

LUTHER COLLEGE

Facilities Services
700 College Drive
Decorah, IA 52101
Phone (563) 387-1146
Fax (563) 387-1373

Request for Proposal

Utility Master Planning and Engineering Services Carbon Neutrality: Luther College Energy/Utilities Master Plan December 6, 2018

To:

Mike Hansen ISG
201 Main St, Suite 1020, La Crosse, WI mike.hansen@is-grp.com

Tim Fehr Shive-Hattery.
2839 Northgate Drive, Iowa City, IA tfehr@shive-hattery.com

Michael Luster MEP Associates, LLC
3416 Lakeridge Place NW, Rochester, MN mikel@mepassociates.com

1. **Subject**

Luther College has a goal to achieve carbon neutrality by 2030 and seeks utility master planning and engineering services to chart a pathway to zero-carbon campus energy systems. The College seeks creative approaches toward that goal, understanding that financial restraints will require a phased approach and that our carbon neutrality goal takes precedence over the date by which we achieve it. Firms will present their approaches and be able to discuss during on campus interviews.

2. **Intent**

Luther College seeks to develop an energy master plan that articulates a pathway, including detailed systems design, to achieve carbon neutral energy systems, improve resiliency to power outages in the immediate future, manage campus electrical demand, leverage market incentives, and maintain comfort and reliability. The project is tentatively entitled “Carbon Neutrality: Luther College Energy Master Plan”.

The College intends to retain an engineering firm to work with campus stakeholders in a working group to develop the Plan over multiple years. The working group will include representatives from Facilities Services, Financial Services, Luther's Center for Sustainable Communities and others. The working group will consider various options including, but not limited to, on-campus electrical generation, heat pump systems, district heating, and/or other systems. The engineering firm will participate in a high-level planning and priority-setting process, develop conceptual engineering documents, and develop detailed project cost models with baseline scenarios

The scope of this initial effort is outlined below in section #4.

Luther College's optimal pathway to carbon neutrality will:

- Include a detailed, scheduled timeline of projects to completely decarbonize our energy systems
- Build on our success in meeting our 50% goal by 2015 and progress toward our 70% goal by 2020.
- Be cost-effective and favor lower emissions.
- Minimize and plan for soft costs and staff time commitments.
- Align and integrate with other College capital plans, strategic plans, and programmatic needs.
- Minimize and, where possible, quantify liabilities and risks.
- Minimize non-climate environmental impacts.
- Minimize campus disruption and leverages existing campus infrastructure.
- Maintain flexibility and resiliency for future changes in available technologies, costs, institutional context, and other factors.

3. Background

Luther College is a signatory of Second Nature's American College and University President's Climate Commitment and has set a carbon neutrality date. The 2017 Greenhouse gas inventory documented a gross total of approximately 16,439 MTCO₂E in total, with 8,193 MTCO₂E resulting from electricity procurement and 5,504 MTCO₂E resulting from heating fuel consumption

Heating and Cooling

Most of Luther's buildings are heated by connection to the centralized steam system, fueled by three Cleaver-Brooks boilers operating at 60 p.s.i. Two of the boilers are 1,000 h.p. water tube boilers, and one is a 2004 600 h.p. fire tube with an economizer, O₂ trim, and other energy savings controls. The central system relies on natural gas with #6 fuel oil as a backup, which is permitted for one of the water tube boilers. Ground-source heat pumps provide heating and cooling for the Center for the Arts and Baker Village. Most cooling is done via various standalone water chillers, with two shared systems. The Miller and Dieseth residence halls share a Trane rotary-screw chiller. Preus Library and Olin Hall share a Daikin/McQuay centrifugal chiller. There are several DX style systems on campus as well, with some still utilizing R-22 as a refrigerant.

Electricity

Luther annually purchases about 13,000 MWh with a peak demand average of about 2.9 MW over the last 5 years. In the last three years the College has been exposed to increasingly frequent and disruptive power outages. On-site solar generates electricity for Baker Village (net zero), the President's residence, Sustainability House, and the campus electrical loop. These solar arrays have been funded via a variety of financial arrangements, including College ownership,

equipment lease, and a third party Power Purchase Agreement (PPA) Total capacity is over 1MW.

