SETO FY 2019 FUNDING OPPORTUNITY – Topic Area 4 – Innovations in Manufacturing: Hardware Incubator

Here is the transcript of the Topic 4 webinar for the Solar Energy Technologies Office FY2019 Funding Opportunity Announcement. View the webinar here with the password Setofoa2019: https://doe.webex.com/mw3300/mywebex/nbrshared.do. See more about this FOA, including the slides that accompany this webinar, at the EERE Exchange site: https://eere-exchange.energy.gov/#FoaId45eda43a-e826-4481-ae7a-cc6e8ed4fdae.

First slide:
Alright, so we'll go ahead and get started now. You've probably had a chance to read this first slide, but I'm going to go through it anyway. This webinar is being recorded, and it will be published online at the EERE Exchange website. If you do not wish to have your voice recorded, please do not speak during the call. If you do not wish to have your image recorded, please turn off your camera, or participate by phone. And if you speak during the call or use a video connection, you are presumed to consent to recording and use of your voice or image. So please mute your phones and we'll go ahead and begin.

Next slide:
Good afternoon, everyone, and welcome to the webinar. Thank-you for your interest in the U.S. Department of Energy's efforts on renewable energy and energy efficiency. You're joining us for the informational webinar for applicants and other interested parties for the Solar Energy Technologies Office Fiscal Year 2019 funding opportunity announcement, or FY19 SETO FOA, which was issued on March 26, 2019. This webinar is specifically focused on those interested in applying to Topic 4 of the funding opportunity, called Innovations in Manufacturing: Hardware Incubator, though much of the content is relevant to all FOA applicants. Before we begin, I'd like to draw your attention to the email address on the lower left-hand side of the cover page. This is the official mailbox to direct all of your questions during the entire FOA process. Please do not contact EERE individuals directly with questions, including myself. All questions received at this mailbox will be posted publicly at the Q&A section of the FOA page on EERE Exchange in an anonymous way. The official answers to your questions will also be posted typically within three business days. Please be careful not to submit any language that might be business-sensitive, proprietary or confidential. In addition to emailing this in-box, you may type in the chat bar any questions that may come up during the webinar. Again, please be careful not to submit any language that may be business-sensitive, proprietary or confidential. We will be posting answers to these questions to EERE Exchange, as well. And note that, again, we will not be able to answer these today in real time during the webinar, so submit them through the Webex interface chat function.

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Just to be clear, there is no particular advantages or disadvantages to the application evaluation process with respect to participating on the webinar today. Your participation is completely voluntary.

Next slide:
All applicants are strongly encouraged to carefully read the funding opportunity announcement, DE-FOA-0002064 and adhere to the stated submission requirements. This presentation summarizes the contents of the FOA. If there are any inconsistencies between the FOA and this presentation or

statements from DOE personnel, the FOA is the controlling document and applicants should rely on the FOA language and seek clarification from EERE at SETO.FOA@ee.doe.gov.

Next slide:
This slide shows the anticipated schedule for the FOA. The FOA has already been posted on March 26, and we are now conducting the FOA informational webinar for the Innovations in Manufacturing topic. The most important date for you to note at this point is May 7. That is when mandatory LOIs are due -- or sorry, I should have said letters of intent are due, that we call LOIs. If not submitted by that date, the applicant, you, would be ineligible to apply to this funding opportunity for the later stages. So mark your calendars, please, for May 7.

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The agenda for this presentation is as follows. We're going to talk at a high level about the FOA description, drill down deeper into Topic 4, the specific topic of relevance to this webinar, and then go through some more important details about the process, including information about substantial involvement, cost sharing and various stages of the application process, including the letters of intent, concept papers, full applications, merit review and selection, as well as other registration requirements. We encourage you to have a copy of the FOA in front of you for your reference as we go through the presentation.

Next slide:
So at a high level, this FOA aims to achieve SETO's priorities across the solar energy technology landscape that require sustained and multifaceted innovation. For the FY19 funding program, the office intends to support high-impact and early-stage research in the following areas. Today, as I said earlier, we're focusing in on Topic 4, Innovations in Manufacturing: Hardware Incubator.

