U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

High Impact Commercial Building Technology

DATE: November 5, 2014

SUBJECT: Request for Information (RFI)

DESCRIPTION:

The U.S. Department of Energy's (DOE) Building Technologies Office (BTO) has developed a framework, called the High Impact Technology (HIT) Catalyst, for accelerating the voluntary adoption of high impact, cost-effective, energy-saving and underutilized commercial building technologies. This Request for Information seeks data, information and feedback on the high impact technologies included in BTO's analysis and planning.

BACKGROUND:

Commercial buildings consume 18 Quads of primary energy annually.[i] Advances in commercial building technologies can enable the cost-effective delivery of new buildings and retrofits of existing buildings that significantly lower commercial building energy consumption. This RFI seeks information on technologies that are ready for market but that are underutilized due to barriers such as perception of risk, gaps in information and data on performance and cost.

This RFI covers the High Impact Technology (HIT) Catalyst which supports the technology-related market transformation activities implemented through the Commercial Buildings Integration (CBI) Program. Through the High Impact Technology Catalyst, technologies will be prioritized and aligned with market transformation activities based on technology and market factors including:

- Market Demand
- Existing Resources related to the specific technology
- Regulatory Environment
- Manufacturing Capacity
- Cost Effectiveness including Installation, Operations and Maintenance
- Energy Footprint
- Technical Energy Savings Opportunity

Market transformation mechanisms such as technology demonstrations, technical and procurement specifications, templates, tools, market adoption campaigns, etc. will be developed and/or updated to increase voluntary uptake of HITs based on technology characteristics, barriers and the state of the market for each technology.

In fiscal year 2014 the HIT Catalyst included an assessment of more than 400 High Impact Technologies. This work included a broad sweep of existing technology information and resources (the BTO Prioritization Tool, [ii] academic literature and studies, and Better Buildings Alliance activities) which supported the development of a database of potential HITs. These

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HITs were organized into a matrix and evaluated based upon the market factors listed above and utilizing input from subject matter experts with a depth of experience in the respective technology areas. The initial prioritization results were then presented for review by five different stakeholder groups including national research laboratories, academia, other federal agencies, regional energy efficiency organizations, and utilities. The inputs from these parties were used to prioritize the results. The HIT priority list for this year includes the following technologies:

- LED Troffers with Controls
- Packages of Building Management and Information Systems (including submetering, control and automated fault detection and diagnostics)
- Auto Sash Fume Hoods for Laboratories
- Shading Attachments and Awnings
- Refrigeration Controls & Display Case Retrofits
- Heat Pump Water Heaters

The HIT priority list is posted on the new High Impact Technology Catalyst website, http://energy.gov/eere/buildings/high-impact-technology.

This RFI seeks inputs from interested parties including technology providers and technology end-users (such as building owner/operators) for the next annual review of HITs. Technology providers may provide information based on the criteria (listed below in Category 1) used to evaluated priority technologies for the HIT Catalyst. Building owners and operators may share interest in specific technologies and provide feedback on the most useful market transformation methods and/or resources.

Information produced through this RFI will enable CBI to 1) prime the market for high impact technologies currently under development; 2) develop a pipeline of underutilized, high impact technologies ready for deployment; 3) better understand market potential, interest and readiness; 4) connect technology providers with demonstration hosts, distributors, end users, and tools to assist in the acceleration of market uptake. Please do not submit proprietary or confidential information. The HIT Catalyst program may disseminate through BTO programs and partners the information submitted in response to this RFI to drive market adoption.

PURPOSE: The purpose of this RFI is to solicit feedback from industry, academia, research laboratories, government agencies, building owners and other stakeholders on issues related to cost-effective, market-ready, high impact commercial building technologies, as defined in the criteria above. EERE is specifically interested in information and data related to available high impact technologies and market interest in those technologies. This RFI also supplements the Request issued by EERE on March 6, 2014 to introduce the HIT Catalyst and solicit initial feedback and stakeholder inputs. This is solely a request for information and not a Funding Opportunity Announcement (FOA). EERE will not accept any applications or solicitations in response to this RFI.

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DISCLAIMER AND IMPORTANT NOTES: This RFI is not a Funding Opportunity Announcement (FOA); therefore, EERE is not accepting applications at this time. EERE may issue a FOA in the future based on or related to the content and responses to this RFI; however, EERE may also elect not to issue a FOA. There is no guarantee that a FOA will be issued as a result of this RFI. Responding to this RFI does not provide any advantage or disadvantage to potential applicants if EERE chooses to issue a FOA regarding the subject matter.

Any information obtained as a result of this RFI is intended to be used by the Government on a non-attribution basis for planning and strategy development; this RFI does not constitute a formal solicitation for proposals or abstracts. Your response to this notice will be treated as information only. EERE will review and consider all responses in its formulation of program strategies for the identified materials of interest that are the subject of this request. EERE will not provide reimbursement for costs incurred in responding to this RFI. Respondents are advised that DOE is under no obligation to acknowledge receipt of the information received or provide feedback to respondents with respect to any information submitted under this RFI. Responses to this RFI do not bind EERE to any further actions related to this topic.

Respondents are requested to provide the following information at the start of their response to this RFI:

- Company / institution name;
- Company / institution contact;
- Contact's address, phone number, and e-mail address.

PROPRIETARY INFORMATION: Because information received in response to this RFI may be used to structure future programs and FOAs and/or otherwise be made available to the public, **respondents are strongly advised to NOT include any information in their responses that might be considered business sensitive, proprietary, or otherwise confidential.** If, however, a respondent chooses to submit business sensitive, proprietary, or otherwise confidential information, it must be clearly and conspicuously marked as such in the response.

