

## SETO FY 2019 FUNDING OPPORTUNITY – Topic Area 5 - SYSTEMS INTEGRATION

Here is the transcript of the Topic 5 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/#Foald45eda43a-e826-4481-ae7a-cc6e8ed4fdae>.

---

*Kemal Celik:*

*Presentation cover slide:*

Good afternoon, everyone, again, and welcome to our webinar. Thank-you for your interest in the U.S. Department of Energy's efforts on renewable energy and energy efficiency. You are joining us for the informational webinar for applicants and other interested parties for the Solar Energy Technologies Office (otherwise SETO) fiscal year 2019 funding opportunity announcement, or FY19 SETO FOA, which was issued on March 26, 2019. My colleague Jeremiah Miller and I, Kemal Celik, will be presenting this webinar. We are both technology managers in the Solar office within DOE's Office of Energy Efficiency and Renewable Energy. Before we begin, I'd like to draw your attention to the email address on the lower left-hand side of this 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 to this in-box, you may type in the chat bar any questions you have as they come up. Again, please make sure not to submit any language that might be business-sensitive, proprietary or confidential. We will be posting answers to these questions to EERE Exchange, as well. Note we may not be able to answer these questions during the webinar today. Also just to be clear, there are no particular advantages or disadvantages to the application evaluation process with respect to participating on the webinar today. Your participation is completely voluntary. So let's get started.

*First slide:*

As we mentioned before, no new information other than provided in the FOA will be discussed in this webinar. There are no particular advantages or disadvantages to the application evaluation process with respect to participation in the webinar today. Your participation is completely voluntary.

*Next slide:*

Notice: All applicants are strongly encouraged to carefully read the funding opportunity DE-FOA-0002064 and adhere to the stated submission requirements. This presentation covers the FOA process and summarizes the contents of FOA for Topic No. 5. If there are any inconsistencies between the FOA and this presentation or statements from the DOE personnel, the FOA is the controlling document and applicants should rely on the FOA language and seek clarification from EERE at the SETO.FOA@ee.doe.gov email address.

*Next slide:*

This slide shows the anticipated schedule for the FOA. The FOA, as you know, has already been posted on March 26. And we are conducting the FOA informational webinar today. We will cover all the requirements for this FOA later in the presentation. Please note that the submission deadline for mandatory letter of intent, otherwise known as LOI, is May 7, 2019, by 5 p.m. Eastern time. The submission deadline for concept papers is May 14, this year, followed by the submission deadline for full application and SIPS applications on July 25. Expected submission deadline for replies to reviewer comments is September 6 and the expected date for EERE selection notifications is November 2019. The expected timeframe for award negotiations is between November 2019 and February 2020.

*Next slide:*

The agenda for this presentation is as shown. We will cover the background for our office, SETO, followed by the FOA overview. Then we will cover the award information detail, and then go over the FOA timeline. Finally, we'll go over the registration requirements. We encourage you to have a copy of the FOA in front of you for reference as we go through our presentation.

*Next slide:*

This slide covers what the Solar Energy Technologies Office does and how we do it. The U.S. Department of Energy Solar Energy Technologies Office supports early-stage research and development of solar technology, while focusing on grid reliability, resilience and security. Our office uses a competitive solicitation process to address critical research gaps, ensuring the solar industry has the technological foundations needed to lower solar electricity costs, ease grid integration, and enhance the use and storage of solar energy.

*Next slide:*

The SETO's 2030 cost targets are as is following. SETO works to achieve 2030 SunShot targets that reduce the cost of solar by an additional 40 to 70 percent beyond 2018 costs. Achieving these targets would make solar one of the most affordable sources of new electricity generation. The targets for the unsubsidized, levelized cost of energy at the point of grid connection are 3 cents per kilowatt hour for utility-scale PV, 4 cents per kilowatt hour for commercial rooftop PV, and 5 cents per kilowatt hour for residential rooftop PV. It is 5 cents per kilowatt hour for CSP with thermal energy storage.

