

Bill Ferris, TechWerx

Okay, I think everybody's had a chance to get in and get situated, so good afternoon, or good morning to everyone, depending on where you're joining from today. Thank you very much for being here for this webinar. Just a few quick announcements before we begin. If you need any assistance today, throughout today's event, please use the Q&A function.

I'll be happy to address any technical needs you might have or need in there. And also, Q&A is the best place to place any questions you have for our presenters today and our panelists, and we'll try to get to as many of those questions as possible.

And, as you see, with the questions that are submitted, you're able to upvote those questions, and that'll help us understand which of those questions are most interesting to all of you.

Today's informational webinar is being recorded and will be posted for archival viewing, and you'll get an email about that when it's ready.

So lastly, if you'd like to use the caption function on your screen for today's webinar, you can click on the CC button on your Zoom toolbar, see, and click on Show Subtitles. And each of you can individually manage that for your own screen.

So, without further ado, I'd love to hand things over to our panelists and presenters to get us going.

Garrett McKeown Wessler, TechWerx

Great. Thanks, Bill. Hello, everyone, and thanks for joining. We're very excited to host this webinar for the FY26 Space PV R&D program.

This opportunity is being funded by the U.S. DOE's Office of Critical Minerals and Energy Innovation. As a brief introduction, my name is Garrett McKeown Wessler, and I'm part of the TechWerx Innovation Hub.

A couple of quick housekeeping items at the top. As Bill said, please use the Q&A section to post your questions and upvote those you wish to have answered. We will try to get to as many as we can online today.

If your question is not addressed online, or you want to ask it offline, you can send it to info@TechWerx.org. We may not be able to get through all of the online questions today,

but they will be summarized and added to the FAQ on the opportunity page in the next few business days.

Per DOE guidance, we do not allow AI bots, chatbots, agents, note-takers, or other tools in these meetings. As Bill said, this meeting is being recorded and the transcript will be shared, so you should not need them. If they do join the meeting, they will be removed.

Lastly, the content included here is for informational purposes only and will be superseded by any information on the opportunity page or in the FAQ, including both the text on the slides and the question-and-answer section at the end.

With that, let's jump into the bulk of the webinar.

Next slide, please. Today we're here to go over the FY26 Space PV R&D program. The goal of this opportunity is to accelerate U.S. leadership in next-generation space PV by developing innovative, mission-relevant R&D capabilities within the U.S. that support the growing demand for power delivery in space.

This program aims to support innovations that advance the state of the art in durable, high-power space PV and enable high-volume, low-cost manufacturing of PV arrays for space.

This funding will be across two topic areas. The first, or Topic Area 1 will have up to 9 awards of each of up to \$1.5 million, and Topic 2 will have up to 3 awards, each of up to \$2 million, for a total of up to \$12 million across the two topic areas.

And those awards will begin for projects of up to 3 years in duration.

Today, we're going to briefly introduce TechWerx and the Department of Energy. We'll provide some background on why DOE is supporting this initiative. We'll give an overview of the opportunity, including the technical areas of interest, and review the application requirements, process, and timeline.

And we will conclude with a Q&A session at the end.

To briefly introduce TechWerx, we are a DOE innovation hub designed to facilitate connections among DOE, academia, nonprofits, startups, and other innovators across the U.S. The hub is managed by RTI International, an independent research institute based in Research Triangle Park, North Carolina. TechWerx offers many kinds of opportunities across a range of topic areas.

We recommend following us on LinkedIn or signing up for the newsletter on our website, TechWerx.org, so you will be notified when additional opportunities are announced.

Wonderful. So, to introduce the DOE folks on the call today, we are joined by the Integrated Energy Systems Office, or IESO, at DOE.

Two folks from this team are here, both Tim Siegler and Angelique Montgomery, who are technology managers in that program office. And with that, I'm going to pass it off to Tim and Angelique to introduce themselves and provide more information on this opportunity.

Angelique Montgomery, DOE IESO

Thank you, Garrett.

So, why is the DOE supporting this opportunity?

The space economy is rapidly growing, both in launch activity and private investments. The growth is expected to continue over the next decade, and the demand for solar, or for power delivery in space, will also continue to grow.

Solar PV remains the primary energy source for space missions, and will continue to be the preferred option due to its low mass, long lifetime, and minimal maintenance needs. However, to continue meeting our space power needs, the solar PV must overcome challenges related to cost, durability, and supply chain constraints.

Therefore, creating an opportunity for high-performing, scalable, low-cost PV innovations is a priority for the DOE.

In June 2026, the Integrated Energy Systems Office held a Solar in Space Workshop to advance the current state of space PV. Some of you may have been in attendance.

After an interactive session with industry, governments, and national lab and academia partners, the workshop highlighted three major themes needed to advance space solar. One, we must improve the performance and reliability so modules last long enough and don't degrade unpredictably.

Two, we must shore up the domestic supply chain for critical PV-specific materials, and this is even more critical for tandem devices. And three, we need modernized, mission-specific testing and qualification frameworks that allow for new materials to be adopted quickly.