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Since its inception in 2007, 129 start-up companies have received awards to participate in SETO's Incubator program, working to develop and launch transformative solar hardware products and services. This new FOA topic will continue that legacy and fund innovative product ideas with a clear pathway to reduce solar electricity costs that are too risky for private investment but have the potential for rapid commercialization. Projects will support high-impact research and development at for-profit companies that will be well-positioned to attract private-sector investment. SETO is particularly interested in applications for the development of innovative and impactful technologies that will support a strong U.S. solar manufacturing sector and supply chain, which can produce cost-competitive solar components that keep pace with the rising domestic and global demands for affordable solar energy. An ideal applicant would start with an existing early-stage prototype that can demonstrate some functionality in a controlled environment. Through this award, the awardee would advance that prototype to a manufacturing and commercially relevant prototype, meaning that the research will seek to prove all functionality using pre-commercial manufacturing techniques. It would not advance a product to an automated manufacturing stage. The project should be structured to answer critical questions required to reduce the associated technical and business risks related to that technology.

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This topic is open to all solar-relevant technologies, and applications should generally fall within one of these following four areas. Advanced solar system integration technologies: Here, we're looking for technologies that advance the prediction, monitoring and control of solar power production and distribution, and the capabilities of power electronics. In PV technologies, responsive applications would

improve PV system reliability, improve performance of novel PV materials and components to increase annual energy yield, develop novel PV panel manufacturing technologies, including modular manufacturing methods that enable incorporation of new cell technologies, such as perovskites or other high-energy solar cells, reduce supply chain capital expense, or develop metrology and characterization tools to advance the efficiency and reliability of PV systems in the field. For technology solutions that use hardware, a hardware solution to reduce the balance of costs of a PV system, we're looking at solutions that include hardware costs and soft costs such as installation, labor. And then last but not least, with concentrating solar power technologies, responsive applicants would develop technologies or components of technologies that focus on light to generate high-temperature heat or electricity generation and other end uses such as desalination or industrial processes. I just want to point out and note here (it's also noted in the funding opportunity write-up) that projects seeking to develop innovations in concentrating solar power manufacturing should also refer to topic area 2.2, Materials and Manufacturing, within Topic 2, the Concentrating Solar Power topic.

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Continuing on, responsive applicants to this topic should include some or all of the following information if possible in their write-ups. Those would be technical milestones that demonstrate clear progress, are aggressive but achievable and quantitative. Projections for price and/or performance improvements that are referenced to a benchmark. A clear assessment of the state-of-the-art including existing commercially available products or solutions that could be considered competitors and how the proposed technology would represent a significantly different and competitively sustainable improvement. Supporting documentation that validates the value proposition of the proposed solution. A preliminary cost analysis showing a path to becoming cost-competitive with the ever-evolving state-of-the-art. Justification of all performance claims, with theoretical predictions and/or relevant experimental data. Explanation of the impact of federal funds on the development of the solution, why private-sector funding has been difficult to secure, and efforts by the applicant to date to secure funding. And last but not least, a description of how addressing the technical risks identified in the application will increase the likelihood of securing private investments following the award period.

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This topic does not intend to fund the following four types of projects. Projects that are around the creation of a product, organization, service or other entity or item that requires continued government support. Any work that is duplicative with other federally funded research on the same technology at the same technology readiness level. Large-scale demonstration or deployment of solutions that do not require further research and development unless field-testing and early-stage pilots are part of the technology research and development cycle. And concepts that solely rely on a licensing model.

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The following types of applications will be deemed nonresponsive and will not be reviewed or considered for an award. These are listed in Section I.A and I.B of the FOA, but specifically, for Topic 4, nonresponsive applications are for projects that do not have significant hardware research or development efforts. Proposed technologies that are not based on sound scientific principles, such as anything that violates the laws of thermodynamics. Undifferentiated products, incremental advances or duplicative products. Solutions in which solar is not the major component of the technology. Products or solutions for systems which cannot tie to the electric grid, such as wholly offgrid applications. Software to facilitate system design, system monitoring or customer acquisition. And other topic areas designated specifically not of interest can be found within each of the topic area descriptions of Section I.B of the FOA. So read that closely if you're thinking about applying to other FOA topic areas.

