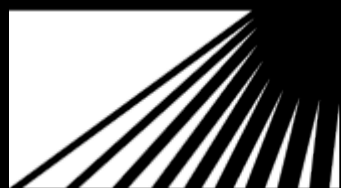


NEXT GENERATION PHOTOVOLTAIC TECHNOLOGIES III



SunShot
U.S. Department of Energy

None of the information presented here is legally binding. The content included in this presentation is intended only to summarize the contents of funding opportunity DE-FOA-0000990. Any content within this presentation that appears discrepant from the FOA language is superseded by the FOA language. All Applicants are strongly encouraged to carefully read the FOA guidelines and adhere to them. Neither the U.S. Department of Energy (DOE) nor the employees associated with DOE working on this presentation shall be held liable for errors committed by applicants based on potentially incorrect or inaccurate information presented herein.

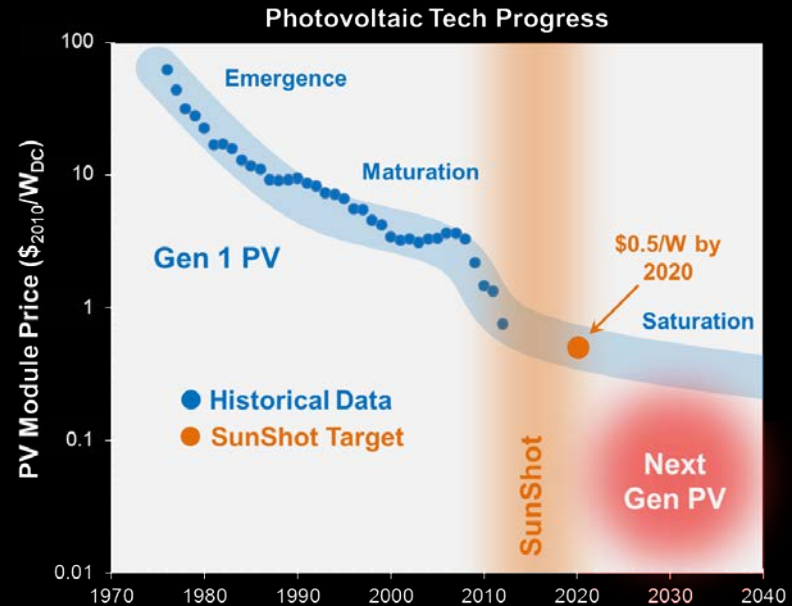
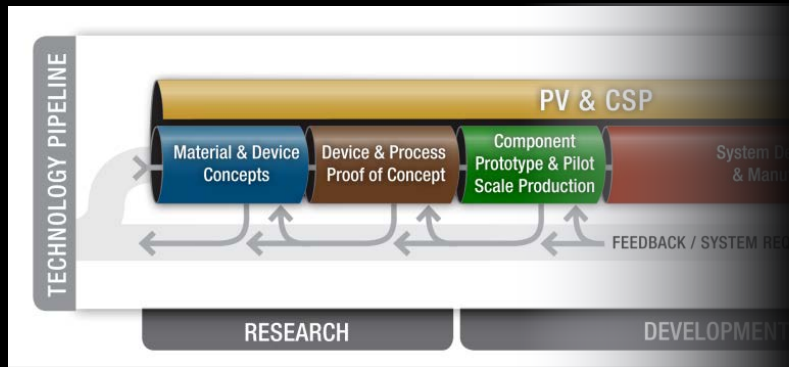
Agenda

- 1) Next Gen III Program
- 2) Concept Paper Review
- 3) Full Application
- 4) Review Process
- 5) Questions

Award Overview

Total Amount to Be Awarded	\$9,000,000
Max Award Amount	\$1,500,000
Anticipated Awards	7 Awards Anticipated
Types of Funding Agreements	Cooperative Agreements
Period of Performance	Up to 4 Years (48 Months)
Cost Share Requirement	<p>10%: The Prime Recipient is a domestic institution of higher education; domestic nonprofit entity; FFRDC; or U.S. State, Local, or tribal government; <u>and</u> performs more than 50% of the project work, as measured by the Total Project Cost.</p> <p>20%: All other entities</p>

