



**FINANCIAL ASSISTANCE FUNDING OPPORTUNITY  
ANNOUNCEMENT:**

***SUNSHOT INCUBATOR PROGRAM***

**Funding Opportunity Number DE-FOA-0000838**

**CFDA Number 81.087**

|  |                                   |
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| <b>FOA Issue Date:</b>   | <b>January 16 2013</b>            |
| <b>Q&amp;A Webinar for Applicants:</b>   | <b>February 5, 2013</b>           |
| <b>Submission Deadline for Concept Paper Questions to <a href="mailto:SunShot.Incubator@ee.doe.gov">SunShot.Incubator@ee.doe.gov</a>:</b>    | <b>5 PM ET, February 25, 2013</b> |
| <b>Submission Deadline for Letters of Intent to Apply: (OPTIONAL)</b>  | <b>5 PM ET, February 25, 2013</b> |
| <b>Submission Deadline for Concept Papers:</b>   | <b>5 PM ET, March 5, 2013</b>     |
| <b>Expected Date of Concept Paper Notification:</b>  | <b>April 2, 2013</b>              |
| <b>Q&amp;A Webinar for Applicants:</b>   | <b>April 16, 2013</b>             |
| <b>Submission Deadline for Full Application Questions to <a href="mailto:SunShot.Incubator@ee.doe.gov">SunShot.Incubator@ee.doe.gov</a>:</b> | <b>5 PM ET, April 23, 2013</b>    |
| <b>Submission Deadline for Full Applications:</b>  | <b>April 30, 2013</b>             |
| <b>Expected Date for Release of Reviewer Comments:</b>   | <b>June 7, 2013</b>               |
| <b>Submission Deadline for Replies to Reviewer Comments: (OPTIONAL)</b>  | <b>5 PM ET, June 11, 2013</b>     |
| <b>Expected Date of Pre-Selection Conference Calls and Presentations:</b>  | <b>July, 2013</b>                 |
| <b>Expected Date for Selection Notifications:</b>  | <b>August, 2013</b>               |

**What is this Document?**

This Funding Opportunity Announcement (FOA) is an instructions document that is meant to provide potential applicants with all of the information needed to construct a compliant, and potentially successful, application to the SunShot Incubator Program. It describes the SunShot Initiative and the Incubator Program, the application process and various program details. Each step in the application process is discussed to help potential applicants understand the requirements for submitting a compliant application. It is recommended that a potential applicant begins by reading the first few overview pages of this document to determine if the potential applicant is eligible and interested in applying. This document tells potential applicants what types of projects are eligible for funding and how to construct the application. Deviating from the FOA instructions will likely result in a non-compliant application. This document contains the answers to many commonly asked questions. Reading the document in full should answer the majority of the questions potential applicants may have.

Note that all section references in this document are active links; hold down “Ctrl” and click on a reference (“See...”) and the document will move to the relevant section. Pressing “Alt” and then the “Left Arrow” buttons at the same time will return the document to the previous section (similar to the “Back” button on a web browser).

- To facilitate the timely review of applications, Applicants are requested to submit a Letter of Intent to Apply to [SunShot.Incubator@ee.doe.gov](mailto:SunShot.Incubator@ee.doe.gov) by the submission deadline.
- To apply to this FOA, please register with the Office of Energy Efficiency and Renewable Energy (EERE) online application portal, EERE eXCHANGE, at <https://eere-exchange.energy.gov/Registration.aspx>. The “EERE eXCHANGE Applicant User Guide” is available at <https://eere-exchange.energy.gov/Manuals.aspx>. Required forms for Full Applications are available at <https://eere-exchange.energy.gov>

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## REQUIRED DOCUMENTS CHECKLIST

| Submission                 | Components   | Optional/<br>Mandatory | FOA<br>Section | Deadline                   |
|----------------------------|--|------------------------|----------------|----------------------------|
| Letter of Intent to Apply  | <ul style="list-style-type: none"> <li>• Send e-mail with text only to <a href="mailto:SunShot.Incubator@ee.doe.gov">SunShot.Incubator@ee.doe.gov</a></li> <li>• Use “DE-FOA-0000838 LOI” as the subject line.</li> <li>• The body of the email should include the name of the Applicant, the project’s major technology area (i.e. CIGS, CdTe, CPV, racking, permitting, customer acquisition, etc), and a brief description of the technology and why it is innovative (2-3 sentences).</li> </ul>   | Optional               | IV.B           | 5 PM ET, February 25, 2013 |
| Concept Paper              | <ul style="list-style-type: none"> <li>• Single document in .doc or .docx format consisting of:               <ul style="list-style-type: none"> <li>○ Cover Page and Short Abstract (1 page maximum)</li> <li>○ Project Description (3 pages maximum)</li> <li>○ Summary of Qualifications and Resources (1 page maximum)                   <ul style="list-style-type: none"> <li>▪ Appendix of resumes for each team member (1 page maximum per resume)</li> <li>▪ Appendix of any letters of support from external entities (1 page maximum per letter)</li> </ul> </li> <li>○ Business Plan/ Commercialization Strategy (1 page maximum)</li> </ul> </li> <li>• Summary Slide, .ppt or .pptx format (1 page)</li> <li>• Deliverables Table (2 page maximum)</li> </ul>  | Mandatory              | IV.C           | 5 PM ET, March 5, 2013     |
| Full Application           | <ul style="list-style-type: none"> <li>• Project narrative (23 pages maximum in .doc or .docx format), consisting of:               <ul style="list-style-type: none"> <li>○ Title Page (1 page maximum)</li> <li>○ Project Overview (5 pages maximum)</li> <li>○ Business Plan (3 pages maximum)</li> <li>○ Qualifications and Resources (2 pages maximum)</li> <li>○ Work Plan (12 pages maximum)                   <ul style="list-style-type: none"> <li>- Appendix of resumes for each team member (1 page maximum per resume)</li> <li>- Appendix of any letters of support from external entities (1 page maximum per letter)</li> </ul> </li> </ul> </li> <li>• Deliverables Table (2 page maximum, Microsoft .doc or .docx format)</li> <li>• Summary Slide (1 page maximum in .ppt or .pptx format)</li> <li>• SF-424 (no page limit, Adobe PDF format)</li> <li>• SF-LLL, if applicable</li> <li>• SF-424A (no page limit, Microsoft Excel format)</li> <li>• Budget Justification PMC 123.1 (no page limit, Microsoft Excel format)</li> <li>• Environmental Impacts Questionnaire (no page limit, Adobe PDF format)</li> <li>• Other Sources Of Funding Disclosure (no page limit, Adobe PDF format)</li> <li>• Ineligibility Disclosure (2 pages maximum, Adobe PDF format)</li> </ul> | Mandatory              | IV.D           | 5 PM ET, April 30, 2013    |
| Reply to Reviewer Comments | <ul style="list-style-type: none"> <li>• Single document in Adobe PDF consisting of:               <ul style="list-style-type: none"> <li>○ Up to 2 pages of text</li> <li>○ Up to 1 page of images</li> </ul> </li> </ul>   | Optional               | IV.D           | 5 PM ET, June 11, 2013     |

## EXECUTIVE SUMMARY

|  |  |
|--|--|
| <b>Federal Agency:</b>   | U.S. Department of Energy (DOE), Office of Energy Efficiency and Renewable Energy (EERE), Solar Energy Technologies Program (SETP)   |
| <b>FOA Title:</b>  | SunShot Incubator Program  |
| <b>FOA Type:</b>   | Continuation of existing technology development program  |
| <b>FOA Number:</b>   | DE-FOA-0000838   |
| <b>CFDA Number:</b>  | 81.087   |
| <b>FOA Issue Date:</b>   | January 16, 2013   |
| <b>Submission Deadline for Letters of Intent to Apply: (OPTIONAL)</b>  | 5 PM ET, February 25, 2013   |
| <b>Q&amp;A Webinar for Applicants:</b>   | February 5, 2013   |
| <b>Submission Deadline for Concept Paper Questions to <a href="mailto:SunShot.Incubator@ee.doe.gov">SunShot.Incubator@ee.doe.gov</a>:</b>    | 5 PM ET, February 25, 2013   |
| <b>Submission Deadline for Concept Papers:</b>   | 5 PM ET, March 5, 2013   |
| <b>Expected Date of Concept Paper Notification:</b>  | April 2, 2013  |
| <b>Q&amp;A Webinar for Applicants:</b>   | April 16, 2013   |
| <b>Submission Deadline for Full Application Questions to <a href="mailto:SunShot.Incubator@ee.doe.gov">SunShot.Incubator@ee.doe.gov</a>:</b> | 5 PM ET, April 23, 2013  |
| <b>Submission Deadline for Full Applications:</b>  | 5 PM ET, April 30, 2013  |
| <b>Expected Date for Release of Reviewer Comments:</b>   | 5 PM ET, June 7, 2013  |
| <b>Submission Deadline for Replies to Reviewer Comments: (OPTIONAL)</b>  | 5 PM ET, June 11, 2013   |
| <b>Expected Dates of Pre-Selection Conference Calls and Presentations:</b>   | July, 2013   |
| <b>Expected Date for Selection Notifications:</b>  | August, 2013   |
| <b>Expected Date for Execution of Awards:</b>  | September, 2013  |
| <b>Expected Start Date for Projects:</b>   | October 1, 2013  |
| <b>Application Process Overview:</b>   | <p>Please see Section II.B of the FOA for an overview of the application process. The application process consists of the following steps:</p> <ul style="list-style-type: none"> <li>• Letter of Intent to Apply: <b>Optional</b>. The purpose of Letters of Intent to Apply is to facilitate the timely review of applications. See Section IV.B of the FOA for content and form requirements for Letters of Intent to Apply.</li> <li>• Concept Paper: <b>Mandatory</b>. The purpose of the Concept Paper phase is to save Applicants the considerable time and expense of preparing a Full Application that is unlikely to be selected for award negotiations. Only Applicants that submit a compliant and responsive Concept Paper are eligible to submit a Full</li> </ul> |

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|                                    | <p>Application. See Section IV.C of the FOA for content and form requirements for Concept Papers.</p> <ul style="list-style-type: none"> <li>• Full Application: <b>Mandatory</b>. See Section IV.D of the FOA for content and form requirements for Full Applications.</li> <li>• Reply to Review Comments: Optional. Each compliant and responsive Full Application will be considered on the merits regardless of whether a Reply to Reviewer Comments is submitted. See Section IV.E of the FOA for content and form requirements for Replies to Reviewer Comments.</li> <li>• Pre-Selection Conference Calls: At discretion of DOE. See Section II.B.6 of the FOA for further information.</li> <li>• Pre-Selection Presentations: At discretion of DOE. See Section II.B.7 of the FOA for further information.</li> </ul> <p>Concept Papers, Full Applications, and Replies to Reviewer Comments are deemed compliant if they meet the criteria stated in Section III.C.1 of the FOA. Concept Papers and Full Applications are deemed responsive if they meet the criteria in Section III.C.2 of the FOA. Noncompliant and/or nonresponsive submissions are not considered for award.</p> |
| <b>Means of Submission</b>         | <p>All submissions must be submitted to DOE’s online application portal, EERE eXCHANGE (<a href="https://eere-exchange.energy.gov">https://eere-exchange.energy.gov</a>), before the submission deadline. See “Required Documents Checklist of the FOA for a complete list of documents that must be submitted at each stage of the application process. Submissions received through other means will not be considered for award. DOE strongly encourages Applicants to submit their Concept Papers, Full Applications, and Replies to Reviewer Comments at least 48 hours in advance of the submission deadline, as noted in Section IV.F of the FOA. See Sections IV.F and IV.J.1 of the FOA for further information.</p>   |
| <b>Concise Program Description</b> | <p>The SunShot Incubator Program represents a significant component of the DOE business strategy of partnering with U.S. industry to accelerate Innovation to meet aggressive installed cost and market penetration goals.</p>  |
| <b>Total Amount to Be Awarded</b>  | <p>Approximately \$10 million is expected to be available for new awards under this FOA.</p>  |
| <b>Anticipated Awards</b>          | <p>DOE may issue one, multiple, or no awards under this FOA. Awards will be made in 5 categories:</p> <ul style="list-style-type: none"> <li>• Tier 0 awards for hardware development: Up to \$500,000 over up to 12 months to accelerate transition of a proof-of-concept of all critical components to an early stage functional prototype;</li> <li>• Tier 1 for hardware solutions: Up to \$1 million over up to 12 months to Accelerate transition of early stage functional prototype to manufacturing and commercially relevant prototype made in the lab;</li> <li>• Tier 1S awards for non-hardware solutions: Up to \$500,000 over up to 12 months to accelerate transition of a proof-of-concept/business plan to prototype/alpha capability;</li> <li>• Tier 2 awards for hardware solutions: Up to \$4 million (typical award \$1-2 million) over up to 18 months to develop the manufacturing processes and equipment to move from fully developed lab prototype to pilot-scale production; and</li> <li>• Tier 2S awards for non-hardware solutions: Up to \$2 million over up to 18 months to Transition alpha capability through beta launch and full</li> </ul>               |

|                                    |  |                                 |
|------------------------------------|--|---------------------------------|
|                                    | commercialization;   |                                 |
| <b>Types of Funding Agreements</b> | Cooperative Agreements with costs reimbursed after deliverables are verified by DOE.   |                                 |
| <b>Period of Performance</b>       | Tier 0, 1 and 1S awards: Up to 12 months<br>Tier 2 and 2S awards: Up to 18 months  |                                 |
| <b>Eligibility</b>                 | <ul style="list-style-type: none"> <li>• <b>Standalone Applicants:</b> Only independently incorporated startup businesses are eligible to apply for funding as Standalone Applicants.<sup>1 2</sup></li> <li>• <b>Project Teams:</b> Only Project Teams led by independently incorporated startup businesses with less than 500 employees are eligible to apply for funding. The business designated as the Prime Recipient must incur at least 60% of expenditures under the project, as measured by the Total Project Cost. Failure to clearly demonstrate this qualification may lead to a determination that the team is not eligible for award. Expenditures incurred for the use of facilities, including FFRDCs, by Prime Recipient personnel count towards the Prime Recipient's share of the Total Project Cost.</li> <li>• All prime recipients receiving funding under this FOA must be incorporated (or otherwise formed) under the laws of a State or territory of the United States. If a foreign entity applies for funding as a prime recipient, it must designate in the Full Application a subsidiary or affiliate incorporated (or otherwise formed) under the laws of a State or territory of the United States to be the prime recipient. The Full Application must state the nature of the corporate relationship between the foreign entity and domestic subsidiary or affiliate. Foreign entities may request a waiver of this requirement in the Full Application. See Section VIII.I for waiver request information. The DOE Contracting Officer has discretion to waive this requirement if he/she determines that it will further the purposes of this FOA and is otherwise in the interests of EERE. A foreign entity may receive funding as a subrecipient, but the work must be performed in the US.</li> </ul> |                                 |
| <b>Cost Share Requirement</b>      | Tier 0, Tier 1 and Tier 1S awards  | ≥ 20% of the Total Project Cost |
|                                    | Tier 2 and Tier 2S awards  | ≥ 50% of the Total Project Cost |
| <b>Number of Applications</b>      | <ul style="list-style-type: none"> <li>• An Applicant may submit a single and self-sufficient application for Tier 0, Tier 1, Tier 1S, Tier 2 and Tier 2S awards. Each application must be for a completely different platform and product family.</li> <li>• Applicants may submit an application for a Tier 2 award even if they did not receive a Tier 1 award previously.</li> <li>• Applicants may submit an application for a Tier 1 award even if they did not receive a Tier 0 award previously.</li> <li>• Applicants may apply for funding if they received a Tier 1 award under prior Incubator Programs. However, Applicants are <u>not</u> allowed to apply for funding of a project or product that has already received a Tier 2 award under the prior Photovoltaic Technology Incubator Program or <u>any</u> SunShot Incubator Program. Applicants that have previously received a Tier 2 award under the SunShot</li> </ul>  |                                 |

<sup>1</sup> For the purposes of eligibility to apply to this FOA, the term “startup business” is defined as an entity with less than 500 employees not including the employees of any parent companies, subsidiaries or other affiliated companies. Note, however, that for the purposes of Intellectual Property terms and conditions of DOE awards that the employees of domestic and international affiliates of Recipients are counted toward the small business employee count. Therefore, an applicant may be considered a startup business for the purposes of eligibility to apply to this FOA, but may be determined not to be a small business for the purposes of the applicable intellectual property provisions that will be made part of any subsequent award under this FOA.

<sup>2</sup> A Standalone Applicant is an Applicant that applies for funding on its own, not as part of a Project Team.

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|                          | Incubator Program or Photovoltaic Technology Incubator Program can only apply to this program with a new product.   |
| <b>Agency Contact</b>    | <p>Applicants may contact DOE through the following email addresses:</p> <ul style="list-style-type: none"> <li>• <a href="mailto:SunShot.Incubator@ee.doe.gov">SunShot.Incubator@ee.doe.gov</a> for questions regarding this FOA. Insert FOA name and number in subject line of emails. Answers will be posted at: <a href="https://eere-exchange.energy.gov/FAQ.aspx?FoaId=c68a237f-11d0-47da-b25a-ccf6acd45a38">https://eere-exchange.energy.gov/FAQ.aspx?FoaId=c68a237f-11d0-47da-b25a-ccf6acd45a38</a> Select the SunShot Incubator FOA in the dropdown menu.</li> <li>• <a href="mailto:EERE-ExchangeSupport@hq.doe.gov">EERE-ExchangeSupport@hq.doe.gov</a> for questions regarding EERE eXCHANGE. Insert FOA name and number in subject line of emails. Answers will be sent directly to Applicants.</li> </ul> <p>See Section VII.A of the FOA for guidance on submitting questions to DOE. DOE will not accept or respond to communications received by other means (e.g., telephone calls, faxes). Emails sent to other email addresses will be disregarded.</p> |
| <b>Application Forms</b> | Required forms for Full Applications are available at <a href="https://eere-exchange.energy.gov">https://eere-exchange.energy.gov</a> .   |



## **I. FUNDING OPPORTUNITY DESCRIPTION**

The purpose of this section is to describe the overall goals of the SunShot Initiative, the Incubator program, and the type of projects that DOE is interested in funding. This FOA is structured to assist a particular type of company with a product or solution in a particular stage of development. If the product or solution is outside of this scope the applicant should consider applying to other funding opportunities. EERE funding opportunities can be found at <https://eere-exchange.energy.gov/>.

### **A. PROGRAM OVERVIEW**

For solar energy to become competitive with other energy resources the installed cost for utility-scale photovoltaic (PV) solar systems must reach \$1 per watt or, equivalently, 5¢ per kilowatt hour (kWh) levelized cost of electricity (LCOE). The SunShot Initiative aims to reach these cost reduction goals by the end of the decade, achieving and surpassing grid parity for subsidy-free solar energy. SunShot drives American innovation through advanced research and development, strengthening domestic manufacturing and cutting-edge technology. If successful, the SunShot Initiative will ensure solar energy is a viable and economic source for the nation's power needs and will significantly contribute to U.S. prosperity in the 21st century.<sup>3</sup>

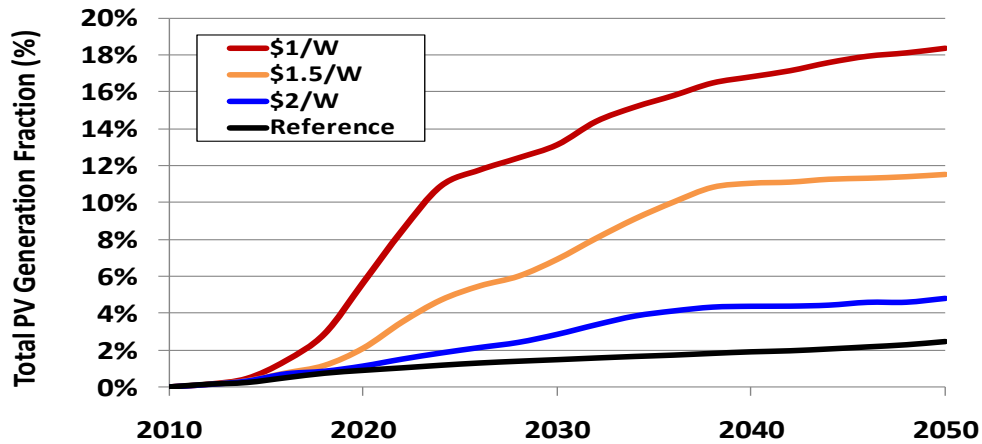
Breakthrough technologies and business models, and scale-up in PV manufacturing continue to drive down costs toward the ambitious \$1/W target. To reach this goal, PV module costs are anticipated to need to reach \$0.50/W, balance of systems (BOS) costs will need to reach \$0.40/W and power electronic cost will need to reach \$0.10/W. In addition, modules are expected to require efficiencies near or above 20%, with system lifetimes greater than 20-30 years.

