U.S. General Services Administration
Public Buildings Service
Office of Facilities Management

U.S. Department of Energy
Office of Energy Efficiency and Renewable Energy

RFI Response Questions

FY23RFI101122

GSA Green Proving Ground Program

Date: October 11, 2022

This Request for Information (RFI) seeks innovative, early commercial building technologies that can cost-effectively transform the operational efficiency of federal and commercial buildings and reduce carbon emissions. The performance of technologies selected as a result of this RFI will be validated in occupied, operational buildings.

Responses to this RFI will be evaluated and considered for inclusion in the GSA Green Proving Ground (GPG) program (for federally owned facilities) and voluntary partnership programs facilitated by DOE (for privately owned facilities), or both.

Responses will be accepted through December 9, 2022, 11:59pm EST. To be considered, responses must be received prior to this closing time.

Throughout this form, the word "technology" refers broadly to integrated systems based on any combination of hardware (equipment), software (processing), materials engineering processes, and resource management devices, methods, tools, or models based on scientific or engineering principles. "Early commercial technology" is defined as technology whose value and risks are understood by specialists for some applications, but the supply chain or full-scale production, or both, have not yet been fully established. Only technologies and solutions that are ready for evaluation in occupied, operational buildings will be considered.

Note that all fields are required. Any submission deemed to contain insufficient content for thorough evaluation will be eliminated from consideration.

Section 1. Applicant Information

- [Applicant Company]
- [Company Address]
- [Company City]
- [Company State]
- [Company Zip Code]
- [Applicant Name]
- [Applicant E-mail]
- [Phone Number]

- **Details about the project team:** Provide detailed information about the members of your team who will be engaged during the formulation and execution of this field validation. If your teaming arrangement includes multiple entities, include information about the team structure and capabilities each member brings to the team, and describe any past working relationships between teaming members. Also, describe the extent to which the project team includes Minority Business Enterprises, Minority-Owned Businesses, Woman-Owned Businesses, and Veteran-Owned Businesses, and any deployment partners that would facilitate more equitable adoption of your solution in underserved communities. (Limit 2,500 characters)

- **Funding: Unconditional gift to GSA?** To be considered for field validation at a federal facility, technology must be provided as an unconditional gift of property under GSA's gift acceptance authority (40 U.S.C. § 3175). If selected for testing and evaluation, do you agree to donate unconditionally at no cost to GSA your submitted technology in sufficient quantity to test and evaluate its performance? (Yes/No)

Section 2. Solution Overview

- **Descriptive Title:** Provide an informative descriptor of your solution. The title you submit will be broadly used by the review team when discussing your solution. Please do not use a product name for the title. (Limit 50 characters)

- **Executive Summary:** Provide an "elevator pitch" or "30,000-foot view" that broadly characterizes the use case, value proposition and market space for this solution, and gives an overview of the innovation. (Limit 1,000 characters)

Section 3. Technical Attributes of the Solution

- **Use Case and Innovation:** Specify the use case that the proposed technology solution addresses related to energy efficiency, electrification, renewable generation, or storage, or any combination of the foregoing. Describe the innovation and performance improvement relative to current capabilities and other value-added benefits that may result from installation of the technology. (If this section contains proprietary or confidential information, please identify as "Privileged and Confidential Communication." Limit 2,500 characters)

- **Functionality:** Describe the technology solution in sufficient detail to establish an accurate understanding of how the solution maintains or improves energy efficiency, reduces greenhouse gas (GHG) emissions, and how the solution is superior to incumbent solutions. A schematic of the technology solution is encouraged as supporting documentation. (If this section contains proprietary or confidential information, please identify as “Privileged and Confidential Communication.” Limit 2,500 characters)

- **Impacts:** Describe required interaction with and potential impacts on building occupants, facility operations, and facility systems. (If this section contains proprietary or confidential information, please identify as “Privileged and Confidential Communication.” Limit 2,500 characters)

- **Required Building Systems:** Describe all facility characteristics, systems and components that are needed for the solution to work as intended. (If this section contains proprietary or confidential information, please identify as “Privileged and Confidential Communication.” Limit 2,500 characters)

- **Required Certifications:** Describe the appropriate certifications that your technology requires and has received (*e.g.*, Underwriter’s Laboratories certification and International Electrotechnical Commission 61730 and 61215 certifications). If there are any outstanding certifications, please indicate the timeline and processes underway for obtaining them. (If this section contains proprietary or confidential information, please identify as “Privileged and Confidential Communication.” Limit 2,500 characters)

Section 4. Test Bed

- **Technical Attributes:** Identify building, geographical and other characteristics, if any, that will best support a conclusive real-world validation of the proposed technology solution. If a specific recommended commercial or federal test bed location is part of your submission, explain why this facility is ideal, and attach any documentation supporting the facility's commitment to participation. Also, describe the extent to which project activities would be located in or benefit underserved communities. Characteristics may include recommended climate zone(s), envelope or mechanical system attributes, on-site energy production or storage capabilities, or both, facility operating hours, energy load profile, utility tariffs, or any other relevant factors. (If this section contains proprietary or confidential information, please identify as “Privileged and Confidential Communication.” Limit 2,500 characters)

