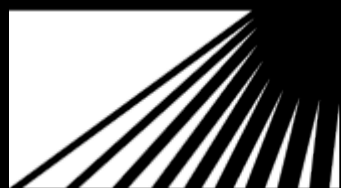


# NEXT GENERATION PHOTOVOLTAIC TECHNOLOGIES III



**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 (FOA). Any content within this presentation that appears discrepant from the FOA language is superseded by the FOA language.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

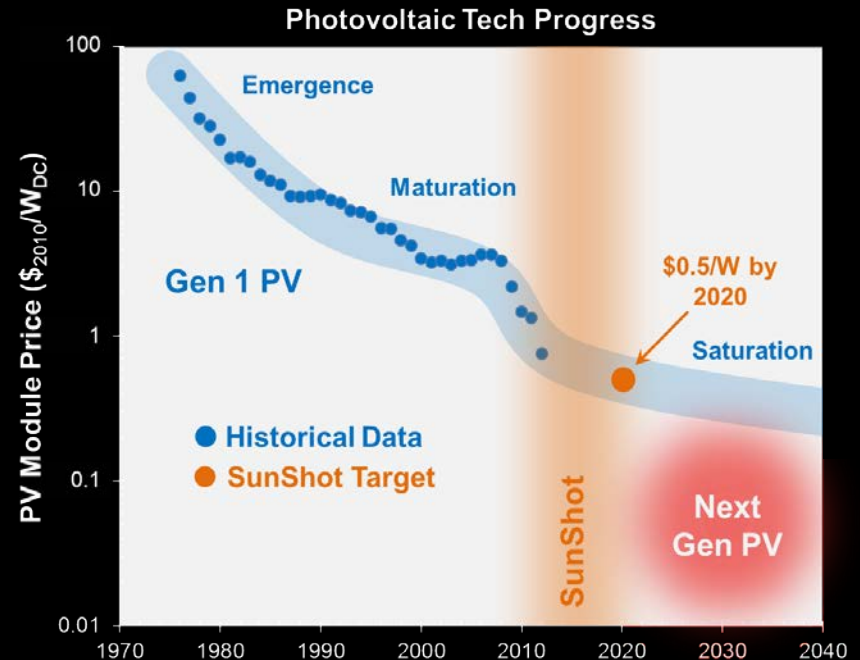
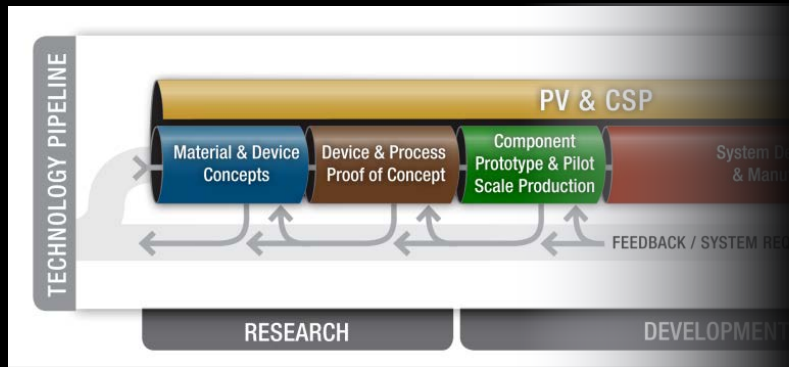
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- 1) Next Gen III Introduction
- 2) Concept Paper
- 3) Full Application
- 4) Review Process
- 5) Questions

# Award Overview

<b>Total Amount to Be Awarded</b>	\$9,000,000
<b>Max award Amount</b>	\$1,500,000
<b>Anticipated Awards</b>	7 Awards Anticipated
<b>Types of Funding Agreements</b>	Cooperative Agreements
<b>Period of Performance</b>	Up to 4 Years (48 Months)
<b>Cost Share Requirement</b>	<p>10%: The Prime Recipient is a domestic institution of higher education; domestic nonprofit entity; FFRDC; or U.S. State, Local, or tribal government; and 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 \$/cm<sup>2</sup> costs while maintaining efficiency.
- Advanced modules

# Program Structure and Cost Share

- All projects must include a non-Federal cost share

Total Project Costs = Nonfederal Share + Federal Share

$$\text{Cost Share} = \frac{\text{Nonfederal Share}}{\text{Total Project Costs}} \times 100\%$$

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

# Optional Letter of Intent

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Please submit Letters of Intent in EERE Exchange by

**12 PM (Noon) ET,  
December 19, 2013**

LOIs are optional and will be used to  
facilitate the review process



# Mandatory Concept Paper

# Mandatory Concept Paper Deadline

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Submit Concept Paper in EERE Exchange by