Next slide:
EERE expects to make approximately $10 million of federal funding available for new awards under this FOA topic, subject to the availability of appropriated funds. The maximum award amount is $1 million, and the DOE anticipates 10 to 12 awards under this topic. EERE intends to fund mostly cooperative agreements under this FOA but may also fund grants, technology investment agreements, work authorizations and interagency agreements. Cooperative agreements include substantial involvement, which we will discuss next. Projects are expected to be 18 months in duration or less. And a minimum of 20-percent cost share is required across Topic 4, with some projects that include demonstration requiring 50 percent. We will discuss this also later in the webinar.

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Topic 4 has an eligibility restriction that is detailed in the funding opportunity, but at a high level, the eligibility is restricted to for-profit entities as the prime recipient of awards under Topic 4. Eligibility is restricted to this topic because SETO believes that for-profit entities are the most likely entities to achieve the objective required under this topic area, as they are the only entities with the capacity to rapidly commercialize new technologies related to innovations in manufacturing.

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To facilitate the formation of new project teams for this FOA, a teaming partner list is available at the website listed on this slide, on EERE Exchange. We'll update the teaming partner list periodically to reflect new teaming partners who have provided their information. Any organization that would like to be included on this list should submit the information shown on this slide to the email address provided. Keep in mind, though, that by submitting this information, you consent to the publication of that information. Please also note that by facilitating this teaming partner list, EERE does not endorse or otherwise evaluate the qualifications of the entities that self-identify themselves for placement on the teaming partner list. In addition, EERE will not pay for the provision of any information nor will it compensate any respondents for the development of such information.

Next slide:
Under cooperative agreements, there will be what is known as substantial involvement between EERE and the recipient during the performance of the project. EERE does not limit its involvement to the administrative requirements of the reward. Instead, EERE has substantial involvement in the direction and redirection of the technical aspects of the project as a whole. Substantial involvement includes but is not limited to the following. EERE shares in responsibility with the recipient for the management, control, direction and performance of the project. EERE may intervene in the conduct or performance of work under this award for programmatic reasons. Intervention includes the interruption or modification of the conduct or performance of project activities. EERE may redirect or discontinue funding the project based on the outcome of EERE's evaluation of the project at the go / no-go decision points. And EERE participates in major project decision-making.

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The cost share must be at least 20 percent of the total allowable costs for the research and development projects, and 50 percent of the total allowable costs for demonstration and commercial application projects, and must come from nonfederal sources unless otherwise allowed by law. The following table illustrates the anticipated focus and required cost share for projects' demonstration activities along with the anticipated timeframes for each phase. Demonstration is an option for all projects in Topic 4 but may be possible or applicable depending on the technology, technology readiness level, or current regulations and market structures. So if the project is a fairly research and development

project without demonstration, it would have a 20-percent cost share, a minimum 20-percent cost share across all budget periods. However, if there was a demonstration portion of the project, as is in this tabular example, the first two budget periods would be a minimum 20-percent cost share, and the third budget period with demonstration would need to have a minimum of 50-percent cost share.

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The total budget presented in the application must include both federal DOE and nonfederal cost-share portions, thereby reflecting total project costs proposed. All costs must be verifiable from the recipient's records and be necessary and reasonable for the accomplishment of the project.

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Cost share must be allowable and must be verifiable upon submission of the full application. Please refer to this chart for your entity's applicable cost principles. It is imperative that you follow the applicable cost principles when creating your budget for the full application. For more information, see the cost-share appendix in the funding opportunity announcement, or FOA.

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Be aware that there are items that are considered unallowable cost share. If a cost is considered unallowable, it cannot be counted as cost share. This slide provides some examples of cost share that is unallowable.

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Cost share must be provided on an invoice basis, unless a waiver is requested and approved by the DOE contracting officer. EERE's full application evaluation and selection process is shown here. We will discuss some of these steps in more detail on the next slide. But at a high level, first there come letters of intent. After that come concept papers, which are due May 14. Then come full applications, due July 25. And then replies to reviewer comments, which is optional, due September 6. And last but not least, a notification of selection or non-selection in November of 2019.

Next slide:
But first we'll start with letters of intent.

