

## Solar Decathlon 2019 Future Planning Request for Information DE-FOA-0001753

DATE: March 7, 2017  
SUBJECT: Request for Information (RFI)

### **Description**

The U.S. Department of Energy (DOE) Solar Decathlon is an award-winning program that challenges collegiate teams to design, build, and operate solar-powered houses that are innovative, energy-efficient, and attractive. It provides participating students with hands-on experience and unique training that prepares them to enter the clean energy workforce. The Solar Decathlon, which is open to the public free of charge, is also a large public event that gives visitors the opportunity to tour solar-powered houses, gather ideas to use in their own homes, and learn how energy-saving features can help them save money today. The next Solar Decathlon will take place October 5-15, 2017, in Denver, Colorado.

Since Solar Decathlon's inception in 2002, DOE has continuously sought to refine and improve both the application process and event execution. This RFI seeks information to inform designing, planning and implementing Solar Decathlon 2019, which is also planned to take place in the Denver area.

The purpose of this RFI is to solicit feedback from past, present, and prospective participants in the Solar Decathlon; broader academic circles; industry; sponsors; and other stakeholders on issues related to the Solar Decathlon 2019 competition. The objective is to improve the outcomes aligned with the Solar Decathlon.

The goals of this RFI are twofold:

1. Gather feedback on changes being considered by the Department of Energy to increase the opportunities for team participation and innovation, and
2. Gather feedback on ways DOE can reduce the barriers to entry for participation for university teams.

DOE is specifically interested in feedback regarding changes that would make it easier for universities to compete in the Solar Decathlon while maintaining the ability to hold a large public event that enables the public to experience the innovation in the houses.

This is an RFI only. EERE will not pay for information provided under this RFI and no project will be supported as a result of this RFI. This RFI is not accepting applications for financial assistance or financial incentives.

## Background

The purpose of the Solar Decathlon is to provide unique workforce development opportunities for college students while providing a large public event that provides the public with the opportunity to tour the houses and learn about clean energy and sustainable residential buildings design.

The first Solar Decathlon was held in 2002, and the competition has occurred biennially through 2017. Solar Decathlons in 2005, 2007, 2009, and 2011 were held on the Mall in Washington, D.C., and Solar Decathlons 2013 and 2015 were held in Irvine, California. The next Solar Decathlon will take place October 5-15, 2017, in Denver, Colorado.

For each iteration of the competition, up to 20 collegiate teams are selected as finalists through a competitive proposal process. Each team has approximately two years to raise the resources needed to design, build, transport, and present its competition house at the Solar Decathlon. The teams each build a solar-powered house that showcases energy-efficient amenities, smart home systems, and innovative designs that save energy without sacrificing the comfort of modern conveniences. These houses are transported to a common site to compete against one another in the Solar Decathlon's 10 contests. The competition is composed of juried evaluations (such as architecture, innovation, engineering, communication, and market potential) and performance-based measurement (such as heating water, space conditioning, and energy balance). For Solar Decathlon 2017, all teams that successfully bring a house to the competition site and pass inspections will receive a cash prize with additional prize money being awarded to top place finishers.

The Solar Decathlon educates collegiate students about the opportunities presented by renewable energy and energy efficiency and challenges them to think in new ways about incorporating practical, innovative clean energy solutions into residential building applications. The Solar Decathlon encourages blended methods (including classroom instruction and real-world application) to teach science, technology, engineering, and mathematics (STEM) for building systems' design and operation. The competition intentionally fosters collaboration among students from different academic disciplines, including engineering, architecture, energy economics, and communications, who otherwise might not work together until they enter the workplace. The winner of the competition is the team that best blends design excellence and smart energy production with innovation, market potential, communication, and energy and water efficiency.

Since 2002 and through 2015, the Solar Decathlon has:

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- Involved 141 collegiate teams that pursued a multidisciplinary approach to study the requirements for designing and building energy-efficient, solar-powered houses.
- Positively impacted more than 18,000 collegiate participants.
- Expanded to Europe, China, and Latin America to involve an additional 133 teams and nearly 18,000 participants through Solar Decathlon Europe 2010 (Madrid, Spain), Solar Decathlon Europe 2012 (Madrid, Spain), Solar Decathlon China 2013 (Datong, China), Solar Decathlon Europe 2014 (Versailles, France), and Solar Decathlon Latin America and Caribbean 2015 (Santiago de Cali, Colombia). Solar Decathlons are now being planned for China (2018), the Middle East (Dubai, United Arab Emirates in 2018), Latin America and the Caribbean (Columbia in 2018), and Africa (Morocco in 2019).
- Educated the public about the benefits, affordability, and availability of clean energy solutions by generating widespread media coverage and harnessing digital tools to reach millions of people.

