REQUEST FOR QUALIFICATIONS FOR DESIGN SERVICES BOILER EVALUATIONS
UNIVERSITY OF MAINE
Consulting services for Boiler Inspection and evaluation for Life extension & fuel conversion

August 13, 2025

SECTION I: SUMMARY

The University of Maine (UMaine), located in Orono, Maine, seeks to procure Consulting Engineering/Design services from individual firms or teams specifically for the Boiler Inspection, Life extension evaluation and fuel conversion of Steam Boilers #5 & 6, along with additional possible consulting work for other steam plant asset evaluations, at the University of Maine Central Steam Plant (CSP) on College Ave, Orono, Maine 04469.

General

University of Maine

The University of Maine (UM), founded in Orono in 1865, is the state's land grant and sea grant university. As the state's only public research university, UMaine has a statewide mission of teaching, research and economic development, and community service. UMaine is among the most comprehensive higher education institutions in the Northeast with nearly 100 majors and academic programs. It attracts students from Maine and 49 other states, and more than 60 countries. It currently enrolls more than 11,400 undergraduate and graduate students who can directly participate in research, working with world-class scholars. UMaine offers more than a hundred degree programs through which students can earn graduate certificates, master's, doctoral or professional science master's degrees. The university promotes environmental stewardship, with substantial efforts campus wide aimed at conserving energy, recycling and adhering to green building standards in new construction.

Technical – Historical Overview of the Campus Central Steam Plant

UMaine's Orono campus includes 4.25 million gross square feet across 202 buildings. Campus energy and utility infrastructure includes over 151 miles of energy and utility distribution systems and features a central steam plant which houses four boilers that deliver 50 psig steam to approximately 3.5 million gross square feet of the campus buildings, through 4.7 miles of steam distribution lines, and 115 steam pits. Annually the central steam plant uses approximately 500,000MMBTU a year of Natural Gas NG and 20,000MMBTU of #6 fuel oil.

2025 today	Boilers 5, 6, 7, & 8	The CSP has four D type, water tube steam boilers (#5, 6, 7 are field erected & 8 is factory built) that produce 150 psig saturated steam.
1909	Boiler 1 & 2	The CSP was built with two coal/wood? fired boilers #1 & 2, each rated for 20,000 pounds per hr.
1931	Brick Chimney	The existing freestanding brick Chimney was erected (150ft originally) with a 3 story, 9 bay building addition by Richard D. Kimball Co.
1931	Boiler 3 & 4	Two coal fired boilers #3 & 4 were installed attached to the brick chimney.
1946	Boiler 3 & 4	Converted to (#6?) oil with a 2 story, 2 bay addition to west of the CSP, by Crowell & Lancaster (Bangor).
1953	Brick Chimney	The top ~25ft of the brick Chimney was removed as it was damaged (split).
1958	CSP North Addition, #6 Fuel Oil tank	The #6 Fuel oil bulk storage tank, and 2 story, 3 bay additions to the north side of the CSP building, by Crowell & Lancaster (Bangor) to was built to house new future boilers, and the current supporting plant auxiliary equipment. i.e. existing DA and feedwater pumps, boiler feedwater makeup tanks and pumps
1958	Boiler 5	Boiler 5, B&W type FF16#52, was field erected and the CSP addition was built around it. It is rated 64,000 lbs of 150psig saturated steam per hour, firing #6 oil thru four manual burner guns.
1961	Boiler 6	Boiler 6, B&W type FF16#52, was field erected inside 1958 CSP addition. It is rated 64,000 lbs of saturated 150psig steam per hour, firing #6 oil thru four manual burner guns
1966	Boiler 1, 2 & 7	Boiler 7, B&W type FF16#52, was field erected inside another CSP addition to south by Crowell & Lancaster (Bangor) after the 50-year-old coal fired boilers 1 & 2 were removed. Boiler 7 is rated 64,000 lbs of saturated steam per hour, firing #6 oil thru four manual burner guns.