Next Gen III Overview



Proposals that apply promising basic materials science that has been proven at the materials properties level to demonstrate improvements in photovoltaic technology addressing or exceeding SunShot goals are solicited

Next Gen III Overview

Areas of interest are listed in Section 1.B of the FOA

- New materials and processes to demonstrate greater than 30% cell efficiency with a single junction or tandem cell structure at less than 50x concentration
- New materials and processes that enable levelized cost of energy reduction and produce cell efficiencies competitive with the efficiency of incumbent technologies
- Processes and advanced multijunction structures to reduce cell \$/cm² costs while maintaining efficiency.
- Advanced modules

Concept Paper Review

Concept Paper Review Process

- Concept Papers were mandatory
- Applicants were provided reviewer comments on their Concept Paper as well as an encourage/discourage decision on February 21, 2014
- If you are having difficulties accessing your Concept Paper review comments or encourage/discourage decision please contact:
EERE-ExchangeSupport@hq.doe.gov
- The reviewer comments are produced by the reviewers and do not represent the opinion of the Department of Energy (DOE).

Concept Paper Review Process

- EERE makes an independent assessment of each Concept Paper based on the criteria in Section V.A.1 of the FOA. EERE will encourage a subset of Applicants to submit Full Applications. Other Applicants will be discouraged from submitting a Full Application.
- An applicant who receives a “discouraged” notification may still submit a Full Application. EERE will review all compliant and responsive Full Applications. However, by discouraging the submission of a Full Application, EERE intends to convey its lack of programmatic interest in the proposed project in an effort to save the Applicant the time and expense of preparing an application that is unlikely to be selected for award negotiations.

Concept Paper Review Criteria

Criterion 1: Impact of the Proposed Technology Relative to State of the Art (50%)

- This criterion involves consideration of the following factors:
- Quality and accuracy of the description of the current state of the art technology;
- If technical success is achieved, the ability of the proposed idea to significantly improve technical and economic performance relative to the state of the art; and
- Quality of the rationale for how the proposed technology will address the Areas of Interest defined in Section I.B of this FOA.

Criterion 2: Overall Scientific and Technical Merit (50%)

- This criterion involves consideration of the following factors:
- The proposed technology is unique and innovative; and
- The proposed technical approach is justified and without major flaws.

Mandatory Full Application

Application Deadline

Submit Full Application in EERE Exchange by

5 PM ET,

March 24, 2014

We strongly encourage you to submit
1-2 days prior to avoid any potential
technical glitches with EERE Exchange

Format and Page Limits

Extra material will not be reviewed

Section	Notes
Technical Narrative	PDF, each section has page limits
Cover Page Project Overview (1page) Technical Description, Innovation, and Impact (8 pages max) Workplan (6 pages max + 1 page for Milestones Table) Technical Qualifications and Resources (4 pages max) (1 page resumes do not count towards page limits)	
Summary for Public Release	1 page max
Summary Slide	PowerPoint or PDF, 1 page max
Letters of Commitment	Signed letters of cost share commitment, if applicable
SF424	SF-LLL, if applicable
SF424A	Excel
Budget Justification, PMC 123.1	Necessary for Prime and sub recipients performing > \$250,000 or 25% of the total work effort
Waiver Request	Foreign entities and/or work, if applicable

Cost Share

- All projects must include a non-Federal cost share

Total Project Cost = Non–Federal Share + Federal Share

$$\text{Cost Share} = \frac{\text{Non–Federal Share}}{\text{Total Project Cost}} \times 100\%$$