More information from this workshop will be available on our website, so please sign up for the Integrated Energy Systems Office newsletter for ongoing updates.

Now, let's discuss the current fiscal year 26 space PV R&D opportunity.

There are two topic areas in this program. The first topic is PARC. It's the Photovoltaic Accelerator for Reliable Solar Energy Conversion in Space Opportunity. This topic seeks projects developing new or emerging space PV technologies.

That could realistically become manufacturable, high-performing space solar panels within the next 5 to 10 years.

Proposals in Topic 1 may also aim to improve or create lab-scale or space-simulated test systems that evaluate, like, very small, around an inch research cells under space-like combined stress conditions. For this topic, cost share must be at least 20% of the total project cost.

Topic 2 supports more mature, near-development space PV technologies. Projects in this area should focus on 20 to 100 square centimeter prototypes that can demonstrate advancements in durability and performance in realistic space environments.

This topic focuses on technologies that are approximately 2 to 3 years away from being mission ready. In addition, space validation testing protocols, or proposals in this topic should validate space readiness of coupon-sized prototypes.

That essentially enable fast learning cycles for rapid technical feedback that support ongoing research and developments. Like Topic 1, Topic 2 also requires a minimum 20% cost share.

To apply, organizations must show a proven history or strong potential to perform world-class research and development in space-grade PV cells and modules. Eligible applicants include universities, nonprofits, and for-profit companies.

For Topic 2, applicants must additionally demonstrate a credible capability to commercialize the technologies developed under their proposed projects.

All applicants must qualify as a domestic entity and certify that they are not owned, controlled, or directed by a government of a foreign country of concern.

Individuals participating in malign foreign talent recruitment programs of foreign countries of concern are prohibited from participating in DOE-funded projects.

Should any award be made, recipients must maintain ongoing due diligence, ensure no project participants are involved in malign foreign talent recruitment programs, and notify the DOE within 5 business days if such an issue is discovered.

The DOE retains the right to request additional information from applicants to verify compliance with all eligibility requirements.

Now, I'd like to hand things over to my colleague, Tim, who will go into more detail on the technology areas of interest and the application submission details. Thanks.

Timothy Siegler, DOE IESO

Thanks, Angelique. My name is Tim Siegler. I'm a technology manager here at IESO on the Advanced Photovoltaics team. I've been here for about 5 years. I'd like to start today talking about our areas of specific interest, technology-wise, for this opportunity.

While we have listed a couple topics here, and these topics are uniform across... the areas of interest, rather, are uniform across both Topics 1 and 2, this opportunity is open to any R&D proposal that will develop advanced cell or panel technologies for space, or the development of new methods or systems to rapidly test and prototype space solar technologies.

Of particular interest are proposals in III-V cell technology, crystalline silicon cell technology, perovskite PV cell technology, other PV cell technologies, and low-cost space PV testing to advance low-cost, reliable power for space applications. Excellent.

We'll go into detail about what we are seeking in each of these areas. The targets and areas of interest are detailed on the opportunity page and will soon also be described on our website in a summary of the workshop Angelique discussed earlier. First, we'll cover III-V technology.

We are specifically interested in technology innovations capable of reducing the cost and critical minerals dependence of III-V manufacturing, including, but not limited to, substrate reuse technologies that enable lower consumption of expensive and critical minerals.

The target is at least 27% power conversion efficiency with 95% yield on a wafer after five wafer reuses, employing minimal substrate cleaning and preparation between reuse cycles.

And low-cost manufacturing, including, but not limited to, low-cost metallization and automated and high-throughput manufacturing.

For crystalline silicon innovation, we are interested in solutions that can improve the durability and performance of crystalline silicon cells and arrays, including radiation-

hardened cells that retain 80% of their beginning-of-life maximum power during 10-year deployments and/or deployments in higher-radiation orbits than are conventionally used for silicon space PV today.

And higher efficiency thin film crystalline silicon cell technologies, targeting 23% at AM0 on wafers capable of meeting the durability detailed above.

Either through a 50-micron platform, or through whatever technology innovation you believe may be able to get you to those, durability targets at some point.

Perovskite PV cell innovation is focused on advancing the technology and market readiness levels of perovskite PV for space.

This includes, but is not limited to, projects aimed at understanding and mitigating perovskite PV cell and mini-module degradation under stressors experienced by space PV panels during standard mission conditions, including test sample packaging.

Perovskite multi-junction designs capable of delivering simultaneous durability, low cost, high manufacturing throughput potential, and high PCE, and using high-volume manufacturing compatible deposition methods.

We are also interested in characterizing perovskite PV technologies under combined accelerated stress testing, understanding the degradation modes of perovskite PV technologies, and correlating these accelerated stress tests with degradation during a mission.

For these and all other perovskite PV proposals, the opportunity will emphasize tandem and multijunction perovskite PV technologies, which are more likely to meet the power requirements of future spacecraft and metrics such as power per weight and power per volume.