1979	Condensate tank	Condensate receiver tank room added to a new sublevel at the NE corner of the CSP, design by Webster/Baldwin/Day/Rohman
1979	Brick Chimney	The brick chimney was inspected and repaired with metal bands, following cracks that formed during blasting for the condensate room addition.
1981	Boiler 7	A new, separate, economizer section was installed on Boiler 7, but in was removed a few years later due to corrosion from condensation from #6 oil flue gases.
1985	Brick Chimney	The bottom 75 ft of the interior of the Brick Chimney was relined with gunite.
1995	Metal Chimney	The Metal Chimney, was installed as a freestanding metal stack for Boilers 5 & 6 to replace shorter original stub stacks as required by Air Permit License.
2001	Boiler 7	Boiler 7 converted to a dual fuel burner. (NG or #6 oil.)
2004?	Boiler 7	Boiler 7 starts burning NG regularly and has not regularly used #6 oil since.
2008	Brick Chimney	The outside of the Brick chimney repointed by SMC
2009	BP Stm Turbine Gen	A 150 to 50psig 600KW backpressure steam turbine generator (BP STG) was installed. *It is rated for 200kw, 400kw or 600kw based on steam flow to campus and which of the two steam turbines are connected to the single 600kw generator. As this BP STG is not currently operating it could be a candidate for an evaluation to determine what is needed for it to be recommissioned and restarted.*
2009	Brick Chimney	The Brick chimney was inspected by Boston Chimney & Tower. Inside and out.
2011	Boiler 3 & 4	Boilers 3 & 4 (80 years old) were removed to make space for new Boiler 8.
2012	Boiler 8	Boiler 8 was installed and is a B&W factory built D type boiler, with a separate economizer, rated at 60,000 lbs steam per hour using fossil Natural Gas (NG). Boiler burner was designed to also burn de-sulfured landfill gas (LFG), but the LFC supplier defaulted on contract.
2013	#6 Fuel Oil tank	The #6 Fuel oil bulk storage tank, inspected from the inside and outside. UT thickness readings suspect due to manufacture issue with equipment. No issues noted.
2018	Boiler 6	Boiler 6, Internal inspection and UT tube (10%) thickness survey by (ATS) (heavy water side deposition)
2018	#6 Fuel Oil tank	The #6 Fuel oil bulk storage tank, UT inspected from the outside. No issues noted other than need to reinspect soon to verify rate of change in thickness readings between 2013 & 2018.
2019	Boiler 7	Boiler 7, 17 blistered fire box wall tubes were replaced on left and front wall of the fire box; Caused by severe waterside scale deposition.
2020	Boiler 7	Inspected (PSA) to determine the cause of high stack temperature. Found steaming section 1st baffle plate section partially burned out and the missing portion replaced, as it was the likely cause of high stack temp 700F+, along with severe waterside scale deposition.
2024?	Boiler 7	Boiler7, High stack temperatures 700F+ discovered again. Need to re inspect steaming section baffles and water side scaling.
2004 to 2012	Boiler 7	Between 2004? and 2012, Boiler #7 on NG was the first fire boiler.
2012 to Today	Boiler 5, 6, 7, 8	Since 2012, Boiler 8 has advanced to the first fire boiler, with Boiler 7 the secondary. Boilers #5 or #6 serve as the +1-backup oil fired boilers, with an air emission license limit on annual operational hours.

Existing boiler specific equipment, Induced draft fan (IDF) and Forced draft fans (FDF), are original to their associated boiler, and use steam turbine drives that use 150 or 50 psig steam so the boilers can run during electrical outages. Similarly, most of the other plant auxiliary equipment, i.e. feedwater treatment, feedwater deaerator (DA), feedwater high pressure pumps …are at or beyond their useful life or are inadequate to serve the current needs of the plant boilers.

As most of UMaine's CSP boilers and auxiliary equipment was recognized to be at the end of its useful life, UMaine is engaged in a design for a University of Maine Energy Center (UMEC), an addition to the south side of the current CSP on College Avenue that would include all new boiler auxiliary equipment and new dual fuel boilers using primarily renewable liquid fuel or renewable natural gas.

Purpose of this RFQ

The University of Maine is requesting qualifications information from consulting engineering/design service providers (individual firms or teams) to self-perform or facilitate an in-depth inspection of boilers #5 & 6 and to provide an evaluation of those inspection reports along with recommendations/estimates of life extension upgrades and fuel conversion from #6 oil to a renewable fuel, or #2 oil. The purpose of the inspection/evaluation is to determine the life of Boilers 5 & 6 and if they can be economically extended and converted to use a renewable fuel, at a lower capital cost verses a larger UMEC addition with new boilers.