Type of prime recipient incurring >50% of total project costs	Minimum Cost Share	Anticipated Federal Funds per selected project	Cost Share (min)	Total Budget
National laboratory; domestic university; or state, local or tribal government	10%	\$1,500,000	\$166,667	\$1,666,667
All other applicants	20%	\$1,500,000	\$375,000	\$1,875,000

Milestones Go / No-Go Criteria

- The projects will have up to four budget periods of 12 months each. At the end of each budget period, DOE will make a go/no-go decision. You will need to add the fourth budget period to the PMCI23.1 form.
- Milestones and go/no-go criteria will be carefully evaluated by the Reviewers
- Milestones should be quantifiable
- **Reports are NOT acceptable milestones**

Criteria Weighting for Full Applications

Technical Merit, Innovation, and Impact <ul style="list-style-type: none">• Technical Merit and Innovation• Impact of Technology Advancement	50%
Project Research Plan <ul style="list-style-type: none">• Research Approach and Workplan• Identification of Technical Risks• Metrics and Deliverables• Commercialization Plan	30%
Team and Resources	20%

Selection Criteria – Part I

Technical Merit, Innovation, and Impact (50%)

Technical Merit and Innovation

- Extent to which the proposed technology or process is innovative and has the potential to advance the state of the art;
- Degree to which the current state of the technology and the proposed advancement are clearly described;
- Extent to which the application specifically and convincingly demonstrates how the applicant will move the state of the art to the proposed advancement; and
- Sufficiency of technical detail in the application to assess whether the proposed work is scientifically meritorious and revolutionary, including relevant data, calculations and discussion of prior work in the literature with analyses that support the viability of the proposed work.

Impact of Technology Advancement

- How the project supports the topic area objectives and target specifications and metrics;
- The potential impact of the project on advancing the state of the art as justified through cost models or market analysis; and
- Quality of the rationale for how the proposed technology will address the Areas of Interest defined in Section I.B of this FOA supported by models and analysis.

Selection Criteria – Part II

Project Research Plan (30%)

Research Approach and Workplan

- Degree to which the approach and critical path have been clearly described and thoughtfully considered; and
- Degree to which the task descriptions are clear, detailed, timely, and reasonable, resulting in a high likelihood that the proposed Workplan will succeed in meeting the project goals.

Identification of Technical Risks

- Discussion and demonstrated understanding of the key technical risk areas involved in the proposed work, and the quality of the mitigation strategies to address them.

Metrics and Deliverables

- The level of clarity in the definition of the metrics and milestones;
- Relative to a clearly defined state of the art, the strength of the quantifiable metrics, milestones, and go/no-go criteria defined in the application, such that meaningful interim progress will be made; and
- The ability of the proposed metrics and milestones to support the goals described in Section I.B of the FOA.

Commercialization Plan

- Quality of the potential commercialization plan at identifying target market, competitors, and potential distribution channels for the proposed technology along with known or perceived barriers to market penetration including but not limited to product development and/or commercialization timeline, financing, product marketing, legal/regulatory considerations including intellectual property, infrastructure requirements, data dissemination, and product distribution.

Selection Criteria – Part III

Team and Resources (20%)

- The capability of the Principal Investigator(s) and the proposed team to address all aspects of the proposed work with a good chance of success. Qualifications, relevant expertise, and time commitment of the individuals on the team;
- The sufficiency of the facilities to support the work;
- Degree to which the proposed consortia/team demonstrates the ability to facilitate and expedite further development and commercial deployment of the proposed technologies;
- Level of participation by project participants as evidenced by letter(s) of commitment and how well they are integrated into the Workplan; and
- Reasonableness of budget and spend plan for proposed project and objectives.

