Building Energy Efficiency Frontiers and Innovation Technologies (BENEFIT)-2015

Funding Opportunity Announcement: DE-FOA-0001166

Webinar 1: Oct 15, 2014

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

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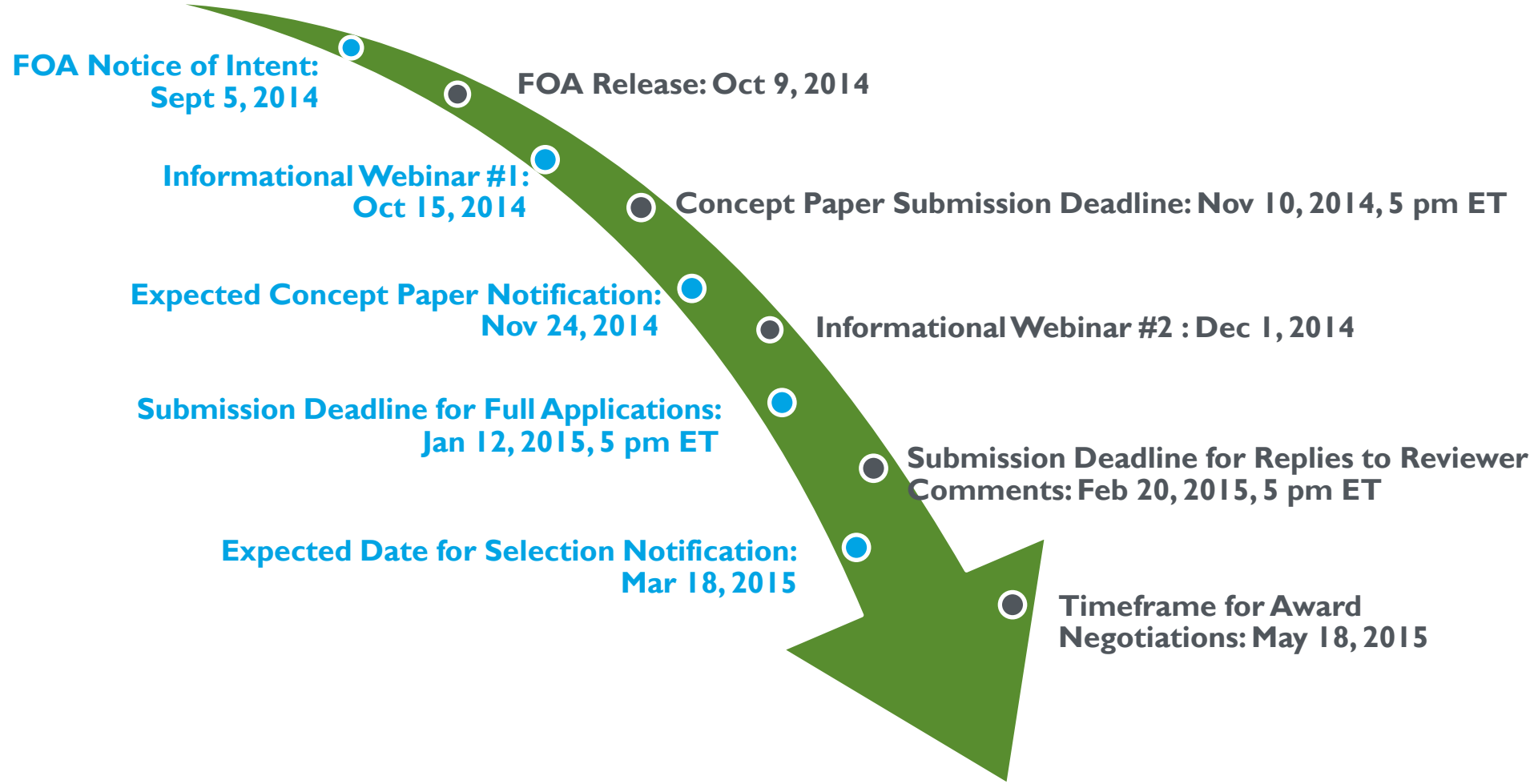
None of the information presented here is legally binding. The content included in this presentation is intended only to summarize the contents of funding opportunity DE-FOA-0001166. Any content within this presentation that appears inconsistent from the FOA language is superseded by the FOA language. All Applicants are strongly encouraged to carefully read the FOA guidelines and adhere to them. Neither the U.S. Department of Energy (DOE) nor the Federal employees associated with DOE working on this presentation shall be held liable for errors committed by applicants based on potentially incorrect or inaccurate information presented herein.