If successful, SunShot will enable large-scale deployment of solar energy technologies without subsidies as shown in Figure 1 – which will help increase America's global economic competitiveness, energy security, and environmental health.

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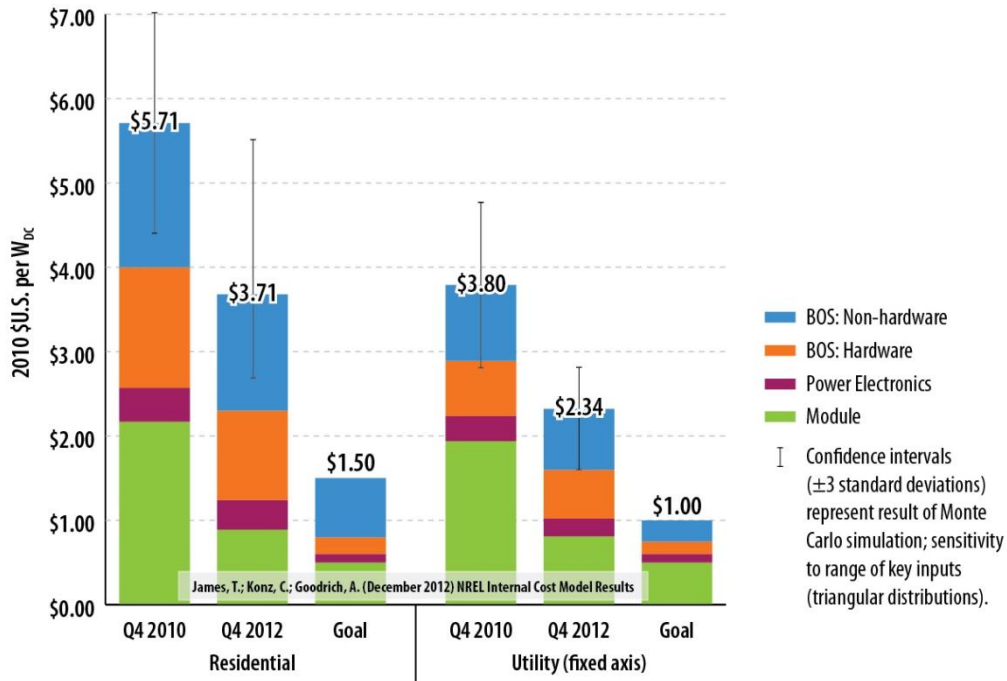
<sup>3</sup> For more information on the SunShot Initiative, please see [www.energy.gov/sunshot](http://www.energy.gov/sunshot).

Figure 1: Total PV Generation Fraction by Year

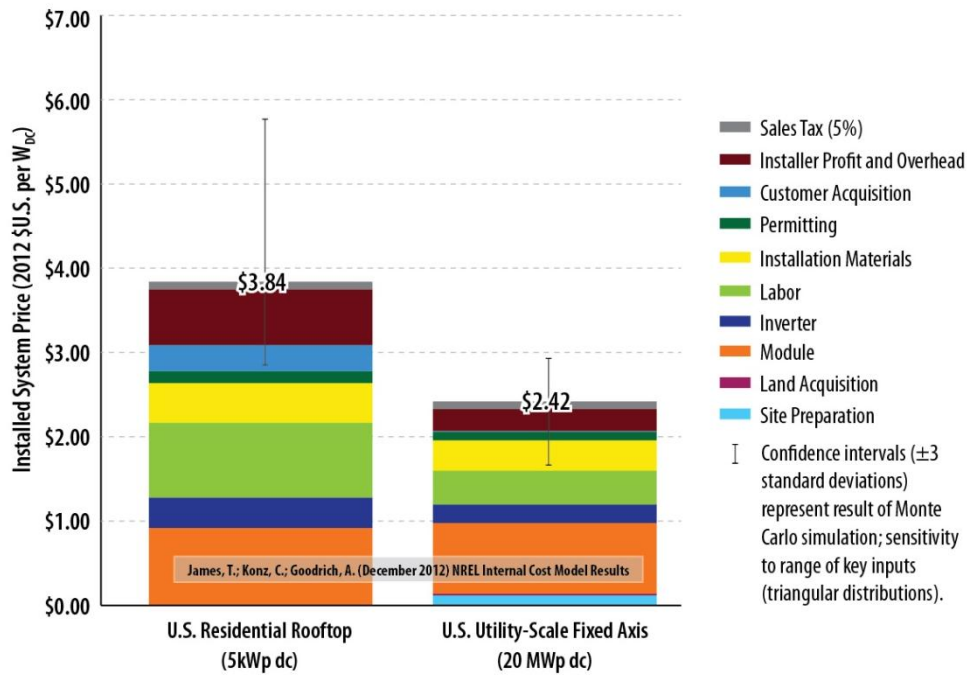


The SunShot Incubator Program represents a significant component of DOE business strategy of partnering with U.S. industry to accelerate commercialization of PV, CSP, and BOS research, development, and validation to meet aggressive installed cost and market penetration goals. In order to realize these ambitious goals, DOE programs will continue to fund innovative solutions that address hardware and non-hardware related costs that are currently required to complete a solar installation (See Figures 2a and 2b).

Figure 2a: Solar Installation Costs (in 2010 U.S dollars)



**Figure 2b: 2012 Solar Installation Costs**



The costs of solar energy arise from both hardware and non-hardware costs. Hardware costs consist of the costs associated with producing a physical component of the solar cell array. Such costs can be reduced through improvements in areas such as energy conversion efficiency, production speed, cycle time, design elements, product durability, and material utilization. Alternatively, non-hardware costs such as customer acquisition and installer overhead, financing, contracting, permitting, inspection, interconnection, and installation also represent a significant portion of the overall system cost. This especially applies to residential installations as shown in Figure 2. Further hardware and non-hardware examples of the areas where improvements can lower the installed cost of a solar array are shown in Figure 3.

**Figure 3: Sample Areas to Reduce Solar Installation Costs**

| <b>Hardware</b>   |   |
|---|---|
| <b>Design</b>   | <b>Production</b>   |
| <ul style="list-style-type: none"> <li>• Energy conversion efficiency</li> <li>• Materials requirements</li> <li>• Size / Weight</li> <li>• Complexity</li> <li>• Durability</li> <li>• Standardization</li> <li>• Alternative form factor</li> </ul> | <ul style="list-style-type: none"> <li>• Energy requirements</li> <li>• Process design &amp; control</li> <li>• Tack Time</li> <li>• Reproducibility</li> <li>• Uniformity</li> <li>• Materials utilization efficiency</li> <li>• Automation</li> <li>• In-line nondestructive analysis techniques</li> </ul> |
| <b>Monitoring and testing</b>   |   |
| <ul style="list-style-type: none"> <li>• Mean time between failure</li> <li>• Guaranteed performance</li> <li>• Degradation rate</li> </ul>   |   |

| <b>Non-Hardware (Soft Costs)</b>   |  |
|--|--|
| <b>Customer Acquisition</b>  | <b>Financing and Contracting</b>   |
| <ul style="list-style-type: none"> <li>• Marketing / advertising</li> <li>• Sales calls / site visit</li> <li>• Bid preparation/phantom bids</li> <li>• Follow up</li> <li>• Signing contact / collecting payment</li> </ul>                     | <ul style="list-style-type: none"> <li>• Financing (capital expenses)</li> <li>• Insurance</li> <li>• Legal agreements (RFPs, PPAs, etc.)</li> <li>• Incentive application processing</li> </ul> |
| <b>Permitting, Inspection, Interconnection</b>   | <b>Installation and performance</b>  |
| <ul style="list-style-type: none"> <li>• Wait time for permits, inspection, and interconnection</li> <li>• Permitting expenses</li> <li>• Utility interconnection expenses</li> <li>• Idle crew and trucks</li> <li>• Standardization</li> </ul> | <ul style="list-style-type: none"> <li>• Service (O&amp;M)</li> <li>• Installation labor</li> <li>• Optimal system design</li> </ul>   |
| <ul style="list-style-type: none"> <li>• <b>Automation of any of the above</b></li> </ul>  |  |

The SunShot Initiative also maintains goals related to market penetration, domestic job creation, domestic energy security, and environmental protection. These goals, however, are expected outcomes of the primary SunShot goals stated above.

DOE is dedicated to accelerating the timeline for merit review and selection. DOE expects a concise overview, detailed project narrative, strong team and resources, and a well-thought-out business plan. Companies selected for negotiations will be held to specific and rapid turnaround times during the award negotiation process. DOE may terminate award negotiations with Applicants that are not able to meet required deadlines.

## **B. PROGRAM OBJECTIVES**

The Incubator Program has a specific focus on rapid commercialization of *proven* cost reducing products and services.

- For hardware, “proven” means at a minimum demonstration of a robust and convincing proof of concept for Tier 0, a well-developed prototype for Tier 1, or a manufacturing and commercially relevant prototype made in the lab for Tier 2.
- For non-hardware, “proven” means the applicant has a proof of concept or business plan for Tier 1S, or an alpha product or capability for Tier 2S. This is not a program for business plans or proofs of concept which do not have significant market research to back up and prove the necessity of the idea. The market segment to be addressed and competitors in this space should be clearly defined.

This is not an early stage research program for which a great deal of fundamental research and discovery is required to create a successful product. DOE has several other funding programs focused on fundamental research.<sup>4,5,6</sup> An ideal Incubator applicant will have all of the ‘pieces’ in place for their relevant tier of development and be ready to scale the process to the next tier and rapidly commercialize the product.

There is a specific reason this program targets startup companies in this stage of development. Raising capital for solar technology start-ups to launch new solutions has proven challenging given the global economic environment. The SunShot Incubator Program is structured to help new companies answer critical questions required to reduce the risk of technologies and solar solutions. Early-stage Incubator assistance enables companies to cross critical technological barriers that the investment community is unable to address. Once these key risks are addressed the startups are ideally suited for private follow on funding and success.

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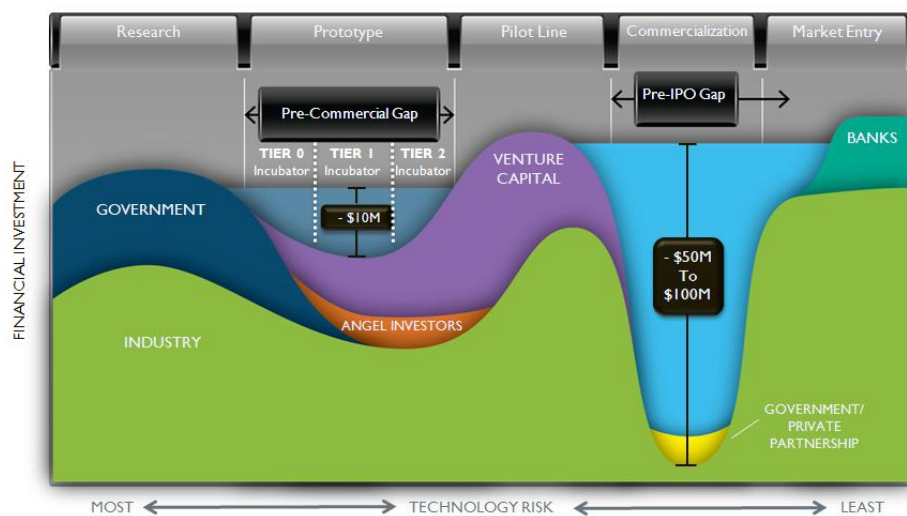
<sup>4</sup> [http://www1.eere.energy.gov/solar/sunshot/next\\_generation\\_pv.html](http://www1.eere.energy.gov/solar/sunshot/next_generation_pv.html)

<sup>5</sup> [http://www1.eere.energy.gov/solar/sunshot/advance\\_cell\\_efficiency.html](http://www1.eere.energy.gov/solar/sunshot/advance_cell_efficiency.html)

<sup>6</sup> [http://www1.eere.energy.gov/solar/pdfs/sunshot\\_bridge\\_webinar\\_2012.pdf](http://www1.eere.energy.gov/solar/pdfs/sunshot_bridge_webinar_2012.pdf)

Figure 4 shows where the SunShot Incubator’s target companies and technologies exist within technology risk metrics. This figure illustrates two valleys and the first valley titled “Pre-Commercial Gap” is the focus of the SunShot Incubator Program. The objective of the SunShot Incubator Program is to launch or aid in the expansion of new start-up businesses and/or new business units within an existing commercial entity, as well as to enable high-risk, differentiated technologies to become commercial products. This FOA is not intended for incremental improvements to the current production processes of startup businesses (see Section I.D of the FOA for “Areas Specifically Not of Interest”). The second valley labeled “Pre-IPO Gap” is addressed by the SUNPATH program.<sup>7</sup>

**Figure 4: Financial Investment Described by Technology Risk**



Ultimately, the success of the Incubator program is measured by the success of its awardees. One measure of success is the market acceptance of these cost reducing technologies. The Incubator Program continues to demonstrate remarkable success in this area; since its inception in 2007, the Incubator Program has awarded \$92M in government funds to 54 startups that have gone on to raise over \$1.7B in follow on funding and the creation of over 750 high quality, domestic jobs. A complete list of past and current awardees is available at <http://www1.eere.energy.gov/solar/sunshot/incubator.html>.

Approximately \$10 million is expected to be available for new awards under this FOA, subject to the availability of appropriated funds. DOE anticipates making 3-12 awards under this FOA. DOE may issue one, multiple, or no awards. Awards will be cooperative agreements with payable deliverables

DOE will accept only new applications under this FOA. Applicants may not seek renewal or supplementation of their existing awards.

<sup>7</sup> For information regarding the SUNPATH program, please see <http://energy.gov/articles/department-energy-invest-50-million-advance-domestic-solar-manufacturing-market-achieve>.

Applicants may be at different levels of maturity; therefore, DOE will accept applications to this FOA in the following categories (see Section I.E for further information on tiers).

### **Hardware Development**

|               | Maximum Federal Award | Project Period | Applicant Cost Share | Category Objective   |
|---------------|-----------------------|----------------|----------------------|--|
| <b>Tier 0</b> | \$500,000             | 12 months      | ≥ 20%                | Accelerate transition from a proof-of-concept of all critical components to an early stage functional prototype                |
| <b>Tier 1</b> | \$1,000,000           | 12 months      | ≥ 20%                | Accelerate transition of early stage functional prototype to manufacturing and commercially relevant prototype made in the lab |
| <b>Tier 2</b> | \$4,000,000           | 18 months      | ≥ 50%                | Develop the manufacturing processes and equipment to move from fully developed lab prototype to pilot-scale production.        |

### **Non-Hardware Development (Soft Cost/ Software)**

|                | Maximum Federal Award | Project Period | Applicant Cost Share | Category Objective  |
|----------------|-----------------------|----------------|----------------------|---|
| <b>Tier 1S</b> | \$500,000             | 12 months      | ≥ 20%                | Accelerate transition of proof-of-concept or business plan to alpha capability and early customer trials. |
| <b>Tier 2S</b> | \$2,000,000           | 18 months      | ≥ 50%                | Transition alpha capability through beta launch and full commercialization.                               |

DOE intends to fund the applications with the greatest chance of helping achieve the goals of the SunShot Initiative. Therefore, depending on the quality of applications in each tier, it is possible that DOE may or may not fund awards under one or multiple tiers. DOE can award an entire application or any part of an application at a funding level that will be negotiated with the applicant.

### **C. AREAS OF PROGRAMMATIC INTEREST**

The list of potential technologies within each area of interest below is non-exclusive and non-exhaustive. The Incubator Program accepts applications from any product solution which decreases the cost of converting photons into electrons used by the grid. Every application is judged through the same lens of aggregate cost reduction impact. A small but significant innovation which could be leveraged across a majority of the industry or a totally new solar concept are factors that create the potential for large aggregate cost reduction impact. More than anything else DOE is looking for highly differentiated cost reduction products or solutions. No matter how interesting an application is, it must have a clear and credible story to tell regarding how it will not only meet but significantly beat current industry solutions and projected prices. Particular areas of interest include but are not limited to:

**1. Photovoltaics:**

- Novel wafer-based silicon modules
- Novel thin-film technologies
- Film silicon on a foreign substrate
- Concentrating techniques that do not require tracking
- High efficiency concepts (e.g., multijunctions)
- Very low-cost module/cell/wafer processes
- Low cost barrier and encapsulation films
- Innovative antireflection techniques

**2. Balance of Systems:**

- Integration of PV into building components or building-integrated PV (BIPV)
- Development of standardized workforce safety techniques (e.g., anchoring) and leveraging of specialized ground-to-roof hoisting equipment
- Roof-mounted PV systems including roof-mounting techniques
- Ground-mounted systems including developing and using new, solar-optimized materials that reduce the use of standard mounting materials (e.g., steel, aluminum, concrete)
- Development of automated machinery and/or robotics to drive piles and to place modules for ground-mounted systems
- Data acquisition and monitoring for PV systems
- Digital translation of observational records for human behavior (motion or efficiency monitoring of installers) leading to standardized process changes
- Integration of multiple permitting and code measurement and testing devices in a single platform to signal component failure in inspection processes

**3. Power Electronics:**

- Low-cost modular PV inverters/ components



- AC modules – small PV inverters to mount onto a single or small group of modules
- Development of low-cost DC converters to boost DC voltages from modules or strings of modules
- Development of inverters that operate at higher DC and AC voltages/wiring
- Higher frequency switching technologies or moving to transformer-less designs to reduce converter size and weight for inverters
- Advanced communications integrated with PV inverters
- Enhanced energy harvesting through new algorithms for maximum power point tracking (MPPT)
- Enhanced smart grid functionality incorporated into PV inverters
- PV system technologies that mitigate fire hazards and enhance safety in general.

#### **4. Concentrating Solar Power:**

- Low-cost solar field components and controls that maintain sufficient performance
- High-reflectivity, durable reflectors
- High-performance coatings for reflectors or receivers
- High-temperature, high-efficiency solar receiver materials and designs
- Novel, high-temperature heat transfer fluids
- High-temperature, low-cost thermal storage materials and systems
- High efficiency power cycles, including combined cycles
- High-temperature hardware (heat exchangers, pumps, valves, instrumentation, etc.) compatible with advanced power cycles
- Innovative, low-to-no water O&M techniques
- Highly automated manufacturing facilities and equipment
- Rapid field installation and minimal site preparation techniques
- Advanced metrology for CSP components and systems
- Novel CSP components and systems

#### **5. Tools to address non-hardware costs of solar energy**

- Customer acquisition innovation for residential and commercial systems
- Disruptive and new financial solutions, including standardized small-scale system valuation methodologies and platforms
- Smart-grid compatible models (including novel applications of [Green Button](#) data)
- Operations, maintenance, and performance monitoring innovations

- Integration of multiple permitting and code measurement and testing devices in a single platform
- Other innovative business models including inventory and supply chain management systems

**6. Plug-and-Play Wiring and Installation Techniques:**

- Enhanced communication between components that facilitates system verification, permitting, monitoring and repair
- Advanced smart microinverter technology
- New installation solutions using self-identifying and monitoring systems
- Software innovations that streamline licensing, inspection, or installation

**7. Energy Storage:**

- Solar specific Battery controls and algorithms (ramp rate, peak shifting, etc.)
- Advances in chemical, thermal, or mechanical energy storage techniques that promote the widespread use of solar energy
- Novel energy conversion processes for residential solar applications

**8. Other:** In addition to the above topic areas, this SunShot Incubator FOA is open to applications that aim to bring to market a novel, non-incremental technology that facilitates the SunShot goals in any area of solar energy deployment. Although the areas identified above are some of the most common areas addressed in applications, the full spectrum of technologies and non-hardware solution relevant to the conversion of solar energy into electricity will be considered for funding.