*Next slide:*

Achieving SETO's priorities across the solar energy technology landscape requires sustained, multifaceted innovation. For our FY19 funding program, the office intends to support high-impact, early-stage research in the following areas. Topic Area 1: Photovoltaics Research and Development. Topic Area 2: Concentrating Solar-Thermal Power Research and Development. Topic Area 3: Balance of Systems Soft Costs Reduction. Topic 4: Innovations in Manufacturing: Hardware Incubator. And Topic 5: Advanced Solar Systems Integration Technologies. In this webinar, we will focus on Topic No. 5, the Advanced Solar Systems Integration Technologies. For other topics, please refer to the FOA for the corresponding webinar dates.

*Next slide:*

Topic Area 5. This slide covers the topics in advanced solar systems integration technologies section. This is the main topic of our webinar today. We will cover three topics and their subtopics in detail in the next few slides. Topic Area 5, again, is titled Advanced Solar Systems Integration Technologies, and SETO's systems integration research focuses on using solar energy for greater grid resilience and improved reliability. This will be accomplished through advancements that enable effective operations

with increasing penetration of solar energy with particular FOA focus on: No. 1, advanced dynamic PV modules and adaptive distribution protection. No. 2, solar energy storage and DER technologies providing grid services. No. 3, integrating PV inverter data and sensors measurements into utility operations, grid forming inverter controls, and cybersecurity for PV. All applications should focus on overcoming high PV penetration integration challenges, identified as 50 percent solar penetration or more compared to peak load on the distribution feeder system.

*Next slide:*

The first topic is 5.1. It's called Adaptive Distribution Protection. And SETO seeks to fund two interrelated technical approaches: a) advanced modeling of dynamics of solar inverters and PV plants during disturbances, and b) innovative, scalable software and hardware protection designs for distribution systems with high solar penetrations.

*Next slide:*

The first subtopic in 5.1 is Advanced Dynamic Models for Smart Inverters. This subtopic seeks to advance models that will better predict power system and PV plant responses to extreme events like potential grid instability issues when too much inverter-based generation goes offline. It also seeks to develop and validate advanced modeling of smart inverters to enable accurate and fast analysis of the dynamic response of individual, aggregate or utility-scale PV systems. And provide better understanding of the dynamic behaviors of inverters with advanced control functions and the interactions with bulk power systems, distribution systems and microgrids. The proposed PV system dynamic models should be standard to enable industry-wide adoption. More details are available in the FOA on what successful projects in this subtopic would entail.

*Next slide:*

Second subtopic in Topic 5.1 is titled Adaptive Protection for Distribution Grids. It seeks to fund enhanced power system protection solutions for distribution grids with high penetrations of PV. The main goal of this research area is to develop and field-validate effective and scalable adaptive protection solutions to enhance system reliability and resilience, with an emphasis on software. Again, more details are available in the FOA on what successful projects for this subtopic would entail.

*Next slide:*

Topic 5.2 is titled Grid Services from Behind-the-Meter and Other Distributed Energy Resources. This topic seeks to fund research, development and validation of grid services by behind-the-meter solar co-located with other DERs through innovative approaches for smart control and optimization technology. The main objective of this topic is to research and develop grid services using small-scale generation and other DER technologies, potentially through aggregation of behind-the-meter solar. More details are available in the FOA on what successful projects would entail for this topic.

*Next slide:*

The last topic for systems integration is Topic 5.3. It's titled Advanced PV Controls and Cybersecurity. This topic will support research in three interrelated areas. Innovative and scalable methods to integrate data measurements from PV inverters and sensors into utility information systems. Advanced controls for grid-forming inverters to establish system frequency and voltage and thus enable collaborative operation for enhanced resilience. And cybersecurity capabilities for solar technology, including encryption, signal integrity, authentication, firmware updates, and resilience over the lifetime of the assets.

*Next slide:*

The first subtopic in Topic 5.3 is titled Integration of Data from PV Inverters and Behind-the-Meter Sensors. The main objective of this topic is to develop and field-validate the integration of data from smart inverters and other behind-the-meter resources into the utility information systems to enhance distribution grid visibility and operational situational awareness. The lack of behind-the-meter situational awareness has caused several grid operation challenges. The projects in this area will integrate data from behind-the-meter sensors to enhance the visibility and enable control of distributed solar energy resources, facilitate system restoration efforts, and improve distribution system resiliency. More details are available in the FOA on what successful projects for this subtopic would entail.