Next slide:
Letters of intent will be used by EERE to plan for the merit review process. In order to submit a concept paper and full application, applicants are required to submit a letter of intent. This cannot be emphasized enough. Letters of intent are mandatory and need to be submitted into EERE Exchange by May 7 in order to be eligible to submit a concept paper and full application. And there will be no way around that. To be considered, the LOI must comply with the content and form requirements of Section IV.B.1 of the FOA, and the applicant must enter all required information and click the "Create Submission" button in EERE Exchange by the deadline stated in the FOA. The LOI should not contain any proprietary or sensitive business information. EERE will not provide notification of acceptance for letters of intent.

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Next is concept papers.

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Applicants must submit a concept paper. Each concept paper must be limited to a single concept or technology, and the same goes for the letters of intent. In Section IV.D of the funding opportunity announcement, it states what information a concept paper should include and the page limits. Failure to include the required content could result in a concept paper receiving a discouraged determination or the concept paper could be found to be ineligible. Concept papers must be submitted by May 14, 2019, through EERE Exchange. EERE provides applicants with an encouraged or discouraged notification, and the reviewer comments, after the concept paper review. Applicants to -- we can skip that because we're talking about Topic 4. But please note that regardless of the date applicants receive the encouraged / discouraged notifications, the submission deadline for the full application remains the date stated on the FOA cover page.

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Concept papers are evaluated based on consideration of the following merit review factor. All subcriteria underneath are of equal weight. So there is a single criteria for this concept paper review, and that is overall funding opportunity announcement responsiveness and viability of the project, which has 100-percent weighting. The subcriteria to that are that the applicant clearly describes the proposed technology and describes how it is unique and innovative and how the technology will advance the current state-of-the-art. The applicant identifies the risks and challenges including possible mitigation strategies and has shown the impact of EERE funding and the proposed project would have on the relevant field and application. The applicant has the qualifications, experience, capabilities and other resources necessary to complete the proposed project. And the proposed work if successfully accomplished would clearly meet the objectives as stated in the funding opportunity announcement, or FOA.

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Next is a little bit on the full applications themselves, due July 25.

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The full application package includes a number of documents, starting with the technical volume. It is the key technical submission. Applicants submit information pertaining to the technical content, project team members, etcetera. There's the SF-424, Application for Federal Assistance. This is the formal application, signed by the authorized representative of the applicant; includes cost-share amounts and federal certifications and assurances. The SF-424A, Budget and Budget Justification are budget documents that ask applicants to submit a detailed budget and spend plan for the project. The Summary for Public Release is a one-page summary of the technology appropriate for public release. And the summary slide is a Powerpoint slide that provides quick facts about the technology. Slide content requirements are provided in the FOA. Other administrative documents including a subrecipient budget justification, DOE work plans for FFRDCs, authorization from cognizant contracting officers for FFRDCs, which are federally funded research and development centers. SF-LLL, Disclosure of Lobbying Activities, and Foreign Entity and Performance of Work in the United States waiver requests are also potentially necessary to include. I should note that the SF-LLL is mandatory around disclosure of lobbying activities, as well as a U.S. Manufacturing Plan, which is not required for other subtopics but is required for Topic 4, Innovations in Manufacturing.

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The key technical component of the full application is the technical volume, which helps applicants bring the technical information that the application will be evaluated on. The technical volume provides

information regarding what the project is, how the project tasks will be accomplished, and the project timetable. The technical volume is comprised of a cover page that will be a one-page document and provides basic information on a project, such as title, topic area, points of contact, etcetera; the project overview page, the project overview, which provides information on the project background, goals, and impact of EERE funding; the technical description, innovation and impact section, which provides information on project relevance and outcomes, feasibility and innovation and impacts of the project (this ultimately provides justification as to why EERE should fund the project); as well as a summary statement of project objectives (SOPO), or work plan, which details the proposed milestones and project schedule. If selected for award negotiations, the work plan serves as the starting point when negotiating the statement of project objectives. The technical qualifications and resources section provides applicants an opportunity to provide information about how the proposed project team demonstrates how the applicant will facilitate the successful completion of its proposed project as well as appendices as needed. There are no strict page limits on sections, to allow applicants the flexibility to structure the application in the way to best articulate the project and address other content requirements. The applicant should consider the weighting of each of the evaluation criteria. See Section V.A.2 of the funding opportunity announcement when preparing the technical volume.