The examples mentioned above are meant only to demonstrate the breadth of possibilities. Certain types of projects are considered non-responsive (meaning they will not be accepted or reviewed) and are outlined in the “Areas Specifically Not of Interest” below.

**D. AREAS SPECIFICALLY NOT OF INTEREST**

Areas that are specifically not of interest for this FOA include:

**1. Existing commercial hardware technologies, products, and solutions:**

A primary objective of the SunShot Incubator Program is to launch new start-up businesses and/or new business units within an existing commercial entity. Consequently, if a company already has an existing commercial product that is being sold and providing revenue to the company the company could not apply

with proposed improvements to that product. The company would only be eligible for award under this FOA if the proposed technology, product, or solution is a completely different platform and product family from the company's existing products.

- 2. Incremental improvements to existing technologies, products, or solutions:** DOE understands that incremental improvements to existing products can be compelling and offer significant advantages; however, this program is not meant to fund business as usual activities in an existing product. DOE is not seeking applications of this type and they will be considered non-responsive. It is left to the applicant to show the value of the proposed work that would be funded with this opportunity. An incremental improvement is one that is intended to replace or improve the current product.
- 3. Technology development on an existing manufacturing line to enhance efficiency and/or reduce cost:** Such development would be considered a second-generation product, such as:
  - Changing from a p-type to n-type silicon wafer technology;
  - Back contact development;
  - Addition of junction(s) to existing multijunction devices for high-concentration PV applications.
- 4. Entities which require continued support:** This funding opportunity seeks to create independent businesses which can fully support themselves and continue to grow after the end of the award period. This opportunity is not for creating a product, organization, service, or other entity or item which requires continued government support.
- 5. Heating:** This funding opportunity is not for applications which include solar hot water or solar HVAC applications.

Any Concept Papers or Full Applications that focus on "Areas Specifically Not of Interest" will be rejected as nonresponsive and will not be considered for award.

## **E. PROJECT PERFORMANCE TARGETS**

The technologies proposed by the startup businesses may be at different levels of maturity and focus on either hardware or non-hardware development; therefore, DOE will accept applications

to this FOA in several categories: Tier 0, Tier 1 and Tier 2 for hardware development and Tier 1S and Tier 2S for non-hardware development.

## **Hardware**

As stated previously, the Incubator program focuses on accelerating the commercialization of promising, proven technologies. Given the large number and variety of applications this program receives it is best to group and evaluate applications based on what stage of development they are in. Applicants can enter the Incubator program at any tier; receiving an award at a lower tier is not a requirement of this FOA. At its discretion, DOE can move the application to another tier if it is more suitable, and/or offer a lower award amount than what was proposed and/or partially award a subset of the work proposed. The applicant has the right to refuse to accept a partial award.

For all hardware tiers discussed below, Applicants must describe their plans to expand commercial manufacturing capacity in the United States following completion of the demonstration. In particular, the recipient should identify the specific products and technologies that it will manufacture in the U.S., including any plans for licensing the products or technologies to other entities that will also manufacture in the U.S. The plan will be evaluated under Merit Review Criterion “Potential Impact on the Installed Price of Solar.” See Section V.A.2.

### **1. Tier 0 Awards**

As Figure 4 shows there is a significant amount of funding for basic research, but a funding gap can be seen as research becomes more applied and initial product development takes place. Tier 0 is meant to capture these discoveries after they are proven out in a university or lab setting and answer critical questions that could block commercialization. This is the earliest stage of development that is eligible to apply to this program. To apply an applicant must have achieved Technology Readiness Level 3, described as the following:

*Analytical and experimental critical function and/or characteristic proof of concept. Active R&D is initiated. This includes analytical studies and laboratory studies to physically validate analytical predictions of separate elements of the technology. Examples include components that are not yet integrated or representative.*

(See APPENDIX 1: RELEVANT DOE TECHNOLOGY READINESS LEVELS for a full list of Technology readiness levels) This FOA requires that there is a quantitative, physical demonstration of the

technology chosen for prototype development. This means the applicant has quantitatively demonstrated a proof of concept material, device, product, and/or process for all the essential elements required to construct a prototype. This program provides a lower level of funding (\$500K) to higher risk, less developed ideas to reach the point of an early stage functional prototype, proving the viability of the idea. The outcome of this tier is to prove the potential of the applicants approach and eliminate all major potential risks involved with integrating components or materials.

An award would be considered successful if after the award period a functional prototype was constructed using approaches which may or may not be manufacturing relevant to prove that there are no “show stoppers” and the product warrants being taken to the next stage of development. DOE realizes that this definition fits best for photovoltaic technologies and is less defined for concentrating solar power (CSP), power electronic, and BOS innovations. It is the Applicant’s responsibility to demonstrate that there is a current capability that can be verified and list how this capability will be developed in a measurable way over the course of the award. This is true for all tiers.

This R&D effort will quickly move companies into a position to be competitive for a Tier 1 award under the SunShot Incubator Program. A good measure of whether the proposed technology is developed enough to apply into this tier is to determine if, after the 12 month award period, at a minimum the applicant believes they can reach the entrance criteria for Tier 1, if the applicant needs more than 12 months to do so they are not well suited for this program. The applicant can be assured that during negotiation of the final deliverable it will be structured in such a way that they must produce a high performing early stage prototype after 12 months. Remember, that the applicant does not receive reimbursement for their expenses if they do not meet the quantitative performance deliverables set during negotiation on time and to specification (extensions are not granted). Please carefully consider if the proposed product is in fact at TRL 3 to ensure it is worth the time to apply to this program

## **2. Tier 1 Awards**

The primary objective of Tier 1 of the SunShot Incubator Program is to accelerate the development of innovative technologies to the manufacturing relevant prototype stage. Tier 1 awards are provided to allow awardees to advance their design or assembly process to produce a manufacturing and commercially relevant prototype. The entrance criterion for Tier 1 of this FOA is a lab-scale material, device, product, and/or process at Technology Readiness Level (TRL) 4:

*Component and/or breadboard validation in laboratory environment.* Basic technological components are integrated to establish that they will work together. This is relatively "low

fidelity" compared to the eventual system. Examples include integration of "ad hoc" hardware in the laboratory.

(See APPENDIX 1: RELEVANT DOE TECHNOLOGY READINESS LEVELS for a full list of Technology readiness levels). At this TRL, components of the technology are validated and integrated into a preliminary and functional demonstration. Modeling and simulation without a working device are not acceptable, but may be used to complement physical experiments and to illustrate the potential of the technology.

Successful completion of Tier 1 is a commercially relevant technology (e.g., containing no cost-prohibitive materials) assembled with manufacturing relevant, albeit lab-scale, processes at commercially relevant dimensions. This R&D effort will quickly move companies into a position to be competitive for a Tier 2 award under the SunShot Incubator Program. In addition, successfully achieving this level of development significantly de-risks the technology to the point that it is attractive to private investment. If it would take more than 12 months to get to the exit criteria for this tier the proposed product is likely not developed enough to apply to this Tier. Tier 0 may be more suitable if this is the case.

### **3. Tier 2 Awards**

The primary objective of Tier 2 of the SunShot Incubator Program is to shorten the timeline for awardees to transition innovative, full-scale, pre-commercial prototypes into pilot and eventually full-scale manufacturing, production, or deployment. Successful participation in this Incubator tier will quickly move awardees into pilot stage and later to full commercial production or product release.

The entrance criterion for Tier 2 is a technology with a demonstrated baseline of a commercially relevant (in both size and performance) prototype material, device, module, or system that can be brought to pilot production within an 18-month time frame, which is typically TRL 5:

*Component and/or breadboard validation in relevant environment.* Fidelity of breadboard technology increases significantly. The basic technological components are integrated with reasonably realistic supporting elements so it can be tested in a simulated environment. Examples include "high fidelity" laboratory integration of components.

(See APPENDIX 1: RELEVANT DOE TECHNOLOGY READINESS LEVELS for a full list of Technology readiness levels). Upon completion of a Tier 2 award, a successful awardee will show the fabrication of the advanced prototypes on a pilot-production line (i.e., pilot-scale manufacturing) with processes that are representative of, or feasible to implement in, full-scale commercial manufacturing. The pilot-production line should be capable of performing the functions and/or processes required of full manufacturing system for the given technology. Refinement of the cost model, significant reduction in engineering risk, and the generation of statistically relevant

results are also expected as a result of successful Tier 2 projects. Applicants to this tier must express their intent to manufacture their product or processes in the United States. The potential to contribute to US manufacturing is taken into consideration when scoring applications.

At the end of a Tier 2 project all technology risk and most manufacturing risk should be retired. In other words, the applicant should be able to show that they can manufacture a commercially relevant product on their pilot equipment using scalable processes. Additionally, the applicant should be well suited to launch the next stage of their development, full scale manufacturing and commercialization.

## **Non-Hardware**

Given the dramatic hardware cost reduction the solar industry has seen in the last few years, soft costs have become a growing percentage of overall system costs. The SunShot Initiative is seeking innovative solutions to the soft cost challenges facing the industry today. The Incubator Program has proven to be an excellent model to foster these innovative solutions.<sup>8</sup> A broken out tier structure to better explain non-hardware project requirements has been provided below.

### **4. Tier 1S Awards**

The entrance criterion for Tier 1S of this FOA is a clear understanding of a challenge that presents an opportunity to reduce the cost of a solar installation and a well-articulated plan to address it without the development of physical hardware (Note: It is acceptable to use physical hardware, i.e. a computer, but not to develop a piece of hardware). This is intentionally vague so that a wide variety of creative solutions are received. It is left to the Applicant to adequately articulate the need for the proposed solution, the quality and novelty of the proposed solution, the reasonableness of the proposed budget, and the capability of the team to complete the proposed work.

Upon completion of a Tier 1S award, a successful awardee will have moved from a concept to, at least, a fully functional alpha product engaging in early customer trials. Customer engagement is a major piece of a Soft Cost award and the applicant will be asked to demonstrate customer involvement and interest early and throughout the award. This development effort will move the awardee into a position to apply for a Tier 2S award under the SunShot Incubator Program. In addition, successfully achieving this level of development significantly decreases the risk of the proposed concept to the point that it is attractive to private investment.

### **5. Tier 2S Awards**

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<sup>8</sup> See Incubator Program for Soft Cost Reduction (DE-FOA-0000607) : [http://www1.eere.energy.gov/solar/sunshot/incubator\\_projects.html](http://www1.eere.energy.gov/solar/sunshot/incubator_projects.html)

The entrance criterion for Tier 2S is an alpha product or capability ready for beta and/or Version 1.0 development and public release. This is intentionally vague so that a breadth of creative solutions is received. However, Tier 2S requires that something already exists and is already developed with early customer feedback. An example of a good entrance capability could be the demonstration of a solution working well in a single targeted trial. Tier 2 is designed to help with deployment and scale up costs. Significant work should have already been performed by the team on the proposed product. A successful exit from Tier 2 would be a fully functioning product or solution available to the whole solar industry and/or public.

## **II. AWARD INFORMATION**

### **A. AWARD OVERVIEW**

Approximately \$ 10 million is expected to be available for new awards under this FOA, subject to the availability of appropriated funds. DOE anticipates making 3-12 awards under this FOA. DOE may issue one, multiple, or no awards.

The period of performance for cooperative agreements may range between 12 and 18 months. DOE expects the project start date for cooperative agreements to be October 1, 2013.

DOE will accept only new applications under this FOA. Applicants may not seek renewal or supplementation of their existing awards.

Applicants may be at different levels of maturity; therefore, DOE will accept applications to this FOA in five categories: Tier 0, Tier 1, Tier 1S, Tier 2 and Tier 2S, as described in Section I.E of this FOA.

- **Tier 0 – Hardware Development:** DOE may issue approximately 1-5 awards in this category. The ceiling funding level<sup>9</sup> is \$500,000 and there is no floor funding level.<sup>10</sup> The minimum cost share requirement for a Tier 0 award is greater than or equal to 20% of the Total Project Cost.
- **Tier 1 - Hardware development:** DOE may issue approximately 1-5 awards in this category. The ceiling funding level<sup>11</sup> is \$1,000,000 and there is no floor funding level.<sup>12</sup>

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<sup>9</sup> The “ceiling funding level” is defined as the maximum amount of government funding for an individual award made under this announcement.

<sup>10</sup> The “floor funding level” is defined as the minimum amount of government funding for an individual award made under this announcement.

<sup>11</sup> The “ceiling funding level” is defined as the maximum amount of government funding for an individual award made under this announcement.



The minimum cost share requirement for a Tier 1a award is greater than or equal to 20% of the Total Project Cost.

- **Tier 1S - Non-hardware development:** DOE may issue approximately 1-5 awards in this category. The ceiling funding level<sup>11</sup> is \$500,000 and there is no floor funding level.<sup>12</sup> The minimum cost share requirement for a Tier 1b award is greater than or equal to 20% of the Total Project Cost.
- **Tier 2 - Hardware Development:** DOE may issue approximately 1-3 awards in this category, with a typical value of \$1-2 million. The ceiling funding level<sup>11</sup> is \$4,000,000 and there is no floor funding level.<sup>12</sup> The minimum cost share requirement for a Tier 2 award is greater than or equal to 50% of the Total Project Cost.
- **Tier 2S - Non-Hardware Development:** DOE may issue approximately 1-3 awards in this category. The ceiling funding level<sup>11</sup> is \$2,000,000 and there is no floor funding level.<sup>12</sup> The minimum cost share requirement for a Tier 2S award is greater than or equal to 50% of the Total Project Cost.

The above numbers of awards per tier are only an estimate. DOE intends to fund the best applications overall. Therefore, depending on the quality of applications in each tier, it is possible that DOE may only fund awards under one tier or under one sub-tier. DOE can award an entire application or any part of an application at a funding level that will be negotiated with the applicant.

## **B. APPLICATION PROCESS OVERVIEW**

Required forms for Full Applications are available <https://eere-exchange.energy.gov>

The application process begins by submitting an optional letter of intent to apply to this FOA, which helps DOE plan the review of the application. The applicant will then prepare and upload their concept paper to EERE Exchange before the stated deadline. Several weeks later, the applicant will receive a response from DOE notifying them whether or not they are encouraged or discouraged from submitting a full application. If they choose, the applicant will then prepare and upload a full application and all of the supporting documents to EERE Exchange before the stated deadline. Then, several weeks later, the applicant will have the opportunity to read and reply to reviewer comments and concerns. The applicant may then be notified that DOE would like to conduct pre-selection calls and/or pre-selection conferences to gain clarification on various aspects of their application. DOE will then make selections for award negotiation and contact the applicant to let them know if they were or were not selected to begin the negotiation

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<sup>12</sup> The “floor funding level” is defined as the minimum amount of government funding for an individual award made under this announcement.

process. If both parties come to agreeable terms, a cooperative agreement will be issued to the applicant.

## **1. LETTER OF INTENT TO APPLY (OPTIONAL)**

To facilitate the timely review of applications, Applicants are requested to submit an optional Letter of Intent to Apply for this FOA to [SunShot.Incubator@ee.doe.gov](mailto:SunShot.Incubator@ee.doe.gov) by the submission deadline. Please submit an e-mail with text only. Applicants should use “DE-FOA-0000838 LOI” as the subject line. The body of the email should include the name of the Applicant, the project’s major technology area (i.e. CIGS, CdTe, CPV, racking, permitting, customer acquisition, etc), and a brief description of the technology and why it is innovative (2-3 sentences). Submission of Letters of Intent to Apply ultimately results in a faster and optimally organized review, and are therefore, strongly encouraged but not mandatory. Confidential information should not be needed for this as the email does not go toward evaluation of the application, but if there is confidential or proprietary information in the email, please mark it as directed in Section VIII.E).

## **2. QUESTION & ANSWER WEBINAR**

DOE anticipates hosting two Question and Answer (Q&A) Webinars. The first Q&A webinar will be held on or around February 5, 2013, before the Concept Paper submission deadline. The second Q&A webinar will be held on or around April 16, 2013, before the Full Application submission deadline. Information regarding the Q&A webinars will be posted on <https://eere-exchange.energy.gov/FAQ.aspx?FoaId=c68a237f-11d0-47da-b25a-ccf6acd45a38>, please check the website frequently as dates may change. Applicants will be free to submit questions on any topic related to the FOA, and DOE representative(s) will provide real-time responses, to the maximum extent practicable. Where real-time responses are not provided, written responses will be posted to <https://eere-exchange.energy.gov/FAQ.aspx?FoaId=c68a237f-11d0-47da-b25a-ccf6acd45a38>. Please read this entire FOA in detail as questions which are already answered in this document will not be answered in the webinar or posted online.

## **3. CONCEPT PAPER**

This is a competitive program and writing full applications is an arduous, time consuming requirement. Because of this, DOE requires the submission of a short concept paper that allows DOE to encourage the most promising applicants to take on the requirement of drafting a full application and discourage (but not disallow) those that are not as likely to receive an award from doing so.

The Concept Paper describes the essence and novelty of the proposed project/solution and its capability to meet or exceed the Technical Performance Targets in Section I.E of the FOA. Concept Papers must be submitted to DOE through its online application portal, EERE eXCHANGE (<https://eere-exchange.energy.gov/login.aspx>), as described in Section IV.J.1 of the FOA.

DOE will perform a preliminary review of Concept Papers to determine whether they are compliant and responsive, as described in Section III.C of the FOA. Noncompliant and/or nonresponsive Concept Papers will not be considered for award.

Concept papers and full applications are evaluated based on predefined criteria. Each criterion is assigned a weight/percentage which reflects its level of importance as an evaluation factor. (See Sections V.A.1 and V.A.2.) Applicants are encouraged to consider the relative importance of the criteria weight/percentage when developing their application.

Applicants will be notified of DOE's determination, as described in Section VI.A of the FOA.

#### **4. FULL APPLICATION**

The next step in applying for funding under the FOA is the submission of a Full Application. The Full Application provides detailed information on the proposed project, including an in-depth discussion of the proposed project or solution; the applicant's plan to accomplish their project milestones; submission of deliverable(s); and a detailed budget.

Only Applicants that submit a compliant and responsive Concept Paper will be eligible to submit a Full Application. See Section III.C of the FOA for compliance, responsiveness, and eligibility criteria.

Applicants may submit a Full Application even if they received a recommendation from DOE discouraging them from doing so as part of the Concept Paper review process. By discouraging the submission of a Full Application, DOE intends to convey its lack of programmatic interest in the proposed project and to save Applicants the considerable time and expense of preparing a Full Application for a proposed project that is unlikely to be selected for award negotiations.

In the event the team, personnel, tier, location, etc. changed between the Concept paper and the Full Application submission, the applicant must edit their existing application through the EERE

Exchange website. Use the existing application control number and edit the necessary fields before submitting the Full Application.

An applicant whose Concept Paper applies for a Tier 2 or 2S award may alter their application to be a Tier 1 or 1S award for the Full Application should the justification be adequate (such as change in work scope, subtraction of team members, etc.). However, if an applicant applies for a Tier 1 or 1S award in their Concept Paper they cannot submit a Full Application for a Tier 2 or 2S award. The same is true regarding switching between Tier 1 and Tier 0.

Full Applications must be submitted to DOE through its online application portal, EERE eXCHANGE (<https://eere-exchange.energy.gov/login.aspx>), as described in Section IV.J.1 of the FOA.

DOE will perform a preliminary review of Full Applications to determine whether they are compliant and responsive, as described in Section III.C of the FOA. Noncompliant, nonresponsive, and/or otherwise ineligible Full Applications will be rejected by the DOE Contracting Officer and not considered for award.

## **5. REPLIES TO REVIEWER COMMENTS**

Reviewer comments on compliant and responsive Full Applications will be made available to Applicants via EERE eXCHANGE. An applicant, and only that applicant, will be able to view the comments provided to their own application. Applicants have a brief opportunity to review these comments and prepare a short Reply to Reviewer Comments. Applicants may elect to respond to one or more Reviewer comments.