However, single junction applications remain eligible and may be the most appropriate, depending on your specific proposal that you are putting forward.

We also are open to PV technologies in the cell and module level that are not specifically named here. If the proposed solution is able to demonstrate the potential to meet high efficiency, low cost, durability, high specific power, ability to be manufactured in high volume to meet growing demand with limited critical minerals dependence.

Additionally, there is a need for increased demonstration and validation capability and capacity, both for in-space testing and terrestrial setups aimed at simulating the space

environment, to ensure that the technologies developed elsewhere in this opportunity are bankable enough to be eventually tested in first-of-a-kind deployments.

Therefore, this solicitation is also open to projects that aim to develop low-cost testing platforms for small cell-level prototypes in space, with a particular emphasis on in-situ characterization capabilities.

The solicitation is also open to projects developing low-cost combined accelerated-stress-testing (AST) equipment capable of simulating the space environment and giving a broad segment of the U.S. space PV R&D community access to rapid, high-fidelity testing of space PV cell and coupon mini-module prototypes.

So, for submitting an application, the first thing we'll talk about is our review criteria, which, just like our specific technology areas of interest, are uniform across both topic areas. However, applications in Topic 2 will have additional barriers and things to prove regarding the maturity of their technology and the ability of the prime recipient to commercialize any technology innovation developed in these projects by themselves.

The review criteria are below. First is innovation and technical merit at 35%, where you demonstrate in your application technical feasibility, novel and innovative ideas, and responsiveness to the funding opportunity.

Criterion two is market need and feasibility, where you identify a relevant limiting problem for the space solar industry, and propose a solution with the potential to be taken up by industry and deployed in commercial space flights, if successful.

Criterion 3 is team and resources at 15%, ability for the team to complete the project, with the resources that are available to them and will be required by project funds.

And Criterion 4 is budget allocation and work plan, the reasonableness of the work plan, and the budget allocation, and the quality of the project management reporting.

Please look at the opportunity page for more detailed questions, which reviewers will look at to holistically give 1 to 5 ratings to each of these four criteria, which will be weighted as shown here to create a raw reviewer score for each individual review.

The steps of submitting an application are listed here. You start by filling out an application form, which will be linked through a QR code at the end of this presentation, and is an embedded web page on the TechWerx website.

This embedded application has the opportunity, or the requirement, to upload specific documents in support of the application, including the project narrative and other supporting documents.

Next, DOE may elect to include a reply-to-reviewer-comments phase, in which applicants would have an opportunity to respond to initial reviewer comments before final selections. We expect this phase, if used, in early November. Participation would be optional, and receiving a request to reply would not indicate, positively or negatively, whether an applicant is more or less likely to receive an award.

Step 4 is then to await final decisions, at, you know, whenever we are able to announce those.

The components of a full application include the opportunity application itself through the webpage, a project narrative, which is linked in a template in the main website, 15 pages in length maximum, that will be uploaded to the opportunity application with a radio button.

Similarly, a project summary slide template is available on the TechWerx website for download, and will be uploaded with the application in a similar way.

Resumes of key personnel, which can be in any format you wish, as long as it is a concatenated PDF file format.

And optional supporting documents, including optional opportunities to further elucidate on some of your equipment capability, letters of support, and equipment quotes, whatever you think might be critical to let reviewers know for this application process. Note that DOE and TechWerx will be examining these optional supporting documents

To make sure that all documentation is truly, you know, supplemental and supporting, and is not augmenting or getting around word count or page limit requirements for other parts of the application or project narrative where there are strict page limits and word count requirements.

DOE and TechWerx reserve the right to deem any of the supporting documentation, the optional supporting documentation, as supplementing something else in the application with a strict word count or page limit requirement. And if we do, we will take that specific document and exclude it from the review process.

So, tips for a strong application. First, pay close attention to the merit view criteria. Read questions to understand how your application will be judged.

Follow template guidance as closely as makes sense for your project to help reviewers to better understand and evaluate what your project is.

Present a clear, cohesive project plan with specific scope and a concrete research plan. Don't talk about necessarily the trajectory of the industry or the trajectory of your company. We would like to understand primarily what the additional funding that this opportunity will provide will do, and what your project that you will pursue with that money will be.

Use the budget and milestone table within the project narrative, it's a 3-page sum component of the 15-page project narrative, to detail your budget.

There is no detailed budget spreadsheet. For those who may be familiar with Department of Energy Financial Assistance, NOFOs, or FOAs.

Because these PIA opportunities use milestone-based payments, we do not require detailed budget breakdowns by cost category during the application phase.

This means that the three-page budget and milestone subcomponent of the project narrative is your only opportunity to demonstrate to reviewers that you can complete the proposed project within the solicitation's budget and timeline.

Make sure you're following all program requirements. Some easy-to-overlook requirements include less than 10% cumulative in sum of federal lab involvement, including all involvement by GO-GOs, GO-COs, FFRDCs, and other federal labs, as measured by total project costs.

And a required minimum 20% non-federal sourced cost share.

