



Request for Proposals:
Lead Research Consultant for
Cost of Electrifying Existing Buildings Study

Date of Issue: February 1, 2024
Proposals Due: February 29, 2024

All proposals must be submitted to:
buildings@masscec.com

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1. SUMMARY

The Cost of Electrifying Existing Buildings Study (the “Study”) is a Massachusetts Clean Energy Technology Center (“MassCEC”) research initiative that seeks to quantify and disseminate information on the cost of electrifying and increasing the energy efficiency of the existing building stock in the Commonwealth of Massachusetts in alignment with the state’s 2050 net zero greenhouse gas limits (“2050-Ready”). While data and modeling on the incremental cost of fully electrified new construction buildings are available for some building typologies in the Commonwealth, a current, comprehensive study of the incremental costs of electrifying the existing building stock in the Commonwealth is not. MassCEC intends the research conducted under this scope of work to address the question of the upfront cost of electrifying and increasing the energy efficiency of the existing building stock in the Commonwealth as per the timelines and targets established in the 2025/2030 and 2050 Clean Energy and Climate Plans (“CECPs”) both in absolute terms and relative to business-as-usual investments.

2. ABOUT MASSCEC

MassCEC is a quasi-state economic development agency dedicated to accelerating the growth of the clean energy sector across the Commonwealth to spur job creation, deliver statewide environmental benefits, and secure long-term economic growth for the people of Massachusetts. MassCEC works to increase the adoption of clean energy while driving down costs and delivering financial, environmental, and economic development benefits to energy users and utility customers across the state.

MassCEC’s mission is to accelerate the clean energy and climate solution innovation that is critical to meeting the Commonwealth’s climate goals, advancing Massachusetts’ position as an international climate leader while growing the state’s clean energy economy. MassCEC is committed to creating a diverse, equitable, and inclusive organization where everyone is welcomed, supported, respected, and valued. We are committed to incorporating principles of diversity, equity, inclusion, and environmental justice in all aspects of our work in order to promote the equitable distribution of the health and economic benefits of clean energy and support a diverse and inclusive clean energy industry. MassCEC strives to lead and innovate in equitable clean energy and climate solutions.

3. STUDY GOALS AND DESCRIPTION

The goal of the Study is to address the gap in existing building electrification incremental cost research and to disseminate findings broadly. This Request for Proposals (“RFP”) is seeking a Lead Research Consultant (the “Consultant”) for the Study, to complete the tasks outlined in Section 6 (the “Scope of Work”), including, but not limited to:

- Provide project management tasks including creating and implementing a project workplan, scheduling meetings, setting agendas, creating notes documents, and developing a research methodology covering both available existing building retrofit data and modeled building retrofit data for electrification and business-as-usual retrofits;
- Collect available data on the upfront cost of retrofits to fully electrify existing buildings of multiple typologies in Massachusetts versus business-as-usual and/or fossil fuel retrofits, including all relevant incentives, rebates, and tax credits for at least ten (10) typologies to be determined in consultation with MassCEC. A preliminary list of typologies to consider includes

single family homes, low-rise multi-family residential, mid- and high-rise multi-family residential, office, clinics, retail, assembly, food service, hotel, supermarket, and warehouse buildings;

- Create cost estimates for the upfront cost of electrification and business-as-usual retrofits where costs are not publicly available in existing data sets, including estimating all relevant incentives, rebates, and tax credits;
- Draft representative case studies and a white paper presenting the results of the analysis above, documenting data sources, cost estimates, assumptions, methodologies, and potential sources of uncertainty in data presented, and assemble a database of the case studies and the real-world and modeled cost data and analysis in database format; and
- Conduct additional research on the topic of existing building electrification in the Commonwealth as needed by MassCEC and mutually agreed upon between MassCEC and the Consultant.