Submitting a Reply to Reviewer Comments is optional. Each compliant and responsive Full Application will be considered on the merits regardless of whether a Reply to Reviewer Comments is submitted. If submitted, replies to reviewer comments are considered an extension of the application and are not scored separately, but will be considered as part of the final decision.

Please note that the reviewer comments do not constitute a “debriefing” on the strengths and weaknesses of the Full Application. EERE will not offer or provide debriefings under this FOA.

## **6. PRE-SELECTION CONFERENCE CALLS**

Once DOE completes its review of Full Applications and Replies to Reviewer Comments, certain Applicants may be invited to participate with DOE in pre-selection conference calls so that DOE may clarify aspects of the applicants proposed project.

DOE may, at its discretion, decide to hold pre-selection conference calls with some, none, or all of the applicants. If pre-selection conference calls are to be held, the Contracting Officer or their representative will contact the subset of Applicant(s) to make appropriate arrangements for the pre-selection conference call. DOE may obtain clarifying information through pre-selection conference calls that will be used to make a final selection determination. DOE reserves the right to select applications for funding and make awards without pre-selection conference calls.

Participation in a pre-selection conference call with DOE does not signify that Applicants have been selected for award negotiations. DOE will make the selection determination at a later point in time.

## **7. PRE-SELECTION PRESENTATIONS**

DOE may also identify a subset of Applicants which it would like to invite to present their project through a webinar or an in person meeting at the Applicant's facility or at a DOE facility. DOE will not reimburse any costs incurred by the Applicant relating to the pre-selection presentation, such as travel costs. The presentation will provide DOE with the opportunity to clarify aspects of the applicants proposed project. DOE may obtain clarifying information through pre-selection presentations that will be used to make a final selection determination. DOE may contact one, multiple, or no Applicants at its discretion. The Contracting Officer or their representative will contact the Applicant(s) to make appropriate arrangements for the pre-selection presentation. DOE reserves the right to select applications for funding and make awards without pre-selection presentations.

If you are asked to participate in a pre-selection presentation, you may be asked to provide additional information regarding your current financial situation so that DOE can verify your financial stability and ability to meet your cost share requirements. If this information is deemed necessary by DOE it will be requested at the time of notification for a pre-selection presentation. This information will be included in the pre-selection presentation as a slide and/or handout. The applicant will be expected to be able to answer any questions DOE has regarding this information at the presentation. Please be prepared to disclose the following:

- Information on fundraising: list all previous fundraising rounds i.e. Angel, A, B, C etc. (if applicable), the amount raised each round, the identity of investors who participated in each round and the amount invested by each investor. If this information is confidential

or proprietary please mark entries as proprietary and confidential. Substantial documentation of the above information should be provided.

- Documentation regarding the amount of cash the applicant has on hand, the amount of revenue they have generated over the last calendar year and each month in the current calendar year up to the last complete month before the application is submitted, and the amount of cash spent in the last complete calendar year and each month in the current calendar year up to the last complete month before the application is submitted, broken out by month. A financial report generated by finance management software would be an acceptable form to fulfill this requirement if the Applicant has it at their disposal. Substantial documentation of the above information should be provided.

Participation in a pre-selection presentation with DOE does not signify that Applicants have been selected for award negotiations. DOE will make the selection determination at a later point in time.

## **8. SELECTIONS**

DOE will carefully consider all of the information obtained through the application process (e.g., Full Applications, reviewer comments, Replies to Reviewer Comments, and information obtained through pre-selection conference calls, meetings and presentations) and evaluate each compliant and responsive Full Applications based on the criteria and program policy factors in Sections V.A.1, and V.A.2, DOE may select or not select a Full Application for award negotiations.

Applicants will be promptly notified of DOE's selection determination.

## **9. AWARD NEGOTIATIONS**

Applicants will be provided with a schedule for award negotiations upon selection. Failure to meet the specific and rapid deadlines stated in the schedule may result in the termination of award negotiations and the selection of another Applicant. Typically, this means the Principle Investigator (PI) may need to participate in an hour phone call every other business day at a minimum and be able to turn around document changes before each call.

Separately, the Contracting Officer or their representative will review the proposed budget for the project and work with the selected Applicant to resolve any issues relating to the budget.

The Contracting Officer is required to make certain determinations before executing the award, such as assessing the Applicant's financial management and project management capabilities and reviewing the proposed cost share for the project.

The Contracting Officer is required to perform a financial management assessment to assess the Applicant's ability to manage the financial aspects of an award and the plans to accomplish project activities with reasonable economy and efficiency. The standards for acceptable financial management systems are found at 10 CFR 600.121 for universities and nonprofits and at 10 CFR 600.311 for for-profit organizations.

The Contracting Officer is required to make an affirmative determination of responsibility. The responsibility determination includes, but is not limited to, the financial management assessment and business review, reviews of audits, and review of activities under previous awards, especially submission of reports. The responsibility determination considers if the Awardee has the administrative and programmatic capabilities to perform the award.

The term "administrative capability" means the capability of a Prime Recipient or Sub-recipient to develop and implement administrative systems, including systems related to financial management, property management, procurement standards, financial reporting, record-keeping, and submission of administrative reports/certifications for award closeout.

The term "programmatic capability" means the technical capability of a Prime Recipient or Subrecipient to successfully carry out a project taking into account such factors as:

- The Prime Recipient's performance in successfully completing Federally and/or non-Federally funded projects similar in size, scope, and relevance to the proposed project;
- The Prime Recipient's history of meeting reporting requirements on prior or current assistance agreements with Federal and/or non-Federal organizations and submitting acceptable final technical reports;
- The Prime Recipient's organizational experience and plans for timely and successful achievement of project objectives, technical milestones and deliverables; and
- The Prime Recipient's staff expertise/qualifications and resources or ability to obtain them, to successfully achieve the goals of the project.

Consistent with DOE's mandate to exercise good Federal stewardship, the Contracting Officer may request the insertion of one or more conditions into the award if he/she deems the project to be high risk. In such instances, the Contracting Officer will work with the Applicant to minimize the administrative burden while maximizing the prospects for success.

### **C. DOE FINANCIAL ASSISTANCE AGREEMENT**

Through Financial Assistance Agreements, DOE provides financial and other support to projects that have the potential to benefit the public. DOE does not use such agreements to acquire property or services for the direct benefit or use of the U.S. Government. DOE's Financial Assistance Regulation is set forth in Title 10, Part 600 of the Code of Federal Regulations and is available electronically (e-CFR) [here](#). See Subpart D with respect to the Administrative Requirements for Grants and Cooperative Agreements with For-Profit Organizations. Any award agreement issued will be fully compliant with these regulations.

## 1. COOPERATIVE AGREEMENT

DOE will use Cooperative Agreements to provide financial and other support to Prime Recipients.<sup>13</sup> Cooperative Agreements differ from Grants in terms of agency involvement, supervision, and intervention in the project. DOE has substantial involvement in the management and direction of every cooperative agreement, as described in Section II.D of the FOA.

**DOE will use deliverable-based payments as the method of payment for awards issued under this FOA. Specifically, the Prime Recipient will be reimbursed for actual costs (minus cost share) at each payable deliverable accomplished and verified in accordance with the schedule of deliverables negotiated between DOE and the Prime Recipient and in accordance with federal cost principles. Payment is made after a deliverable is met and verified. If a deliverable is not met by the specified deadline, the payment is not made. Failure to meet a deliverable by the specified deadline may result in termination of an award. Delays or extensions of the deliverables schedule are not acceptable.**

It is the responsibility of the Applicant to propose a deliverables schedule that is both challenging and achievable. An overly aggressive and unrealistic deliverables schedule should be avoided because funds will not be reimbursed until deliverables are achieved and verified by DOE. Furthermore, awards may be terminated if deliverables are not met in a timely fashion. Conversely, an overly conservative deliverable schedule is also not desirable because of the potential negative impact for completing the project.

## 2. FUNDING AGREEMENTS WITH FFRDCs AND GOGOS

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<sup>13</sup> The Prime Recipient is the signatory to the funding agreement with DOE.



DOE understands that startup businesses often do not own all of the equipment that is required to construct a full-scale prototype towards pilot-scale production. Owning equipment is not a prerequisite for participation in this FOA. Recipients are encouraged to leverage the capabilities of Federally Funded Research and Development Centers (FFRDCs) and Government-Owned Government-Operated laboratories (GOGOs) and use them as team partners. FFRDCs and GOGOs can provide access to equipment for testing and characterization in a variety of settings. Applicants are encouraged to consider FFRDC and GOGO capabilities which could be useful in their proposed work effort. A full list of FFRDCs is available at <http://www.nsf.gov/statistics/nsf05306/>.

DOE will issue payment directly to the prime recipient on a reimbursement basis. It is the prime recipient's responsibility to pay sub-recipients including FFRDCs and GOGOs. The applicant may have to provide advance funding to sub-recipients in order to meet deliverables. DOE does not issue reimbursement to the prime recipient unless deliverables are achieved on time and to specification and verified by DOE.

### **3. GRANTS**

DOE does not intend to provide funding through grants in this funding opportunity.

### **4. CONTRACTS**

DOE does not intend to provide funding through contracts in this funding opportunity.

## **D. STATEMENT OF SUBSTANTIAL INVOLVEMENT**

DOE generally has substantial involvement in the management and direction of its projects from inception to completion. Each cooperative agreement will include a statement of substantial involvement describing the ways in which DOE will be substantially involved in the award. Such involvement may include:

- DOE or a designated representative must review and approve each deliverable before payment is made. Specifically, DOE or a designated representative will review and independently verify each deliverable before payment is made.
- DOE does not limit its involvement to the administrative requirements of the cooperative agreement. Instead, DOE has substantial involvement in the project as a whole and may provide direction or redirection on the project.

- DOE and the Prime Recipient establish an aggressive schedule of quantifiable payable deliverables that must be met and independently verified at regular intervals in order for the Prime Recipient to receive payment. This deliverables schedule will be based on the content of the Full Application and negotiated during award negotiations. If the schedule is not met DOE can end the award.

### **III. ELIGIBILITY INFORMATION**

#### **A. ELIGIBLE APPLICANTS**

**Standalone Applicants:** Only independently incorporated startup businesses are eligible to apply for funding as Standalone Applicants.<sup>14</sup>

**Project Teams:** Only Project Teams led by independently incorporated startup businesses with less than 500 employees are eligible to apply for funding (this includes any foreign subsidiaries or affiliates that may be eligible to apply if they meet the criteria stated in Section III.A.4 of the FOA). The business designated as the Prime Recipient must incur at least 60% of expenditures under the project, as measured by the Total Project Cost. Failure to clearly demonstrate this qualification may lead to a determination that the team is not eligible for award. Expenditures incurred for the use of facilities, including FFRDCs, by Prime Recipient personnel count towards the Prime Recipient's share of the Total Project Cost.

An applicant may submit a single separate and self-contained application for each tier (Tier 0, Tier 1, Tier 2, Tier 1S, and Tier 2S). Each application should have a different Principal Investigator (PI) and be for a completely different and distinct project and solution.

Applicants may submit an application for a Tier 2 or Tier 2S award without receiving a Tier 1 award previously.

Applicants may submit an application for a Tier 1 or Tier 1S award without receiving a Tier 0 award previously.

Applicants are not eligible for funding of a project or product that already received a Tier 2 or Tier 2S award under the previous Photovoltaic Technology Incubator Program or any SunShot Incubator Program. Applicants that previously received a Tier 2 or 2S award under the SunShot

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<sup>14</sup> A Standalone Applicant is an Applicant that applies for funding on its own, not as part of a Project Team.

Incubator Program or Photovoltaic Technology Incubator Program can only apply to this program with a new product or project. Additionally, applicants are not allowed to repeat a Tier with the same project or product. If a project or product has received a Tier 1 award they may not apply for another Tier 1 award for that product.

Previous Incubator Full Applications that were deemed compliant and evaluated but not selected may be resubmitted. However, the resubmitted applications must incorporate DOE's feedback provided in the strength and weakness comments for the original application. At the discretion of the Contracting Officer, applications that do not incorporate these changes may be deemed non-compliant or non-responsive to this FOA.

## **1. STARTUP BUSINESSES - STANDALONE APPLICANT**

Only independently incorporated startup businesses<sup>15</sup> are eligible to apply for funding as Standalone Applicants.

In accordance with 10 CFR 600.6(b) eligibility will be restricted in this FOA as follows:

Only Project Teams led by independently incorporated startup businesses are eligible to apply for funding. The startup businesses designated as the Prime Recipient must incur at least 60% of expenditures under the project, as measured by the Total Project Cost. Expenditures incurred for the use of facilities, including laboratories, by Prime Recipient personnel counts towards the Prime Recipient's share of the Total Project Cost.

For the purposes of eligibility to apply to this FOA, the term "startup business" is defined as a for-profit entity with less than 500 employees not including the employees of any parent companies, subsidiaries or other affiliated companies.

The Incubator is a program specifically designed to 'incubate' innovative technology proof of concepts in fast paced, nimble startup companies through the period in which there is the most risk; after a concept has been proven but before a prototype exists. For this reason a restriction has been placed on this funding opportunity seeking applications where the prime applicant is an independently incorporated entity with 500 employees or less not including the employees of any parent companies, subsidiaries or other affiliated companies.

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<sup>15</sup> For the purposes of eligibility to apply to this FOA, the term "startup business" is defined as an entity with less than 500 employees not including the employees of any parent companies, subsidiaries or other affiliated companies. Note, however, that for the purposes of Intellectual Property terms and conditions of DOE awards that the employees of domestic and international affiliates of Recipients are counted toward the small business employee count. Therefore, an applicant may be considered a startup business for the purposes of eligibility to apply to this FOA, but may be determined not to be a small business for the purposes of the applicable intellectual property provisions that will be made part of any subsequent award under this FOA.

By helping startups bring new concepts and capabilities through the high risk early development stage the Incubator program has seen tremendous success. Since the program's inception in 2007, \$92M in government funds have been awarded, the companies receiving these funds then proceeded to raise over \$1.7B in venture capital and private equity funds and create over 750 jobs. This represents success on multiple fronts and has aided in the advancement of the SunShot Initiative's goals. A complete list of past and current awardees is available at <http://www1.eere.energy.gov/solar/sunshot/incubator.html>.

## **2. PRIME RECIPIENTS FOR PROJECT TEAM**

Only Project Teams<sup>16</sup> led by independently incorporated startup businesses are eligible to apply for funding. The startup business designated as the Prime Recipient must incur at least 60% of expenditures under the project, as measured by the Total Project Cost. Failure to clearly demonstrate this qualification may lead to a determination that the team is not eligible for award. 40% of the award funds could be spent by a domestic or non-domestic entity, the rationale for the distribution of funds would need to be clearly articulated. The work would need to be performed within the U.S. per Section III.A.5 "Performance of Work in the United States." Expenditures incurred for the use of facilities, including laboratories, by Prime Recipient personnel counts towards the Prime Recipient's share of the Total Project Cost.

Note: A sub-recipient is an entity that performs work on the award for the prime recipient. A minimum of 60% of the award funds must be incurred by the prime recipient. The remaining 40% may be distributed to subrecipients to help perform that work required to complete the award. Vendors, including contractors and consultants, do not perform substantial project work, but merely provide goods or services as they would to any other customer as part of their normal business. Vendor cost may be incurred by either the prime recipient or a subrecipient.

## **3. OTHER ENTITIES – MEMBERS OF PROJECT TEAM**

For-profit entities, educational institutions, and nonprofits are eligible to apply for funding as a member of a Project Team.

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<sup>16</sup> The term "Project Team" is used to mean any entity with multiple players working collaboratively and could encompass anything from an existing organization to an ad hoc teaming arrangement. A Project Team consists of the Prime Recipient, Subrecipients, and others performing or otherwise supporting work under a DOE funding agreement.

FFRDCs and GOGOs are eligible to apply for funding as a member of a Project Team.

State and local government entities are eligible to apply for funding as a member of a Project Team.

#### **4. FOREIGN ENTITIES**

Foreign entities, whether for-profit or otherwise, are eligible to apply for funding under this FOA.

Other than as provided in the “Other Entities” sections above, all prime recipients receiving funding under this FOA must be incorporated (or otherwise formed) under the laws of a State or territory of the United States. If a foreign entity applies for funding as a prime recipient, it must designate in the Full Application a subsidiary or affiliate incorporated (or otherwise formed) under the laws of a State or territory of the United States to be the prime recipient. The Full Application must state the nature of the corporate relationship between the foreign entity and domestic subsidiary or affiliate. Foreign entities may request a waiver of this requirement in the Full Application. If you would like to request a waiver see Section VIII.I. The DOE Contracting Officer has discretion to waive this requirement if he/she determines that it will further the purposes of this FOA and is otherwise in the interests of EERE.

A foreign entity may receive funding as a subrecipient.

#### **5. PERFORMANCE OF WORK IN THE UNITED STATES**

EERE strongly encourages interdisciplinary and cross-sectoral collaboration spanning organizational and national boundaries. Such collaboration enables the achievement of scientific and technological outcomes that were previously viewed as extremely difficult, if not impossible.

EERE requires all work under EERE funding agreements to be performed in the United States – i.e., prime recipients must expend 100% of the total project cost in the United States.

Applicants and prime recipients may request a waiver of this requirement. Applicants must include a written waiver request in the Full Application. Prime recipients must submit any waiver requests in writing to the DOE Contracting Officer for this FOA. The DOE Contracting Officer has discretion to waive this requirement if he/she determines that it will further the purposes of this FOA and is otherwise in the best interest of the Government. If you would like to request a waiver see Section VIII.I.

## **B. COST SHARING OR MATCHING**

### **1. COST SHARE REQUIREMENTS**

There are different cost share requirements for Tier 0/1 and Tier 2 awards.

- Tier 0, Tier 1, and Tier 1S awards: The minimum cost share requirement for Tier 0, Tier 1, and Tier 1S awards is greater than or equal to 20% of the Total Project Cost.
- Tier 2 and Tier 2S awards: The minimum cost share requirement for Tier 2 awards is greater than or equal to 50% of the Total Project Cost.

Cost share may be incurred in equal installments over the life of the award. In the alternative, the Prime Recipient may pay the entire cost share amount in the initial months of the award. DOE will not accept any application to pay the entire cost share amount in the final months of the award.

Cost share is calculated with the following formula:

$$\text{Awardee cost share\%} = \frac{\text{Awardee contribution}}{\text{DOE contribution} + \text{Awardee contribution}}$$

Use caution when calculating cost share. Deviation from the above formula may result in a cost share percentage that is too low. Applications that do not meet the cost share requirement will be deemed non-compliant and will not be considered for award.

### **2. PRIME RECIPIENT RESPONSIBILITY**

Although the cost share requirement applies to the Project Team as a whole, the funding agreement makes the Prime Recipient legally responsible for paying the entire cost share. The Prime Recipient's cost share obligation is expressed in the funding agreement as a static amount in U.S. dollars (cost share amount) and as a percentage of the Total Project Cost (cost share percentage). If the cooperative agreement is discontinued or terminated prior to the end of the project period, the Prime Recipient is required to pay at least the cost share percentage of total expenditures incurred through the date of termination.

The Prime Recipient is solely responsible for managing cost share contributions by the Project Team and enforcing cost share obligations assumed by Project Team members in subawards or related agreements.

### **3. COST SHARE ALLOCATION**

Each Project Team is free to determine how much each Project Team member will contribute towards the cost share requirement. The amount contributed by individual Project Team members may vary, so long as the cost share requirement for the project as a whole is met.

### **4. COST SHARE TYPES AND ALLOWABILITY**

Every cost share contribution must be allowable under the applicable Federal cost principles, as described in Section IV.H.1 of the FOA.

Project Teams may provide cost share in the form of cash or in-kind contributions. Cash contributions may be provided by the Prime Recipient or Sub-recipients. Allowable in-kind contributions include but are not limited to personnel costs, indirect costs, facilities and administrative costs, rental value of buildings or equipment, and the value of a service, other resource, or third party in-kind contribution. The budget that is proposed needs to reflect actual costs whenever possible, meaning the applicant can show documentation proving that what they propose is what they will actually spend for every item. Project Teams may use funding or property received from state or local governments to meet the cost share requirement, so long as the funding or property was not provided to the state or local government by the Federal Government.

