capacity of 22,131 tons.

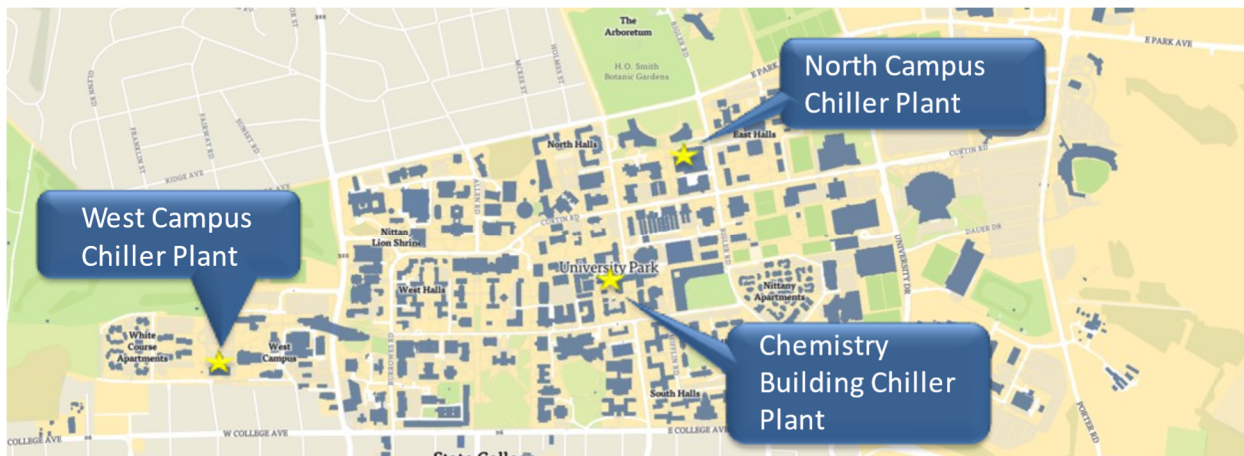


Figure 1 – Existing Campus Chiller Plants

The West Campus Chiller Plant (WCCP) is the first Plant built on campus circa 2000 and consists of five chillers ranging from 900 tons to 3,000 tons for a total capacity of 7,200 tons. The Chemistry Chiller Plant (CHCP) is the smallest plant with three 1,217-ton chillers for a total of 3,651 tons and was built around 2004. The North Campus Chiller Plant (NCCP) was first brought on-line in 2004 and includes eight chillers ranging from 1,350 to 2,790 tons for a total of 14,280 tons.

The University will share the current overall CCHW Master Plan data with the awarded firm/team to provide guidance on design criteria such as firm capacity (N-1), reducing maintenance through system diversity, cooling redundancy, and building area impacts. In addition to the development of a plan for design and construction of a new CCHW Plant and TES tank(s), the master plan must identify additional Utilities (electric, hot water, steam, domestic water, wastewater, and stormwater) impacts as well as Architectural requirements.

The master plan must quantify energy savings and load management strategy through rate analysis and should identify how new CCHW and TES systems will influence the University’s sustainability goals through reduced greenhouse gas (GHG) emissions.

PROJECT GOALS

The primary goals of this project include the following:

- Develop a master plan that will allow the University to commence a separate design/build project for the full design and construction of a new CCHW Plant and to incorporate a TES system upon completion of this study phase.
- Create a master plan that addresses future projections and planning tools and timelines for system upgrades and replacements while investigating newer technologies for the new CCHW Plant and TES system. Current University efforts are shown in Figure 2 – *Penn State University CCHW Infrastructure Master Plan*.

