Clean Energy Manufacturing Innovation Institute for Industrial Decarbonization through Electrification of Process Heating Webinar – Text Version

Below is the text version of the webinar "Clean Energy Manufacturing Innovation Institute for Industrial Decarbonization through Electrification of Process Heating," presented in July 2022 by the U.S. Department of Energy's Advanced Manufacturing Office.

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Kate Peretti:
First slide of presentation:
All right, welcome, everyone. I'm going to take that as my queue. This webinar is being recorded and will be published on the EERE Program Information Center 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. Please mute your phones and we will begin momentarily.

Kristen McDaniel:
Presentation cover slide:
So Kate, got you on the first slide and I think we are ready to go. I don't know if you want to just do a brief introduction?

Kate Peretti:
Sure, yeah, yeah, and apologies – I'm having technical difficulties, so I'm just calling in. So I can't really see what you-all are seeing. But my name is Kate Peretti. I'm the program manager for the consortia group in the Advanced Manufacturing Office, and I am joined here by my colleagues, Mark Zeichman and Kristen McDaniel. I don't know, Kristen, if you want to introduce yourself?

Kristen McDaniel:
Hello. I'm Kristen McDaniel. I'm a technical project officer for the Advanced Manufacturing Office and just want to welcome all of you to the webinar today. Kate, I think you can you can go for it.

Kate Peretti:
All right, yes, yes. So welcome, everyone. Thank-you for your interest in the Department of Energy's efforts on renewable energy and energy efficiency. Before we begin, I'd like to draw your attention to the email address on the left-hand side of this slide, the AMOInstitute@ee.doe.gov. It's the official mailbox to direct all your questions during the entire FOA process. Please don't contact EERE individuals directly with questions, including myself, Mark, or Kristen. All of the questions received at this mailbox are posted publicly at the Q&A section of the FOA page on the EERE Exchange website, and that is done in an anonymous way. The official answers to your questions will typically also be posted within three business days. Please be careful not to submit any language that might be business-sensitive, proprietary or confidential. If you have questions during this webinar, you can send them to the email address on this slide and we will post the answers in EERE Exchange as just described. Alternately, you can type in the questions in the chat field as the questions come up. But they will be responded through the process described, and posted to the EERE Exchange website not during this webinar. So again, please be careful not to submit any language that might be business-sensitive, proprietary, or

confidential. And yeah, we will be posting answers and just Q&As to the Exchange website after the webinar. And with that, next slide.

Next slide:
All right, so thank-you again for attending. I just want to emphasize, no new information other than what has been provided in the FOA will be discussed in this webinar, so you have no particular advantage or disadvantage in the application process with respect to participating in the webinar today. Your participation is completely voluntary. Next slide.

Next slide:
All applicants are strongly encouraged to carefully read the funding opportunity announcement DE-FOA-0002737 and adhere to the stated submission requirements. If there are any inconsistencies between the FOA and this presentation or statements made in this presentation from DOE personnel, the FOA is the controlling document and applicants should rely on the FOA language and seek clarification by submitting questions via the email just displayed here and on the title slide. Next slide.

Next slide:
All right, so posted here is the anticipated schedule. It is also on the FOA in EERE Exchange. If there are any deviations from this schedule, they will be posted as an update in EERE Exchange. Let's see, we're conducting the FOA informational webinar today, and we will cover requirements for this FOA later in the presentation.

Next slide:
All right so this is the agenda for today's discussion. We will talk about the FOA description; diversity, equity, and inclusion; topic areas and technical areas of interest in the FOA; teaming partner list; award information; statement of substantial involvement; cost sharing; FOA timeline; concept papers; full applications; the merit review and selection processes; pre-selection interviews; and registration requirements. Next slide.

Next slide:
The FOA description, very succinctly here, is the FOA will advance decarbonization of the industrial sector by establishing a new Clean Energy Manufacturing Innovation Institute dedicated to reducing the overall emissions of domestic manufacturing through thermal process intensification via electrification of process heating. The proposed institute will pursue targeted research, development, and demonstration that will focus on developing and scaling electrified processes that can economically reduce emissions, improve flexibility and enhance energy efficiency of industrial process heating. Next slide.