Regarding in-kind contributions for personnel costs, there is a \$200,000 salary cap. The proposed in-kind salary will be closely scrutinized. An individual cannot provide in-kind hours which (s)he is being paid by another entity (i.e. 40 hours a week cannot be contributed in kind if those same 40 hours were spent at another job). Only hours working directly on the award can be donated in-kind.

DOE understands that startup companies may compensate employees using a combination of a lower salary and some form of equity/shares of the company. While it is true that the equity/shares paid may eventually have a clearly defined value DOE will not reimburse the awardee for this undefined value under this FOA. Equity/shares of the company should be excluded from all budget documentation; only actual cost can be reimbursed. Project Teams may not use the following sources to meet their cost share obligations:

- Revenues or royalties from the prospective operation of an activity beyond the project period;
- Proceeds from the prospective sale of an asset of an activity;
- Federal funding or property (e.g., Federal grants, equipment owned by the Federal Government); or
- Expenditures that were reimbursed under a separate Federal program.

Project Teams may not use the same cash or in-kind contributions to meet cost share requirements for more than one project or program.

Cost share contributions must be specified in the project budget, verifiable from the Prime Recipient's records, and necessary and reasonable for proper and efficient accomplishment of the project. Every cost share contribution must be reviewed and approved in advance by the Contracting Officer and incorporated into the project budget before the expenditures are incurred.

All proposed cost share contributions must be reviewed and approved in advance by the Contracting Officer (or his/her designee) and incorporated into the project budget before the expenditures are incurred.

DOE may deny reimbursement requests, in whole or in part, or modify or terminate cooperative agreements where Prime Recipients (or Project Teams) fail to comply with DOE's cost share payment requirements.

Applicants should refer to 10 C.F.R. part 600 for additional guidance on cost sharing, specifically 10 C.F.R. §§ 600.30, 600.123, 600.224, and 600.313.

## **5. COST SHARE CONTRIBUTIONS BY FFRDCs AND GOGOS**

Because FFRDCs and GOGOs are funded by the Federal Government, costs incurred by FFRDCs and GOGOs generally may not be used to meet the cost share requirement.

## **6. COST SHARE COMMITMENT**

Applicants are required to describe their proposed cost share contributions in their Concept Papers and Full Applications. Please refer to Section III.B of the FOA for guidance on the requisite cost share information.



Upon selection for award negotiations, Applicants are required to provide additional information and documentation regarding their cost share contributions, including third party commitment letters. If an applicant will be receiving funds from a third-party to contribute towards its cost share commitment, that third party must provide the Contracting Officer with a letter documenting the contribution. Please refer to Section III.B.1 of the FOA for guidance on the requisite cost share information and documentation.

**C. OTHER**

**1. COMPLIANT CRITERIA**

Concept papers and full applications that are deemed non-compliant will not be reviewed. In order to submit a compliant concept paper and full application, applicants must ensure that all of the requirements of the FOA have been met. Checklists are provided to help ensure your concept paper and full application is compliant. Every mandatory check box should be “checked off” for the concept paper and full application to be deemed compliant and subsequently reviewed.

If the applicant makes a mistake they may be eliminated without the opportunity to correct the error so please take care in addressing all mandatory compliance requirements. However, it is within the CO’s discretion to request clarification on clerical submission errors. The CO may also deem an application non-compliant rather than contact the applicant for clarification.

**Required Documents Checklist for Concept Paper Submission**

Please check this page when submitting the application to help ensure the application is complete and compliant.

| Deadline                                   | Submission                         | Format                | Optional/<br>Mandatory | FOA Section |
|--|------------------------------------|-----------------------|------------------------|-------------|
| <input type="checkbox"/> February 25, 2013 | Letter of Intent to Apply (e-mail) | e-mail<br>(text only) | Optional               | IV.B        |
| <input type="checkbox"/> March 5, 2013     | Concept Paper                      | .doc or               | Mandatory              | IV.C        |

|  |  |   |               |           |                   |
|--|--|---|---------------|-----------|-------------------|
|  |  |   | .docx         |           |                   |
| <input type="checkbox"/>                                 | March 5, 2013  | Deliverables Table  | .doc or .docx | Mandatory | IV.D.2            |
| <input type="checkbox"/>                                 | March 5, 2013  | Summary Slide   | .ppt or .pptx | Mandatory | IV.D.3            |
| <b>Other mandatory concept paper compliance criteria</b> |  |   |               |           |                   |
| <input type="checkbox"/>                                 | Cost share met?  | $\text{Cost share \%} = \frac{\text{(Applicant Contribution)}}{\text{(DOE Contribution + Applicant Contribution)}}$ |               |           | III.B.1           |
| <input type="checkbox"/>                                 | Prime applicant a startup business?  |   |               |           | III.A             |
| <input type="checkbox"/>                                 | 60% of funds spent by the prime applicant?   |   |               |           | III.A             |
| <input type="checkbox"/>                                 | Concept Paper completed and submitted by 5:00pm EST on the due date?   |   |               |           | EXECUTIVE SUMMARY |
| <input type="checkbox"/>                                 | Page limit guidelines met? (If 'no', DOE will delete anything over the page limit from the .doc or .docx application file prior to review to prevent unfair advantage) |   |               |           | IV.C              |
| <input type="checkbox"/>                                 | Cover page and short abstract (1 page maximum)   |   |               |           | IV.C              |
| <input type="checkbox"/>                                 | Project Description (3 pages maximum)  |   |               |           | IV.C              |
| <input type="checkbox"/>                                 | Summary of Qualifications and Resources (1 page maximum)   |   |               |           | IV.C              |
| <input type="checkbox"/>                                 | Appendix of resumes for each team member (1 page maximum for each resume)  |   |               |           | IV.C              |
| <input type="checkbox"/>                                 | Appendix of any letters of support from external entities (1 page maximum per letter)  |   |               |           | IV.C              |
| <input type="checkbox"/>                                 | Business Plan/ Commercialization Strategy (1 page maximum)   |   |               |           | IV.C              |

DOE performs a preliminary review of Concept Papers to determine whether:

- The Applicant meets the eligibility and compliance requirements in Sections II.A II.B, III.A and III.C, of the FOA;
- The Applicant meets the cost share requirements in Section III.B of the FOA;
- The Concept Paper conforms to the content and form requirements in Section IV.C of the FOA; and
- The Concept Paper was timely submitted via EERE eXCHANGE by the applicable deadline. See Section IV.F of the FOA for guidance on the timely submission of Concept Papers.

Concept Papers that meet these requirements are deemed compliant. See the compliance criteria checklist for a summary of these requirements, above. Please use this checklist to ensure that a compliant application is submitted.

## Required Documents Checklist for Full Applications

Please check this page when submitting the application to help ensure the application is complete and compliant.

|                          | Deadline       | Submission        | Format           | Optional/<br>Mandatory | FOA Section |
|--------------------------|----------------|-------------------|------------------|------------------------|-------------|
| <input type="checkbox"/> | April 30, 2013 | Project Narrative | .doc or<br>.docx | Mandatory              | IV.D        |
| <input type="checkbox"/> | April 30, 2013 | Deliverable Table | .xls or<br>.xlsx | Mandatory              | IV.D.2      |
| <input type="checkbox"/> | April 30, 2013 | Summary Slide     | .ppt or<br>.pptx | Mandatory              | IV.D.3      |
| <input type="checkbox"/> | April 30, 2013 | SF-424            | .pdf             | Mandatory              | IV.D.4      |
| <input type="checkbox"/> | April 30, 2013 | SF-424A           | xls or<br>.xlsx  | Mandatory              | IV.D.6      |

|   |  |   |                 |           |                      |
|---|--|---|-----------------|-----------|----------------------|
| <input type="checkbox"/>                                    | April 30, 2013   | SF-LLL  | .pdf            | Mandatory | IV.D.5               |
| <input type="checkbox"/>                                    | April 30, 2013   | Budget Justification<br>PMC 123.1   | xls or<br>.xlsx | Mandatory | IV.D.7               |
| <input type="checkbox"/>                                    | April 30, 2013   | Environmental Impacts<br>Questionnaire  | .pdf            | Mandatory | IV.D.8               |
| <input type="checkbox"/>                                    | June 11, 2013  | Reply to Reviewer<br>Comments   | .pdf            | Optional  | IV.E below           |
| <b>Other mandatory full application compliance criteria</b> |  |   |                 |           |                      |
| <input type="checkbox"/>                                    | Cost share meet?   | $\text{Cost share \%} = \frac{\text{(Applicant Contribution)}}{\text{(DOE Contribution + Applicant Contribution)}}$ |                 |           | III.B.1              |
| <input type="checkbox"/>                                    | Prime applicant a startup business?  |   |                 |           | III.A                |
| <input type="checkbox"/>                                    | 60% of funds spent by the prime applicant?   |   |                 |           | III.A                |
| <input type="checkbox"/>                                    | Application submitted by due date?   |   |                 |           | EXECUTIVE<br>SUMMARY |
| <input type="checkbox"/>                                    | Page limit guidelines met? If 'no', DOE will delete anything over the page limit from the .doc or .docx application file prior to review to prevent unfair advantage |   |                 |           | IV.D                 |
| <input type="checkbox"/>                                    | --Project narrative (23 pages maximum) consisting of:  |   |                 |           | IV.D                 |
| <input type="checkbox"/>                                    | --Title/Cover page and short abstract (1 page maximum)   |   |                 |           | IV.D                 |
| <input type="checkbox"/>                                    | --Project Overview (5 pages maximum)   |   |                 |           | IV.D                 |
| <input type="checkbox"/>                                    | --Business Plan (3 pages maximum)  |   |                 |           | IV.D                 |
| <input type="checkbox"/>                                    | -- Qualifications and Resources (2 pages maximum)  |   |                 |           | IV.D                 |
| <input type="checkbox"/>                                    | --Work Plan (12 pages maximum)   |   |                 |           | IV.D                 |
| <input type="checkbox"/>                                    | --Other Sources of Funding Disclosure (no page limit)  |   |                 |           | IV.D                 |

|                          |   |        |
|--------------------------|---|--------|
| <input type="checkbox"/> | Appendix of resumes for each team member (one page maximum for each resume)           | IV.D   |
| <input type="checkbox"/> | Appendix of any letters of support from external entities (1 page maximum per letter) | IV.D   |
| <input type="checkbox"/> | Summary Slide (1 slide maximum)   | IV.D   |
| <input type="checkbox"/> | Foreign Entity Waiver, if necessary   | VIII.I |

DOE performs a preliminary review of Full Applications to determine whether:

- The Applicant meets the eligibility and compliance requirements in Sections II.A, II.B, III.A and III.C, of the FOA;
- The Applicant meets the cost share requirements in Section III.B of the FOA;
- The Full Application conforms to the content and form requirements in Section IV.D of the FOA;
- The Full Application was timely submitted via EERE eXCHANGE by the applicable deadline (see Section IV.F of the FOA for guidance on the timely submission of Full Applications); and
- The Applicant submitted a compliant and responsive Concept Paper. (Only Applicants that submitted a compliant and responsive Concept Paper are eligible to submit a Full Application.)

Full Applications that meet these requirements are deemed compliant. See the compliance criteria checklist for a summary of these requirements, above. Please use this checklist to ensure that a compliant application is submitted.

DOE performs a preliminary review of optional Replies to Reviewer Comments to determine whether:

- The Reply to Reviewer Comments conforms to the content and form requirements in Section IV.E ; and
- The Reply to Reviewer Comments was timely submitted via EERE eXCHANGE by the applicable deadline. See Section IV.F of the FOA for guidance on the timely submission of Replies to Reviewer Comments.

Replies to Reviewer Comments that meet these requirements are deemed compliant.

## **2. RESPONSIVENESS CRITERIA**

Nonresponsive submissions are not considered for award. Non-responsive Concept Papers will not receive a “discouraged” notification but will be rejected. Applicants that have Concept Papers that are rejected are precluded from submitting a Full Application.

Concept Papers and Full Applications will be evaluated using the following criteria to determine responsiveness:

- DOE performs a preliminary review of Concept Papers and Full Applications to determine whether the proposed project falls within the parameters described in Sections I.A, I.B, I.C and I.D of the FOA.
- Any Concept Papers or Full Applications that focus on “Areas Specifically Not of Interest” in Section I.D of the FOA are rejected as nonresponsive and are not considered for award.

Other submissions that do not fall within the technical parameters described in Sections I.A, I.B, I.C of the FOA are also rejected as nonresponsive and are not considered for award.

Nonresponsive Concept Papers will not receive a “discourage” classification but will be rejected and precluded from submitting a Full Application.

Please refer to Section VI.A of the FOA for guidance on notifications of nonresponsive submissions.

## **3. DISCLOSURES FOR ELIGIBILITY DETERMINATION**

Applicants are required to disclose in their Full Applications if any of the following conditions exist:

- The Applicant (or a member of the Project Team) is under investigation for or has been convicted of fraud or similar acts, violations of U.S. export controls laws and regulations, or violations of the Drug-Free Workplace Act of 1988 (Pub. L. 100-690, Title V, Subtitle D; 41 U.S.C. 701, et seq.);
- The Applicant (or a member of the Project Team) is debarred, suspended, proposed for debarment, or otherwise declared ineligible from receiving Federal contracts, awards, and financial assistance and benefits; and

- The Applicant (or a member of the Project Team) is insolvent.

The DOE Contracting Officer may reject a Full Application if any of the above conditions exist. If the DOE Contracting Officer rejects the Full Application, it will not be considered for award.

Please refer to Sections IV.D.10 and VIII.C of the FOA for guidance on submitting a full and complete disclosure of the requested information.

#### **4. LIMITATION ON NUMBER OF APPLICATIONS**

An Applicant may submit a single and self-sufficient applications for each tier (Tier 0 Tier 1, Tier 1S, Tier 2 and Tier 2S). Each application must be for a completely different platform and product family.

Applicants may submit an application for a higher Tier award even if they did not receive a lower Tier award previously.

Applicants may apply for funding if they received a Tier 0 and/or Tier 1 award under the prior SunShot Incubator Program. However, Applicants are not allowed to apply for funding for a project or product that has already received a Tier 2 award under the prior Photovoltaic Technology Incubator Program or the SunShot Incubator Program. Applicants that have previously received a Tier 2 award can only apply to this program with a new product or solution.

### **IV. APPLICATION AND SUBMISSION INFORMATION**

#### **A. APPLICATION FORM**

Required forms for Full Applications are available at <https://eere-exchange.energy.gov>

#### **B. CONTENT AND FORM OF LETTERS OF INTENT TO APPLY**

To facilitate the timely review of applications, Applicants are requested to submit an optional Letter of Intent to Apply to [SunShot.Incubator@ee.doe.gov](mailto:SunShot.Incubator@ee.doe.gov) as early as possible. Please submit an e-mail with text only. Applicants should use “DE-FOA-0000838 LOI” as the subject line. The body of the email should include the name of the Applicant, the project’s major technology area (i.e. CIGS, CdTe, CPV, racking, permitting, customer acquisition, etc), and a brief description of

the technology and why it is innovative (2-3 sentences). Submission of Letters of Intent to Apply ultimately results in a faster and optimally organized review, and are therefore, strongly encouraged but not mandatory. Confidential information should not be needed for this as the email does not go toward evaluation of the application, but if there is confidential information in the email, please mark it as directed (Section VIII.E).

### **C. CONTENT AND FORM OF CONCEPT PAPERS**

See Section V.A.1 of the FOA for a description of the merit criteria related to the Concept Papers.

The purpose of the Concept Paper phase is to save Applicants the considerable time and expense of preparing Full Applications for proposed projects that are unlikely to be selected for award negotiations.

The Concept Paper must conform to the following requirements:

- The Concept Paper must be written in English.
- All pages must be formatted to fit on 8-1/2 by 11 inch paper with margins not less than one inch on every side. Use Times New Roman typeface, a black font color, and a font size of 11 points or larger (except in figures and tables). A Symbol font may be used to insert Greek letters or special characters; the font size requirement still applies.
- The Concept Paper must be submitted as a single document in Microsoft Word .doc or .docx format. This is to ensure 1 inch margins, 11pt text, times new roman font and delete text that is over the page limit.
- The control number<sup>17</sup> must be prominently displayed on the upper right corner of the header of every page. Page numbers must be included in the footer of every page.

Each Concept Paper should be limited to a unified concept or problem solution. Unrelated concepts and technologies should not be consolidated into a single Concept Paper.

Concept Papers must conform to the following form ('Section' and 'Page Limit' columns) requirements, below. If Applicants exceed the maximum page lengths indicated below, DOE will review only the authorized number of pages.

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<sup>17</sup> Upon login to EERE eXCHANGE (<https://eere-exchange.energy.gov/login.aspx>), the Applicant may access its submissions to EERE FOAs by clicking the "My Submissions" link in the navigation on the left side of the page. Every application that has been submitted to EERE and the corresponding control number is displayed on this page. If the Applicant submits more than one application to this FOA, a unique control number is assigned to each application.



Applicants should write concept papers to address the scoring criteria. In the ‘Description’ column there are guidelines for organizing a concept paper, however, addressing each bullet is not mandatory unless specifically indicated as such. Please use descriptive elements which are most relevant to the applicable tier.

**Figure 5. Content Requirements for Concept Papers**

| SECTION                             | PAGE LIMIT      | DESCRIPTION   |
|-------------------------------------|-----------------|---|
| <b>Cover Page and Abstract</b>      | 1 page maximum  | <ul style="list-style-type: none"> <li>• (Mandatory) Company name and Application title</li> <li>• (Mandatory) State the Tier for which the Applicant is applying (Tier 0, Tier 1, Tier 2, Tier 1S or Tier 2S).</li> <li>• (Mandatory) State the total proposed budget and cost share.</li> <li>• (Mandatory) Describe succinctly:               <ul style="list-style-type: none"> <li>○ The proposed product or solution including its basic operating principles and how it is unique and innovative.</li> <li>○ How the proposed project will develop this concept; and</li> <li>○ The potential impact that the proposed project would have on the relevant field and the SunShot Initiative.</li> </ul> </li> </ul>   |
| <b>Project Description</b>          | 3 pages maximum | <ul style="list-style-type: none"> <li>• Addressing the scoring criteria is the primary objective. One (optional) method to do so in an organized way is to structure the application by describing:               <ul style="list-style-type: none"> <li>○ (Mandatory) The Applicant, what it is, what it does, and its current capabilities.</li> <li>○ How the target outcomes support the Sunshot goal of \$1/W.</li> <li>○ The proposed project’s target level of performance by the end of the award (Applicants should provide support to show how the proposed target could be met). The proposed level of performance must be stated in the form of a verifiable deliverables (e.g., website launch, product performance metrics, etc.).</li> <li>○ The current state-of-the-art in the relevant field and application, including key shortcomings, limitations, costs, and challenges and how the proposed project will overcome the shortcomings, limitations, and challenges in the relevant field and application;</li> <li>○ The key risks/issues associated with the proposed development plan and how they will be addressed;</li> <li>○ The impact that DOE funding would have on the proposed project. Applicants should specifically explain how DOE funding, relative to prior, current, or anticipated funding from other public and private sources, is necessary to achieve the project objectives.</li> </ul> </li> </ul> |
| <b>Qualifications and Resources</b> | 1 page maximum  | <ul style="list-style-type: none"> <li>• The Project Team should describe the elements, background, and skills that make the team uniquely suited to successfully execute the proposed research and development plan.</li> <li>• (Mandatory) Attach one-page resumes for each participating team member as an appendix. Resumes do not count towards the page limit. Multi-page resumes are not allowed, any extra pages will not be reviewed.</li> <li>• Attach any letters of support from external entities (1 page maximum per</li> </ul>   |

|  |                   |   |
|--|-------------------|---|
|  |                   | letter). Letters of Support do not count towards the page limit. Multi-page Letters of Support are not allowed, any extra pages will not be reviewed.   |
| <b>Business Plan/<br/>Commercialization<br/>Strategy</b> | 1 page<br>maximum | <ul style="list-style-type: none"> <li>• Describe succinctly: <ul style="list-style-type: none"> <li>○ (Mandatory) Statement of intent to manufacture resulting products or processes in the United States.</li> <li>○ A very brief discussion of the impact on the Sunshot Initiative goals in reference to the proposed cost benefits of the technology and its impact on cost in 2015 and 2020 with a detailed list of any assumptions made,</li> <li>○ The phases of development required for the proposed technology, starting from its current stage of development and continuing to commercial deployment,</li> <li>○ The approach anticipated for scaling/launching the proposed project and the scalability/cost issues related to this approach,</li> <li>○ The anticipated number of US jobs created,</li> <li>○ The specific phase of development that will be executed during the proposed DOE project,</li> <li>○ (Mandatory) Why a successful project outcome will result in commercial development, i.e., why the innovation will provide a competitive edge,</li> <li>○ (Mandatory) How the project will be transitioned at the end of the DOE project to the next source of private or public funding, clearly state if the Applicant intends to license, and</li> <li>○ (Mandatory) The subsequent investment that will be required to achieve full commercial deployment.</li> </ul> </li> </ul> |
| <b>Deliverables Table</b>                                | 2 page<br>maximum | <ul style="list-style-type: none"> <li>• Describe what will be produced, when it will be produced, and how it will be verified. Start by defining the baseline capability and end project deliverable in quantifiable/verifiable terms. Then fill in interim deliverables and specify when each deliverable will be achieved.</li> </ul>  |
| <b>Summary Slide</b>                                     | 1 page            | <ul style="list-style-type: none"> <li>• Applicants are required to provide a single slide summarizing the proposed project. The slide must be submitted in Microsoft PowerPoint format and conform to the format shown in Appendix 2. This slide is used during the evaluation process. The slide <u>must</u> use the provided format. Download the slide format at <a href="https://eere-exchange.energy.gov">https://eere-exchange.energy.gov</a></li> </ul>   |

During the merit review, independent reviewers will review entire concept papers to which they are assigned. The merit review is not done in sections with one reviewer responsible for one section. Therefore, it is not necessary to repeat information in every part of the concept paper.