The competition is authorized under section 3165 of the Department of Energy Science Education Enhancement Act, as amended, which authorizes the Secretary of Energy to support competitive events for students under the supervision of teachers to encourage student interest and knowledge in science and mathematics (42 U.S.C. 7381b(a)(14)). Additional information is available at [www.solardecathlon.gov](http://www.solardecathlon.gov).

#### PREVIOUS CHANGES

DOE has continuously evolved the competition to reflect changing market conditions, feedback from participants, and policy goals. In response to feedback from Solar Decathlon 2013 and 2015 and via a prior RFI, the DOE and Solar Decathlon organizers made the following changes:

- Introduced new juried contests for innovation and water;
- Embedded affordability in the Market Potential contest to allow more flexibility while still considering cost-effectiveness;
- Modernized the energy balance criteria;
- Added language to encourage smaller and cheaper-to-transport houses; and
- Adjusted the construction and deliverable schedules to accommodate student needs and expectations.

While not all suggested ideas to the 2015 RFI were able to be incorporated, DOE remains interested in seeking input to continue to improve the competition and the experience for teams.

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## Purpose

The purpose of this RFI is to solicit feedback from industry, academia, research laboratories, government agencies, and other stakeholders on issues related to the DOE Solar Decathlon.

More specifically, DOE seeks a variety of information to help inform decisions regarding how future Solar Decathlon competitions will be organized. To this end, DOE seeks detailed information and answers to questions listed in the section below labeled “Request for Information Categories and Questions.”

This is solely a request for information and not a Funding Opportunity Announcement (FOA). EERE is not accepting applications.

## Disclaimer and Important Notes

This RFI is not a Funding Opportunity Announcement (FOA); therefore, EERE is not accepting applications at this time. 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. Final details, including the anticipated award size, quantity, and timing of EERE funded awards, will be subject to Congressional appropriations and direction.

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 EERE 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.

## 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.

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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 DE-FOA-0001753. 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 EERE 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: Prize Structure:**

DOE changed the structure of the financial relationship between the teams and the Solar Decathlon organizers in response to feedback from teams about the resources that they were

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having to commit to regular reporting requirements. Prior to the 2017 competition round, teams received direct DOE funding via a cooperative agreement. The cooperative agreement structure required a more burdensome application, as well as regular reporting and invoicing requirements. Beginning with the 2017 round, teams will receive prize money from the program administrator at the conclusion of the event. Teams are required to meet regular milestones leading up to the competition, but do not have a reporting relationship with DOE or the program administrator. In addition, this new structure guarantees prize money for all teams that bring an eligible house to the 2017 competition, rewards those that finish with the highest scores, and incentivizes teams to finish.

**QUESTIONS:** Does the prize structure, in which teams receive funds at the end of the competition, impact your team's decision to apply to the Solar Decathlon? Other thoughts on the use of the prize over receiving funds via a cooperative agreement from DOE?

### **Category 2: Timing of the Competition**

In response to teams that have expressed difficulty with holding the competition during the fall semester, Solar Decathlon organizers are considering moving the event from the fall (September-October) to the summer (2019).

**QUESTIONS:** Do you believe that moving the competition to the summer of 2019 is a positive change that would encourage and enable greater university participation and public attendance? If it were to move, is there a preferable time (month) in the summer to hold the event – including construction and deconstruction? Please explain your answers.

### **Category 3: Length of Competition**

In recognition of the difficulty on teams of having enough students to span the entire assembly/competition/disassembly period, Solar Decathlon organizers are considering limiting the total on-site duration to 20 days, with fewer days available for assembly and disassembly and public days limited to 6 (two weekends, Friday-Sunday).

**QUESTIONS:** Do you believe this shorter event calendar would make the event more compelling to universities? Would moving the event to the summer alleviate the need to reduce the number of days for the competition? Other thoughts?

### **Category 4: Cost Considerations for Teams:**

DOE is sensitive to the challenge of teams to find funding from their universities and sponsors to build houses, and transport them to and from the competition site. There are a number of

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possible ways that the Solar Decathlon could be modified to minimize the burden on teams to fund the houses, even if external sponsors can be found.