*Next slide:*

Second topic in Topic 5.3 is titled Advanced Controls for Grid-Forming Inverters. The main objective of this topic is to develop and field-validate next-generation, grid-forming, smart PV inverters that can collectively establish frequency, and maintain voltage magnitudes, provide stability and enable black start in a distribution feeder with high penetration of PV. This topic seeks to advance grid-forming inverter controls to include functionalities like coordinated control between grid-forming and grid-feeding inverters, islanded operation, dynamic operation, stability margins, coordinations with other generation. Projects should focus on the controls of multiple grid-forming PV inverters. More details are available in the FOA on what successful projects would entail.

*Next slide:*

The last subtopic in 5.3 is Photovoltaic Systems Cybersecurity. The main objective of this topic is to develop and field-validate enhanced cybersecurity capabilities for solar PV equipment such as PV inverters and converters to improve cybersecurity over the lifetime of the assets. PV systems often use communications tools to transmit data to grid operators and others, and this provides opportunities for cyberattack. This topic seeks to address several challenges that PV systems pose to cybersecurity, such as the required telecommunications infrastructure, volume of data, interoperability, latency, robustness of the proposed solutions during disturbances and outages, and telecommunications failures. The project for this subtopic should use novel approaches that would include supply chain management, encryption, signal integrity, authentication, firmware updates, or technologies to boost PV resiliency to cyberattacks. My colleague Jeremiah Miller will continue with the rest of the slides. Jeremiah?

*Jeremiah Miller:*

Thank-you, Kemal. So I am now going to transition to highlighting some of the application mechanics or logistics. I noted that several of you have entered questions into the chat window, which is great. A couple of them are going to be answered here very quick, but keep typing those in. And a reminder, we'll do our best to answer any questions for whatever time we have left at the end. For those questions and any others we don't get the time to answer, we will post answers to all of them onto EERE Exchange. So a reminder to send emails as well to that FOA email address with any / all questions that you have. All those questions would be posted to EERE Exchange for all applicants to see the answers.

*Next slide:*

So for estimated award funding, as you can see in this table, we've broken it down per topic area for estimated amounts. Projects from each subtopic will be funded from the same pool of expected federal funds of \$44 million, based on the review of the proposed projects. We will discuss cost-share requirements in a latter slide. We expect to make up to 15 awards for projects that will span a period of 36 months.

*Next slide:*

Nonresponsive Applications. The following types of applications will be deemed nonresponsive and will not be reviewed or considered for an award. Applications that fall outside of the technical parameters specified in Section I.A or I.B of the FOA. Applications for the proposed technologies that are not based on sound scientific principles (example: violates the law of thermodynamics). Other topic areas designated specifically not of interest can be found in each topic area description in Section I.B of the FOA.

*Next slide:*

Teaming Partner List. To facilitate the formation of new project teams for this FOA, a teaming partner list is available at EERE Exchange. Any organization that would like to be included on this list should submit the following information to SETO.FOA@ee.doe.gov: Organization name, contact name, contact address, contact email, and contact phone, organization type, area of technical expertise, topic area, and brief description of capabilities. By submitting this information, you consent to the publication of the above-referenced information. 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.

*Next slide:*

Statement of Substantial Involvement. Under cooperative agreements, there is what is known as substantial involvement between EERE and the recipient during the performance of the project. EERE has substantial involvement in the work performed under awards made following this FOA. EERE does not limit its involvement to the administrative requirements of the award. 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 responsibility with the recipient for the management, control, direction and performance of the project. EERE may intervene in the conduct or performance of the work under this award for programmatic reasons. Intervention includes the interruption or modification of the conduct or performance of the project activities. EERE may redirect or discontinue funding of the project based on the outcome of EERE's evaluation of the project at a go / no-go decision point. EERE participates in major project decision-making processes.