#### **D. CONTENT AND FORM OF FULL APPLICATIONS**

See Section V.A.2 of the FOA for a description of the merit criteria related to the Full Application.

Full Applications must conform to the following requirements:

- The Full Application must be written in English.
- All pages must be formatted to fit on 8-1/2 by 11 inch paper with margins not less than one inch on every side. Use Times New Roman typeface, a black font color, and a font size of 11 points or larger (except in figures and tables). A Symbol font may be used to insert Greek letters or special characters; the font size requirement still applies.
- The Full Application must be submitted as a single document in Microsoft Word .doc or .docx format. This is to ensure that the 1 inch margins, 11pt text, times new roman font and page limitations are complied with.
- The control number<sup>18</sup> must be prominently displayed on the upper right corner of the header of every page. Page numbers must be included in the footer of every page.

Each Full Application should be limited to a single concept or technology. Unrelated concepts and technologies should not be consolidated in a single Full Application.

Full Applications should be arranged in the following order as enumerated below. Strict adherence is required. DOE will review only the authorized number of pages.

### 1. Project Narrative (23 pages maximum)

Applicants are required to write an application which best addresses the scoring criteria. The Description column provides guidelines for organizing an application. Addressing each bullet is not mandatory unless specifically indicated as such.

**Figure 6. Content Requirements for Project Narrative**

| Section                            | Description   |
|------------------------------------|---|
| <b>Title Page</b> (1 page maximum) | <ul style="list-style-type: none"> <li>• (Mandatory) Company name and Application title</li> <li>• (Mandatory) State the Tier for which the Applicant is applying (Tier 0, Tier 1, Tier 2, Tier 1S or Tier 2S).</li> <li>• (Mandatory) State the total proposed budget and cost share.</li> <li>• (Mandatory) Describe succinctly:               <ul style="list-style-type: none"> <li>○ The proposed product or solution including its basic operating principles and how it is unique and innovative.</li> <li>○ How the proposed project will develop this concept; and</li> <li>○ The potential impact that the proposed project would have on the relevant</li> </ul> </li> </ul> |

<sup>18</sup> Upon login to EERE eXCHANGE (<https://eere-exchange.energy.gov/login.aspx>), the Applicant may access its submissions to EERE FOAs by clicking the “My Submissions” link in the navigation on the left side of the page. Every application that has been submitted to EERE and the corresponding control number is displayed on this page. If the Applicant submits more than one application to this FOA, a unique control number is assigned to each application.

|  |  |
|--|--|
| <p><b>Project Overview</b> (5 pages maximum)</p> | <p>field and the SunShot Initiative.</p> <ul style="list-style-type: none"> <li>• The Project Overview could be organized in the following way and contain the following information: <ul style="list-style-type: none"> <li>○ <i>Background:</i> <ul style="list-style-type: none"> <li>▪ (Mandatory) The Applicant, discuss the history, successes, and current status of the Applicant’s product development.</li> <li>▪ Note: This section (or any other section) is not for discussing the merits of solar energy in general or the proposed technology in regard to other non-solar technologies.</li> </ul> </li> <li>○ <i>Objectives:</i> <ul style="list-style-type: none"> <li>▪ A high-level narrative discussion introducing the project objectives that will be pursued under this effort over its duration. A baseline, appropriate for the specific entrance criteria of the chosen tier, must be provided. The baseline data will be the starting point for the detailed objectives of the proposed project. This section should explicitly identify targeted improvements to the baseline performance and critical success factors the effort.</li> </ul> </li> <li>○ <i>Overview of Costs and Commercial Viability:</i> <ul style="list-style-type: none"> <li>▪ The approach of this SunShot Incubator Program is to specifically accelerate the development of proven solutions to meet aggressive SunShot Initiative installed-cost and market-penetration goals in the United States. Applicants need to address how they plan to achieve these goals in terms of a cost breakdown demonstrating their relevance. The cost breakdown should demonstrate the ability to significantly drive down the cost of solar installations.</li> <li>▪ Note: This section should be a concise overview and summary of the detailed cost analysis that may be provided in the business plan section. All assumptions and details should be explained and discussed in the Business Plan section described below. Provide the high-level findings that make this technology compelling in regard to the goals of the SunShot Initiative.</li> </ul> </li> <li>○ <i>Conclusion:</i> <ul style="list-style-type: none"> <li>▪ (Mandatory) The impact that DOE funding would have on the proposed project. Applicants should specifically explain how DOE funding, relative to prior, current, or anticipated funding from other public and private sources, is necessary to achieve the project objectives.</li> <li>▪ Any closing remarks the Applicant feels should be discussed prior to the technical work plan.</li> </ul> </li> </ul> </li> </ul> |
| <p><b>Business Plan</b> (3 pages maximum)</p>    | <ul style="list-style-type: none"> <li>• The Business Plan must contain the following information: <ul style="list-style-type: none"> <li>○ (Mandatory) Statement of intent to manufacture resulting products or processes in the United States and justification for why this should be believed.</li> <li>○ (Mandatory) Identification of the specific target market(s) for commercialization of products developed under this Incubator program, linking the requirements for the products servicing the target market(s). Show the linkages of the issues to success in the target markets. The discussion of the target markets should include a review of the market(s)’ historical trends, growth projections, and the competitive advantage needed to secure the market share required to warrant scale-up. Applicants should be as quantitative as possible in this discussion and discuss their current status within the context of desired project outcomes.</li> <li>○ (Mandatory) Statement of intent to license proposed technology, if applicable.</li> <li>○ Discussion of how the Applicant intends to leverage the advances made under this project into product launch/scale-up, and the capture of the market share required to finance scale-up.</li> </ul> </li> </ul>  |

|  |  |
|--|--|
|  | <ul style="list-style-type: none"> <li>○ Discussion of the capital plan to reach maturity and the source of anticipated funds to support the effort should be detailed. The business strategy should be sufficiently detailed to establish that the Applicant’s management supports and contributes to the advancement of the technology and has a realistic vision of progress beyond 2015. The business strategy should show that the Applicant has, or intends to establish, guidance from potential customers of the product, system, or component to assure success.</li> <li>○ (Mandatory) Statement of intent to conduct relevant operations in an environmentally safe manner in the United States.</li> <li>○ (Mandatory) Discussion of how commercialization of the product or process meets or exceeds the goals of the SunShot Initiative.</li> <li>○ Discussion of management expertise commensurate with the proposed level of effort and goals.</li> </ul>  |
| <p><b>Technical Qualifications and Resources</b> (2 pages maximum)</p> | <ul style="list-style-type: none"> <li>● (Mandatory) Clearly and succinctly describe the Applicant’s and Subrecipients’ (if applicable) resources and credentials. This section should also include previous work efforts, demonstrated innovations, and how these enable the Applicant to achieve the project objectives. Include sufficient labor details to support the project development effort.</li> <li>● (Mandatory) Attach one-page resumes for each participating team member as an appendix. Resumes do not count towards the page limit. Multi-page resumes are not allowed.</li> <li>● Discuss the Intellectual Property you have filed for or obtained</li> <li>● Describe the technical services to be provided by DOE/NNSA FFRDCs and GOGOs, if applicable. To perform project work, Applicants may require assistance beyond their financial capabilities. Ownership of equipment is not a prerequisite for participation in this FOA. Applicants can leverage the capabilities of DOE/NNSA FFRDCs and GOGOs as potential research partners. DOE/NNSA FFRDCs and GOGOs can often provide access to equipment for testing and characterization in a variety of settings. See Section VI.B.6 of the FOA for further information.</li> <li>● Attach as an appendix the other sources of funding disclosure document described in section IV.D.9</li> <li>● Attach any letters of support from external entities as an appendix (1 page maximum per letter). Letters of Support do not count towards the page limit. Multi-page Letters of Support are not allowed.</li> </ul> |
| <p><b>Statement of Project Objectives</b> (12 pages maximum)</p>       | <ul style="list-style-type: none"> <li>● The Statement of Project Objectives (SOPO) is the applicant’s opportunity to show their expertise. It should fully describe how the applicant will achieve the deliverables and final project goal in their deliverables table. The SOPO must conform to the structure shown in Figure 7 and contain the following information: <ul style="list-style-type: none"> <li>○ (Mandatory) Provide a concise detailed description of the specific activities to be conducted over the proposed tier period of performance. “Detailed” is defined as a full explanation and disclosure of the project being proposed (i.e., statements such as “we will then complete a proprietary process” are unacceptable). It is the Applicant’s responsibility to prepare an adequately detailed task plan to convince reviewers that the proposed project can meet the SunShot Initiative goals.</li> <li>○ (Mandatory) It is critical that the overall project objective is broken into separate Task sections that are clearly linked to, and combine to result in, the project deliverable and final objective). Each deliverable should clearly show work ACROSS Tasks. DO NOT simply have one deliverable per corresponding task.</li> <li>○ (Mandatory) Each Task must be broken out into component Subtask sections to specify the activities that will be conducted to accomplish the task.</li> </ul> </li> </ul>  |

**Figure 7: Content Requirements for Statement of Project Objectives**

**Scope of Project Objectives:** Provide a high-level overview of the final result of this project. Explain the final objective and/or deliverable that is to be produced and the rationale for why the applicant has organized the tasks in the way they have.

**Task 1:** Distinctive Title, Date range of activity in months (M1-M4), list the deliverables which this task will help achieve (D1, D2, D5 etc. note that deliverables should be applicable to multiple or all tasks, there should not be 1 deliverable per task)

**Instructions:** Task descriptions shall explicitly identify the project objectives/outcomes being addressed and a concise statement of the objectives of that task. Within this section, the barriers and risks should be identified, as well as the approaches for overcoming those barriers and risks. Where appropriate, multiple pathways early in the effort can be outlined for risk reduction.

**Subtask 1.1:** Date range (M1-M2)

Instructions: Describe the specific and detailed work efforts that go into achieving the higher-level tasks. Specify things like the evaluation techniques that will be used and the result that will be generated. This is the applicant's opportunity to show their expertise and that they have a well-structured plan to achieve their goal. Reviewers are experts in their fields and like to see technically rigorous plan and details. If key details are left out reviewers will notice and question why it was left out.

**Subtask 1.2:**

(Continue until all Task 1 subtasks are listed)

**Task 2:** (continue in the format above until all tasks and subtasks are listed)

**Subtask 2.1:** Description and Discussion

**Subtask 2.2:** Description and Discussion

## **2. Deliverables**

As described in Section II.C.1 of the FOA, DOE will use deliverable-based payments as the method of payment for awards issued under this FOA. Deliverables are a critical part of an application and should be carefully considered and well-articulated.

The Applicant must propose concrete/quantifiable/measurable deliverables with specific properties or functionality that can be verified. Deliverables typically function in some way and clearly demonstrate the progress being made. Applicants must establish the relevant deliverables for their product or innovation, and the functionality must be verifiable by DOE or a third party.

**This means that although reports are required as part of the cooperative agreement, they cannot not be used as deliverables. Reports summarize observations, deliverables validate functionality.**

Reports are unacceptable as a deliverable because determining if a report is acceptable is subjective. This sort of ambiguity may lead to disputes. For each deliverable please make sure there is a quantifiable passing and failing criteria. DOE will not accept deliverables structured with subjective or a very weak failing criteria (i.e. delivering a report). In the case that a report is prepared by a third party to verify the functionality of the product then it may be acceptable.

Deliverables should show progress on all aspects of the project during a specific time period consisting of multiple components. Your deliverables schedule should include more than one item per deliverable period, and should serve as an all-encompassing checkpoint on the project's progress. At the very least the applicant needs to have a technical component and a business progress/customer engagement component. DOE expects Tier 1/1S and Tier 2/2S awardees to communicate with customers early and often. This means about once a quarter the applicant will need to demonstrate significant progress and prove that they have by providing a deliverable which may require several separate measurements on different deliverable components. Please read the example below on content and structure of deliverables:

Structure deliverables in the following way:

D1 (month 3): >14% efficient 100cm<sup>2</sup> device with a bandgap >1.6eV. Letters of support from 3 potential customers. Preliminary designs for manufacturing equipment (shown in 3d modeling software via screen share). Preliminary quotes from 3 suppliers.

Do NOT do the following:

D1(month 3): >14% efficient 100cm<sup>2</sup> device with a bandgap >1.6eV.

D2(month 3): Letters of support from 3 customers.

D3(month 3): Preliminary designs for manufacturing equipment (shown in 3d modeling software via screen share).

D4(month 3): Preliminary quotes from 3 suppliers.

In terms of payment the applicant must achieve all components of their deliverable period on time and to specification to receive reimbursement. DOE will not provide partial payments.

It is the Applicant's responsibility to convince the reviewers that the proposed deliverables demonstrate clear, quantifiable progress towards the final project goal. In the Full Application, the Tasks and Subtasks discussed in the Statement of Project Objectives (SOPO) forms the foundation for defining the plan to achieve the project deliverables. It is important that the task structure supports the proposed deliverables and that the proposed deliverables are of high value.

Please take extra care in drafting the Deliverables Table. An example Deliverables Table is provided as a .doc file in the required documents section of the EXCHANGE posting for this FOA on <https://eere-exchange.energy.gov>. .doc or .docx format is required so that comments can be easily inserted during negotiation. In addition, an example deliverables table is provided in Appendix 4: Sample Deliverables Tables. Achievement and verification of the deliverables will result in reimbursement to the prime recipient of the actual costs it took (minus cost share) to achieve that deliverable, in accordance with federal cost principles. Conversely, failure to meet the deliverables by the specified deadline will result in no payments being made to the Prime Recipient. The Applicant should not propose deliverables that can already be achieved (except for the baseline deliverable) or deliverables that cannot be achieved in the specified timeframe. The deliverables should be challenging but achievable. The reviewers consider the proposed deliverables carefully when assigning scores to evaluation criteria. **Deliverables are a critical part of this application, and form the basis for award negotiations if a project is selected for negotiation.**

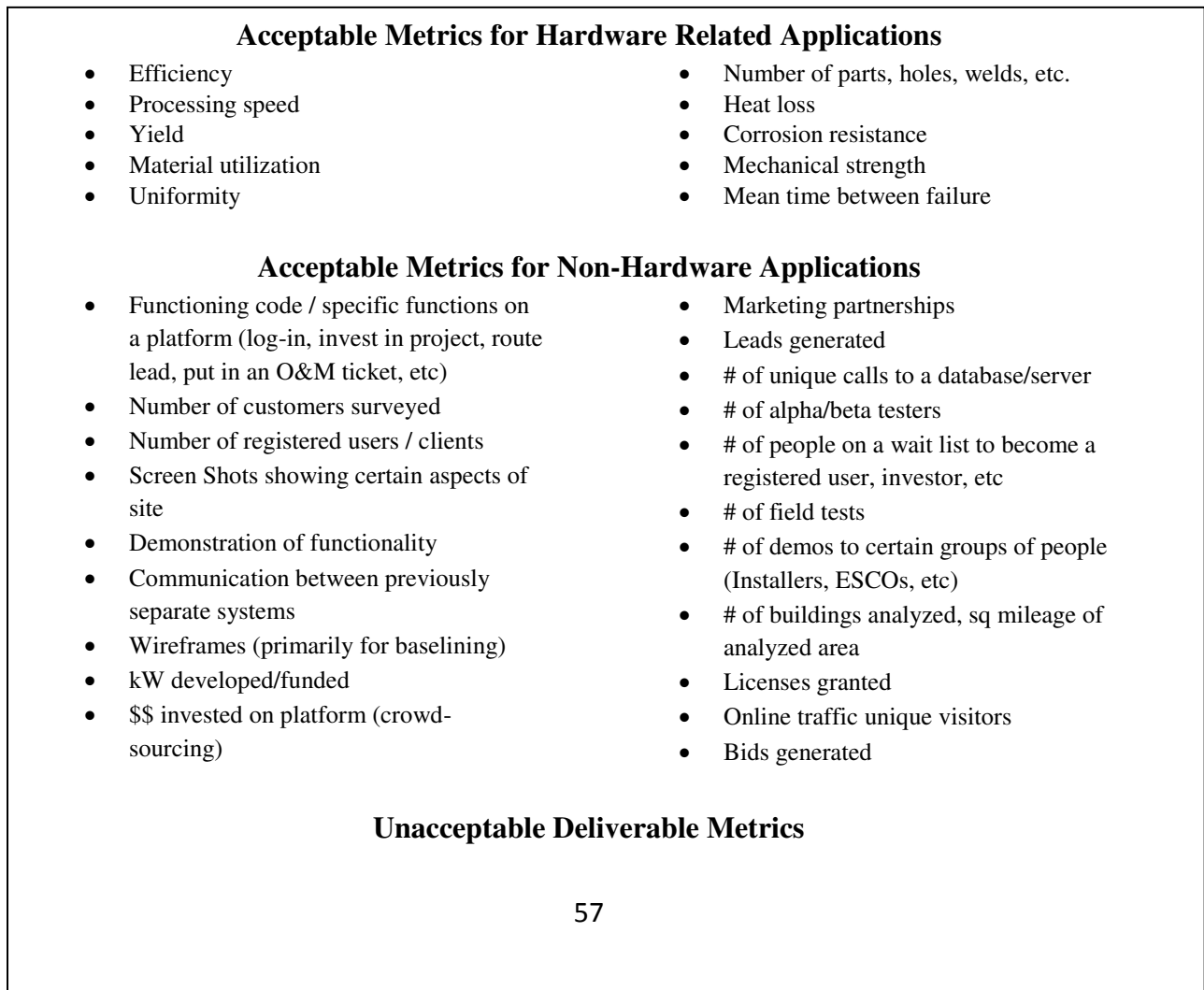
The deliverables proposed by the applicant will be vetted, discussed and negotiated in detail following selection for award negotiation. During this process DOE retains the right to fund the project at a lower level than proposed and change deliverables as required. The applicant retains the right to not accept these changes, at which point negotiations would end and no award would be made. Conversely, DOE retains the right not to award a project should the deliverables be deemed inadequate.