Luther currently purchases RECs from a local wind turbine to offset a portion of the campus's consumption. Luther also owns a 1.6 MW wind turbine. The power is brought back to campus via an underground power line and is currently sold to our electric utility partner, Alliant Energy. The related RECs are retained by the College and used to offset electricity purchases and reduce Luther's campus carbon footprint.

Other Emissions Sources

The Utility/Energy Plan will focus on strategies to eliminate natural gas and electricity-associated emissions. To achieve carbon neutrality, Luther will also pursue off-site renewable energy certificates, carbon offsets for professional travel and commuting, metering improvements, low-carbon construction and renovation, and low-carbon procurement strategies through separate concurrent or future processes.

Further Resources

[The 2017-18 Greenhouse Gas Inventory](#): The Inventory identifies Luther College's major sources of GHG emissions. The figures for transportation are approximate.

For more information about Luther's investments in energy efficiency and renewable energy, see Luther College Center for Sustainable Communities:

<https://www.luther.edu/sustainability/>

[Luther College Site Plan](#)

4. Scope of Services

A draft scope of services is presented below. The College is seeking creative solutions to achieve carbon neutrality, and the precise scope of services will be guided by the high-level strategy.

The firm will work in partnership with a campus working group that will include representatives from Facilities Services, Financial Services, and Luther's Center for Sustainable Communities and others to evaluate possible paths forward for different campus systems.

We expect firms to present their own creative ideas for Luther's opportunities to decarbonize, which will likely include a role for some or all of:

- On and off-site renewable electricity generation
- Upgrades to the electrical system to increase load capacity
- On-site biofuel or fossil fuel-powered electricity co-generation
- On-site biofuel-powered heating
- Air and ground source heat pumps
- Solar hot water
- Energy storage
- Energy recovery
- Other technologies

Current plans to make additional investments in renewable energy, campus metering improvements, and energy efficiency will be pursued through parallel processes that will

intersect with and inform the Utility/Energy Plan, but will not be responsibility of this firm to lead. Consideration of the results from these initiatives should be integrated into this project, however the role of energy storage should be evaluated in order to maximize available tax benefits, and cost reductions for demand response.

The firm will be expected to provide detailed quantitative carbon and financial cost analysis of system options and phasing options that will include:

- Net present value calculations
- Clear documentation of assumptions
- Sensitivity analysis to changing costs and conditions
- Quantification of soft costs and risks where possible, including risks of technology failures, system failures, and fuel supply chain availability.
- Documentation of non-quantifiable soft costs and risks.

Expectations of the firm in each phase of the project are as follows:

- Meet with the College and to address questions and ensure mutual understanding about expectations for this work
- Meet periodically with the working group to provide progress updates and address questions
- Review applicable documents made available by the College
- Review and validate prior work on the condition and capacity of existing campus utility systems including, all heating sources, electrical supply and distribution, and natural gas.
- Review and validate prior assessment of loads and service requirements
- Review and validate prior assessment of proposed campus development and associated load growth for each utility
- Review and validate prior assessment of efficiency of campus energy conversion and distribution systems
- Develop comprehensive 30-year cost model for operation and maintenance of existing utility systems including but not limited to, energy costs, regular maintenance costs, renewal costs, labor costs, and permitting costs.
- In consultation with the College, select and evaluate at least two alternative design concepts for further study
- Provide a brief report summarizing key findings, life cycle cost analysis and options proposed for evaluation
- Continue analysis of efficiency of proposed campus energy conversion and distribution systems
- Provide schematic design of each option
- Review and consider all applicable codes and regulations, including the Americans with Disabilities Act.
- Continue to develop comprehensive 30-year cost model for capital cost and operation and maintenance of proposed utility systems including but not limited to, energy costs, regular maintenance costs, renewal costs, labor costs, and permitting costs.
- Develop sensitivity analysis showing the impact of potential changes in capital costs and energy costs on project economics
- Provide a narrative description and qualitative analysis of each option – analysis should include but not be limited to impacts on campus resilience, aesthetics, and potential disruptions to campus activities.
- Develop phasing schedule for each option
- Integrate feedback from the College in documents and analysis.
- Provide a detailed report and high level summary for the Board of Regents.
- Develop design in enough detail to accurately estimate costs

- Present findings along with design documents and cost estimates.
- Publish a final report that will be the basis for proceeding with financing, design and execution of the plan.