*Next slide:*

Cost-Share Requirements. The cost share must be at least 20 percent of the total allowable costs for R&D 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 the projects' demonstration activities, along with the anticipated timeframes for each phase. Demonstration is an option for all projects in Topic 1, 2, 4 and 5, but may not be possible or applicable depending on the technology, technology readiness level, or current regulations and market structure. So as you can see in the table, in general for R&D projects without demonstration, they would have a 20-percent cost share. For R&D projects with demonstration, for example, it's anticipated the first two budget periods would be 20-percent cost share, and then the demonstration phase would be 50-percent cost share.

*Next slide:*

Cost-Share Contributions. Contributions must be specified in the project budget, verifiable from the prime recipient's records, necessary and reasonable for proper and efficient accomplishment of the project. If you are selected for award negotiations, every cost share or contribution must be reviewed and approved in advance by the contracting officer and incorporated into the project budget before the

expenditures are incurred. Please note, vendors / contractors may not provide cost share. Any partial donation of goods or services is considered a discount and is not allowable.

*Next slide:*

Allowable Cost Share. Cost share must be allowable and must be verified upon submission of the full application. Refer to the following federal cost principles. For-profit entities, FAR Part 31. All nonfederal entities, 2 CFR Part 200, Subpart E, Cost Principles.

*Next slide:*

Allowable Cost Share. Cash contributions: may be provided by the prime recipient subrecipient or a third party, may not be provided by vendors / contractors. In-kind contributions: can include but are not limited to the donation of volunteer time or the donation of space or use of equipment.

*Next slide:*

Unallowable Cost Share. The prime recipient may not use the following sources to meet its cost-share obligations, including but not limited to: Revenues or royalties from the prospective operation of an activity beyond the project period. Proceeds from the prospective sale of an asset of an activity. Federal funding or property. Expenditures reimbursed under a separate federal technology office. The same cash or in-kind contributions for more than one project or program. Vendor / contractor contributions.

*Next slide:*

Cost-Share Payment. Recipients must provide documentation of the cost-share contribution incrementally over the life of the award. The cumulative cost-share percentage provided on each invoice must reflect at a minimum the cost-share percentage negotiated. In limited circumstances and where it is in the government's interest, the EERE contracting officer may approve a request by the prime recipient to meet its cost-share requirements on a less-frequent basis, such as monthly or quarterly. See Section III.B.7 of the FOA.

*Next slide:*

FOA Timeline. This slide shows the expected timeline of the FOA. On this slide, EERE's evaluation and selection process are shown in green here. EERE will review letters of intent, replies to reviewer comments (which we will cover later in the presentation), concept papers, and full applications. The black boxes represent the actions that apply to applicants throughout the FOA process.

*Next slide:*

Required Letters of Intent. Letters of intent will be used by EERE to plan for the merit review process. In order to submit a full application, applicants are required to submit a letter of intent by May 7, 2019, at 5 p.m. Eastern.

*Next slide:*

Concept Papers. Applicants must submit a concept paper. Each concept paper must be limited to a single concept or technology. Section IV.D of the FOA states what information a concept paper should include and the page limits. Failure to include the required content could result in the concept paper receiving a discouraged determination or the concept paper being found 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's comments. Please note that regardless of the date

applicants receive the encouraged / discouraged notification, the submission deadline for the full application remains the date stated on the FOA cover page.

*Next slide:*

Concept Paper Review. Concept papers are evaluated based on consideration of the following factor. All subcriteria are of equal weight. Overall FOA responsiveness and viability of the project (weight 100 percent). This criterion involves consideration of the following subcriteria. The applicant clearly describes the proposed technology, describes how the technology is unique and innovative, and how the technology will advance the current state of the art. The applicant has identified 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. The proposed work as successfully accomplished would clearly meet the objectives as stated in the FOA.

*Next slide:*

Full Applications. Full applications include: technical volume, the key technical submission. Applicants submit info pertaining to the technical content, project team members, etcetera. SF-424 Application for Federal Assistance: The formal application, signed by the authorized representative of the applicant, includes cost-share amounts and federal certifications and assurances. SF-424A, Budget and Budget Justification: Budget documents that ask the applicant to submit a detailed budget and spend plan for the project. Separate subrecipient budget justifications may be required. Summary for Public Release: Applicants must provide a one-page summary of their technology appropriate for public release. Summary Slides: Powerpoint slides that provide quick facts about the technology. Slide content requirements are provided in the FOA. And other administrative documents: Please refer to the FOA for more details.