The following is an outline of the scope of work to be done by the selected consulting firm or team:

1. To perform or facilitate, so as to provide to UM, a 3rd party **assessment of the current as is condition of Boilers 5 & 6** and the associated IDF, FDF and steam turbine drives, and an assessment as to their current ability to reliably function as backup boilers.
2. Based on **1.** determine the scope, order of magnitude (OOM) cost estimate of recommended **Life Extension upgrades needed for the reliable operation of Boilers 5 &6 for 10 years, firing #6 oil**, in their current role as backup boilers.
3. Based on **1.** Determine the scope, OOM cost estimate of recommended **Life Extension upgrades, and conversions from #6 oil to a light (i.e. #2) renewable fuel, needed for the reliable operation of Boilers 5 & 6 for 10 years as the primary fired plant boilers,** with NG fired boilers #7 & 8 being the backup boilers.
   Commentary: Use of Boilers 5 & 6 in this way could allow UMaine to meet its 2030~2040 carbon emission reduction goals and potentially delay the need for higher capital investments to construct a larger UMEC addition for multiple new renewably fueled boilers and a new multiflued stack.
4. Consult with UM regarding 1. 2. and 3. above, the **cost/benefit of life extension upgrades and burner conversion on Boilers 5 & 6, vs two new factory Boilers** in a larger addition to the UMEC work.

This RFQ document provides instructions for submitting your qualifications information.

UMaine intends to use the information provided to select a consultant/team, and to negotiate a scope of services agreement, where the selected consultant will facilitate a comprehensive inspection, evaluate, report and advise the University on the results. Then develop scopes and cost estimates and consult with UMaine as to recommended next steps with Boilers 5 & 6, which may then inform the design and scope decisions for the UMEC Project.

Inspection and evaluation of Boilers 5 & 6 will begin as soon as it can be scheduled operationally following execution of an agreement with the selected firm or lead firm.

SECTION II: REQUIRED SUBMISSION INFORMATION

The team's Statement of Qualifications shall respond to each specific selection criteria, with responses organized in discrete sections and in the same order as presented below. Each team's submittal must include an index, with tabs corresponding to each criterion.

1. Letter of Interest with Team Profile. For teams, please indicate which firm is the lead firm. Please include the email address and physical address of letter signatory. Individual firms or teams desiring to be considered should submit a letter indicating interest and their ability to start work as soon as it can be scheduled operationally.

2. Design Experience. Experience in the evaluation of boilers of similar size and scope in the past five (5) years which demonstrates the firm's ability to manage the work through all phases:

    2.1. Include examples of boiler examination and evaluation for institutions which have mission critical central heating plants with major equipment that needs replacement or life extension and emissions upgrades and how the scope decisions were made.
    2.2. Include examples of the design for renovations of existing steam boiler for life extension and fuel conversion.
    2.3. Include information regarding firm's ability to manage schedule and budget in each project description.
    2.4. Include information regarding firm's experience in designing renovations of existing steam boiler for life extension and fuel conversion of boilers listed in Section I.
    2.5. Do not include projects unless personnel from the previous work will be assigned and dedicated to this project.

3. Technical Approach and Methodology
    Purpose: Understand how the team will conduct inspections, evaluations, and develop recommendations.

    3.1. Provide a description of the team's proposed approach to performing the boiler inspections, evaluating life extension potential, and assessing fuel conversion feasibility. Include:
        3.1.1. Inspection protocols and technologies to be used (e.g., UT testing, visual inspection, NDE methods)
        3.1.2. Criteria for evaluating boiler integrity and remaining useful life
        3.1.3. Risk Assessment and Mitigation Strategy
        3.1.4. A summary of potential risks associated with boiler life extension and fuel conversion on older boiler assets, and describe how your team would identify, assess, and mitigate these risks.

4. Principal Team Members. Resumes and roles of each team member expected to perform the work and their anticipated time commitment to this project.

5. References. Names, telephone numbers and email addresses of references specific to the relevant projects as well as references for proposed project team members.
    Provide a minimum of three (3) references (name, address, telephone number, and email address) who are current or former clients for whom similar work has been performed within the last three (3) years and who can be contacted by UMaine with respect to the firm's reputation for work, responsibility, timeliness, cost, and efficiency. References from current UMaine employees will not be accepted.
    Letters of reference may be submitted with additional information as appropriate.

6. Consultants. A list of outside consultants expected to be used for this work, including the expected extent of involvement these consultants.

7. Other Related Information. As desired, provide any other information the firm or team considers relevant to the evaluation of the firm's or team's qualifications. Prospective designs or solutions for the projects will not be evaluated for selection purposes.