Review Process

- Concept Paper review and encourage/discourage notices were sent with reviewer comments to applicants - February 21, 2014
- Full Application Deadline: 5pm ET, March 24, 2014
- Full Application Review
- **Expected** release of Full Application reviewer comments to applicants May 1, 2014
- Submission deadline for reviewer comment replies: 5pm ET, May 6, 2014
 - Single PDF Document, 3 pages max
- Reviewers and DOE discuss applications
- Pre-selection clarification calls and presentations: May 21 – July 7, 2014

Replies to Reviewer Comments

- Applicants will have the option to have a brief opportunity (~2 business days) to review these comments and prepare a short Reply to Reviewer Comments
- 3 pages max including figures
- Expected release of reviewer comments to applicants:
May 1, 2014
- Replies to Reviewer Comments must be submitted into EERE Exchange by 5pm ET May 6, 2014

Frequently Asked Questions

- All questions must be submitted to:
DOEnextgenPV@go.doe.gov
- Answers will be provided on EERE Exchange at: <https://eere-exchange.energy.gov/FAQ.aspx?Foald=82902975-056c-4137-a4e4-c7eb6950c54a>
- Questions must be submitted not later than 3 business days prior to the Full Application due date.
- A modified FOA document was posted today on EERE Exchange to clarify some of the language. It can be accessed at: <https://eere-exchange.energy.gov/#Foald82902975-056c-4137-a4e4-c7eb6950c54a>



DOEnextgenPV@go.doe.gov

energy.gov/sunshot

February 28, 2014

This webinar and the script will be posted on EERE Exchange at:

<https://eere-exchange.energy.gov/#Foald82902975-056c-4137-a4e4-c7eb6950c54a>

NEXT GENERATION PHOTOVOLTAIC TECHNOLOGIES III

Funding Opportunity Announcement (FOA) Number: DE-FOA-0000990

Webinar Script 02/28/2014

Title Slide: Next Generation Photovoltaic Technologies III: Hello and thank you for attending the second webinar for the Next Generation Photovoltaic Technologies III funding opportunity. My name is Lenny Tinker and during this webinar, I will provide a brief overview of this funding opportunity focusing on the Concept Paper review comments and Full Application phase but please bear in mind that the content included in the webinar is only intended to summarize a portion of the contents in the funding opportunity announcement (FOA). If there are any questions, they must be submitted in writing to the FAQ email box DOEnextgenPV@go.doe.gov. Also, I would like to alert you all to the fact that we posted a revised FOA document today to clarify some of the language in response to some of the questions that we have received. Please download the most recent version of the FOA from EERE Exchange.

Slide 2: Please note that any content within this presentation that appears discrepant from the FOA language is superseded by the language in the FOA. All Applicants are strongly encouraged to carefully read the funding opportunity guidelines and adhere to them. Neither the U.S. Department of Energy (DOE) nor the employees associated with DOE working on this presentation shall be held liable for errors committed by Applicants based on potentially incorrect or inaccurate information presented herein.

Agenda: OK, now I'll move on to the agenda for this presentation. To start things off, I will reiterate the overview of the Next Generation Photovoltaic program that was presented in the first webinar and discuss the specific areas of interest for this funding opportunity. Again, Applicants should refer to the funding announcement for more information on the objectives of this funding opportunity. I will then briefly go over the Concept Paper review which will be followed by a discussion on the Full Application and its review process.

Award Overview: As mentioned in the first webinar, to accomplish the goals of this funding opportunity, EERE SunShot anticipates having \$9 million dollars of funding available and anticipates making approximately 7 awards for this funding opportunity. The number of awards can vary depending on the amount of money requested by the awards selected for negotiation and funds availability. The funding agreements will take the form of Cooperative Agreements, which assume substantial involvement from DOE. More information on this can be found in Section VI.C.8 of the funding opportunity. Awards can last up to four years and have a minimum required cost share of 20%. As described in Section III.B of the funding opportunity, the minimum cost share is reduced to 10% where:

- The Prime Recipient is a domestic institution of higher education; domestic nonprofit entity; FFRDC; or U.S. State, Local, or tribal government; and
- That entity performs more than 50% of the project work, as measured by the Total Project Cost.