Finally, don't wait until the last minute to submit. As the next slide shows, we will hold last-minute office hours, but we sometimes need a couple of days to answer questions fully, especially edge-case or unusual questions.

I encourage everyone to start early so you can identify questions and give us time to provide complete responses and post them to the FAQ on the opportunity page.

And I'll pass it off to Garrett to wrap us up here today.

Garrett McKeown Wessler, TechWerx

Great. Thanks, Tim. As Tim was alluding to, we are going to wrap up with a timeline. Applications are currently open. We are at the webinar in the second line here. Before the

application deadline, we will host two additional office hours on September 29th and October 6th, both at 3 p.m. Eastern Time.

And then the application deadline is October 8th at 11.59 PM Eastern.

And just to recap the overall timeline, review and selection will occur between October and November of this year, with that optional reply to reviewer comments phase in early November, with selectees estimated to be announced in mid-December of this year. Then, that will be followed by a couple months of negotiations for the B2B agreements, with project activities estimated to be beginning in March of 2027.

We can move to the next slide. Wonderful. And if you are not planning to apply, TechWerx is actively recruiting technical reviewers for this opportunity. We invite you to share your expertise as a compensated technical reviewer. Scanning the QR code on this slide will take you to an interest form, or you can send an email to reviewers at TechWerx.org, and we can share that link separately. Thank you for considering being an expert reviewer.

We will now move into the Q&A section. We have plenty of questions, and the team has already answered some of them online. If your question is not addressed verbally, please check the Q&A thread to see whether it has already been answered in writing.

And if you, you know, continue, please continue to submit those questions, and if you can't upvote the ones that you feel are particularly important, otherwise I'm going to filter and prioritize those as we go.

I'll start with some of the technical questions for the program office. The first question is:

Garrett McKeown Wessler, TechWerx

The technology of interest need to specifically support manufacturing of photovoltaics in space, as an in-situ resource utilization, or is it just manufactured for space use?

Timothy Siegler, DOE IESO

Thanks for the question. The technology is manufactured for use in space; that is the primary focus of the technology areas of interest. We do not call out in-space manufacturing as a specific area of interest for this PIA.

Garrett McKeown Wessler, TechWerx

Wonderful. Thanks, Tim. To another technical question. For Topic 1, is it expected that applicants can arrange real launch demonstration, or is testing under simulated stressors acceptable?

Timothy Siegler, DOE IESO

Thanks for the question. There is no expectation or minimum requirement for a specific type of testing. Different approaches may affect how a proposal is scored, but none is required.

Garrett McKeown Wessler, TechWerx

Wonderful. Moving to another technical question. For topic one, are innovations outside of the semiconductor absorber itself considered in scope if they directly perform or improve the device performance, durability, or specific power?

Timothy Siegler, DOE IESO

Yes. I would review the specific eligibility language that Angelique presented earlier and that appears on the website. As long as you are confident that your proposal meets all of those requirements as written, it will be responsive to this PIA opportunity.

Garrett McKeown Wessler, TechWerx

Thanks, Tim. Right. Another one, for topic two, are lunar or planetary service missions in scope, or is the opportunity to focus on orbital applications for photovoltaics?

Timothy Siegler, DOE IESO

We are focusing this opportunity on improving the PV systems that go into spacecraft.

And, there are many different orbital or application, environments that may, you know, apply to this. You'll also please look at the opportunity page for the background and why

we're running this PIA to understand a little bit of the needs in the market that we're hoping to accomplish with this opportunity. Thank you.

Garrett McKeown Wessler, TechWerx

Great. And then here we've got, asked to clarify what spectrum for the III-V cell innovation is that metrics referring to, because it's specified for silicon that it was 23% at, AM0.

Timothy Siegler, DOE IESO

Yep, good catch on that. And I will say, you know, because this is not written down, this is maybe not perfectly prescriptive, but I think AM0 is appropriate. Whatever you'd have on the rating of the cell or module that would go into space is what we were intending.

Garrett McKeown Wessler, TechWerx

So, and another question, sort of on the scope of these, the awards, does the funding only support the PV module side, or can this award be applied to power electronics research for converting that solar energy to electricity?

Timothy Siegler, DOE IESO

So, we, have specific wording about what is eligible for this opportunity, anything that will improve PV systems in space. You know, as you saw from the specific technology areas of interest, we obviously are intending, for both testing, to do testing work, and also for PV cell and module design, but I would read the opportunity page carefully and see if you feel that your innovation is responsive to that specific way we've ordered it.

Garrett McKeown Wessler, TechWerx

Wonderful. Oh, amazing. So that also answers the question on solar inverters, I believe. But this is, yeah, if solar inverters are in scope here. I believe you just answered that, Tim.

Timothy Siegler, DOE IESO

Yeah, it'd be the same answer.

Garrett McKeown Wessler, TechWerx

Similarly, another related one are thermal management systems and, again, power management systems in scope for Topic 1.