Please respond to each question below and explain how these modifications could affect your team:

- I. **Reducing the size of houses:** The Solar Decathlon organizers are considering limiting the participating house “prototypes” to a maximum size of approximately 500 sq. ft., but allowing teams to present digital alternates to the prototype, such as additional bedrooms, additional multi-family units, or alternative configurations. This would reduce construction, transportation, and assembly costs while maintaining the design-build and innovation focus of the competition. In this way, teams could present alternatives to single-family homes using modern techniques such as scale models, renderings, virtual reality, animations, and more while still learning through the design-build component of the Solar Decathlon.

**QUESTION:** Do you feel that this strategy would be successful and interesting to universities and the public alike?

- II. **Project cost of house:** The Solar Decathlon organizers are exploring how to reduce the financial burden on teams without compromising the technical and visual quality of the houses. One option is to limit the maximum project cost for each team’s entry, for example, to \$250,000, not including student, faculty, or donated labor. This limit would be inclusive of actual spending, the value of donated materials, the cost of shipping and accommodations for the event itself, and other associated expenditures. This would be confirmed through a combination of university reporting and independent estimates by the Solar Decathlon organizers.

**QUESTIONS:** Should DOE impose a project cost limit on the houses (with or without reducing the maximum size per question 1 above)? Please explain if you believe this would preserve the innovation aspects of the competition, as well as the technical and visual elements to meet the “show quality” needed for an enticing public event.

- III. **University financial commitment:** Some teams have been challenged because their universities have not adequately planned for financial support, particularly if multiple departments are involved. The Solar Decathlon organizers are considering requiring a signed financial commitment of \$100,000 in cash to be spent outside the university (on materials, travel, lodging, etc.) from University leadership for acceptance into the competition to help ensure that students are adequately supported and selected teams

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have a high chance of success. Combined with a proposed \$50,000 minimum cash prize from the Department of Energy for successful participation, this would reduce the additional time spent on fundraising by students and staff for outside sponsors.

**QUESTIONS:** Is requiring universities to commit to spending \$100,000 something you believe that university leadership can and will commit to? Will this help or impede the likelihood that your university will apply to the Solar Decathlon 2019?

#### IV. Sponsorship issues:

**QUESTIONS:**

- a. How has the process of finding sponsorships to supplement team costs gone for your university? What can Solar Decathlon organizers do to aid in this process?
- b. Does the prize structure adequately assist teams in their sponsorship efforts?
- c. What do the teams need in the way of documentation from DOE or the program administrator to help them with their sponsorship efforts?

- V. National Lab participation:** DOE expects to engage National Laboratories to identify technology innovations that could be offered to teams to be demonstrated in their Solar Decathlon houses. This would be offered to teams, who would have the option to accept these offers, via simple lab agreements.

**QUESTION:** Would lab involvement be a welcome change? Why or why not?

#### Category 5: Contests / Rules:

- I. Electric vehicles:** The Solar Decathlon organizers are considering eliminating the electric vehicle requirement in order to reduce the financial burden on teams.

**QUESTION:** Would eliminating the electric vehicle requirement be a welcome change? Why or why not?

- II. Partnerships with home builders:** Would it add value if the teams were required to partner with a local or national home builder to validate its designs? This could help teams meet the market potential contest, secure early sponsorship, as well as gain an additional real-world experience.

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**QUESTION:** Should teams be required to create a partnership with a national or local builder? Why or why not?

**III. New contests:**

**QUESTION:** Are the new contests of innovation and water a welcome change? Why or why not?

**Category 6: OTHER:**

**QUESTIONS:**

- I. For any respondent, what other changes, modifications, or improvements would you like to see for the next iteration of the Solar Decathlon?
- II. What challenges do the teams face in gaining support for their participation from their university administrators? How can DOE or the program administrator help?
- III. What should the Solar Decathlon look like in 10 years?
- IV. How do you feel that the success of the Solar Decathlon should be measured and evaluated? What constitutes “success” to you for this program?

**Request for Information Response Guidelines**

Responses to this RFI must be submitted electronically to [solar.decathlon@ee.doe.gov](mailto:solar.decathlon@ee.doe.gov) no later than 5:00pm (ET) on **April 3, 2017**. Responses must be provided as attachments to an email. It is recommended that attachments with file sizes exceeding 25MB be compressed (i.e., zipped) to ensure message delivery. Responses must be provided as a Microsoft Word (.docx) attachment to the email, and no more than 50 pages in length, 12 point font, 1 inch margins. Only electronic responses will be accepted.

Please identify your answers by responding to a specific question or topic if applicable. 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.

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

- Company / institution name;
- Company / institution contact;

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- Contact's address, phone number, and e-mail address

This RFI does not guarantee that EERE will release a FOA, competition, or any future funding associated with the Solar Decathlon.

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