*Next slide:*

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

*Next slide:*

Who is Eligible to Apply? This slide shows who's eligible to apply. Please note that nonprofit organizations described in Section in 501(c)(3) of the Internal Revenue Code of 1986 that engaged in lobbying activity after December 31, 1995, are not eligible to apply for funding. Also note that all prime recipients receiving funding under this FOA must be incorporated or otherwise formed under the laws of a state or territory of the United States. See Section III.A.3 for the requirements applicable to foreign entities applying under this FOA.

*Next slide:*

Multiple Applications. Multiple applications are allowed, provided that each application describes a unique, scientifically distinct project and provided that an eligible letter of intent and concept paper was submitted for each full application.

*Next slide:*

Merit Review and Selection Process (Full Applications). The merit review process consists of multi phases that each include an eligibility review and a thorough technical review. Rigorous technical reviews are conducted by reviewers that are experts in the subject matter of the FOA. Ultimately, the selection official considers the recommendations of the reviewers along with other considerations such as program policy factors to make the selection decision.

*Next slide:*

Technical Merit Review Criteria. Full applications will be evaluated against the merit review criteria shown below. Criterion 1: Innovation Impact, 50 percent. The project is innovative and impactful, assuming the outcomes can be achieved as written. The project is differentiated with respect to existing commercial products, solutions or technologies. If successful, the project is scalable to have a broader impact and maintain and is sufficiently large-scale after project completion. Criterion 2: Quality and Likelihood of Completion of Stated Goals, 30 percent weight. Application demonstrates an understanding / appreciation of project risks and challenges the proposed project will face, and incorporates reasonable assumptions related to the execution of the project, i.e. market size, customer participation, costs, speed of proposed scale-up or adoption. 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. Criterion 3: Capability and the Resources of the Applicant / Project Team, 20 percent weight. The team is qualified and has the capability and resources necessary to successfully complete the project. The team, including proposed subrecipients, have the training and experience to achieve the results on time and to specification. The project team is fully assembled and committed to the project, verified through letters of support, and has demonstrated a record of successful past performance.

*Next slide:*

Replies to Reviewer Comments. EERE provides applicants with reviewer comments. Applicants are not required to submit a reply. It is optional. To be considered by EERE, a reply must be submitted by September 6, 2019, and submitted through EERE Exchange. Content and form requirements: Text, three-page max. Applicants may respond to reviewer comments or supplement their full application with graphs, charts or other data. Full applications are reviewed by experts in the FOA topic areas. After those experts review the application, 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 the comments however they desire. The reply to reviewer comments is due by the date and time provided on this slide. Applicants should anticipate receiving the independent reviewer comments approximately three business days before the 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 a selection process in their favor. The replies are considered by the reviewers and the selection official. Replies to the reviewer comments must conform to the content and form requirements listed here, including maximum page length. If the reply to reviewer comments is more than three pages in length, EERE will review only the first three pages and disregard any additional pages.

*Next slide:*

Selection Factors. The selection official may consider the merit review recommendations, program policy factors, and the amount of funds available in arriving at selections for this FOA.

*Next slide:*

Program Policy Factors. The program policy factors for this FOA 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 in the subject's FOA. The proposed project including proposed cost share optimizes the use of available EERE funding to achieve programmatic objectives. The proposed project will accelerate transformational, technological, financial or other advances in the areas that industry by itself would not likely to undertake because of technical and financial uncertainty. The proposed project or group of projects represent a desired geographic distribution, considering past awards and current applications. The proposed project avoids duplication / overlap with other publicly and privately funded work. The proposed project enables new and expanding market segments. The project promotes increased coordination with nongovernmental entities for demonstration of technologies and research, applications to facilitate technology transfer. The level of industry involvement and demonstrated ability to accelerate commercialization and overcome key market barriers. Based on the 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 the U.S. taxpayer.