DOE realizes that the verifiable and measurable parameters that define a deliverable will differ greatly between technology areas and especially between hardware and non-hardware solutions. Therefore, applicants may establish what the relevant metrics are for their technology, but the **metrics must not be reports and must be verifiable.** Please see Figure 8 for examples of acceptable and unacceptable metrics to define a deliverable. It is the Applicant's responsibility to convince reviewers that the deliverables proposed are both appropriate for the technology proposed and not based on unreasonable assumptions or arbitrary quotes. It should be noted that the reviewers are experts in the solar energy field and will be able to gauge the appropriateness of assumptions and costs in the application. Models, designs and demonstrations of functioning software are possible deliverables as long as functionality is repeatable and verifiable.



In addition, Applicants are expected to state how they propose their deliverables will be verified. Project objectives should be structured in a way that DOE or a third party can verify the achievement of the deliverable. If an Applicant cannot explain how a deliverable would be verified, it is not an acceptable deliverable.

**Figure 8 Non-exhaustive Examples of Acceptable and Unacceptable Deliverable Metrics**



- Reports
- Exploratory experiments
- Unverifiable data
- Cost reduction based on quotes
- Time spent on project

Cost reduction is the overall goal of SunShot and cost reduction should certainly be a core part of any application. However, cost reduction cannot be a deliverable; verification of cost reduction is not straightforward and can be open to interpretation. Reviewers must be able to easily see if and how proposed technologies will be able to aid in the achievement of SunShot goals. For this program, it is more effective to use other metrics which can be directly measured and rapidly verified to define the deliverables. This will facilitate the reimbursement of funds when deliverables are verified. Cost reduction through supported measurable goals should be pursued by Applicants when defining their deliverables, for example, if installation rates on quoted projects are increased 75% or a 50% reduction in weld length is achieved, a clear cost benefit would be achieved and can be discussed in the application.

The Applicant's baseline of the technology (the required first deliverable) should be provided in terms of measurements and characterization data or other data that can show demonstration of a baseline capability. A clear example of this for a proposed PV technology would be an I-V curve of a device, cell, and/or other quantifiable data. A baseline example for a proposed CSP technology could be a high-temperature TES or optical materials with theoretical or measured properties that are relevant to CSP, or a lab prototype of a component (e.g. collector, receiver component, turbine, or cycle component). A power electronics baseline capability could be demonstrated in an efficiency curve. A baseline example for BOS could be reduced parts count or weight. Finally, a non-hardware baseline example could include functioning software, or refined design templates. The baseline data must be representative of the tier the Applicant is responding to. Additionally, the metrics used to define the baseline deliverable should be the same or similar to the metrics used in subsequent deliverables, although additional metrics can be added as the project moves along to best illustrate project progress. It is anticipated that an extremely strong prototype associated with Tier 2 would demonstrate key milestones—including scale-up parameters to pilot-scale production. Examples of this are throughput, cycle time, etc. The baseline capability claimed in the application will be required to be the first deliverable due 1 month after the award starts (if selected) this means the applicant will not receive any funds until they can demonstrate (through verification by a third party) the capability they claimed in their application. If an Applicant is not able to demonstrate or replicate the baseline capability they claimed in their application, they risk not being reimbursed for their expenditures and the award can be terminated.

Soft cost awards typically require software development. If software development is required each deliverable period can be structured to deliver a new version of the software with increased

functionality (Agile development). Pairing this with customer engagement and incorporation of feedback is one option to designing a deliverables table.

**Deliverables Table** (2 pages maximum in Microsoft word .doc or .docx format)

In both the concept paper and full application the applicant will be asked to provide a Deliverables table. This table should illustrate the progress of the entire project from starting capability, through interim progress, to the final goal of the project. Please take care in the construction of this document as it is used heavily during the review process.

As discussed above, Applicants must clearly define and quantify their current baseline status in terms of a figure of merit, or any other verifiable object that demonstrates the promise of the project or solution. Given the baseline nature of the first deliverable and the short period of performance, the verification of this baseline is expected to occur within the first 30 days of the project start date. Do not propose a baseline deliverable that cannot be readily delivered as this could result in the rapid termination of the award if the applicant is not able to achieve their baseline deliverable. DOE acknowledges the early stage of Tier 0/1 projects will require a quick infusion of capital to significantly accelerate their R&D efforts. For this reason, applicants may receive up to 20% of total Federal funding upon successful and timely verification of the project baseline deliverable. In addition to this baseline deliverable, it is anticipated that there should be one deliverable every 2-3 months. The total number of deliverables will depend on the length of the award. Note that the following deliverable requirements should be planned and budgeted as detailed in Appendix 4: Sample Deliverables Tables:

- A verifiable deliverable that represents the current performance baseline of the proposed project due within the first month. The payment for this deliverable is limited to a maximum of 20% of the Total Project Cost.
- At least three (3) interim deliverables are anticipated that represent incremental progress toward the final deliverable. This means they should be relatively evenly distributed across the duration of the award. The level of funding received for each deliverable should be representative of the work put into the achievement of the deliverable.
- Tier 2/2S only: at the midpoint of the award a substantial sign of progress is required. This deliverable essentially serves as a stage gate and should show the applicant has achieved a great deal of progress in the first half of the award.
- A final deliverable is due at the end of the award. This deliverable must fulfill the successful completion requirements for the tier being applied to. The payment for this deliverable must be a minimum of 30% of the Total Project Cost.

It is acceptable to use multiple or varying verifiable outcomes for each of the project deliverables. Collectively, these project outcomes should encompass the requirements needed to fully substantiate the exit criteria of the Tier. An example deliverables table is provided in Appendix 4: Sample Deliverables Tables

See Section V.A.2 of the FOA for a description of the merit criteria related to the Deliverables section of the Full Application.

### **3. Summary Slide** (1 page maximum in Microsoft PowerPoint format)

Applicants are required to provide a single slide summarizing the proposed project. The slide must be submitted in Microsoft PowerPoint format and conform to the format shown in Appendix 2. This slide is used during the evaluation process. Please provide a professional and concise summary slide. This slide may be used to help describe the project to the selection official so it is advisable to make a quality slide.

### **4. SF-424 – Application for Financial Assistance** (no page limit, Adobe PDF format)

Please refer to the following website for the SF-424 form: <https://eere-exchange.energy.gov/Default.aspx>. The SF-424 includes instructions for completing the form. Applicants are required to complete all required fields in accordance with the instructions. The SF-424 must be signed and submitted in Adobe PDF format.

DOE provides the following supplemental guidance on completing the SF-424:

- Each Project Team should submit only one SF-424 (i.e., a Subrecipient should not submit a separate SF-424). Assume a project start date of Oct 1, 2013.
- The list of certifications and assurances in Block 21 can be found at <http://energy.gov/management/downloads/certifications-and-assurances-use-sf-424>
- The dates and dollar amounts on the SF-424 are for the entire project period (from the project start date to the project end date), not a portion thereof.

### **5. SF-LLL**

Prime Recipients and Subrecipients are required to complete SF-LLL (Disclosure of Lobbying Activities), which is available at <http://www.whitehouse.gov/sites/default/files/omb/grants/sfillin.pdf>, indicating whether any non-Federal funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or

employee of Congress, or an employee of a Member of Congress in connection with an application or cooperative agreement. The completed SF-LLL must be appended to the SF-424.

If the SF-LLL is not applicable to the applicant, it must still be filled out stating that it is not applicable.

## **6. SF-424A – Budget Information – Non-Construction Programs** (no page limit, Microsoft Excel format)

Applicants are required to complete the SF-424A Excel workbook entitled “Budget Information Non-Construction Programs.” The SF-424A must be submitted in Microsoft Excel format.

Use the SF424A Excel, “Budget Information – Non Construction Programs” form on DOE Financial Assistance Forms Page at <http://energy.gov/management/office-management/operational-management/financial-assistance/financial-assistance-forms>. The SF-424A provides columns for each individual budget-year as well as the cumulative project-budget.

The SF-424A is a high-level breakdown of the proposed budget, and once successfully negotiated, will become an attachment to the cooperative agreement. The applicant may request funds under any of the Object Class Categories as long as the item and amount are necessary to perform the proposed work, meet all the criteria for allowability under the applicable Federal cost principles, and are not prohibited by the funding restrictions in this announcement (see Section IV.H ). Save the information in a single file titled “Control#\_Institution\_SF424A.xls”.

Applicants must create separate SF-424A forms for the following groups:

- The project as a whole (i.e., all work to be performed by the Project Team under a DOE cooperative agreement)
- Each FFRDC participant; and
- Each sub-recipient that will perform \$100,000 or more of the work under a DOE cooperative agreement

The following travel requirements should be planned and budgeted for on the SF-424A:

- One (1) PV Conference (Domestic location TBD – 1 traveler – 3 days)
- One (1) DOE Annual Review Meeting (Domestic location TBD – 1 traveler – 2 days)
- One (1) Final Presentation at DOE (Washington, DC - 1 traveler – 2 days).

The three trips listed above are in addition to any other proposed travel that is necessary for the successful completion of the project.

## **7. Budget Justification form PMC 123.1** (10 tabs, Microsoft Excel format)

Applicants are required to complete the PMC 123.1 Budget Justification form showing the total proposed project cost. The PMC 123.1 is a breakdown of the high-level budget proposal contained in the SF-424A. It provides the level of cost detail necessary to facilitate a thorough review of proposed costs. A separate PMC 123.1 is required for any subrecipient that will perform \$100,000 or more of the proposed work under the DOE cooperative agreement (as measured by the Total Project Cost). The PMC 123.1 form is provided in the required documents section of the eXCHANGE posting for this FOA. (<https://eere-exchange.energy.gov>) Please fully complete the form and provide justification for proposed direct labor, travel, consultants, large subawards, large or unique “other direct costs”, equipment, etc. For subawards, identify organization name, description of the scope of work, name of the project leader, and estimated total costs. Provide an explanation of the source, nature, amount, and availability of any proposed cost sharing. The Contracting Officer may request additional information to support proposed costs, if the application is selected for negotiation. Because of the short duration of these projects, breaking the budget down into separate budget periods is not required.

Special budget considerations under this FOA:

### 1. Personnel

Salaries are capped at \$200,000 per person per year under this FOA. An individual’s proposed salary in excess of \$200,000 per year will not be accepted by DOE.

DOE understands that startup companies may compensate employees using a combination of a lower salary and some form of equity/shares of the company. DOE will not reimburse an awardee for this undefined value under this FOA. Equity/shares of the company should be excluded from all budget documentation as only actual cost can be reimbursed.

### 2. Travel

The following travel requirements are required and must be included on the SF-424A and PMC 123.1:

- One (1) PV Conference (Domestic location TBD – 1 traveler – 3 days)
- One (1) DOE Annual Review Meeting (Domestic location TBD – 1 traveler – 2 days)

- One (1) Final Presentation at DOE (Washington, DC - 1 traveler – 2 days).

The three trips listed above are in addition to any other proposed travel that is necessary for the successful completion of the project.

International travel is not permitted under this FOA.

### 3. Funding of FFRDCs and GOGOs

DOE will issue payment directly to the prime recipient on a reimbursement basis. It is the prime recipient's responsibility to pay sub-recipients including FFRDCs and GOGOs. The applicant may have to provide advance funding to sub-recipients in order to meet deliverables. DOE does not issue reimbursement to the prime recipient unless deliverables are achieved on time and to specification and verified by DOE.

### 4. Purchase of Equipment

In the event an Applicant is selected for award negotiations, it will be required to provide a detailed list of any equipment items planned to be purchased along with a price for the acquisition of each. The individual price proposed for each item over \$50,000 shall be verifiable via vendor quote, price sheet, or other means deemed acceptable by DOE.

All new equipment purchased under the cooperative agreements must be made or manufactured in the United States, to the maximum extent practicable. This requirement does not apply to used or leased equipment.

## **8. Environmental Impacts Questionnaire** (no page limit, Adobe PDF format)

Please refer to the following website for the Environmental Impacts Questionnaire: <https://eere-exchange.energy.gov>. To facilitate and expedite DOE's environmental review, Applicants are required to complete an Environmental Impact Questionnaire. The Environmental Impact Questionnaire must be submitted in Adobe PDF format.

By law, DOE is required to evaluate the potential environmental impact of projects that it is considering for funding.<sup>19</sup> In particular, DOE must determine before a project begins whether the project qualifies for a categorical exclusion under 10 C.F.R. § 1021.410 or whether it requires further environmental review (i.e., an environmental assessment or an environmental impact statement).

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<sup>19</sup> National Environmental Policy Act (NEPA), Pub L. No. 91-190, 42 U.S.C. § 4321 et seq.; Department of Energy NEPA Implementing Regulations, 10 C.F.R. part 1021.

Applicants are required to complete the Environmental Impact Questionnaire for the project as a whole, including all work to be performed by the Prime Recipient, Subrecipients and Contractors and including all work performed using cost share funds. Applicants may not limit their responses to work performed by the Prime Recipient, nor exclude work performed using private or non-Federal funds.

In completing the Environmental Impact Questionnaire, Applicants must provide specific information regarding the nature of their proposed action, including information on their size, operations, and the types and quantities of air emissions, wastewater discharges, solid wastes, land disturbances, etc. Applicants should identify the location(s) of the proposed action and specifically describe the activities that would occur at each location.

Upon selection for award negotiations, the Prime Recipient or Subrecipients may be requested to provide additional information to the NEPA Compliance Officer.

## **9. Other Sources of Funding Disclosure** (no page limit, Adobe PDF format)

Attach the other sources of funding disclosure in the body of the application narrative as an appendix. All Project Teams must disclose in their Full Applications:

- All current financial assistance received by the Principal Investigator(s) (including Co-PIs) and key personnel from, and any pending applications submitted to, any Federal agency or instrumentality;
- All prior financial assistance (within the last 5 years) and current financial assistance received by the Principal Investigator(s) (including Co-PIs) and key personnel from, and any pending applications submitted to, any governmental or quasi-governmental entity (Federal, state, local, or foreign) to support the proposed project or work that relates directly or indirectly on the proposed project; and
- All prior financial assistance (within the last 5 years) and current financial assistance received by the Principal Investigator(s) (including Co-PIs) and key personnel from, and any pending applications submitted to any private or non-governmental entity to support the proposed project or work that relates directly or indirectly on the proposed project.



**10. Disclosures for Eligibility Determination** (2 pages maximum, Adobe PDF format)

Applicants are required to disclose in their Full Applications if any of the following conditions exist:

- The Applicant (or a member of the Project Team) is under investigation for or has been convicted of fraud or similar acts, violations of U.S. export controls laws and regulations, or violations of the Drug-Free Workplace Act of 1988 (Pub. L. 100-690, Title V, Subtitle D; 41 U.S.C. 701, et seq.);
- The Applicant (or a member of the Project Team) is debarred, suspended, proposed for debarment, or otherwise declared ineligible from receiving Federal contracts, awards, and financial assistance and benefits; and
- The Applicant (or a member of the Project Team) is insolvent.

If any of these conditions exist, the Applicant must provide all relevant facts so as to enable the Contracting Officer to determine the Applicant's eligibility for award. Please refer to Section VIII.C of the FOA for guidance on submitting a full and complete disclosure of the requested information.

**E. CONTENT AND FORM OF REPLIES TO REVIEWER COMMENTS**

Reviewer comments on compliant and responsive Full Applications will be made available to Applicants via EERE eXCHANGE. An applicant, and only that applicant, will be able to view the comments provided to their own application. Applicants have a brief opportunity to review these comments and prepare a short Reply to Reviewer Comments. Applicants may elect to respond to one or more Reviewer comments.

Submitting a Reply to Reviewer Comments is optional. Each compliant and responsive Full Application will be considered on the merits regardless of whether a Reply to Reviewer Comments is submitted. If submitted, replies to reviewer comments are considered an extension of the application and are not scored separately, but will be considered as part of the final decision.

Please note that the reviewer comments do not constitute a “debriefing” on the strengths and weaknesses of the Full Application. EERE will not offer or provide debriefings under this FOA.

Replies to Reviewer Comments must conform to the following requirements:

- The Reply to Reviewer Comments must be submitted in Microsoft word .doc or .docx format submitted as a single attachment in EERE eXCHANGE.
- The Reply to Reviewer Comments must be written in English.
- All pages must be formatted to fit on 8-1/2 by 11 inch paper with margins not less than one inch on every side. Use a Times New Roman a black font color, and a font size of 11 points or larger (except in figures and tables). (A Symbol font may be used to insert Greek letters or special characters; the font size requirement still applies.)
- The control number, which is the same number used for the Concept Paper and Full Application,<sup>20</sup> must be prominently displayed on the upper right corner of the header of every page. Page numbers must be included in the footer of every page.

Replies to Reviewer Comments must conform to the following content and form requirements, including maximum page lengths, described below in Figure 9. If a Reply to Reviewer Comments is more than three pages in length, DOE will review only the first two pages of text and one page of images. Any additional pages will be disregarded. The applicant may NOT elect to forgo submitting a page of graphs and figures and submit 3 pages of text, in this case the third page of text would be deleted.

**Figure 9. Content Requirements for Replies to Reviewer Comments**

| SECTION | PAGE LIMIT      | DESCRIPTION  |
|---------|-----------------|--|
| Text    | 2 pages maximum | <ul style="list-style-type: none"> <li>• Applicants may respond to one or more Reviewer comments.</li> </ul>                             |
| Images  | 1 page maximum  | <ul style="list-style-type: none"> <li>• Applicants may provide graphs, charts, or other data to respond to Reviewer Comments</li> </ul> |

Please make sure to preface the responses with a short note about the context of what is being addressed. For example:

1) Concerns regarding our assumption around cost reduction – We used the following methodology to calculate the reduction in cost...

Reviewers will not have a list of comments in front of them to match with short rebuttals. In other words DO NOT do the following as reviewers will not be able to reference the specific comment:

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<sup>20</sup> Upon login to EERE eXCHANGE (<https://eere-exchange.energy.gov/login.aspx>), the Applicant may access its submissions to SETP FOAs by clicking the “My Submissions” link in the navigation on the left side of the page. Every application that has been submitted to EERE and the corresponding control number is displayed on this page. If the Applicant submits more than one application to this FOA, a unique control number is assigned to each application.

Reviewer 3 comment 5 - We used the following methodology to calculate the reduction in cost...

It is important to note that it is usually best to use the allotted space to address a few of the most critical comments well, rather than try to respond to all of them.

DOE will perform a preliminary review of Replies to Reviewer Comments to determine whether they are compliant, as described in Section III.C. Noncompliant Replies to Reviewer Comments will be rejected by the Contracting Officer and are considered for award determination. Compliant and responsive Full Applications are reviewed on the merits even if a Reply to Reviewer Comments is rejected as noncompliant.

## **F. REQUIREMENTS FOR TIMELY SUBMISSION**

Applicants must complete the following actions before the submission deadline in order for their Concept Papers and Full Applications to be considered timely submitted:

- Applicants must provide the requested information (REQUIRED DOCUMENTS CHECKLIST and Section III.C.1) in EERE eXCHANGE;
- Applicants must upload their Concept Papers or Full Applications to EERE eXCHANGE; and
- Applicants must click the “Submit” button under the “Upload and Submit” tab in EERE eXCHANGE for this FOA.

Applicants must successfully upload their Reply to Reviewer Comments to EERE eXCHANGE before the submission deadline in order for it to be considered timely submitted.

Concept Papers, Full Applications, and Replies to Reviewer Comments that are not timely submitted are deemed non-compliant and are not considered for award.

Please refer to Section IV.J of the FOA and the “EERE eXCHANGE Applicant User Guide” (<https://eere-exchange.energy.gov/Manuals.aspx>) for guidance on submitting Concept Papers, Full Applications, and Replies to Reviewer Comments to EERE eXCHANGE.

Applicants are responsible for meeting the submission deadline. DOE strongly encourages Applicants to submit their Concept Papers, Full Applications, and Replies to Reviewer Comments at least 48 hours in advance of the submission deadline. Applicants should not wait until the last minute—Internet and data server traffic can be heavy in the last hours before the submission deadline, which may affect Applicants’ ability to successfully submit their Concept Papers, Full Applications, or Replies to Reviewer Comments.

DOE uses EERE eXCHANGE to determine whether Concept Papers, Full Applications, and Replies to Reviewer Comments are timely submitted. Following the expiration of the applicable deadline, Applicants are no longer able to click the “Submit” button under the “Upload and Submit” tab in EERE eXCHANGE for this FOA. This means if an applicant starts the application at 2:30pm on the due date and has not finished by the due date time of 5:00pm they will be immediately locked out of EERE eXCHANGE and their application will not be reviewed.