Next slide:
So the FOA further states that institutes are designed to bring together industry, universities, community colleges, federal agencies, states, and localities to accelerate manufacturing innovation and scaleup by investing by investing in industrially relevant, cross-cutting product and process technologies. Institutes also provide education and training opportunities to build and enhance the skills of the American manufacturing workforce, so that's an important component. And institutes are expected to focus primarily on technology readiness levels, or TRL level, or TRL/manufacturing readiness levels or MRL, in the four to seven range. Advancing technologies to the pilot scale and attract addition that will attract additional funding from industry venture capital and/or other federal investments. So you can find a description of the technology readiness levels in one of the appendices in the FOA. Next slide.

Next slide:
Uh-oh, OK, sorry, I lost my place. Oh, Kristen, is this, or do I go two more? I'm sorry. I can keep going.

Kristen McDaniel:
You can keep going. You get all the fun stuff.

Kate Peretti:
The – yeah, sorry – this FOA aims to create a new Clean Energy Manufacturing Innovation Institute that will accelerate the development, scaleup, and demonstration of technologies that enable electrified processes to be one of the economically viable pathways for industrial decarbonization. Through the development of electrified heating processes and modeling, simulation, and evaluation tools, this institute will contribute substantially to an efficient, productive, and decarbonized industrial sector. Technical advancements are needed, in particular, to develop electrified processes used to achieve mid- and high temperatures for various industrial operations including melting, drying, pre-heating, annealing, distillation, pasteurization, hydrocarbon cracking, and others. Electrification of industrial process heating represents a large opportunity to decarbonize the industrial sector, but there are several key challenges that have stalled deployment.

Next slide:
To achieve the greatest impact for all Americans with the (so this is just a note on diversity, equity, inclusion) – to achieve the greatest impact for all Americans with the Institute on Electrification of Industrial Heating Processes, it critical that the Institute not only contribute to the country's energy technology and climate goals, but also advance DOE's diversity, equity, and inclusion priorities. As part of this application, applicants are required to describe how diversity, equity, and inclusion objectives will be incorporated in the project. Specifically, applicants are required to submit a Diversity, Equity, and Inclusion Plan that describes the actions the applicant will take to foster a welcoming and inclusive environment, support people from underrepresented groups in STEM, advance equity, and encourage the inclusion of individuals from these groups in the project; and the extent to which the project activities will be located in or benefit underserved communities. And that is defined in Section IV.D. Next slide.

Next slide:
The DEI plan, or diversity, equity, inclusion plan, should include SMART milestones in each budget period supported by metrics to measure the success of the proposed actions. If an applicant is selected, EERE will incorporate the DEI plan into the award as part of the project requirements and the recipient will be required to meet DEI plan. During the life of the DOE award, DOE will evaluate the recipient's progress, including as part of go/no-go milestone review process. Given the broad scope and scale of the institute activities, it is anticipated that several SMART milestones related to DEI will be included in each budget period. The applicant is strongly encouraged to consider how diversity, equity, and inclusion can be woven into all aspects of the institute, from management and operations, to outreach, roadmapping, research and development, and education and workforce development activities, in order to promote meaningful change and lasting impacts. While this plan should include all DEI-specific tasks, activities, milestones, and metrics for the institute, the applicant is also encouraged to include these elements throughout the technical volume, SOPO and other documents where relevant and appropriate.

Next slide:

To accelerate the deployment of electrified process heating technologies, the institute will identify and address critical barriers to technology adoption. To do so, activities in three key areas will be needed: Key Area 1: Collaborative Research, Development, and Demonstration of Electrified Heating Technologies. Key Area 2: Process Modeling and Optimization Tool. Key Area 3: Technology, Market, and Impact Analysis. The three key areas identified above, although distinct, should work together to broaden the impact of the institute and increase the likelihood of successfully meeting institute goals. In addition to the areas identified above, the institute is expected to identify education and workforce development needs to prepare the workforce for future use of the technologies developed by the Institute. Next slide.