Submit Questions to: BENEFIT2015@ee.doe.gov

What is a Funding Opportunity Announcement?

1. Contains instructions for potential applicants;
2. Provides the objectives of the funding opportunity;
3. Outlines directions for successfully submitting the application:
   - Eligibility,
   - Required documents,
   - Technical objectives,
   - Review Criteria and scoring; and
4. Includes conditions associated with federal funding.

Schedule



*Questions to: BENEFIT2015@ee.doe.gov

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Funding Opportunity

Summary

- $7.75 million available
- 2 topics, Innovation and Frontiers
- Mandatory concept papers, followed by full applications
- Cooperative Agreements with substantial involvement between EERE and Recipient
- 20% cost share: universities, nonprofits, FFRDCs, and local governments
- Innovation: DOE total of ≤ $1.5 million, up to two years
- Frontiers: DOE total of ≤ $ 1 million, up to three years

Main Objectives

Reduce primary energy consumption in USA buildings (residential and commercial) through

Innovation:

- Non-vapor compression HVAC technologies

Frontiers:

- Advanced vapor compression HVAC technologies

Metrics and Performance Targets

Topic 1: NON-VAPOR COMPRESSION HVAC TECHNOLOGIES

The successful applicant will develop non-vapor compression HVAC technologies that provide some or more of the following capabilities:

1) Good LCCP (Life Cycle Climate Performance), continuous response to part-load conditions;
2) Integrated thermal storage potential;
3) Grid integration capabilities;
4) Minimal to zero water consumption (energy water nexus issues addressed);
5) Cost effective (potential to achieve a 5-year payback period if fully deployed by 2030);
6) Potential to result in reduced size (if located on the ground) and/or weight (if located on the top of a building) than today's high efficiency units;
7) Readily available materials and energy savings (BTO's goals).

Metrics and Performance Targets

Topic 1: NON-VAPOR COMPRESSION HVAC TECHNOLOGIES

Table 1 BTO Targets for Non-Vapor Compression HVAC Systems			
	2015	**2017**	**2020**
Primary Seasonal COP	2.30	2.28	2.28
Installed Cost Premium per kBtu/hr, (2013 dollars)	$98.90	$89.59	$80.07

Notes for Table 1 and 2: The Coefficient of Performance (COP) for heat pumping technology is a ratio of heating or cooling provided to energy consumed. We are extending this definition to include primary energy as our energy input and seasonal effects. This aids in mapping HVAC equipment targets to BTO's goals which are primary energy based. The Primary Seasonal COP is the ratio of the output provided by the HVAC equipment over a season to the total primary energy consumed. The "Installed Cost Premium per kBtu/hr, (2013 dollars)" is defined as the installed cost premium per kBTU/hr of capacity using 2013 dollars with respect to the base case. This base case estimates the typical efficiency for the current HVAC stock. This base case is a bit better than Federal minimum standards overall.

Metrics and Performance Targets

Topic 2: ADVANCED VAPOR COMPRESSION HVAC TECHNOLOGIES

Advanced vapor compression HVAC technologies include but are not limited to:

1) Advanced vapor compression compressors
2) Regional HVAC solutions, Separate Sensible and Latent Cooling (SSLC) AC Systems or cold climate heat pump systems (cost reduction only)
3) Hybrid technologies that may include non-vapor compression elements that enable Separate Sensible and Latent Cooling (SSLC) AC Systems
4) HVAC systems with embedded energy and thermal storage that boosts the energy efficiency of the total system

Metrics and Performance Targets

Topic 2: ADVANCED VAPOR COMPRESSION HVAC TECHNOLOGIES

Applicants are required to provide their own analysis and discussion of how they will address the following desirable characteristics for an advanced vapor compression HVAC technology/system:

1) Good LCCP (Life Cycle Climate Performance)
2) The use of a low-GWP refrigerant
3) Potential response to part-load conditions
4) Integrated thermal storage potential
5) Grid integration capabilities
6) Minimal to zero water consumption (energy water nexus issues addressed)
7) Cost effective (potential to have 5 years payback period if fully deployed in the near term)
8) Potential to result in reduced size (if located on the ground) and/or weight (if located on the top of a building)
9) Use of readily available materials.