5. Proposal Requirements

Proposals should include:

Section 1: Firm Description

- Not to exceed 3 pages.
- Provide a statement of interest for the project. Describe the firm's problem-solving approach. Describe the firm's qualifications to provide the requested scope of services.
- Describe the firm size, history, locations, ownership, philosophy, and other important information. Describe the primary services provided by the firm. Note any services identified in the RFP that the firm does not routinely provide.

Section 2: Project Management Plan

- Describe the firm's Project Management Plan, including a schedule of milestone dates.
- Identify expected necessary meetings, including the baseline two-hour high level meeting every two weeks.
- Describe quality control measures for ensuring complete and accurate documentation.

Section 3: Project Team Qualifications

- Not to exceed 3 pages. Attach detailed resumes in an Appendix.
- Provide an organizational chart for the firm, with names, roles, and vitae of staff who will be assigned to this project. Identify the role and responsibilities of team members in relation to his project, including identification of the primary point(s) of contact for Luther College.
- Provide a detailed description of the firm's engineering capability for design, specification and construction administration of relevant utility systems.
- If applicable, for any sub-consultant firm or individual that the primary firm proposes to engage: Identify the consultant with a brief description and history.
- Describe their proposed role in the project and related project experience.
- List previous projects in which the primary firm and sub-consultant have partnered.
- Provide resumes demonstrating the experience and expertise of principles and project staff for the sub-consultant who are proposed to engage with this project.

Section 4: Project Experience

- Not to exceed 6 pages.
- Identify past projects with a scope of services most similar to those in this RFP, with an emphasis on past work with institutions of higher education. For each, identify the project name, location, date, owner, duration, scope of system types, scope of services, and sub-consultants. Explain why each project is relevant to Luther's Utility/Energy Plan. Describe the processes that contributed to project success.
- Provide three references from similar projects, with at least two in higher education. Include contact information for both facilities staff and sustainability staff.

Section 5: Fee Proposal

- Provide proposed not-to-exceed fee to accomplish the scope of work as described, by discipline. For any consultant or individual that the firm may propose, provide and list their fee separately. Provide hourly billing rates for proposed team members.
- Provide a breakdown of hours by discipline.
- Provide a proposed not-to-exceed budget for reimbursable expenses.

6. Criteria for Selection

The submitted proposals will be evaluated on:

- Demonstrated understanding of the project and a creative approach to its challenges and opportunities
- A detailed project management plan
- Assignment and commitment of key staff members to the proposed team
- Evidence that the firm and key staff members proposed have successfully completed similar projects
- Evidence of capacity for clear and detailed analysis of financial and carbon impacts of different structure and phasing options.
- Provided references
- The fee proposal

7. Future Contracts

While Luther College intends to continue with subsequent planning, design, and implementation phases with the selected partner, it reserves the right to perform these tasks in-house or hire other firms for this work. However, the intent of this proposal is to select a firm with which the institution will partner to bring the plan to reality.

8. Interviews and Proposal Submissions

Firms will each be given a 90-minute interview and discussion with Luther College stakeholders from Facilities, Finance, Sustainability and potentially others.

Firms should prepare in the first hour or less to share:

- Introductions of staff
- Overview likely sub-consultants
- Review engineering capabilities for design and construction administration of campus utilities.
- Review process expectations
- Impressions of Luther College's current infrastructure.
- The firm's philosophy regarding the role of new sustainable technologies and assessment of associated risks.
- Share experiences with prior clients working on similar projects, with an emphasis on higher education.
- Share a vision of how the firm would work with stakeholders to reach consensus on the appropriate steps for Luther's energy system.
- Share a proposed schedule for that scope of work.

The following ½ hour will be reserved for questions and discussion.

Proposals must be submitted by email in PDF format by 5:00 PM CST on January 11 2019

to:

Jay Uthoff
Director of Facilities Services
uthoffja@luther.edu

9. Additional Information

Questions can be submitted before December 19 to receive a response by December 28. All questions should be addressed to Jay Uthoff at uthoffja@luther.edu. All questions and responses will be distributed to all bidders.

10. Disclosure of Proposal Contents:

All proposals become the property of Luther College and may be reviewed and evaluated by any person, other than competing professionals, at the discretion of the College.

11. Rejection of Proposals

Luther College reserves the right to reject any and all proposals received as a result of this request or to negotiate with any and all competing professional firms. The College reserves the right to use any or all concepts presented in reply to this Request for Proposal.