Responses containing confidential, proprietary, or privileged information must be conspicuously marked as described below. Failure to comply with these marking requirements may result in the disclosure of the unmarked information under the Freedom of Information Act or otherwise. The U.S. Federal Government is not liable for the disclosure or use of unmarked information, and may use or disclose such information for any purpose.

If your response contains confidential, proprietary, or privileged information, you must include a cover sheet marked as follows identifying the specific pages containing confidential, proprietary, or privileged information:

> **Notice of Restriction on Disclosure and Use of Data:**
> Pages [list applicable pages] of this response may contain confidential, proprietary, or privileged information that is exempt from public disclosure. Such information shall be used or disclosed only for the purposes described in this RFI #1086. The Government

may use or disclose any information that is not appropriately marked or otherwise restricted, regardless of source.

In addition, (1) the header and footer of every page that contains confidential, proprietary, or privileged information must be marked as follows: "Contains Confidential, Proprietary, or Privileged Information Exempt from Public Disclosure" and (2) every line and paragraph containing proprietary, privileged, or trade secret information must be clearly marked with double brackets or highlighting.

EVALUATION AND ADMINISTRATION BY FEDERAL AND NON-FEDERAL PERSONNEL: Federal employees are subject to the non-disclosure requirements of a criminal statute, the Trade Secrets Act, 18 USC 1905. The Government may seek the advice of qualified non-Federal personnel. The Government may also use non-Federal personnel to conduct routine, nondiscretionary administrative activities. The respondents, by submitting their response, consent to DOE providing their response to non-Federal parties. Non-Federal parties given access to responses must be subject to an appropriate obligation of confidentiality prior to being given the access. Submissions may be reviewed by support contractors and private consultants.

REQUEST FOR INFORMATION CATEGORIES AND QUESTIONS:

CATEGORY 1: Technology Information

Please respond with answers to the following if you are interested in providing information on a technology for evaluation as part of the HIT Catalyst:

- Did you receive federal funding to support the development of this technology? If so, please describe the amount, duration and source of funding.
- Who is the primary point of contact (name, title, organization, phone, email)?
- Please provide a summary of the technology including:
    - demonstrated payback,
    - national energy savings potential,
    - the applicable market and distribution channels; and

the targeted building sector/type.

- Please cite existing real building demonstration data including payback and cost information. If real building demonstration information is not available, please answer the following questions. What are the characteristics of an ideal building installation, i.e. ability to share energy data, significant number of pieces of equipment, technical ability staff (plug-and-play lamps vs. design, labor and install for HVAC), funding, other commitments, etc.?
- Is this product readily available for purchase on the market?

- What barriers have you identified to wide market acceptance of this technology?
- Is this technology manufactured in the United States?

CATEGORY 2: End-User Information

1. Which commercial buildings stakeholder group do you best represent?
    a. Owner, Investor or Developer
    b. Operator, Building Manager
    c. Occupant, Tenant
    d. Designer, Engineer, Architect, Building Professional
    e. Manufacturer, Dealer, Supplier
    f. Scientist, Researcher
    g. Utility
    h. Government
    i. Trade Association
    j. Financial Institution
    k. Service Provider
    l. Other (please explain).

    What categories of commercial building energy saving technologies or strategies are of specific interest to you? Please be as broad or specific as needed. General categories may include: lighting, especially solid state lighting and lighting controls; HVAC; envelope; building controls; refrigeration; food service; laboratories; renewables; plug loads.

2. What barriers and problems exist to including this/these energy saving technologies into your building projects (new and retrofit)?
3. What market transformation strategy and/or resources would be most helpful in accelerating your use of high impact technologies? Please select all that apply, and note the technologies to which they would be applicable:
    a. Case study reports (field demonstrations) including energy and dollar savings resulting from application of the technology
    b. Installed cost and pricing information
    c. Technology/strategy performance information
    d. Recognition by DOE and partners
    e. Sample procurement language (procurement specifications)
    f. Sample technical specification language

g. Peer exchange and sharing of best practices
h. Energy savings calculators
i. Application guidance
j. Industry Challenges that encourage innovation

4. Please indicate other strategies and/or resources that you would find valuable for accelerating the voluntary uptake of cost-effective, energy saving technologies.
5. How can DOE continue to engage building owners to adopt high impact technologies in buildings?

RESPONSE GUIDELINES for the REQUEST FOR INFORMATION: Responses to this RFI must be submitted electronically to CBIRFI2015@ee.doe.gov no later than 5:00pm (ET) on **December 30th, 2014**. Responses must be provided as attachments to an email. Responses must be provided as a Microsoft Word (.docx) attachment to the email, of no more than two pages in length, 12 point font, 1 inch margins. Only electronic responses will be accepted.

Please identify your answers by making note of the specific question or topic if possible. Respondents may answer as many or as few questions as they wish.

EERE will not respond to individual submissions or publish publicly a compendium of responses. A response to this RFI will not be viewed as a binding commitment to develop or pursue the project or ideas discussed.

[i] The Buildings Energy Data Book indicates that the commercial buildings sector consumed 18.11 quadrillion Btu primary energy in 2013, *see* http://buildingsdatabook.eere.energy.gov/TableView.aspx?table=3.1.1. The U.S. Energy Information Administration Annual Energy Outlook 2013 Early Release estimates commercial building energy consumption at between 17.65 and 18.12 quadrillion Btu between 2012 and 2014, *see* http://www.eia.gov/oiaf/aeo/tablebrowser/#release=AEO2013ER&subject=0-AEO2013ER&table=2-AEO2013ER&region=1-0&cases=full2012-d020112c,early2013-d102312a.

[ii] http://energy.gov/eere/buildings/prioritization-tool

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