Metrics and Performance Targets

Topic 2: ADVANCED VAPOR COMPRESSION HVAC TECHNOLOGIES

Table 2 BTO Targets for Advanced Vapor Compression Technologies			
	2015	**2017**	**2020**
Primary Seasonal COP	2.20	2.30	2.01
Installed Cost Premium per kBtu/hr, (2013 dollars)	$103.80	$93.33	$82.61

Notes for Table 1 and 2: The Coefficient of Performance (COP) for heat pumping technology is a ratio of heating or cooling provided to energy consumed. We are extending this definition to include primary energy as our energy input and seasonal effects. This aids in mapping HVAC equipment targets to BTO's goals which are primary energy based. The Primary Seasonal COP is the ratio of the output provided by the HVAC equipment over a season to the total primary energy consumed. The "Installed Cost Premium per kBtu/hr, (2013 dollars)" is defined as the installed cost premium per kBTU/hr of capacity using 2013 dollars with respect to the base case. This base case estimates the typical efficiency for the current HVAC stock. This base case is a bit better than Federal minimum standards overall.

Required Concept Paper Submittals

Cover Page

(1 page max)

- Topic Area Number, Project Title, Lead Organization, Organization Type, Anticipated Project Budget, Principal Investigator, Team Members, and Key Participants; Abstract (200 words max)

Technology Description

(3 pages max)

- Introduction
- Impact of the Proposed Technology/Approach Relative to State-of-the-Art
- Overall Scientific and Technical Merit

Concept Papers: Technical Review Criteria

Criterion 1: Impact of the Proposed Technology Relative to State of the Art (50%)

This criterion involves consideration of the following factors:

- Method used to identify current state of the art technology
- If technical success is achieved, the proposed idea would significantly improve technical and economic performance relative to the state of the art.

Criterion 2: Overall Scientific and Technical Merit (50%)

This criterion involves consideration of the following factors:

- The proposed technology is unique and innovative; and
- The proposed approach is without major technical flaws.

EERE will make an "Encourage" or "Discourage" recommendation to submit a full application. A "Discourage" recommendation does not prevent the applicant from submitting a Full Application, but is intended to convey EERE's lack of programmatic interest in the proposal.

Program Policy Factors

- The degree to which the proposed project, including proposed cost shares, optimizes the use of available EERE funding to achieve programmatic objectives;
- The level of industry involvement and demonstrated ability to commercialize energy or related technologies;
- Technical, market, organizational, and environmental risks associated with the project;
- Whether the proposed project is likely to lead to increased employment and manufacturing in the United States;
- Whether the proposed project will accelerate transformational technological advances in areas that industry by itself is not likely to undertake because of technical and financial uncertainty;
- The degree to which the proposed project directly addresses EERE's statutory mission and strategic goals.

Cost Share

1. Must be eligible under the award conditions;
2. Verifiable from the recipient's records;
3. Not included as contributions for any other federally-assisted project or program;
4. Necessary and reasonable for proper and efficient accomplishment of project or program objectives; and
5. Allowable under the cost principles applicable to the type of entity incurring the cost.

See Appendix B

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Key Points

We recommend that you-

- Double check your entries in EERE Exchange
  - Submissions could be deemed non-compliant due to an incorrect entry
- Make sure you hit the submit button
- Follow formatting criteria and page lengths stated in the FOA
- Use the tables provided in the FOA to help construct a compliant application
- Suggested 48 hours before the due date (*note 5 pm ET*)
  - Avoid last-minute rush with EERE Exchange. EERE will not accept submissions that are late due to heavy network traffic.

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Logistics

Data Produced Under the Award

- The Government normally retains unlimited rights to technical data produced under Government financial assistance awards, including the right to distribute to the public.
- "Protected data" may be protected from public disclosure for up to 5 years.
- Invention disclosures may be protected from public disclosure for a reasonable time in order to allow for filing a patent application.

Annual Compliance Audits

- For-profit prime recipients: an annual compliance audit by an independent auditor may be required if expenditures of Federal funds > $500,000 during a fiscal year
- Other recipients: A-133 audit is required if expenditures of Federal funds > $500,000 in a fiscal year

- Submit Questions to *BENEFIT2015@ee.doe.gov.*
- Answers posted at https://EERE-Exchange.energy.gov , DE-FOA-0001166

Effective 12/26/2014, the DOE Financial Assistance regulations contained in 10 CFR 600 will be superseded by the Financial Assistance regulations contained in 2 CFR 200 (codified in Part IX of 2 CFR)