Timothy Siegler, DOE IESO

Yeah, I think it's a very similar answer to before, where, you know, we obviously have specific areas of interest in cell module and cell and module testing.

But have, you know, worded it in a way where other innovations that can support the PV system may be in scope, depending on how you read your application, or your innovation, and how it corresponds to the wording on the website.

Garrett McKeown Wessler, TechWerx

Wonderful. So a question on what kinds of stressors are of interest here. Specifically focused on perovskite PV, is the focus on launch pad, stressors, like atomic oxygen and moisture, or stressors in space, like thermal cycles and radiation that are specific to the space environment?

Timothy Siegler, DOE IESO

Yeah, I won't rank the stressors necessarily, I think that's up to the project team to identify what they feel is most critical.

The project team should identify and prioritize the stressors it believes are most critical and make the case for that approach. We are looking at the entire mission life, so any stressor a cell or module may experience, including on the launchpad, would be within scope.

Garrett McKeown Wessler, TechWerx

I think there are a couple of quick questions related to the technical areas of interest. The first is: Is the focus for perovskite technology on single-junction perovskite or perovskite tandem devices?

Timothy Siegler, DOE IESO

Yeah, as we mentioned, an emphasis, first off, before I answer this question, does not mean exclusive emphasis. We are accepting applications in both these technologies and in higher-order multi-junctions.

But, have a focus in multijunction and tandem technologies. It's an emphasis, but, single-junction technologies are more than welcome to apply, and like I said, may be appropriate depending on the specific application and proposal submitted.

Garrett McKeown Wessler, TechWerx

Going back to the spectrum, are you also looking for AM0 spectra for perovskite, other thin-film, and other solar technologies, as you are for III-V and silicon?

Timothy Siegler, DOE IESO

I don't believe, correct me if I'm wrong, that we call out any specific efficiency ratings for perovskite. However, we are looking for testing that reflects realistic deployment, even in projects that are not specifically focused on metrology or test development. Tests that are most relevant to the active space PV deployment environment are of interest, and spectrum is one of those parameters.

Garrett McKeown Wessler, TechWerx

You answered the portion of this question about performance metrics or expectations for perovskites and other technologies, but are there specific cost or manufacturing targets of interest for any of the technologies, particularly perovskite and other thin-film technologies?

Timothy Siegler, DOE IESO

Yeah, so there are many different types of deployment scenarios and different orbit levels that have different power requirements, and so therefore we have not set any explicit quantitative targets, because this varies, I think, depending on your specific deployment case. And so, you know, I think it's incumbent on the applicant teams to make the case that their targets are appropriate for the industry and would move the needle.

Garrett McKeown Wessler, TechWerx

And then we have a handful of questions. I'm going to sort of, like, lump them together on, are there expectations or minimum requirements for the TRL of the technologies that are in scope here, either from Topic 1 or Topic 2, and is there an expectation for advancement of that TRL across the program?

Timothy Siegler, DOE IESO

Yes, we framed it in terms of years to deployment readiness, and so I think that's the metric you should be thinking about, right? I think if you're a lower TRL but think you can move very quickly, that might be different than, asomewhat higher TRL, but you're going to have a longer track. So, in Topic 1, we're interested in technologies that are maybe 10 years away from deployment readiness, and in Topic 2, we are interested in technologies that are 2-3 years away from deployment readiness.

Garrett McKeown Wessler, TechWerx

Okay, cool. Question on what kinds of, simulations are types of, like, stressors are hoped for. This question says, are end-of-life efficiency simulations for various cell or material architectures in scope for this program?

Timothy Siegler, DOE IESO

Yeah, I think, again, you know, I don't want to make specific judgment calls. I think, in general, I'm going to avoid talking about any specific kind of work here, but please consult the website and the eligibility criteria to see, if you think that your proposal may fit into that.

Yep. And then regarding what kinds of stressors, I mean, it's, again, I think there are many that are relevant, and you can go and look at the literature to identify the limiting issues in a lot of these different technologies, and identify what might make the most sense for your proposal.

Garrett McKeown Wessler, TechWerx

Jumping to a question on the metrology side of things, are there cost targets or cost reduction targets for accelerated stress testing equipment?

Timothy Siegler, DOE IESO

Yeah, again, I think the capabilities will change the cost metric, and we have not prescribed any specific capabilities, because there could be many different ways to approach the question that we're interested in looking at. And, and so we have not set specific, cost targets.

Garrett McKeown Wessler, TechWerx

Okay. And another question, somewhat related. Is there a focus on novel manufacturing methods, for example, for perovskites, appropriate as long as they're compatible with space PV applications that are demonstrated?

Timothy Siegler, DOE IESO

For perovskite PV, or any PV technology, an innovation that responds to the program's broadly stated technology goals would be within scope.

Garrett McKeown Wessler, TechWerx

Okay, another technical question, is concentrated PV in scope, or is this program limited to flat panel systems?

Timothy Siegler, DOE IESO

As we said, I don't know exactly what the proposed technology system would be. However, as long as it is responsive to either the technology areas of interest or the broader provisions on the opportunity page, it will be within scope. I encourage you to review the written language to determine whether your proposed innovation is within scope.