MassCEC intends this research to address the question of the cost of electrifying the existing building stock in the Commonwealth as per the timelines and targets established in the 2025/2030 and 2050 CECPs. This research should cover the majority of existing building typologies found in the Commonwealth, both residential and commercial, and be representative of all geographies within the Commonwealth. The information provided in the final white paper documenting this research is intended to support regulators and incentive program administrators in creating and updating policies and incentives to ensure 2025/2030 and 2050 CECP building sector targets are met.

A proposed contract timeline is provided below.

Please note that this is an estimated timeline and dates are subject to change at MassCEC’s discretion.

RFP Milestone	Tentative Timeline
Release of RFP	February 1, 2024
Questions due to MassCEC via email to buildings@masscec.com	February 15, 2024
Questions with Answers Posted to MassCEC Website	February 22, 2024
Proposals Due	February 29, 2024 by 5:00 pm Eastern Time
Interviews of Top Applicants	March 2024
Notification of Award	March 2024
Contracting with Selected Applicant	April 2024
Survey and Documentation of Existing Cost Data (Task 2)	May 2024
Cost Estimates for Data Gaps (Task 3)	June 2024 – July 2024
Case Studies for Representative Building Typologies (part of Task 5)	July 2024 – August 2024
Complete Analysis, Case Studies, White Paper, and Database (Tasks 4 & 5)	August 2024 – September 2024

4. ELIGIBILITY

Applicants may be individuals, sole proprietors, or companies/non-profits with multiple employees. **Applicants are encouraged to consider partnering, especially with institutional and academic research partners, in order to provide complementary expertise that a single entity may not possess.** Individual entities may apply as part of multiple Applicant teams. Applicant teams should have one (1) entity that takes responsibility for organizing the team and proposal (the “Lead Applicant”).

Applicants must have the experience described below. See Section 8 for selection criteria.

- **Recent Building Retrofit Cost Evaluation Experience:** The Consultant will be asked to provide existing building renovation cost data for a wide variety of building types, for both full electrification scopes and baseline or business-as-usual scopes. In order to accurately do this, Applicant teams should understand both the costs of high efficiency and all-electric solutions as well as standard efficiency and fossil fuel solutions in the Massachusetts market today. Applicants should have familiarity with recent project prices for material, labor, and soft costs associated with retrofit projects across the full spectrum of building types described in the scope of work below. Applicants are encouraged to partner with a construction cost estimator with recent actual built project costing experience as necessary to provide this expertise.
- **Technical Knowledge:** Applicants should have demonstrated technical expertise in the following topics:
 - **Efficiency:** Applicants should have expertise on efficiency, especially weatherization (i.e., insulation and air-sealing), as well as appliance and lighting efficiency, water efficiency, etc.
 - **Electrification Solutions:** Applicants should have expertise with the following electrification solutions.
 - Heating solutions including but not limited to: Air-source heat pumps/air-to-water heat pumps/VRF and ground-source heat pumps
 - Hot water: Heat pump water heaters and solar hot water
 - Cooking: Induction stoves and standard electric stoves
 - Non-fossil fuel alternatives for other appliances like dryers, fireplaces, and others
 - **Electrical Upgrades:** Applicants should include the technical expertise to understand what electrical upgrades may be required in a building to support electrification solutions.
 - **Clean Electricity:** Applicants should have expertise in clean electricity options, including the potential for onsite solar PV and storage.
 - **Health and Safety:** Applicants should have experience identifying health and safety opportunities, including but not limited to the health and safety measures included in the Mass Save Energy Assessment.
 - Note, process loads are not expected to be part of the initial scope of this work, but MassCEC encourages Applicants to submit qualifications and strategies for how they

would approach buildings with high process loads for this study should it be included in any potential future scope expansion.