**12 PM (Noon) ET,**

**January 3, 2014**

Only applicants that submitted a compliant Concept Paper are eligible to submit a Full Application

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

# Purpose of Concept Papers

- 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 Contents

## Technology Description (3 pages max)

- The proposed technology, including its basic operating principles and how it is unique and innovative;
- The proposed technology's target level of performance (Applicants should provide technical data or other support to show how the proposed target could be met);
- The current state-of-the-art in the relevant field and application, including key shortcomings, limitations, and challenges;
- How the proposed technology will overcome the shortcomings, limitations, and challenges in the relevant field and application;
- The potential impact that the proposed project would have on the relevant field and application;
- The key technical risks/issues associated with the proposed technology development plan; and
- The impact that EERE funding would have on the proposed project.
- Applicants may provide graphs, charts, or other data to supplement their Technology Description.

# Concept Paper Contents

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## Team Description (2 pages max)

- What skills and expertise the Principal Investigator (PI) and Project Team have that will allow them to successfully execute the project plan;
- Applicant's prior experience which demonstrates an ability to perform tasks of similar risk and complexity;
- Previous project and program collaborations between PI and team members; and
- Equipment and facilities necessary to accomplish the effort to which applicant has access and/or how applicant intends to obtain access to the necessary equipment and facilities.

# Key Points

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- Follow the formatting criteria and page lengths stated in the FOA
- Triple check entries in Exchange
  - Submissions could be deemed non-compliant due to an incorrect entry and cannot be reviewed
- 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

# 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.

# Concept Paper Review Process

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- Applicants will be provided review comments on their Concept Paper as well as an Encourage/Discourage decision
- It is **expected** that Concept Paper reviewer comments will be released on February 21, 2014
- Applicants will be provided approximately 30 days to prepare a Full Application.



# **Full Application**

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**To be discussed in greater detail  
during second webinar**

# Application Deadline

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Submit Application in EERE Exchange by

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

# Milestones Go/ No-Go Criteria

- The projects will have 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
- Milestone should be quantifiable
- **Reports are NOT acceptable milestones**

# Review Process

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- Concept Paper review and encourage/discourage notices are sent
- Expected date of Concept Paper reviewer comments to applicants  
February 21, 2014
- Full Application review
- Expected release of Full Application reviewer comments to applicants  
May 1, 2014
- Expected optional submission deadline for reviewer comment replies: 12pm  
(Noon) 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

# Frequently Asked Questions

All questions must be submitted to [DOEnextgenPV@go.doe.gov](mailto:DOEnextgenPV@go.doe.gov)  
and answers will be provided on EERE Exchange at:

<https://eere-exchange.energy.gov/FAQ.aspx?Foald=82902975-056c-4137-a4e4-c7eb6950c54a>



[DOEnextgenPV@go.doe.gov](mailto:DOEnextgenPV@go.doe.gov)

[energy.gov/sunshot](http://energy.gov/sunshot)

November 25, 2013

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 11/25/2013**

**Title Slide: Next Generation Photovoltaic Technologies III:** Hello and thank you for attending the Next Generation Photovoltaic Technologies III webinar. My name is Lenny Tinker and during this webinar, I will provide a brief overview of this funding opportunity and review process but please bear in mind that the content included in the webinar is only intended to summarize the contents of the funding opportunity announcement (FOA).

**Slide 2:** Therefore, 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 present an overview on the Next Generation PV program and discuss the specific areas of interest for this funding opportunity. Again, Applicants should read the funding announcement for more information on the objectives of this funding announcement. I will then briefly go over the application and review process; starting with the optional letter of intent, followed by the mandatory Concept Paper, a brief discussion of the Full Application, the review process, and the optional Replies to Reviewer Comments. This webinar will focus on the Concept Paper phase of the application and there will be a second webinar focused on the Full Application phase after comments from the Concept Papers are released to the Applicants. I will then close the webinar by reviewing how you can submit questions regarding this webinar or the funding opportunity language.

**Award Overview:** To accomplish the goals of this funding opportunity, EERE SunShot has made \$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. Cooperative agreements assume substantial involvement from DOE. More information on this can be found in Section VI.C.8 of the funding opportunity. Awards can be for 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.

**Next Gen III Overview:** The Next Generation Photovoltaics III 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 SunShot portfolio spans a variety of technology readiness levels, and it is through this program that early stage R&D to demonstrate a device or process proof of concept will be supported. 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 funding opportunity announcement 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 \$/cm<sup>2</sup> costs while maintaining efficiency;
- And advanced modules.