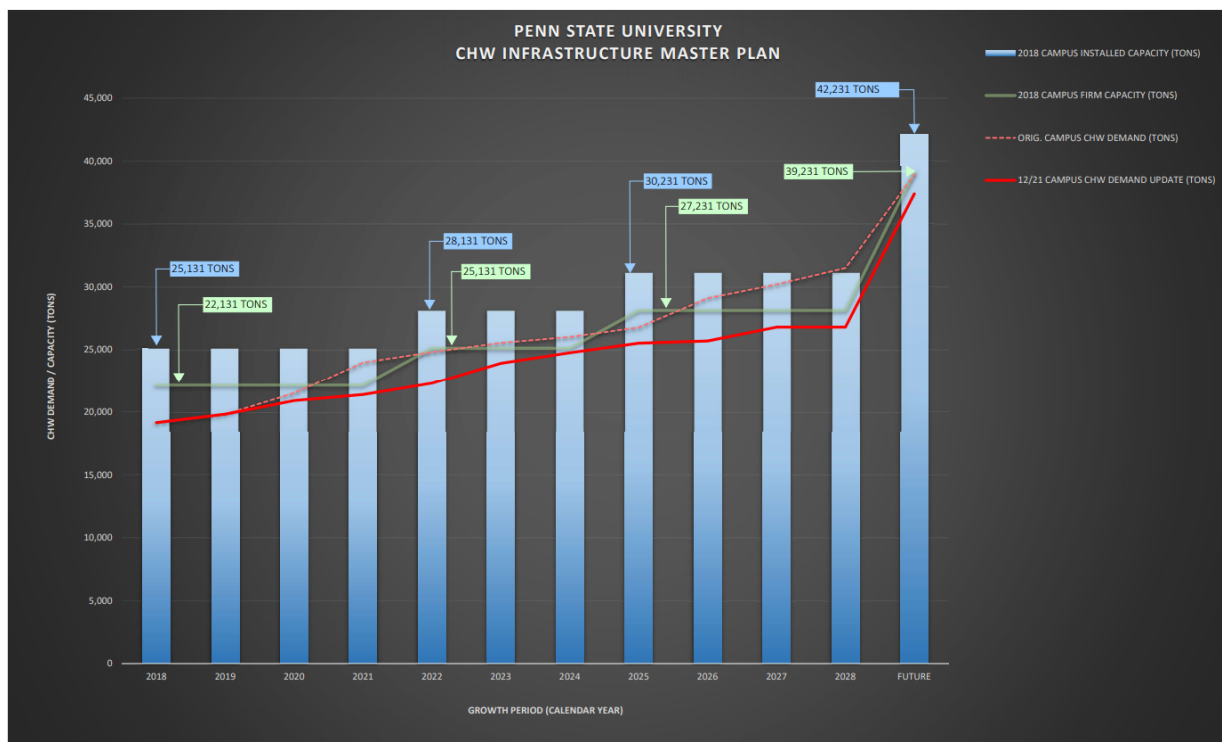


Figure 2 – Penn State University CCHW Infrastructure Master Plan

PROJECT PROGRAM

The selected A/E Team will begin the project with evaluations of the potential site(s) and the development of the program for these new CHW facilities on campus.

Program Requirements

- Evaluate one or more potential locations for the new ECCP and TES complex.
- Develop the program for a multi-level CCHW Plant facility that includes sufficient space for the three primary program areas:
 - 1.) CCHW mechanical and electrical equipment
 - Lowest level for pumps and pipe gallery, walk-out to grade
 - Middle level for chillers, walk-out to grade
 - Cooling towers above on the roof level
 - Electrical equipment located where best fit
 - 2.) Staff and support spaces
 - Control room, conference/training room, offices, work/shop room(s), break room, storage rooms, and restrooms with lockers
 - Operator's Control Room with 2-3 workstations on the middle level
 - 3.) TES tank(s)
 - Evaluate and develop the size, shape, materials, and elevation

Architectural Requirements

- Site development options for evaluation and consideration by the University
- Develop overall program for the building complex
- Create conceptual layouts for various options of overall design of the complex including, but not limited to, the following:
 - Develop block and stacking diagrams describing space adjacencies utilizing floor plans, sections, bubble diagrams, etc.
 - Develop massing study to understand impact to campus environment of new building, tank(s), etc.
- Evaluate options to lessen visual impact of the facility/complex to the surrounding campus. Develop perspective views from multiple key viewpoints on campus.
- Provide conceptual exterior finishes options along with current unit costs (\$/sq ft) considering siting.
- Perform geotechnical boring analysis of proposed site(s).