- **Energy Efficiency and Emissions Reduction Incentive Expertise:** Applicants should have familiarity with the Mass Save energy efficiency incentive programs, including experience in programs and initiatives that work directly with residential and commercial buildings, tax credits, and other incentive sources as applicable.
- **Market Knowledge:** Applicants should have familiarity with the residential and commercial existing building retrofit market in Massachusetts and analysis experience relative to different commercial building typologies.
 - Applicants should have experience building networks and conducting outreach to residential and commercial building owners.
 - Applicants should have knowledge of national approaches to electrification and programs, tools, or resources developed in other states and by federal programs and non-profits which are relevant to commercial building electrification.
- **Diversity, Equity, and Inclusion:** Applicants should have experience incorporating diversity, equity, and inclusion considerations into previous work.
- **Communication:** Applicants must demonstrate experience with developing content for technical resources aimed at the public (such as white papers) as well as policymakers.
- **Analytical Capability:** Applicants must be able to conduct quantitative analysis of the relative costs and benefits of various efficiency and electrification solutions, including financial modeling such as simple payback analysis and lifetime cost of energy assessment. Applicants must also be able to assess the relative carbon impacts of different solutions, including embodied carbon of materials.
- **Facilitation and Project Management:** Applicants must demonstrate ability or experience implementing projects on a tight timeline, including managing timelines, scheduling calls and meetings, and leading calls and meetings.

5. ESTIMATED RFP TIMELINE

This timeline is subject to change at MassCEC’s discretion.

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6. SCOPE OF WORK

The total proposed budget for all tasks is Two Hundred Thousand Dollars (\$200,000). Applicants may suggest additional tasks and/or suggest expanded task scopes within the overall budget. See Section 7 (How to Apply) for more information on the application and Section 9 (Budget) for more information on the budget. If Applicants believe that additional funding is necessary to achieve the Scope of Work, they may request a higher budget but should explain why the higher budget is necessary.

All tasks with a written work product should include facilitating and incorporating feedback from MassCEC and relevant stakeholders as outlined in the description of each task. With approval from MassCEC, the Consultant can set up how they would like to receive the feedback (e.g., survey, written comments, discussion). MassCEC welcomes respondents to propose research methodologies to derive the data specified below.

TASK 1: PROJECT MANAGEMENT

Coordinate the implementation of the Study, including collecting and responding to MassCEC feedback.

- While the high-level research approach should be proposed in the application and confirmed in the contract with MassCEC, during the project launch the Consultant will develop a final research methodology.
 - With MassCEC's input, determine which building typologies to focus on for tasks 2-5. MassCEC is interested in at least ten (10) building typologies. A preliminary list of typologies to consider includes single family homes, low-rise multi-family residential, mid- and high-rise multi-family residential, office, clinics, retail, assembly, food service, hotel, supermarket, and warehouse buildings. However, MassCEC recognizes that it may not be possible to complete tasks 2-4 as described below for all of these typologies. The Consultant will work with MassCEC to determine at least ten (10) target typologies.
- The Consultant will be the subject matter expert on behalf of MassCEC. MassCEC will depend on the Consultant to survey and share existing data sources and to identify and establish methodology for filling gaps in existing data.
- The Consultant will attend regular check-ins with MassCEC – monthly or based on current project activity level – set agendas and provide meeting summaries.
- In addition to providing ongoing feedback, the Consultant may be requested to participate in up to ten (10) hours of debrief conversations with relevant stakeholders.

Deliverable(s):

- *Final Research Methodology. Consultant should plan to include at least one (1) round of review of and feedback on the research methodology by MassCEC. Audience: MassCEC staff. Consultant to propose research methodology format and meeting count in proposal.*
- *Meeting Agendas and Summaries.*

TASK 2: COST DATA COLLECTION

For the building typologies agreed to in Task 1, compile all available, relevant data on the following:

- Upfront or capital cost of electrification retrofit, including energy efficiency improvements.
- Upfront or capital cost of business-as-usual retrofit for all building systems and components that would be modified as part of an electrification retrofit.
- Available incentive, rebate, and tax credit data.