*Next slide:*

There are several onetime actions before submitting an application in response to the FOA, and it is vital that applicants address these items 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 FOA, or to meet the negotiation deadlines and receive an award if the application is selected. DUNS number: Obtain a DUN and Bradstreet (Data Universal Numbering System) DUNS number. System for Award Management: Register with the System for Award Management (SAMs), designating an electronic business point of contact (EB POC) and obtaining a special password called a M-PIN, are important steps in SAM registration. Please update your SAM registration annually. FedConnect: Register in FedConnect. To create an organization account, your registration SAM M-PIN is required. For more information about the SAM M-PIN or other registration requirements, review the FedConnect "Ready, Set, Go" guidelines at the FedConnect site. Grants.gov: Register in Grants.gov to receive automatic updates when the amendments to the FOA are posted. However, please note that letters of intent, concept papers and full applications will not be accepted through Grants.gov.

*Next slide:*

Means of Submission. All required submissions must come through EERE Exchange. EERE will not review or consider applications submitted through any other means. The User's Guide for Applying to the Department of Energy EERE Funding Opportunity Announcements can be found at the link shown on the slide.

*Next slide:*

Key Submission Points. 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 submit will unsubmit

your application, and you will need to hit the submit button again. For your records, print out the EERE Exchange confirmation number at each step, which contains the application's control number.

*Next slide:*

Applicant Point-of-Contact. 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 selectee can be responsive during award negotiations and meet negotiation deadlines. Failure to do so may result in cancelation of further award negotiations and rescission of the selection.

*Next slide:*

Questions. Questions about this FOA? Email SETO.FOA@ee.doe.gov. All Q&A related to this FOA will be posted to EERE Exchange. 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 Q&A is already posted to the website. Problems logging in to EERE Exchange or uploading and submitting application documents with EERE Exchange? Email EERE-ExchangeSupport@hq.doe.gov. Include FOA name and number in the subject line. All questions asked during this presentation will be posed on EERE Exchange.

*Next slide:*

Thank-you for participating in this webinar. Kemal and I have just about 10 minutes to answer questions that you have. So once again, if you do have a question, please type it into the chat window, and Kemal and I will now review those and do our best to answer as many as we can. Again, please note, for any questions we do answer live, as well as any questions we don't have time to or are complex enough to answer here live, we will post an answer to all questions to EERE Exchange. OK.

*Kemal Celik:*

So the first question is: What is the difference between letter of intent and concept paper? And I believe we covered that during the presentation. I think we can skip that, right?

*Jeremiah Miller:*

I'll answer that just a bit. In general, the letter of intent, and the information required on there, is really minimal. It's literally like a one-page amount of information. I mean, it really just describes who you are, and the key reason why it's required and everybody is required to submit one if they plan on submitting a full application, is that it allows the DOE to understand how many applicants there may eventually be, and allows us to plan for all that work.

*Kemal Celik:*

OK. And the second question is: Can projects be proposed that address more than one topic? Again, we mentioned that multiple applications are acceptable, and the projects can address more than one topic, provided that they are within the main topic -- like Topic Area 1, 2, 3, or 4 or 5. Anything to add?

*Jeremiah Miller:*

Please also note, as per what I said in my slide, if an applicant is submitting against more than one topic, submission of more than one letter of intent, more than one concept paper, and therefore more than one full application, is required. So again, refer to the FOA for all the details on that. But like Kemal said, it is possible to submit more than one application.

*Kemal Celik:*

The next question is I believe the same: Can projects address more than one subtopic, for example, 5.3.A and 5.3.B?

*Jeremiah Miller:*

Ah, yes. Refer to the FOA for details.

*Kemal Celik:*

What about Topic Area 2 and Topic Area 5? No. So, again as Jeremiah said, there should be separate concept papers and separate full applications. The next one is: Do you anticipate funding to university team without industry partner? If otherwise stated, yes, we do anticipate funding to universities through this FOA. Any comments?

*Jeremiah Miller:*

I think our legal advisor would want me to add, in general, the DOE doesn't prefer one application entity type over another. For-profit, nonprofit, and other entities have ways in which they can apply. See the FOA for all specific details on eligibility and the requirements for different kinds of applicants.