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As we previously pointed out, applicants must submit the full applications by July 25. EERE will conduct an eligibility review and full applications will be deemed eligible if the applicant is an eligible entity, the applicant submitted an eligible concept paper, the cost-share requirement is satisfied, the full application is compliant, the proposed project is responsive to the FOA, and the full application meets other eligibility requirements listed in Section III of the FOA. Please read the FOA.

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An entity may submit more than one LOI, concept paper and full application to this FOA, provided that each application describes a unique, scientifically distinct project and provided that an eligible LOI and concept paper was submitted for each full application.

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The merit review process consists of multiple phases that each include an eligibility review and thorough technical review. Rigorous technical reviews are conducted by reviewers that are experts in the subject matter of the funding opportunity announcement. Ultimately the selection official considers the recommendation of the reviewers along with other considerations such as program policy factors to make the selection decision.

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Full applications will be evaluated against the merit review criteria shown below. Criteria 1, Innovation and Impact, is 50 percent of the weight. The items under that are that the project is innovative and impactful, assuming the stated outcomes can be achieved as written. The project is differentiated with respect to existing commercial products, solutions or technologies, and if successful, the project is scalable to have a broader impact and maintain at a sufficiently large scale after project completion. Criteria 2, Quality and Likelihood of Completion of Stated Goals, gets 30 percent of the weight. The application demonstrates an understanding and appreciation of project risks and challenges the proposed work will face, and incorporates reasonable assumptions related to the execution of the project. The information included for the project is validated through customer trials, data from prior work, report references, technical baselines established, etcetera. The stated goals of the project are SMART -- specific, measurable, achievable, relevant and timely -- and likely to be accomplished within

the scope of the project. The proposed budget is reasonable to achieve the objectives proposed. And last but not least, Criterion 3, which receives 20 percent of the weight, is around the Capabilities and Resources of the Applicant / Project Team. So the team is well-qualified and has the capability and resources necessary to successfully complete the project. The team, including the proposed subrecipients, have the training and experience to achieve the final results on time and to specification. The project team is fully assembled and committed to the project, verified through letters of support, and has a demonstrated track record of successful past performance.

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The full applications are reviewed by experts in the FOA topic areas. After those experts review the applications, EERE will provide applicants with reviewer comments. Applicants will have a brief opportunity to review the comments and prepare a short reply to reviewer comments, responding to comments however they desire. The reply to reviewer comments is due by the date and time provided on this slide, September 6, 2019, or on or around there. Applicants should anticipate receiving the independent reviewer comments approximately three business days before this due date. The reply to reviewer comments is an optional submission. Applicants are not required to submit a reply to reviewer comments. This is a customer-centric process that provides applicants with a unique opportunity to correct misunderstandings and misinterpretations and to provide additional data that might influence the selection process in their favor. The replies are considered by the reviewers and the selection official. Replies to reviewer comments must conform to the content and form requirements listed here, including maximum page lengths. If a reply to reviewer comments is more than three pages in length, EERE will review only the first three pages and disregard any additional pages. Please see Sections IV.F and V.A.3 for additional information regarding replies to reviewer comments.

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As part of the merit review process, EERE may invite certain applicants to participate in pre-selection interviews. The invited applicants will meet with EERE representatives to provide clarification on the contents of the full application and to provide EERE an opportunity to ask questions regarding the proposed project. The information provided by applicants to EERE through pre-selection interviews contributes to EERE's selection decision. The pre-selection interviews often take place in person at EERE offices, but for some FOAs, EERE may conduct interviews at a different location or conduct interviews through one-on-one conference with EERE via webinar, teleconference or conference call. If EERE conducts pre-selection interviews for this FOA, EERE will notify the invited applicants and provide more details about the format for interviews for the FOA at that time. EERE will not reimburse applicants for travel and other expenses related to pre-selection interviews, nor will these costs be eligible for reimbursement as pre-award costs. EERE may select applications for funding and make awards without pre-selection interviews. Participation in pre-selection interviews with EERE does not signify that applicants have been selected for award negotiation.

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The selection official may consider the merit review recommendation, program policy factors, and the amount of funds available in arriving at selections for this funding opportunity announcement.