Data sources may include, but are not limited to: MassCEC pilot and program data, City of Boston Mayor's Office of Housing decarbonization grant data, Department of Energy Resources low and moderate income housing decarbonization grant data, and Mass Save program administrator project and measure cost data, as available. If available, cost data for each typology should be provided, in addition to larger data sets on complete electrification projects as available and larger cost data sources covering single electrification/efficiency measures. A preliminary list of typologies to consider includes single family homes, low-rise multi-family residential, mid- and high-rise multi-family residential, office, clinics, retail, assembly, food service, hotel, supermarket, and warehouse buildings. If available, cost data should come from both Environmental Justice and non-Environmental Justice communities.

Deliverable(s): *Upfront cost data for electrified and efficient existing building retrofits compared to business-as-usual. A complete list of available incentives for building electrification retrofits. Consultant should plan to include at least one (1) round of review and feedback by MassCEC. Audience: MassCEC staff.*

TASK 3: COST ESTIMATES

Where there are gaps in available data for actual built electrification and/or business-as-usual retrofits for any of the building typologies to be included in this work, the Consultant should plan to provide rigorous cost estimates from conceptual building project models. As needed, the Consultant shall create existing building electrification retrofit cost estimates, and business-as-usual retrofit cost estimates for existing building types found in Massachusetts for which actual built project example data are not available, to include estimates of all available and applicable incentives, rebates, and tax credits.

Deliverable(s): *Estimated or modeled upfront cost data for electrified and efficient existing building retrofits compared to business-as-usual where actual project data is unavailable. Consultant should plan to include at least one (1) round of review and feedback by MassCEC. Audience: MassCEC staff.*

TASK 4: CASE STUDIES, WHITE PAPER, AND DATABASE

The Consultant shall draft an initial set of representative, real-world case studies (at least one (1) for each selected typology and three (3) for single family homes); white paper summarizing research methodologies, available retrofit cost data sources, estimated retrofit costs, and research findings for publication; and assemble a database of the case studies and the real-world and modeled cost data and analysis in database format. These deliverables shall be updated annually in 2025 and 2026, and preference will be given to proposals that include additional case studies in each of those two (2) years.

Deliverable(s): *Case Studies, white paper, and database. Consultant should plan to include at least two (2) rounds of review and feedback by MassCEC for these deliverables. Audience: regulators, policy makers, incentive program implementers, building retrofit designers and engineers, building retrofit contractors, and the general public.*

TASK 5: MISCELLANEOUS

MassCEC may elect to assign other tasks to the Consultant as the need arises. These tasks would be billed at the Consultant's hourly rates, not to exceed a fixed fee mutually agreed upon by MassCEC and the Consultant at the assignment of the task.

Applicants are welcome to propose additional scope.

7. HOW TO APPLY

Responses to this RFP must be received by MassCEC no later than February 29, 2024 at 5:00 pm Eastern Time. Only complete, timely proposals will be considered. MassCEC, at its sole discretion, may determine whether an application is complete. The submission must be in electronic form, submitted via email to buildings@masscec.com. Proposals should be in a single PDF document. “Cost of Electrifying Existing Buildings Study – Lead Research Consultant Proposal” should appear in the email subject line.

Applicants for the Consultant should:

- Complete **Attachment A** (Signature and Acceptance Form)
- Complete **Attachment B** (Application Form).
- Attach:
 - Team Member Resumes: Include resumes of each individual who would be part of the project team.
 - Writing Samples: Include up to three (3) writing samples that demonstrate the Applicant team’s ability to create public facing resources, case studies, and white papers, and/or policy-focused analysis.
- Review and be prepared to sign **Attachment C** (Sample Agreement). Any requested change to Attachment C (Sample Agreement) should be noted.