Next slide:
To help accelerate institute work across these areas, applicants are expected to identify three to four high-impact R&D projects and one educational workforce development activity is at the institute – oops, I think I skip – I think I'm working off old slides. Apologies. So the key areas, a little bit more on the key areas of interest. The first, Collaborative Research, Development, and Demonstration of Electrified Heating Technologies. A successful institute should work to accelerate deployment of electrified heating technologies by researching novel electrified heating technologies, developing hardware for complete modules and integration into a plant, convening the supply chain to facilitate manufacturing and scaleup, and demonstrating the co-benefits to transitioning away from conventional heating processes. Process Modeling and Optimization Tools. Integrating electric heating equipment into specific manufacturing operations and applications will require advanced process design expertise and modeling software to de-risk deployment and optimize productivity. Additionally, the superior precision and controllability of electrotechnologies provide opportunities to develop advanced sensors and digital twin models that can monitor and control operations to minimize energy use. And finally, Technology, Market, and Impact Analysis. Technoeconomic evaluation tools reduce uncertainty and can identify the most promising applications for a given technology. Analysis tools and methodologies that allow for consistent evaluation across technologies on multiple dimensions (for example, cost, reliability, lifecycle impacts, policy regimes) and use vetted data to ensure fidelity, can reduce investment risk and direct funds to the most promising technologies. Lifecycle impact assessments and place-based analyses can identify opportunities to reduce greenhouse gas emissions and local exposure to criteria air pollutants.

Next slide:
I can't remember – sorry.

Kristen McDaniel:
This is mine, so you get to take a break. So we're at slide 14, the teaming partner list. So an effective institute will include a diverse set of multidisciplinary experts from industry, academia, state and local governments, NGOs, nonprofits, labor unions, national laboratories, and FFRDCs with expertise in the topic area and the facilities and capabilities to address the broad set of challenges. EERE is compiling a teaming partner list to facilitate the widest possible national participation in the formation of the institute for this FOA. All entities planning to apply as a prime applicant or entities interested in participating as part of an applicant team are strongly encouraged to provide their contact information for the teaming partner list. Next slide.

Next slide:
So this slide covers instructions regarding how to be included on the teaming partner list. Please note that EERE will not pay for the provision of any information nor will it compensate any respondents for the development of such information. Next slide.

Next slide:

So as noted in the funding opportunity announcement, the following types of applications will be deemed non-responsive and will not be reviewed or considered for an award. Just pausing here for a moment so you can look at this list. It's also – the section where it's located as noted at the top. Next slide.

Next slide:

So award information. EERE expects to make a total of approximately 70 million dollars of federal funding available for one new award under this FOA. As noted in Section II.A., EERE may establish up to five budget periods for the award, however, only funding for Budget Period 1 will be authorized initially. The total number of budget periods and their duration is flexible: Applicants may propose what they believe will be most advantageous to the project. EERE expects that Budget Period 1 will have a duration of 6-18 months; the overall project period for the award is expected to be 60 months. EERE intends to fund a cooperative agreement under this FOA, but may also fund a TIA. Cooperative agreements include substantial involvement, which we will discuss next.

Next slide:

Looks like you've already jumped to the next slide, Mark. So statement of substantial involvement. Under cooperative agreements, there will be what is known as "substantial involvement" between EERE and the recipient during the performance of the project. Please see Section VI.B.9 in the FOA for the full list regarding EERE's substantial involvement. EERE reserves the right to make modifications and/or additions to this list based on future risk assessments and/or the specific Institute management approach enlisted by the recipient. Next slide.

Next slide:

So the cost share must be at least 50% of the total allowable costs for the institute and must come from non-federal sources unless otherwise allowed by law. Per 15 U.S.C. 278s(e)(7), DOE may consider waiving cost share requirements for certain activities. However, for the purpose of the full application, cost share must be proposed to meet the 50% requirement. Please note that the applicant should only include cost share that it can commit to over the course of the award. Next slide.