Mechanical Requirements

- 12,000-15,000 tons total cooling production capacity to tie into the existing variable-primary flow chilled water system
- The University desires to limit the size of the chillers to not exceed 3,000-tons each. The team will evaluate the size and quantity of chillers that best fits the needs of the University.
- The University anticipates that an Automated Logic Corporation (ALC) controls system will be required to interface with the other existing CHW plants on campus.
- Heat recovery chiller(s) should be considered as an option.
- Thermal energy storage tank(s) adjacent to Plant. Exact size and configuration will be evaluated by the team during the study phase.

Electrical Requirements

- Two separate incoming electrical power sources
- Variable speed drives for all mechanical equipment with electric motors

Other Utility Requirements

- Evaluate systems and technologies that minimize water consumption and wastewater discharges from the CCHW Plant. Give consideration to systems and technologies that could utilize non-potable water supplies in lieu of potable water supplies. (Please note: The University is currently developing a Class A reclaimed water system that could potentially provide non-potable water service to the CCHW Plant if the reclaimed water quality is suitable for the proposed technologies.)
- Develop estimates of water consumption, wastewater generation, and wastewater characteristics for the proposed facility. Coordinate with applicable PSU Utility Engineers to determine if the existing water/wastewater systems are able to support the anticipated water/wastewater demands.

PROJECT SCHEDULE

The University anticipates that this project will need to be completed in phases, but the exact timing and what all needs to be included in each phase will be discussed and determined by the team post-award.

- Phase 1 – Study:
 - Target schedule: January 2022 to August 2022 (subject to change)
 - Master plan development of the entire site
 - Massing study
 - Full programming
 - Preliminary engineering of chillers, cooling towers, pumps, electrical gear, and thermal energy storage tank(s)
 - Development of phased construction impacts
 - Geotechnical evaluation of proposed project site(s) with borings, etc.
- Phase 2 – Design:
 - Target schedule: September 2022 to February 2023 (subject to change)
 - Design for full Plant and CHW TES tank(s)
- Phase 3 – Construction:
 - Target schedule: May 2023 to September 2024 (subject to change)
 - Site work
 - Chilled water thermal energy storage tank(s)
 - Core and shell of the Plant building
 - Associated pumps, piping, and electrical needs to support the CHW TES tank(s)
- Phase 4 – Initial Build-out:
 - Target schedule: October 2024 to March 2025 (subject to change)
 - Initial build-out of the Plant
- Phases 5+ - Future Build-outs:
 - Target schedule: TBD
 - Future build-outs of the Plant will be determined in the future based on campus chilled water load growth projections

OWNER REQUIREMENTS

PSU anticipates executing the Architect-Engineer study agreement shortly after team selection. The planning/study/programming efforts will start upon execution of the agreement.

- It is critically important that the Architectural/Engineering team shows cohesion have experience with:
 - 1.) Complex central chilled water systems or similar distributed systems.
 - 2.) Thermal Energy Storage systems
 - 3.) Complex utility rate structures
 - 4.) Architectural design incorporated into the surrounding campus landscape
- Meet with the University's project team to confirm scope and program (virtual when possible).
- Meet with users to develop a basic program document (virtual when possible).
- Finalize and execute the mission and vision of the project.
- Provide an assessment of the proposed site(s).
- Review the budget and provide a high-level breakdown of costs and fees.
- Utilize e-Builder processes for this study.
- Determine a high-level schedule that includes design and construction durations.
- Review progress of the scope, program and other data with specific OPP stakeholders prior to submitting the first draft.
- Prepare and submit a draft report and final report for review and comment by the University.
- Assist the project leader with preparation of graphics and metrics for PDRB Gate 1 Programming.
- The study will be used as the initial basis of design and for procurement of the design professional.

The following supplemental documents are relevant to this R/LOI:

- The selected firm/team will be provided access to any applicable campus master plans for reference.
- The link below is to our Form of Agreement 1-S. Please review this agreement to ensure that your firm accepts all terms and conditions as written. In submitting a proposal for this project, you acknowledge that you concur, without exception, with all terms, conditions, and provisions of the Form of Agreement 1-S.
<https://wikispaces.psu.edu/display/OPPDCS/00+50+00+CONTRACTING+FORMS+AND+SUPPLEMENTS>
- Office of the Physical Plant (OPP) Design and Construction Standards web sites:
<http://www.opp.psu.edu>
<https://wikispaces.psu.edu/display/OPPDCS/Design+and+Construction+Standards>
- OPP High Performance Standards. The University has a commitment to environmental stewardship and requires the maximum possible use of sustainable and energy-efficient designs and specifications, for architectural, site, utility, structural, mechanical, electrical, and plumbing work. Refer to the following link for the University's high-performance standards that exceed building code minimum requirements:
<https://wikispaces.psu.edu/display/OPPDCS/01+80+00+PERFORMANCE+REQUIREMENTS>
A part of this is PSU's High-Performance Building Design Standards: Building projects shall comply with ASHRAE Standard 90.1 Energy Standard for Buildings Except Low-Rise Residential Buildings, 2010 version AND as superseded by more stringent requirements of ASHRAE Standard 189.1 Standard for the Design of High-Performance Green Buildings, 2011 version. The standard defines a minimum requirement of LEED Certified for this project.

A/E TEAM SELECTION PROCESS AND SCHEDULE

The University will perform up to a three-step A/E team selection process, with three assessments: Letter of Interest, Proposals, and Interviews (if needed).

This is the process to select the full A/E team, including: the architectural team, engineering team, construction manager (for schedule and cost estimate development) and any specialty consultants (if needed). At the next step (RFP stage) of the process, each of the invited firms will create and define their entire proposed team including an organizational chart that identifies key team members including sub-consultants.

- Letters of Interest due via email from interested lead firms by 4:00 PM ET on Friday, October 15, 2021.
- The Screening Committee will review the respondents to this Request for Letters of Interest and determine a long-list of firms.
- The long-listed firms will be invited to respond to a Request for Proposal, both of which will be posted to this website by the end-of-day on Monday, November 8, 2021.
- Proposal responses from the long-listed teams are due via email by 4:00 PM ET on Thursday, December 2, 2021.
- Up to three short-listed firms will be chosen from the RFP respondents. The short-list results and interview notice will be posted to this website no later than the end-of-day on Wednesday, December 22, 2021.
- Interviews, if deemed to be needed by the University, will be scheduled after the short-list has been established.

Firms are welcome to visit campus during this selection process. Guided campus/site tours are not provided at this step in the selection process. Arrangements for scheduled visits with the short-listed teams will be communicated in the future, if necessary.

Participation in this A/E Team selection process is voluntary and at no cost or obligation to the Pennsylvania State University (PSU). The University reserves the right to waive any informality, in any or all submissions, and to reject any submission or portion thereof.

LETTER OF INTEREST SUBMISSION REQUIREMENTS

If your firm/team is interested in pursuing this project, please submit a Letter of Interest that, at a minimum, includes the following:

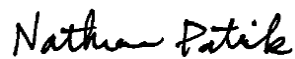
- 1.) A brief statement detailing your firm's profile (firm size, characteristics, unique qualifications, etc.). There is no requirement to identify all sub-consultants as part of your team at this stage, but firms should include the architectural and engineering partners and describe their anticipated role on the project.
- 2.) Outline and convey your firm/team's experience in the planning/design/execution of chilled water infrastructure systems with thermal storage. Highlight programs/studies, designs, and completed projects.
- 3.) Describe how a facility/complex with a CCHW Plant and TES tank could fit into a University campus context with the intent of lessening visual impact/presence. Include a sampling of your previous architectural designs.

[As applicable throughout your Letter of Interest, provide professional credit to architectural/engineering partners (including architect and engineer of record) for all projects discussed within the proposal and for all project images shown.]

Please limit your submission to five (5) total, single-sided, 8-1/2" x 11" pages with a font size no less than size 10. If a cover letter is included, it must be within the five (5) pages. Email a single PDF file (20MB maximum) of the submission electronically to ntp111@psu.edu by the submission deadline identified above. Include the name and email address of your team's main contact for the A/E selection process within your submission.

Please contact me with any questions regarding the A/E team selection process (preferably via email).

Kindest Regards,

A handwritten signature in black ink that reads "Nathan Patrick". The signature is written in a cursive, slightly slanted style.

Nathan T. Patrick, P.E., DBIA
Project Manager, Design and Construction
Office of Physical Plant (OPP), The Pennsylvania State University

CC: ECCP & CHW TES Screening Committee