Garrett McKeown Wessler, TechWerx

Great. There's, another sort of, like, scope question. I'm wondering whether there's an interest in flexible PV from a lightweighting perspective advantage, or deployment needs or, you know, basically saying, is flexible PV in scope here, or are we looking at just rigid cells?

Timothy Siegler, DOE IESO

Yeah, so the, we have a, list of eligible and interested applications, right, and specific power is listed as one of the metrics that has, you know, that we are interested in pursuing, so as long as it is applicable and relevant to the, the opportunity as written, it will be responsive to the application.

Garrett McKeown Wessler, TechWerx

Cool. And, to follow on with that, are there any specific values for a specific power that are of interest and does that include both the weight of the system, or just the cells or modules themselves?

Timothy Siegler, DOE IESO

We don't have, we do not have specific power requirements listed. What we have listed for metrics was shown throughout this presentation.

And, yeah. So please consult the Opportunity page for any, sort of requirements that we may call out and targets that we have.

Garrett McKeown Wessler, TechWerx

Great. Just quickly running through the technical side of things. Oh, so here's a question on, are there specific targets or requirements for radiation resistance? In the, for, for devices or technologies here.

Timothy Siegler, DOE IESO

Due, again, to the fact that, you know, we are trying to improve the technology for any, or for a wide range of different kinds of orbital applications. These have different radiation profiles and different requirements. You know, this is also why many of the other targets are left a little bit open-ended, because we are, not, you know.

We are, we are casting a wide net, so I think that for, for that, we do not have any specific radiation requirements. Except for, the, callouts for high fidelity of what may be experienced in the space environment.

Garrett McKeown Wessler, TechWerx

Alright. And there's a clarification on the TRL side of things, and the question being. Would newer or theoretical solar absorber materials be within scope, even if not yet demonstrated in a full cell, as long as there's a case that they'll be commercially deployable within 10 years? I'm assuming this is relative to Topic 1.

Timothy Siegler, DOE IESO

Right. So, yeah, the way it's written in the solicitation, for, you know, it's like, it, a compelling case will have to be made for every application in Topic 1, that the technology that is proposed in that application will be ready within 10 years. Or in 10 years, not within, in 10 years.

Garrett McKeown Wessler, TechWerx

All right, I think the last technical one, and then I'm going to transition into some, more procedural questions. But does packing, or are packing and encapsulation technologies for increased durability in scope for this program?

Timothy Siegler, DOE IESO

Yeah, again, I do not wish to try to make individual judgments about, like, specific technologies, but please look at the durability callouts in the opportunity page to identify if your specific technology may be responsive to this opportunity.

Garrett McKeown Wessler, TechWerx

Wonderful. Alright, thanks, Tim. Again, please keep sending in questions, and we'll get to as many as we can during the next 17 minutes of the webinar, but I'm going to transition into some procedural questions or application questions.

We have, one that came in from a couple different people on whether the principal investigator can or should be the one to submit the application, or if an organizational representative must be the one to submit. Either Tim or any other DOE folks you want somebody to help answer this one?

Timothy Siegler, DOE IESO

Rylie, do you have an answer at this time, or do we need to circle back?

Rylie Yaeger, DOE OTC

Hi, everyone. I'm Rylie Yaeger with the Office of Technology Commercialization, which manages this PIA mechanism. We work with our program office, IESO in this case, and our PIA partner, TechWerx.

I think that that would be an internal question to the prime applicant's organization. I believe, and Garrett correct me if it's wrong, on the application, there's both the prime technical applicant and then also the business or administrative contact, and if that is what it's referring to, I think that's an internal question to their organization. I don't think it's

a requirement on our side, if that makes sense. So I think it could be the PI, if that is what your organization does. Or I should say, your organization's process.

Garrett McKeown Wessler, TechWerx

Wonderful. Yeah, I don't have anything to add at this point from the technical side of things.

We have a question on whether there is any, cap on the percentage of a total award that can be subawarded to a single recipient. beyond, I would assume the question would then say beyond the restriction on federal labs.

Timothy Siegler, DOE IESO

Yeah, so that, that is the only, requirement I know of right now. I will, confirm with our legal representation and get back to you in the frequently asked questions section of the opportunity page to get, I'm only 90% sure of the answer, and I don't want to provide misinformation on this call to everyone, so thank you.

Garrett McKeown Wessler, TechWerx

Wonderful. And then we got a question on whether or how applicants can submit the FCOC certification, and if that needs to be a separate form or a supplemental upload for the application.

Timothy Siegler, DOE IESO

So, the DOT has, and TechWerx will reserve the right to request more information from applicants after the initial submission phase. There is, you know, what you see in the application itself is what you're required to submit at this time.

Garrett McKeown Wessler, TechWerx

There's a question on the length of the projects. So it says, projects can be up to 3 years. Is 3 years the expected length, or is there a preference for an accelerated performance in a shorter period of time? Or is there no preference?