Again, in order to qualify for the reduced cost share of 10%, the Prime Recipient must conduct at least 50% of the project work, as measured by the Total Project Cost. The cost share for any proposal where the prime recipient conducts less than 50% of the project work must be at least 20%.

Next Gen III Overview: As you are likely aware, the Next Generation Photovoltaics III funding opportunity seeks to support research that applies basic science towards the realization of devices that demonstrate the photovoltaic (PV) effect. Specifically, this funding opportunity announcement solicits proposals that apply promising basic materials science proven at the materials properties level to demonstrate improvements in photovoltaic technology addressing or exceeding SunShot goals. The projects supported by this funding opportunity are intended to seed the technology pipeline with transformative concepts that can drive further cost reductions of photovoltaics as illustrated in these figures from the funding announcement.

Next Gen III Overview (2): Please see Section I.B of the FOA for the detailed list of technical areas of interest which are highlighted on this slide. As I just discussed, this funding opportunity is designed to support applied R&D that demonstrates the photovoltaic effect. Topics of interests include:

- New materials and processes to demonstrate greater than 30% cell efficiency with a single junction or tandem cell structure at less than 50x concentration;
- New materials and processes that enable levelized cost of energy reduction and produce cell efficiencies competitive with the efficiency of incumbent technologies;
- Processes and advanced multijunction structures to reduce cell \$/cm² costs while maintaining efficiency;
- And advanced modules.

Again, please look through the FOA for more information on the objectives of this funding opportunity.

Concept Paper Review: I will now discuss the concept paper review process

Concept Paper Review Process: Applicants were required to submit a Concept Paper in order to submit a Full Application. EERE provided the Concept Paper reviewer comments along with an encourage/discourage decision via EERE Exchange on February 21st, 2014. If you are having difficulties accessing your Concept Paper comments, please send an email to the address listed on

this slide. The Concept Paper reviewer comments are produced by the reviewers and do not represent the opinion of the DOE. Also, please bear in mind that Concept Paper reviewers and Full Application reviewers may not be the same.

Concept Paper Review Process (II): EERE has either encouraged or discouraged Applicants to submit Full Applications based on the submitted Concept Papers. An Applicant who received a “discouraged” notification may still submit a Full Application. EERE will review all compliant and responsive Full Applications. However, by discouraging the submission of a Full Application, EERE intends to convey its lack of programmatic interest in the proposed project in an effort to save the Applicant the time and expense of preparing an application that is unlikely to be selected for award negotiations.

Concept Paper Review Criteria: As described in the funding opportunity, Concept Papers were reviewed according to the review criteria shown on this slide. Full Applications will be reviewed according to a different set of criteria which are stated in the FOA and will be listed later in this presentation.

Mandatory Full Application: I will now discuss the Full Application phase of this funding opportunity.

Application Deadline: Full Applications are due at 5pm Eastern Standard Time on March 24th. We strongly encourage you to submit application materials 1-2 days prior to the deadline to avoid and/or resolve any issues you may have with EERE Exchange.

Of course, double check your entries in Exchange and make sure that you click the submit button.

If you make any changes to your application after it has been submitted, the application becomes un-submitted in EERE Exchange and you must make sure that you resubmit the application again by 5pm Eastern Standard Time on March 24th. It is the applicant’s responsibility to ensure that all documents included in the application package are correct. DOE will not allow an applicant to substitute any documents after submission deadline.

Format and Page Limits: To briefly overview the contents of a Full Application, I’ve listed the sections on this slide. Please see the funding announcement for a more detailed list of the required components of a Full Application. The Full Application requires multiple documents including a technical narrative, summary documents, and financial documents. There are stated page limits for specific components of the Full Application. Extra material in excess of these stated page limits will not be reviewed.

Cost Share: As I mentioned earlier, this program requires successful Applicants to contribute a cost share towards their project. There is often a bit of confusion when people calculate cost share so

I've put the equations here. The key point is that the cost share is a percentage of the Total Project Cost. The Total Project Cost includes the Federal and non-Federal contributions. Not proposing enough cost share, even due to a miscalculation of cost share, may deem your application non-compliant so please take care in determining the cost share of your proposed budget.