Next slide:
After the merit review process, the selection official may consider program policy factors to come to a final selection decision. Program policy factors for this FOA are listed here. They are the degree to which the proposed project exhibits technological or programmatic diversity when compared to the existing DOE project portfolio and other projects selected from this FOA. The degree to which the proposed

project, including proposed cost share, optimizes the use of available EERE funding to achieve programmatic objectives. The degree to which the proposed project will accelerate transformational, technological, financial or other advances in areas that industry by itself is not likely to undertake because of the technical and financial uncertainty. The degree to which the proposed project or group of projects represent a desired geographic distribution considering past awards and current applications. The degree to which the proposed project avoids duplication or overlap with other publicly or privately funded work. The degree to which the proposed project enables new and expanding market segments. And the degree to which the project promotes increased coordination with nongovernmental entities for demonstration of technologies and research applications to facilitate technology transfer. The selection official may also consider the level of industry involvement and demonstrated ability to accelerate commercialization and overcome key market barriers, as well as consider commitments made in the U.S. manufacturing plan. The degree to which the proposed project is likely to lead to increased employment and manufacturing in the United States or provide other economic benefits to U.S. taxpayers.

Next slide:
To apply for this funding opportunity announcement, applicants must register with and submit application materials through EERE Exchange at the website listed on the slide. You must obtain a control number at least 24 hours before the first submission deadline, also at EERE Exchange at the website listed on the slide. It is vital that applicants address the registrations in bullet 3 as soon as possible. Some may take several weeks, and failure to complete them could interfere with an applicant's ability to apply to this funding opportunity or to meet the negotiation deadlines and receive an award if the application is selected. Those registrations are the DUNS number -- you obtain a Dun and Bradstreet (Data Universal Numbering System) DUNS number. SAM, which is the System for Award Management. Register for SAM. You have to designate an electronic business point of contact (e-biz POC) and obtain a special password called an MPIN, which are important steps in SAM registration. Please update your SAM registration annually. With FedConnect, you need to register in it and create an organization account. Your organization's SAM MPIN is required. For more information about the SAM MPIN or other registration requirements, review the FedConnect "Ready, Set, Go" guide at the FedConnect site. And last but not least, applicants are welcome to register in Grants.gov to receive automatic updates about the FOA, however, please note that letters of intent, concept papers and full applications will not be accepted through Grants.gov. You will input them into EERE Exchange.

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Once again, all submission requirements must come through EERE Exchange. EERE will not review or consider applications submitted through any other means.

Next slide:
Check entries in EERE Exchange. Submissions could be deemed ineligible due to an incorrect entry. EERE strongly encourages applicants to submit one to two days prior to the deadline to allow for full upload of application documents and to avoid any potential technical glitches with EERE Exchange. Make sure you hit the submit button. Any changes made after you hit the submit button will unsubmit your application and you will need to hit the submit button again. For your records, print out the EERE Exchange confirmation page at each step, which contains the application's control number.

Next slide:
Applicants must designate primary and backup points of contact in EERE Exchange with whom EERE will communicate to conduct award negotiations. It is imperative that the applicant and selectee be

responsive during award negotiations and meet negotiation deadlines. Failure to do so may result in cancellation of further award negotiations and rescission of selection.

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Alright. We're nearing the end. If you have any questions about this funding opportunity that arise as you're reading it, please email them to the address on the slide, SETO.FOA@ee.doe.gov. All questions and answers related to this FOA will be posted on EERE Exchange, where the teaming list and FOA document live, and where you will be ultimately submitting your own documents. You must select a specific FOA number in order to view Q&As. EERE will attempt to respond to a question within three business days, unless a similar question is already posted on the website, so please look at the Q&A before you ask your question. If you have problems logging in to EERE Exchange or uploading or submitting application documents with EERE Exchange, email EERE Exchange support at the email address on this slide. Include the FOA name and number in the subject line to facilitate that interaction. All questions asked during this presentation as I said earlier will be posted, along with answers to the same Q&A that lives on EERE Exchange.

Next slide:
And with that, I'd like to thank you all for your attention and participation in this webinar, and we'll be signing off for now. Thank-you for your time.