● **Technical risks:** What potential risks or issues, including cybersecurity, interoperability with existing platforms or devices, acceptance by facility operations and maintenance staff or building occupants, or both, and other technical risks associated with deployment, including in underserved communities, could prevent the solution from operating or performing as intended, and how can each risk and issue be mitigated? If there are any other risks or issues that could have a negative impact on a conclusive field validation, discuss how these risks and issues should be managed. (If this section contains proprietary or confidential information, please identify as “Privileged and Confidential Communication.” Limit 2,500 characters)

● **Laboratory or validated performance data:** Cite or submit links to any studies by independent researchers that document the performance of any aspects of the solution in a controlled setting. Provide links to supporting documents in the “Supporting Documents” section of your response. Identify relevant sections of those documents here. If laboratory or validated performance data is not available for aspects of your solution, where possible, provide any other independent experience pertaining to the solution performance. (If this section contains proprietary or confidential information, please identify as “Privileged and Confidential Communication.” Limit 2,500 characters)

Section 5. Commercialization

● **Current Technical Readiness and Production:** Describe the level of readiness of the proposed technology for market adoption. Has the technology been implemented in commercial applications? If so, please explain the nature and duration of use. If the technology has recently undergone rounds of testing and refinement, provide details from the last 12-18 months. Please provide a timeline to commercialization and current and future production capacity. (If this section contains proprietary or confidential information, please identify as “Privileged and Confidential Communication.” Limit 2,500 characters)

● **What is the potential for this technology to reach wide-scale deployment?** Outline key technical attributes and targeted building types that would enable the proposed solution to be deployed on a widespread scale cost effectively. Identify the commercial building retrofit markets that are ideal for the technology and, if applicable, new construction applications. Describe how you intend to increase market share. If the technology or solution is included in any utility incentive program or has been included in any project funded through an energy savings performance contract or alternative financing arrangement, or any combination of the foregoing, please describe. Also describe the extent to which the technology or solution is deployable with little to no need for additional supporting infrastructure that can serve as a barrier

to equitable deployment (*e.g.*, internet connectivity, skilled labor for operations and maintenance and proximity to population centers). (If this section contains proprietary or confidential information, please identify as “Privileged and Confidential Communication.” Limit 2,500 characters)

- **Novel financing approaches and/or business models:** Describe novel financing and business models that will accelerate the uptake of your technology or solution. (If this section contains proprietary or confidential information, please identify as “Privileged and Confidential Communication.” Limit 2,500 characters)

- **What barriers to market adoption will field validation address?** Describe specific quantitative and qualitative metrics and indicators of successful performance that field evaluation will validate. (If this section contains proprietary or confidential information, please identify as “Privileged and Confidential Communication.” Limit 2,500 characters)

- **Energy and Emissions:** Provide estimated annual energy reduction (kWh), reductions in GHG emissions (lbs of $CO_{2,eq}$), generation capacity (kW), and energy cost savings ($) compared to the incumbent solution. To quantify energy and cost saving reductions, scenarios can be based on real-world deployment data or developed through modeled performance/cost/adoption data. To quantify emissions reductions, use the methods in the *CEQ 2016 GHG Guidance*. Appendices A and B provide guidance to calculate Scope 1 and 2 emissions reductions, respectively. See Examples B-1 and A-1 on pages 68 and 131 of the PDF, respectively, for example calculations for Scope 1 and 2 emissions. Use National Average eGRID emission rates from Tab A in *FEMP’s Annual Energy Management Data Report workbook* that include: 947.182 lb/MWh (CO_2), 85.000 lb/GWh (CH_4) and 12.000 lb/GWh (N_2O). For fuels, use the high heat values (HHVs) in Tab D in the same workbook. (If this section contains proprietary or confidential information, please identify as “Privileged and Confidential Communication.” Limit 2,500 characters)

- **Return on Investment:** Provide annotated calculations of simple payback and (optional) life-cycle cost or savings-to-investment ratio. Calculations can include alternative scenarios of mature market technology pricing, retrofit/new construction or optimum/minimum appropriate deployment, utility tariffs, or any combination of the foregoing. Calculations included without clear references or the basis of assumptions will not be evaluated. (If this section contains proprietary or confidential information, please identify as “Privileged and Confidential Communication.” Limit 2,500 characters)

- **Ongoing Costs:** Describe cost requirements for effective ongoing operation. This should include a description of required maintenance, any associated fees

(such as software as a service fees), training, and any other needed support. (Limit 2,500 characters)

Section 6. Attachments

- **Supporting documents:** Provide hyperlinks to web resources that help explain your technology or solution (*e.g.*, demonstration videos, cut sheets, press, studies, or published findings or reports). If possible, please provide a single slide that provides an overview of your technology or solution. If possible, this slide should not contain privileged and confidential information. If your solution has control software, web-based components or mobile device applications, provide screenshots of the user interface here. Identify specific sections of the web resources (page number or paragraphs) where relevant material is located. All supporting documentation must be available using URL through a hosted domain or cloud-based file sharing. Please do NOT share through Dropbox.

- **How did you hear about this RFI? Had you heard previously about the GPG program or the DOE program, or both? If so, when and how?**