8. SELECTION CRITERIA

Proposals will be evaluated on the criteria below:

- **Completeness of Proposed Approach**
 - Does the Applicant plan to provide services commensurate with the Scope of Work outlined in Section 6?
 - Has the Applicant’s proposed approach demonstrated insight into additional needs of the Study or proposed additional and valuable recommendations?
- **Experience and Qualifications**
 - To what extent does the Applicant demonstrate the eligibility criteria outlined in Section 4?
 - Has the Applicant successfully completed projects similar or relevant to the proposed work?
 - Does the Applicant have experience and qualifications to conduct research across a broad range of building typologies in the Commonwealth, including those in Environmental Justice communities?
 - Does the Applicant or do partners have Supplier Diversity Office (SDO) certification as a diverse business enterprise or meet the criteria for any of the diverse business enterprises certified with the SDO but has not completed certification with the SDO?
- **Cost Competitiveness**
 - How does the Applicant’s hourly rate compare to other Applicants?
 - How does the Applicant’s proposed maximum fee compare to MassCEC’s suggested cap and the fee proposed by other Applicants?

- How does the scale and quality of the proposed scope compare to the maximum fee?
- **Overall Quality of Proposal**
 - Does the Applicant demonstrate an understanding of the concepts and motivators underlying the Study?
 - Has the Applicant demonstrated an ability to engage with and communicate effectively to different stakeholder groups, especially a diverse array of building owners?
 - Has the Applicant demonstrated sufficient creativity and flexibility to support the Study?
 - Does the Applicant identify opportunities to leverage existing data sources for the Study, either within Massachusetts or outside of the state?
- **Applicant Team (if applicable):**
 - Does the partnership have a history of collaboration?
 - Does the partnership have a clear structure for collaboration?

9. BUDGET

MassCEC anticipates contracting with one (1) Consultant for the Scope of Work outlined in Section 6 with an available budget of Two Hundred Thousand Dollars (\$200,000). Applicants are highly encouraged to submit a base proposal that meets the Scope of Work outlined in Section 6 for this budget or less.

However, if Applicants believe that additional funding is necessary to achieve the Scope of Work, they may request a higher budget, but should explain why the higher budget is necessary. The proposed budget should reflect the proposed approach described in Attachment B (Application Form). MassCEC suggests that Applicants leave at least Five Thousand Dollars (\$5,000) under Task 7 for additional miscellaneous tasks that may arise over the course of the project.

Additionally, Applicants for the Consultant may propose additional Tasks beyond those described in Section 6, but the scope and cost of those additional tasks should be clearly and separately outlined in Attachment B (Application Form).

MassCEC anticipates that the Consultant will be paid by the hour for the Scope of Work described in Section 6 (and any other tasks mutually agreed upon), not to exceed an agreed upon cap per task.

10. CONTACT INFORMATION FOR QUESTIONS

buildings@masscec.com

11. GENERAL REQUEST FOR PROPOSALS CONDITIONS

A. NOTICE OF PUBLIC DISCLOSURE

As a public entity, MassCEC is subject to Massachusetts' Public Records Law, codified at Chapter 66 of the Massachusetts General Laws. Thus, any documentary material, data, or other information received by MassCEC from an Applicant is a public record subject to disclosure. Applicants shall not send

MassCEC any confidential or sensitive information in response to this RFP. If confidential information is submitted as part of the application and not clearly marked as confidential, such information may be made publicly available by MassCEC without further notice to the Applicant.

B. DISCLAIMER & WAIVER AUTHORITY

This RFP does not commit MassCEC to award any funds, pay any costs incurred in preparing an application, or procure or contract for services or supplies. MassCEC reserves the right to accept or reject any or all applications received, waive minor irregularities in submittal requirements, modify the anticipated timeline, request modification of the application, negotiate with all qualified Applicants, cancel or modify the RFP in part or in its entirety, or change the application guidelines, when it is in MassCEC's best interests.

This RFP has been distributed electronically using MassCEC's website. It is the responsibility of Applicants to check the website for any addenda or modifications to an RFP to which they intend to respond. MassCEC accepts no liability and will provide no accommodation to Applicants who apply based on an out-of-date RFP document.

C. CONTRACT REQUIREMENTS

Upon MassCEC's authorization to proceed with the proposal, MassCEC and the awarded Applicant(s) will execute a contract, substantially in the form of the Sample Agreement attached hereto as Attachment C, which will set forth the respective roles and responsibilities of the parties.