Next slide:

The total budget presented in the application must include both federal (DOE), and non-federal (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. Next slide.

Next slide:

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. Next slide.

Next slide:

Cost share can be provided as cash and/or in-kind. It can be provided by the prime recipient, subs, or a third party. One note: Vendors and contractors CAN'T provide cost share because that is considered a discount. Next slide.

Next slide:

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. Next slide.

Next slide:
Cost share must be provided on an invoice basis, unless a waiver is requested and approved by the DOE contracting officer. … OK, I'm handing it back to you.

Kate Peretti:
Next slide:
Okey-dokey, all right, so on this slide you see the FOA timeline. The EERE evaluation and selection process is shown in blue here. EERE will review concept papers, replies to reviewer comments (which we will cover later in the presentation), and full applications. The green boxes represent actions that apply to applicants throughout the FOA process. And these again are the dates that were listed in the front of the FOA and the start of this presentation. EERE anticipates making awards by June of 2023. Next slide.

Next slide:
Concept papers are required for this FOA. This allows applicants to submit their ideas with less time and expense. EERE will provide feedback on the proposed project so the applicant can make an informed decision whether to expend additional resources to prepare a full application. If an applicant fails to submit an eligible concept paper, the applicant is not eligible to submit a full application. Concept papers must be submitted by August 9, 2022, by 5 p.m. Eastern time, through EERE Exchange. EERE will provide applicants with either an encouraged or discouraged notification. A "discouraged" notification conveys EERE's lack of programmatic interest in the proposed project. An applicant who receives a "discouraged" notification may still submit a full application. Next slide.

Next slide:
OK. EERE will provide applicants with (1) either an "encouraged" or "discouraged" notification, and (2) the reviewer comments. Please note that regardless of the date applicants receive the encourage/discourage notifications, the submission deadline for the full application remains the date stated on the FOA cover page. The concept paper criterion at a high level is listed here with additional details listed in the FOA. The next slide (I'm sorry – I'm working off of an old slide deck, I'm realizing) …

Next slide:
… has the full application content requirements?

Kristen McDaniel:
Right, yes. You're on the right – down, you're all right.

Kate Peretti:
OK, good, all right. The full application includes the following documents. The technical volume, which is described here. The DEI plan, which describes how DEI objectives will be incorporated into the institute. The SF-424 application for federal assistance, which is a formal application signed by the authorized representative of the applicant. The SF-424A Budget and Budget Justification, which is a detailed budget and spend plan for the project. Summary for public release. The summary slide. And other documents including resumes, letters of commitment, the statement of project objectives, DOE work proposal and authorization for FFRDCs, SF-LLL Disclosure of Lobbying Activities, foreign entity and foreign work

waivers if needed, current and pending support, intellectual property management plan, the draft membership agreement and compliance matrix.

Next slide:
The full application technical volume. I'm sorry – I'm on the next slide. The key technical component of the full application is the technical volume, which helps applicants frame the technical and other information that the applicant will be evaluated on. The technical volume is comprised of a cover page; an overview; technical description, innovation, and impact; qualifications and resources; and operations and management approach. Please note that the percentages listed here are suggested and not mandatory. Next slide.

Next slide:
Full applicant eligibility requirements. As we previously pointed out, applicants must submit full applications by October 25, 2022, and the EERE will conduct an eligibility review. And full applications will be reviewed for eligibility at that time. And I'm just going to pause here for the eligibility requirements, and next slide.

Next slide:
So who is eligible to apply. To be considered for substantive evaluation, an applicant's submission must meet the criteria set forth in Section III.A of the FOA. If the application does not meet these eligibility requirements, it will be considered ineligible and removed from further evaluation. Please refer to the FOA, Section III.A, for complete information regarding eligibility.