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

**Program Structure and 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 Costs. The Total Project Costs include the Federal and non-Federal contributions. Not proposing enough cost share, even due to a miscalculation of cost share, can deem your application non-compliant so please take care in determining the cost share of your proposed budget.

**Optional Letter of Intent:** If you intend to apply to this funding opportunity, please submit a letter of intent which contains a short description of your proposed project and team. Submitting a letter of intent is optional and is only used to help EERE facilitate the review in a timely fashion. If you are intending to submit a Concept Paper, please submit a brief description of your project in EERE Exchange before December 19<sup>th</sup> as described in the FOA.

**Mandatory Concept Paper:** I will now go over the mandatory Concept Paper for applications.

**Mandatory Concept Paper Deadline:** Concept papers are due January 3rd at *Noon* Eastern Time. We strongly encourage you to submit all application documents 1-2 days prior to their deadlines to avoid and/or resolve any issues you may have with EERE Exchange. If you have difficulties, EERE Exchange support can be contacted by email at [EERE-ExchangeSupport@hq.doe.gov](mailto:EERE-ExchangeSupport@hq.doe.gov) as described in section 7 of the FOA.

**Purpose of Concept Papers:** After the Concept Papers are received, EERE makes an independent assessment of each Concept Paper based on the criteria in Section V.A.1 of the funding announcement. EERE will either encourage or discourage Applicants to submit Full Applications

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.

Reviewer comments from the Concept Paper will be provided to the Applicant. The reviewers that are used for Concept Papers may differ from those used for the Full Application phases.

Again, as stated in the FOA, only Applicants that submit a compliant Concept Paper are eligible to submit a Full Application. Being discouraged at the Concept Paper phase does not prohibit one from submitting a Full Application but you must submit a Concept Paper in order to submit a Full Application.

**Concept Paper Contents (1):** The Concept paper is broken into two sections: One section is dedicated to the Technology Description and one section for the Team Description. The Technology Description section is limited to 3 pages and the Team Description is limited to 2 pages. I’ve included the specific components that are requested in the two sections in these slides.

**Concept Paper Contents (2):** The 3-page technology description should address the novelty of the proposed concepts and its potential impact and the team description should describe the ability of the team to support the proposed research plan.

Please review Section IV.D of the funding opportunity for more information.

**Key Points:** When constructing an application, please ensure that all the submitted materials adhere to the formatting criteria and page lengths stated in the FOA. Do not submit applications that are in excess of the stated page limits.

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

Also, when using the EERE Exchange system, please note that if you make any changes to your application after it has been submitted, the application becomes un-submitted in Exchange. You would then need to ensure that you resubmit your Concept Paper again before noon Eastern Time on January 3<sup>rd</sup> by clicking the submit button again.

**Concept Paper Review Criteria:** Concept Papers will be reviewed according to specific review criteria that are listed in Section V.A.1 of the FOA. One criterion focuses on impact and the other focuses on scientific merit. Applicants are strongly encouraged to consider these criteria when constructing an Application because they will be used by the reviewers when evaluating submitted Applications.

**Concept Paper Review Process:** After the Concept Paper review is complete, the Applicants will be provided the reviewer comments. EERE expects to release these comments by February 21<sup>st</sup>, 2014. Full Applications are due about one month later on March 24<sup>th</sup>. Please bear in mind that Concept Paper reviewers and Full Application reviewers may not be the same.

**Full Application:** Because we will provide another webinar after the Concept Paper phase that is scheduled for February 29<sup>th</sup>, I will not discuss the Full Application in great detail at this time.

**Full Application Deadline:** However, I will emphasize that Full Applications will be due on March 24<sup>th</sup>. I will also reiterate again for emphasis, 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.

**Format and Page Limits:** To briefly overview the contents of a Full Application I've listed the sections on this slide. The Full Application requires a technical narrative and well as summary documents and financial documents.

**Milestones Go/ No-Go Criteria:** Also, please note that EERE will require 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 in your application. Please take care in selecting these milestones and see the funding announcement for more information.

**Review Process:** I will now quickly go over the review process. Submitted Concept Papers will be reviewed and will either be encouraged or discouraged. Then the received responsive Full Applications will be reviewed by at least 3 expert reviewers. 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.

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 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.

**Frequently Asked Questions:** Any questions about this FOA need to be sent to [DOEnextgenPV@go.doe.gov](mailto:DOEnextgenPV@go.doe.gov) so that they can be answered in a fair manner and posted online. Please send all questions to this email address and EERE will attempt to answer questions within 3 business days.

**Final Slide:** Again, please send any questions to [DOEnextgenPV@go.doe.gov](mailto:DOEnextgenPV@go.doe.gov) and answers will be posted in FAQ section for this funding announcement in EERE exchange.

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

Thank you and have a nice day.