SECTION III: SUBMISSION PROCESS

A. Submission and Selection Schedule.

The process schedule is anticipated to be as follows:

University advertises for qualifications	start Saturday, Aug 16, 2025
Deadline for Questions due no later than 4:00pm	Tuesday, Aug 26, 2025
Response to Questions due no later than 4:00pm	Wednesday, Sept 3, 2025
Qualifications submissions due no later than 2:00pm	Wednesday, Sept 10, 2025
Anticipated notification of firms to be interviewed	Week of Sept 15, 2025
Presentations/Interviews (interview time selected by lot)	week of Sept 29 & 30-Oct 6 & 7, 2025
Anticipated notification of selected firm and non-selected firms	week of Oct 13-17, 2025

B. Contact Person. Questions regarding this RFQ, see deadline for question submission above, shall be submitted by email to:

Jacob Olsen
Assistant Director of Capital Planning and Project Management
cppmquestions@maine.edu

1. Questions with responses and updates will be posted on the FM web site as appropriate.

https//umaine.edu/ofm/contractors/advertisements

2. Do not contact any other University employee, representative or student regarding this RFQ unless specifically directed to do so in writing by the designated contact.

C. Submissions. Qualifications shall be submitted according to the following:

1. **Time, Date and Place Due**. Submittals are due no later than **2:00pm** on Wednesday Sept 10, **2025**.
All submissions shall be addressed and submitted to:

Jacob Olsen
Assistant Director of Capital Planning and Project Management
University of Maine System
Office of Facilities Management
5765 Service Building, Room 111
Orono ME 04469-5765

Submittals received by FM after the deadline will not be considered. Faxed or emailed submissions will not be accepted. Firms assume all risks of the method of delivery chosen. UMaine assumes no responsibility for delays caused by any package or mail delivery service.

2. **Submission Identifier**. The outside of containers in which proposals are submitted must be clearly marked with the firm's return address and the notation:
Qualifications for Design Services for Boiler Evaluations at University of Maine

3. **Number of Copies**. One (1) printed original, four (4) hard copies and one (1) .pdf copy on thumb drive.

D. Other Information.

1. No site tours will be provided at this time.

SECTION IV: SELECTION PROCESS

A. General. All qualifications submitted in response to this RFQ will be reviewed for completeness prior to referral to the Selection Committee.

B. Selection Committee. The Selection Committee will consist of representatives from the University of Maine, including members of the University of Maine Facilities Management and University of Maine System Capital Planning and Project Management.

C. Submittal Evaluation Criteria. The Selection Committee will determine the merit of submissions received in accordance with the responses provided to the qualification information requested in Section II.

D. Interviews. Firms or teams with top-ranking submittals may be short-listed for an interview with members of the Selection Committee. Upon interview completion, the short-listed firms or teams may be further evaluated through UMaine contact with listed references.

SECTION V: CONTRACTING REQUIREMENTS

A. To be considered; design firms or teams must be capable of starting work immediately following the conclusion of the selection process. The selected design team will have a lead firm or form an LLP with whom the University will sign a single design agreement for the work. The structure of the team shall be determined by the team members. However, multiple agreements will not be considered.

B. The University intends to enter into an initial contract limited

C. The firm with whom the University will sign a contract must include an engineer licensed to work within the state of Maine. The firm shall be required to provide all record reports, drawings and sketches for this project on electronic media (CAD) in either .dwg (preferred) or .dxf format, as well as in .pdf format.

D. By submitting qualifications packet the design firm or team accepts the University's standard contractual terms and conditions of service.

The Firm or Team selected will be required to show evidence of, and maintain through the one-year project correction period following substantial completion of the project, Professional Liability (Errors and Omissions) Insurance through a Company licensed to do business in Maine, with a minimum coverage per occurrence of One Million Dollars ($1,000,000).

Other required insurance types and limits are described in AIA Document B102 – 2017 Standard Form of Agreement Between Owner and Architect under Article 1.5. The AIA B102 template can be viewed at the University of Maine System Office of Facilities Management and General Services web site at: http://www.maine.edu/general-serviceys/capital-planning-project-management/capital-construction-design-documents/

Scholarships, donations or gifts to the University will not be considered in the evaluation of responses.

By Board of Trustee policy and Governor's Executive Order, the selected design firm or team will be required to design to green standards compliant with Executive Order 27 FY11/12 when applicable and cost-effective.