Next slide:
We have imposed a limitation on the number of concept papers and full applications eligible for review. An entity may only submit one concept paper and one full application to this FOA. For example, EERE will only consider one concept paper and one full application per university for this FOA, not one submission for each college or school under that university. If an entity submits more than one concept paper and full application, EERE will request a determination from the applicant's authorizing representative as to which application should be reviewed. Any other submissions received listing the same entity as the applicant will not be eligible for further consideration. This limitation does not prohibit an applicant from collaborating on other applications. In other words, as a potential subrecipient or partner so long as the entity is only listed as the applicant on one concept paper and one full application submitted under this FOA. Next slide.

Next slide:
The merit review and selection process for full applications consists of multiple 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 selection decisions. Next slide.

Next slide:
Applications will be evaluated against merit review criteria shown on this slide, again at the top level but with additional details listed in the FOA.

Kristen McDaniel:
OK, I think we're on the next slide.

Next slide:

And I will pick it up with replies to reviewer comments. So the full applications are reviewed by experts in the FOA topic area. After those experts review the applications, the 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. 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 the 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 10 pages in length, EERE will review only the first 10 pages and disregard any additional pages. Please see Sections IV.E and Section V.A.3 for additional information regarding replies to reviewer comments. Next slide.

Next slide:

As part of the merit review process, EERE may invite certain applicants to participate in pre-selection interviews. The invited applicant or applicants will meet with the EERE representatives to provide clarification on the contents of the full applications and to provide EERE an opportunity to ask questions regarding the proposed project. The information provided by applicants to EERE through our pre-selection interviews contributes to EERE's selection decisions. The pre-selection interviews often take place in person at EERE's offices. For some FOAs, the EERE will conduct the interviews at a different location or conducts the interviews through a one-on-one conference with EERE via webinar, video conference, or conference call. If EERE conducts pre-selection interviews for this FOA, EERE will notify the invited applicants to provide more details about the format for the interviews for this FOA at that time. EERE will not reimburse applicants for travel and other expenses relating to the 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. And note that participation in pre-selection interviews with EERE does not signify that applicants have been selected for award negotiations. Next slide.

Next slide:

The selection official may consider the merit review recommendation, program policy factors, and the amount of funds available in arriving at a selection for this FOA. Next slide.

Next slide:

So registration requirements. Note that there are several one-time actions needed before submitting an application in response to this 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. Next slide.

Next slide:

It's important to note that all required submissions must come through EERE Exchange. EERE will not review or consider applications submitted through any other means. Next slide.

Next slide:
A few key submission points. So first, 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 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. And then for your records, print out the EERE Exchange page at each step, which contains the application's control number. Next slide.

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 the selection. Next slide.

Next slide:
So in summary, this new institute will be dedicated to reducing the overall emissions of domestic manufacturing through thermal process intensification, via electrification of process heating.
The institute will identify and address critical barriers to technology adoption. To do so, activities in three key areas will be needed, along with education and workforce development activities.
The applicant is strongly encouraged to consider how diversity, equity, and inclusion can be woven into all aspects of the institute. The total number of budget periods and their duration is flexible: Applicants may propose what they believe will be most advantageous to the project. EERE expects that Budget Period 1 will have a duration of 6-18 months; the overall project period for the award is expected to be 60 months. And finally, all entities planning to apply as a prime applicant or entities interested in participating as part of an applicant team are strongly encouraged to provide their contact information for the teaming partner list. We encourage you to review this list regularly as you build out your teams. Next slide.

Next slide:
So questions. As noted earlier, if there are questions about this FOA, please email AMOinstitute@ee.doe.gov. All Q&As related to this FOA will be posted on EERE Exchange. Note that you have to select the specific FOA number in order to view the Q&As. EERE attempts to respond to questions within three business days unless a similar Q&A has already been posted on the website. If you have problems logging into EERE Exchange or uploading and submitting an application document, there's an email that you can contact here. And finally, all questions asked during this presentation if they're already via the chat, will be responded to via the Q&A document posted on the EERE Exchange. Next slide.

Next slide:
So that comes – it brings us to the end of our webinar. We really appreciate all of you joining us today and look forward to responding to any questions that arise through the Exchange system. Thank-you again, and have a great rest of your day.