Again, in order to qualify for the reduced cost share of 10%, the Prime Recipient must conduct at least 50% of the project work, as measured by the Total Project Cost. The cost share for any proposal where the prime recipient conducts less than 50% of the project work must be at least 20%.

Milestones Go/ No-Go Criteria: EERE requires Applicants to identify key milestones and go / no-go criteria when constructing their applications. The proposed milestones should be quantifiable and include metrics that are relevant to achieving the overall project objectives. The milestones and go / no-go criteria will be evaluated by the reviewers and will be further negotiated if an Applicant is selected for award negotiations. The milestones that you identify in the application will also be detailed in your Statement of Project Objectives and the Milestones Summary Table. Please take care in selecting these milestones and see the funding announcement for more information.

Criteria Weighting for Full Applications

On this slide you will see how the scoring criteria are weighted for Full Applications. All applicants should carefully consider each of the Merit Review Criteria stated in the funding announcement when constructing their Full Application documents. I will now briefly go over each of the Merit Review Criteria sections.

Selection Criteria – Part I

Technical Merit, Innovation, and Impact is the highest weighted criterion. I will not go over all the sub-criteria in this presentation, but please review each of them carefully in Section V.A.2 of the FOA. These sub-criteria will be used by the reviewers to score your application.

Selection Criteria – Part II

The Project Research Plan will be 30% of the score given to an application. This criterion involves the research plan, the milestones, the identified risks, and the commercialization plan. Again, I will not go over the specific sub-criteria in this webinar but they are listed here.

Selection Criteria – Part III

Finally, the Team and Resources criterion will be 20% of the score given to an application. The applicant is expected to clearly show how their team is qualified to accomplish the project goals. Again, please review each of the individual sub-criteria carefully.

Review Process: I will now quickly go over the review process. Submitted responsive Concept Papers were reviewed and were either encouraged or discouraged. Full Applications are due by 5pm Eastern Standard Time on March 24th. Submitted responsive Full Applications will be reviewed by at least 3 expert reviewers and the Applicant will then have a short period of time (the funding announcement states at least 2 business days) to prepare a Reply to Reviewer Comments. The replies are then considered along with the applications when making selections. The Reply to Reviewer Comments Deadline is scheduled for May 6th at 5 PM Eastern Standard Time. As with the Application Deadline, late submissions will not be accepted.

A subset of Applicants may then be selected for pre-selection clarification meetings. Selection for clarification does not mean that the Applicant has been selected for an award and is for the purposes of further clarifying the application. Applicants may only receive a couple days' notice before such clarifications, which can take the form of written responses to questions, video or conference calls with DOE representatives and/or merit reviewers, in person-meetings, or presentations.

Replies to Reviewer Comments: As I just mentioned, Applicants will have a brief opportunity to review the reviewer comments on their Full Application and prepare a short Reply to Reviewer Comments. Applicants may elect to respond to one or more Reviewer comments to supplement their Full Application. There is a 3-page limit for text and any accompanying figures. We are expecting to release the comments on May 1st. This is only an expected date since we cannot be absolutely sure when the comments will be ready for release to the applicants.

Frequently Asked Questions: So as I've mentioned several times, any questions about this FOA need to be sent to DOEnextgenPV@go.doe.gov so that they can be answered in an open forum and posted online. Please send all questions to this email address and EERE will attempt to answer questions within 3 business days. Questions must be submitted not later than 3 business days (March 19th) prior to the Full Application due date.

As a result of some of the questions we have received, we have also posted a modified FOA document today. Please download this version from EERE Exchange so you have the most recent version of the FOA language.

Final Slide: So, with that, I will close the webinar.

The script and slides for this webinar will be posted in EERE Exchange shortly in the section for this FOA.

Thank you for your interest and have a nice day.