Timothy Siegler, DOE IESO

The projects can be up to 3 years in length, and, you know, there's no preference stated or in actuality, a timeline of, beyond, you know, they're up to 3 years.

Garrett McKeown Wessler, TechWerx

It says, or another question on, sort of, like, pieces of the application, or what kinds of supplemental materials can be uploaded. It says, can you speak to the value of in the application of letters of support from potential commercial partners or future customers? Will this be weighted in the application, and will they be accepted as part of the proposal?

Timothy Siegler, DOE IESO

Letters of support will be accepted. It's explicitly listed in the application itself, if you look, as something that is allowed as part of your optional uploads. Whether or not it will be helpful for your application is something I cannot comment on, and it is for you to ultimately address and for the reviewers to assess.

Garrett McKeown Wessler, TechWerx

I can answer this question: How do you intend to link testing service providers and innovators with PV manufacturers? The opportunity page includes a teaming list where interested partners have self-reported their capabilities. DOE and TechWerx will not facilitate introductions beyond that teaming list.

Okay, a quick question on the reply to reviewer comments, the optional, reply to reviewer comments phase, asking whether these comments will need to be approved and submitted at the institutional level, or will PIs be able to respond directly to those reviewers?

Timothy Siegler, DOE IESO

So, this one, and I believe this is, this is correct, that's an institutional decision. We definitely will not, I mean, I'm very doubtful that we will have any opinion about who submits directly, as long as they're associated with the project somehow, and any requirements that are part of that reply to review your comments phase will be provided in writing with the solicitation if, indeed, we choose to go that way.

Garrett McKeown Wessler, TechWerx

Quick question on, basically just process. So, should we submit one single PDF combining all required documents, including letters, budget, 15-page description, etc? Tim, I can jump in. The requirements and the page limits are explicitly on the opportunity page. The project narrative has that 15-page, page limit, and then there are opportunities for uploading those supplemental materials. I think there's a handful of spaces for uploading those materials in the application, and those do not have page limits. However, you know, we request that the resumes be, combined into a single PDF, and if possible, other like materials with like materials, since it's, you know, if you have multiple letters of support, those also be combined into the same, into a single PDF. But they can be separate, right, from the resumes and from the project narrative.

And just another one that I can answer, the question is whether there needs to be a separate budget document required, or only the milestone table with budgetary details. Yes, that is correct. For this application through TechWerx, you do not have to submit a secondary budget document, you just have to use the milestone table and the associated budgetary line items there.

There are many questions on cost share and finance in the queue. We will likely not get to all of those today, but we're developing lots of language on those, and those will be up on the FAQ shortly. And so I'm going to answer the ones that are applicable today, and others that will be answered afterwards.

So I'm going to bring this one up, because it is relative to the review process. Tim, it says, does the percent cost share in the proposal impact its review or selection during final negotiations? I'm going to amend beyond the, present beyond the required 20% cost share.

Timothy Siegler, DOE IESO

Yeah, so, 20% minimum is obviously excluded from this, as we've said, but if you meet the 20% minimum requirement. I'll be more broad. There are no secret review criteria, so what is listed on the website, including all of the questions underneath each criterion, is the sum total of what their viewers will be asked to assess. Right, and there is no mention, I believe, of cost share. I'm 99.9% certain there's no mention of any cost share in those questions.

Garrett McKeown Wessler, TechWerx

Yeah, great. Okay, quick question on, sort of, what the teams might look like. Can the applicant team consist of a number of organizations under a single lead, and can that include both private businesses and a mix of private businesses and universities?

Timothy Siegler, DOE IESO

Yes.

Garrett McKeown Wessler, TechWerx

I think that was straightforward.

Alright, I think there's a couple, related to this, but, the question is, how many topic areas of interest would you like to see covered in a proposal here, or is it under a single topic area?

Timothy Siegler, DOE IESO

You will have an option in the application, to select one topic area to apply to. So, this is, yeah, each topic area is different. Topic, you know, we have similar background areas, technical areas, but timelines 1 and 2 have different, expectations for technical maturity, and different expectations for the ability to commercialize the technology of the performer, right? And I think that, is the major difference.

Garrett McKeown Wessler, TechWerx

Okay, so, another one on sort of how these will be, reviewed. It says, you mentioned, the market value of the project being a key criteria. Do teams have to have an industrial partner as a part of the proposing team?

Timothy Siegler, DOE IESO

Could you repeat that?

Garrett McKeown Wessler, TechWerx

Basically saying, you know, related to the, like, market value and feasibility criteria, do teams have to include an industry or private sector partner?

Timothy Siegler, DOE IESO

No, that is not a requirement, and market value, I want to make clear, is not, like, your valuation like you would for a VC or something like this. Like, this is just, you know, does it have some sort of technical merit that could be adopted by the space PV industry to get deployed in, you know, space flight. That's what we mean by this. But yeah, no, there's no, if you could look through the eligibility criteria, I'll say similar to lead to review criteria, there are no secret eligibility criteria, right? So what you see on bulleted on the opportunity page is the sum totality of the eligibility criteria, and there's no, I think. Limit on, a requirement for certain types of applicants or subrecipients.