*Kemal Celik:*

Alright. The next question is: Can an applicant submit multiple concept papers? I think we covered that. Yes. The answer is you may. And then: What if the project improves PV penetration and grid reliability but does not fall under any of the topics specified in the FOA? Topics of interest are clearly specified in the FOA. Topics of not interest are also indicated in the FOA. So please refer to the FOA to make a judgment if your application would be called compliant or not. So please refer to the FOA compliance on that. The next one is: Can you please elaborate what demonstration means?

*Jeremiah Miller:*

In general, for these sort of projects, field validation is encouraged. So, specific for whatever your technology is, generally speaking that will define the type of appropriate field validation. But that would be essentially a full systems integration type test of the technology for however it interconnects, or is used as a part of planning grid operations. In general, grid integration. The other thing is it should be associated with high PV penetration challenges.

*Kemal Celik:*

Yes, and since we have multiple topics for systems integration this year and several subsections, we will answer this question in more detail on our EERE Exchange website. What is the timeframe for the concept paper encouraged / discouraged notifications? Again, we have indicated the timeline for the FOA. So in this webinar and also in the FOA. And so those are the expected timelines. And to be able to achieve those, you can sort of see how much time remains in-between those main deadlines. The expected timeline is shown in the FOA. Next question is: Can applicants submit multiple concept papers? Again, I think we answered that. The next one is: FOA says 5.1 and 5.3 must have demonstration -- is that true for all applications, or something that only responds to specific subsections? For example, 5.A, Model Development could avoid demonstration (inaudible) ... appears with known data, whereas 5.3 is a clearer path for validation of the demonstration. I would say the short answer is yes, that is true. But again, like I said before, we have multiple topics and multiple subtopics, so we will respond with more detail for each subtopic, so please bear with us and follow us on EERE Exchange. What does it take to become a reviewer? We would gladly consider anyone a subject matter expert in this area as a reviewer. Please email us and we will take it from there. The next question: Is it possible to propose a single

project as if in both 5.2 and 5.3? And I think we answered that. For the main topics, we would need a separate concept paper and full application. And then the next question says: How long does it take to receive an encouraged or discouraged answer, submitting the concept papers? Again, I believe we answered that. We have the main timeline, the expected main timeline, in the FOA, also in this webinar. And then the rest of the process takes place in-between those deadlines. And we do have quite an aggressive schedule, but you could easily calculate how much we anticipate it will take. So ... Let's see ... Where is the team partner list located? I believe there's a link in the webinar on the slide that talked about the team partner list. If you click on that, it should take you to the website where the list is.

*Jeremiah Miller:*

And in general that list will be posted on EERE Exchange, associated with this FOA.

*Kemal Celik:*

Right. And I believe we expect to update that as the whole Solar Energy Technologies Office, so update that list every week. You may want to check it not only once but more often, maybe once a week.

*Jeremiah Miller:*

Please also note generally regarding this presentation: We will post this presentation, we will post this audio recording for the webinar, and we will post a transcript to EERE Exchange as soon as we can process all of it.

*Kemal Celik:*

We have couple more minutes. We'll try to answer some more, if we can. Why don't you state the use of a local control? Well, financially (inaudible) state's local control fall under the subtopic. I think we will answer this written, on the EERE Exchange. So let's skip this one. Is the slide deck available for download? Yes, it is, on the EERE website.

*Jeremiah Miller:*

Or it will be.

*Kemal Celik:*

Will be. Will be posted. And then in a few days, on the EERE Exchange where the FOA is listed. The next question is: The main applicants must be from U.S.? Can any other companies from other countries apply, or could it be with main applicant U.S.? I think we did answer this question in the slide deck. The short answer is yes, but see the FOA for more detail. And the next question, the last question, probably, I will take, because we have to do some bookkeeping here: Will national labs be directly funded if they are subs? I believe the process that we have in place will continue for this FOA, as well. But we can ask this question to our financial people and get back to you on that one, to make sure we are not misleading anyone. I think we will cut it there. And there are some more questions. There were also some questions that we answered. We will post all of these questions and our detailed responses to these questions on EERE Exchange. I would like to thank everybody who attended this webinar this afternoon. And then, again, if you have any questions, please do not hesitate to send us your questions to that email address that we provided on slide 2 of this deck. Thank-you very much.