Garrett McKeown Wessler, TechWerx

Related to subrecipients, just, can you restate or explain the point on federal laboratory effort not exceed 10% of the total federal, cost share of the project? Basically, can you provide a little bit more, like, detail.

Timothy Siegler, DOE IESO

Yeah, yeah, so, on the website, it lists, whether or not it's based on total project costs or on federal share, I can't remember off the top of my head which of those two standards it is. Rylie is coming off, could you remind me?

Rylie Yaeger, DOE OTC

It's the federal share, so 10% of the federal.

Timothy Siegler, DOE IESO

And I think we maybe put that wrong into the slides, so let's clarify that. So 10% of the... federal share of the award, so up to \$1.5 million, up to \$2 million.

Is, like, a basis set, and, 10% of those funds, is, like, that's the cap for how much of the federal share can go to a government laboratory. That's the sum effort, so it's not each laboratory gets 10%, it's all federal laboratories must be in sum below that 10%, cap. So it's \$150K for projects in Topic 1, and \$200K for projects in Topic 2. And, and this is any, government laboratory.

Garrett McKeown Wessler, TechWerx

Thanks, Tim.

Rylie Yaeger, DOE OTC

And I saw a related question. It is not required to partner with a national lab. That's one that ties with it, just to make that clear.

Garrett McKeown Wessler, TechWerx

Yes. Great. Alright, we're coming up on time. I'm going to hit a couple, quickly here. It says, when preparing the proposal, do we need to propose any go-no-go milestones? And if yes, how many are required, or is there any expectation?

Timothy Siegler, DOE IESO

They're not strictly called go/no-gos, and the go/no-go milestones are not listed. However, if you look at the project narrative document, you will see listed in there that we, are hoping that end-of-year milestones, so year-break milestones at month 12 and 24.

If your project is 3 years, that's the 2. The, represent key pivot points in the project, and the attainment or unattainment of those milestones should, dictate how the project is going and if changes are needed to the project.

Garrett McKeown Wessler, TechWerx

Great. Okay, so in the last couple minutes, I want to hit two last technical questions that came in.

Timothy Siegler, DOE IESO

And there's no limit, the quantity and quality of those are not dictated. Okay, sorry, continue.

Garrett McKeown Wessler, TechWerx

Thanks; that's helpful context. Quickly, for perovskite tandems, is the focus on two-terminal or four-terminal designs, or is there a preference between the two?

Timothy Siegler, DOE IESO

We have not specified that to that level of detail, and again, it's just an emphasis area, it's not an exclusive focus.

Garrett McKeown Wessler, TechWerx

The last technical question is whether II-VI photovoltaics are in scope and whether detailed expected performance parameters are listed.

Timothy Siegler, DOE IESO

Yeah, we couldn't go through every single cell technology and create models for them, so please, I think that we tried to incorporate this with other PV cell technologies, which I believe is D in the opportunity page and on these slides, so, refer to that for context.

Garrett McKeown Wessler, TechWerx

Alright, So I'm trying to, see if there's any that are already here, should I bring up.

But maybe we could answer, like, generally for, like, financial requirements, are there, areas within the application or the supplemental materials, for those to be uploaded? And just, for instance, like, cost share, documenting or certifying cost share, that kind of thing.

Timothy Siegler, DOE IESO

Yeah, the only requirement is that you, detail your cost share in the budget and milestone table within the project narrative.

There is an opportunity to do optional cost share support letters and, things of that nature in the optional documentation, and that's fully allowed. The, DOE and TechWerx may request additional information and commitment letters and things of that nature if it's important, post-selection.

Garrett McKeown Wessler, TechWerx

Thanks, Tim. Bill, we can go to the next slide. Again, any unanswered questions will be summarized, and they will be included into the FAQ in the next few business days. With that, if you do have any additional questions, you can email info at TechWerx.org. We have been receiving questions there already, and we'll continue to do so and, like, put them up on the FAQ as they come in.

And as a reminder, this application is due October 8th at 1159 p.m. Eastern, and we'll host additional office hours on September 29th and October 6th, both 3 to 4 p.m. Eastern. All of this information is on our website and on the opportunity page, which is linked at a QR code. And with that, that is the best place. Oh, Tim?

Timothy Siegler, DOE IESO

We will also do our best to address in the FAQ every question we could not answer today. Questions submitted through the Q&A do not need to be resubmitted to info@TechWerx.org; we have already received them and will try to answer them shortly.

Or we've already gotten the, those questions, and we'll try to answer those shortly.

Garrett McKeown Wessler, TechWerx

Yes, great, thanks. Wonderful. With that, thank you all so much for attending today. All this information is on the website, and so that is the best place to go for the most up-to-date information. And again, thank you all, and looking forward to seeing applications roll in.

Timothy Siegler, DOE IESO

Thanks, everyone.