## **G. INTERGOVERNMENTAL REVIEW**

This program is not subject to Executive Order 12372 (Intergovernmental Review of Federal Programs).

## **H. FUNDING RESTRICTIONS**

### **1. ALLOWABLE COSTS**

All expenditures must be allowable, allocable, and reasonable in accordance with the applicable Federal cost principles.

For for-profit entities, the allowability of costs is determined through reference to the for-profit cost principles in the Federal Acquisition Regulations (48 C.F.R. Part 31).

For nonprofit organizations not listed in Appendix C to OMB Circular A-122 (codified at 2 C.F.R. Part 230), the allowability of costs through reference to the cost principles for nonprofit organizations in OMB Circular A-122 (10 C.F.R. § 600.127).

For institutions of higher education, the allowability of costs through reference to OMB Circular A-21, “Cost Principles of Educational Institutions” (codified at 2 C.F.R. Part 220).

### **2. PRE-AWARD COSTS**

DOE will not reimburse any pre-award costs incurred by Applicants before they are selected for award negotiations. Please refer to Section VI.A of the FOA for guidance on award notices.

In general the Contracting Officer will not approve pre-award costs for reimbursement. Upon selection for award negotiations, Applicants may incur pre-award costs at their own risk. DOE generally does not accept budgets as submitted with the Full Application. Budgets are typically reworked during award negotiations. DOE is under no obligation to reimburse pre-award costs if, for any reason, the Applicant does not receive an award or if the award is made for a lesser amount than the Applicant expected.

Given the uncertainty of award negotiations, Prime Recipients and Subrecipients should consult with the Contracting Officer before incurring any pre-award costs.

### **3. CONSTRUCTION**

The SunShot Incubator Program generally does not fund projects that involve major construction. Recipients are required to obtain written authorization from the DOE Contracting Officer before incurring any major construction costs (i.e., construction costs in excess of \$2,500).

### **4. FOREIGN TRAVEL**

This FOA is not intended to fund foreign travel. Therefore, no Federal funds or cost share may be used for foreign travel.

### **5. PERFORMANCE OF WORK IN THE UNITED STATES**

DOE requires all work under DOE cooperative agreements to be performed in the United States – i.e., 100% of the Total Project Cost must be expended in the United States. However, Applicants may request a waiver of this requirement where their project would materially benefit from, or otherwise requires, certain work to be performed overseas.

### **6. PURCHASE OF EQUIPMENT**

In the event an Applicant is selected for award negotiations, it will be required to provide a detailed list of any equipment items planned to be purchased along with a price for the acquisition of each. The individual price proposed for each item over \$50,000 shall be verifiable via vendor quote, price sheet, or other means deemed acceptable by DOE.

All new equipment purchased under the cooperative agreements must be made or manufactured in the United States, to the maximum extent practicable. This requirement does not apply to used or leased equipment.

## **7. LOBBYING**

Prime Recipients and Subrecipients may not use any Federal funds to influence or attempt to influence, directly or indirectly, congressional action on any legislative or appropriation matters.<sup>21</sup>

Prime Recipients and Subrecipients are required to complete and submit SF-LLL (Disclosure of Lobbying Activities), which is available at <http://www.whitehouse.gov/sites/default/files/omb/grants/sfillin.pdf>, if any non-Federal funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with your application.

### **I. USE OF FFRDCs AND GOGOS**

DOE understands that startup businesses often do not own all of the equipment that is required to construct a full-scale prototype towards pilot-scale production. Owning equipment is not a prerequisite for participation in this FOA. Recipients are encouraged to leverage the capabilities of FFRDCs and GOGOs and use them as research partners (see Section II.C.2. for details on how payment would be issued) FFRDCs and GOGOs can provide access to equipment for testing and characterization in a variety of settings. Applicants are encouraged to investigate FFRDC and GOGO capabilities which could be useful in their proposed work effort. A full list of FFRDCs is available at <http://www.nsf.gov/statistics/nsf05306/>.

### **J. SUBMISSION AND REGISTRATION REQUIREMENTS**

Once the concept paper, full application or reply to reviewer comments are finalized and the applicant is sure they have everything on the compliance checklist completed, they will need to submit it to be reviewed and considered.

#### **1. WHERE TO SUBMIT**

- To apply to this FOA, register at <https://eere-exchange.energy.gov/Registrations.aspx>

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<sup>21</sup> 18 U.S.C. § 1913.

- Required forms for Full Applications are available at the Office of Energy Efficiency and Renewable Energy's (EERE) online application portal, EERE Exchange <https://eere-exchange.energy.gov>
- All submissions must be submitted through EERE Exchange (<https://eere-exchange.energy.gov>) prior to the submission deadline. The application process may take 4 hours to complete at a minimum. The system will lock anyone out exactly at 5pm Eastern Time the date applications are due. If an application started but not completed before 5pm Eastern Time, the system will not accept the application and it will not be seen or reviewed. DOE recommends submitting applications at least 48 hours early to allow time to resolve potential issues that need technical support.
- Submissions received through other means – including email – will not be considered for award.
- The EERE Exchange Applicant User Guide is available at <https://eere-exchange.energy.gov/Manuals.aspx>

**CONCEPT PAPERS, FULL APPLICATIONS AND REPLIES TO REVIEWER COMMENTS MUST BE SUBMITTED UNDER THIS ANNOUNCEMENT THROUGH EERE EXCHANGE at <https://eere-exchange.energy.gov/> TO BE CONSIDERED FOR AWARD.** The applicant must be registered in through EERE Exchange before a submission can be made. Please read the registration requirements below carefully and start the process immediately. Applications submitted by any other means will not be accepted.

Register and create an account on EERE Exchange at: <https://eere-exchange.energy.gov/>. This account will then allow the user to register for any open EERE FOAs that are currently in Exchange. It is recommended that each organization or business unit, whether acting as a team or a single entity, use only one account as the appropriate contact point for each submission.

If the applicant has problems completing the registration process or submitting their application, send an email to the EERE Exchange helpdesk at [EERE-ExchangeSupport@hq.doe.gov](mailto:EERE-ExchangeSupport@hq.doe.gov).

It is the responsibility of the applicant to verify successful transmission, prior to the Application due date and time.

The applicant will receive an automated response when the Concept Paper, Full Application, and the Reply to Reviewer Comments are successfully submitted. This will serve as a confirmation of receipt. Please do not reply to the automated response. If the applicant does not receive an automated response contact [EERE-ExchangeSupport@hq.doe.gov](mailto:EERE-ExchangeSupport@hq.doe.gov). The applicant will have the opportunity to re-submit revised application materials for any reason as long as the relevant submission is submitted by the specified deadline. The Users' Guide for Applying to the

Department of Energy EERE Funding Opportunity Announcements is found at <https://eere-exchange.energy.gov/Manuals.aspx>.

Concept papers, full applications and replier to reviewer comments should be submitted at least a 48 hours before the due date to allow time to resolve any technical problems that might occur. The system will lock on the submission due date and time and late or in process concept papers submissions will not be received. Concept papers not received by the submission due date and time will not be reviewed. Once concept papers are received, DOE will perform a preliminary review to determine whether they are compliant and responsive, as described in Section III.C of the FOA. Noncompliant and/or nonresponsive Concept Papers are reviewed on a case by case basis and may be rejected at the discretion of DOE Contracting Officer and not considered for award. Please make use of the compliance checklist on page 41.

## 2. REGISTRATION PROCESS REQUIREMENTS

There are several one-time actions that must be completed when submitting an Application in response to this Funding Opportunity Announcement (FOA), as follows (the applicant cannot receive a government award without these registrations in place):

- **Prime Recipients and Subrecipients** must obtain a Dun and Bradstreet Data Universal Numbering System (DUNS) number (including plus 4 extension, if applicable) at <http://fedgov.dnb.com/webforms>.
- **Prime Recipients and Subrecipients** must register with the System for Award Management (SAM) at: <https://www.sam.gov/portal/public/SAM/>. SAM registration has replaced the former Central Contractor Registration (CCR). If you had an active record in CCR, you have an active record in SAM. You do not need to do anything in SAM at this time, unless a change in your business circumstances requires updates to your Entity record(s) in order for you to be paid or to receive an award or you need to renew your Entity(s) prior to its expiration. SAM will send notifications to the registered user via email 60, 30, and 15 days prior to expiration of the Entity. To update or renew your Entity records(s) in SAM you will need to create a SAM User Account and link it to your migrated Entity records.
- **Prime Recipients selected for negotiations must register in FedConnect** at <https://www.fedconnect.net/>. For more information about registration requirements, review the FedConnect Ready, Set, Go! Guide at [https://www.fedconnect.net/FedConnect/PublicPages/FedConnect\\_Ready\\_Set\\_Go.pdf](https://www.fedconnect.net/FedConnect/PublicPages/FedConnect_Ready_Set_Go.pdf)
- By law, **Prime Recipients** selected for negotiations are also required to register with the Federal Funding Accountability and Transparency Act Subaward Reporting System



(FSRS) at <https://www.fsr.gov/>.<sup>22</sup> Prime Recipients are required to report to FSRS the names and total compensation of each of the Prime Recipient's five most highly compensated executives and the names **and total compensation of each Subrecipient's** five most highly compensated executives. Please refer to <https://www.fsr.gov/> for **guidance on** reporting requirements.

### **3. ELECTRONIC AUTHORIZATION OF APPLICATIONS AND AWARD DOCUMENTS**

Submission of an application and supplemental information under this announcement through electronic systems used by the Department of Energy, including EERE Exchange, constitutes the authorized representative's approval and electronic signature.

Submission of award documents, including modifications, through electronic systems used by the Department of Energy, including FedConnect, constitutes the authorized representative's approval and acceptance of the terms and conditions of the award. Award acknowledgement via FedConnect constitutes the authorized representative's electronic signature.

## **V. APPLICATION REVIEW INFORMATION**

### **A. CRITERIA**

DOE considers a mix of quantitative and qualitative criteria in determining whether to encourage or discourage the submission of a Full Application and to select or not select a Full Application for award negotiations. DOE carefully considers all of the information obtained through the application process, and evaluates each compliant and responsive Concept Paper and Full Application based on the criteria, below, and program policy factors in Section V.B.1 of the FOA.

#### **1. CRITERIA FOR CONCEPT PAPER**

Concept Papers are evaluated based on the following criteria:

**(1) Overall Project Plan (50%)** - Each reviewer will assign a score of 1, 0, or -1 for this criterion. This criterion involves consideration of the following factors:

- Whether the Applicant proposed product or solution that is unique, innovative but feasible;
- Whether the Applicant envisions a project outcome and deliverables that are clearly defined;

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<sup>22</sup> The Federal Funding Accountability and Transparency Act, P.L. No. 109-282, 31 U.S.C. 6101 note.

- Extent that the Applicant shows a clear understanding of the importance of verifiable deliverables and proposes deliverables that demonstrate clear progress.
- Whether the Applicant demonstrates a reasonable and credible approach to accomplish the proposed objectives;
- Whether the Applicant proposes a strong and convincing development strategy, including a feasible pathway to transition the program results to the next logical stage of development or directly into industrial development and deployment.
- Quality and qualifications of the team/group and the likelihood they will be able to complete the work proposed
- Quality of the discussion involving how the project will be transitioned at the end of the DOE project to the next source of funding
- The Applicant clearly states the subsequent investment that will be required to achieve full commercial deployment.

**(2) Impact of the Proposed Project on the Goals of the SunShot Initiative (50%) -**

Each reviewer will assign a score of 1, 0, or -1 for this criterion. This criterion involves consideration of the following factors:

- The applicant shows a clear understanding of:
  - The goals of the SunShot initiative;
  - A challenge currently preventing the attainment of the SunShot Initiative; and
  - A potential solution to the challenge and how the target outcomes support the SunShot goal of \$1/W;
- Contribution to Domestic Manufacturing (hardware only): Degree to which the project will strengthen the competitiveness of domestic PV manufacturing and translate into increased long-term PV and supply chain manufacturing and employment in the United States. Extent to which those expectations are supported by a realistic, factually supported, financially sound implementation approach.
- Extent of the innovation and disruptive potential to dramatically reduce costs to meet the SunShot Initiative goals;
- Applicants understand and explicitly state the baseline current cost relevant to and addressed by the proposed work.
- The final project deliverable represents a significant advancement to achieving a final product that would be more desirable than the next best commercially available alternative.
- Whether the Applicant demonstrates an awareness of competing technologies and identifies how its proposed product or solution provides significant improvement over these other potential solutions.
- The benefits associated with the solution are articulated into a cost reduction with reasonable and rational assumptions which are clearly stated;

- The Applicant clearly states if they intend to license their technology. If the applicant intends to license the likelihood the product will be successfully licensed

Concept Papers will be evaluated based on the criteria, above, and program policy factors in Section V.B.1. Each Concept Paper will be reviewed by at least two reviewers and be assigned a 1, 0, or -1 for each criteria see figure 10. A subset of the applicants which appear most promising and best address the scoring criteria will then be encouraged to prepare and submit full applications. DOE’s intent is to only ask those which stand a reasonable chance of receiving an award to take the time to write a full application. The scores have the following meaning:

**Figure 10. Scoring for Concept Papers**

|    |   |
|----|---|
| 1  | Applicant has strong potential to aid in the achievement of the SunShot initiative        |
| 0  | Applicant may have the potential to aid in the achievement of the SunShot initiative      |
| -1 | Applicant does not have the potential to aid in the achievement of the SunShot Initiative |

The criteria will be weighted as follows:

**Figure 11. Weighting of Criteria for Concept Papers**

|   |     |
|---|-----|
| Overall Project Plan  | 50% |
| Impact of the Proposed Project on the Goals of the SunShot Initiative | 50% |

## **2. CRITERIA FOR FULL APPLICATIONS**

Applicants should prepare full applications that address the scoring criteria. Full Applications are evaluated based on the following criteria:

**(1) Potential Impact on the Installed Price of Solar (33.3%)** - The Applicant should address this merit criterion in the following section(s) of its Full Application: Project Overview and Business Plan (see Section IV.D of the FOA). Note that impact is a measure of raw cost reduction as well as the likelihood the team will be able to run and grow a successful business. This criterion involves consideration of the following factors:

- Extent of the innovative and disruptive potential to dramatically reduce costs to meet the SunShot Initiative goals. Even if the project is a subsystem component, it is important to show how it will integrate into a complete solution.
- Contribution to Domestic Manufacturing (hardware only): Degree to which the project will strengthen the competitiveness of domestic PV manufacturing and translate into increased long-term PV and supply chain manufacturing and employment in the United States. Extent to which those expectations are supported by a realistic, factually supported, financially sound implementation approach.
- Likelihood of business success: demand for proposed product or solution, clarity of the capital plan for commercialization as well as anticipated funds required to commercialize/publicly release the proposed project or solution, viability of the Applicant's commercial manufacturing scale-up plan for rapid market penetration and the likelihood that the long-range business strategy will be successful enough to meet the SunShot Initiative goals;
- Likelihood of a transformational product and/or widespread adoption of proposed product or solution(an improvement leveraged across the entire industry can be as valuable as a new transformational standalone product)
- Level of customer validation (letters of support/interest, partners, customer trials, etc.)
- Extent of differentiation with respect to existing commercial products or solutions;
- Identification of realistic target market(s), discussion of competitive advantage, and the clarity of the business strategy in identifying market objectives (segment, price, volume/size, region, etc.) and that these objectives are aligned with the Applicant's capabilities and resources;
- Reasonableness of the assumptions used to form the business strategy, e.g., market size, customer participation, costs, throughput at full scale, full-scale equipment cost, how fast a scale-up is proposed, and how it will be funded;
- Identification and accurate assessment of business risks and assumptions;

**(2) Quality of the Proposed Project Plan (33.3%)** - The Applicant should address this merit criterion in the following section(s) of its Full Application: Statement of Project Objectives (see Section IV.D), and Deliverables (see Section IV.D.2). This criterion involves consideration of the following factors:

- Extent that the Applicant shows a clear understanding of the importance of verifiable deliverables (see Section IV.D.2) and proposes deliverables that demonstrate clear progress, are aggressive but achievable, and quantitative.
- Quality of the applicants proposed deliverables validation methodology.

- Extent to which the proposed tasks and subtask activities in the work plan are verified through measurable deliverables;
- Completion of the Deliverable Table to the specified instructions. The *Deliverables Table is of particular importance and great care and consideration should be taken in its construction.*
- Quality of the proposed product or solution base-lined capability and its relevance to the specified tier level;
- The quality, depth, and detail of the proposed project description. Level of detail and expertise shown in the provided project plan and schedule and likelihood this plan will achieve the stated goals;
- Adequacy, value, and reasonableness of the schedule and quality of the plan in advancing stated project outcomes, while addressing the expected barriers and risks.
- Extent to which the Applicant understands and discusses the project risks and challenges the proposed work will face, and the soundness of the strategies and methods that will be used to overcome them.

**(3) Capability and Resources of the Applicant/Project Team (33.3%)** - The Applicant should address this merit criterion in the following section(s) of its Full Application: Qualifications and Resources (see Section IV.D of the FOA) and Statement of Project Objectives (see Section IV.D). This criterion involves consideration of the following factors:

- Extent to which the training, capabilities and experience of the assembled team will result in the successful completion of the proposed project. Confidence this team (including proposed Subrecipients) will be able to achieve the final deliverable result on time and to specification.
- Extent to which the Statement of Project Objectives shows a mastery of the skills required to complete the proposed project.
- Extent to which the final team required to complete this project is fully assembled and committed to the project. i.e. are there any key members that are “to be hired at a later date?”
- Extent to which this team has shown success in the past. Note that new researchers should not be penalized, DOE encourages new entrants and new ideas but past success or failure should be noted.
- The team has access to facilities, equipment and any other resources they would require to complete the proposed project.

As previously stated, the applications are scored based on the scoring criteria. The criteria will be weighted as follows:

**Figure 12. Weighting of Criteria for Full Applications**

|  |       |
|--|-------|
| Potential Impact on the Installed Price of Solar       | 33.3% |
| Quality of the Proposed Project Plan                   | 33.3% |
| Capability and Resources of the Applicant/Project Team | 33.3% |

Full Applications will be reviewed by no fewer than three expert reviewers using the criteria and relative weighting described above. The results of these reviews will provide detailed strengths and weaknesses comments and associated scores on a scale of 0-10 (see Appendix 3: Reviewer Scoring Guidelines).

Once the reviewers have complete their independent review of the applications the comments (but not the scores) will be available for review by the applicant for a short time in which a reply to reviewer comments can be submitted to address key weaknesses. A merit review will then be held with independent reviewers and the designated federal reviewers to discuss the merits of the various applications.

### **3. Criteria for Replies to Reviewer Comments Pre-Selection Conference Calls and Pre-selection presentations**

DOE has not established separate criteria to evaluate replies to reviewer comments, pre-selection conference calls and pre-selection presentations. Instead, replies to reviewer comments, pre-selection conference calls and pre-selection presentations comments are evaluated as an extension of the Full Application.

## **B. REVIEW AND SELECTION PROCESS**

### **1. PROGRAM POLICY FACTORS**

In addition to the above criteria, DOE may consider the following program policy factors in determining which Applicants to encourage submitting Full Applications and which Full Applications to select for award negotiations.

- Diversity of technologies, approaches, methods, and institutions (including the degree to which proposed technologies, approaches, and methods would be complementary to and support a diversity of geographic locations and of technical

approaches and methods that, in conjunction with the existing portfolio of projects funded by DOE, best achieve the overall goals and objectives of the Solar Program);

- Diversity of experience levels among Principal Investigators;
- Financial stability of the applicant or current financial status;
- The degree of apparent efficiency of leveraging DOE resources;
- Portfolio diversity within the project topics areas;
- Portfolio diversity associated with time to market and/or development of pipeline;
- Diversity of degree of technical risk and associated potential benefits; and
- Impact of DOE funds on the project measured by project's increased likelihood of achieving programmatic objectives.

Unlike the Merit Review Criteria, these factors are not weighted.

## **2. DOE REVIEWERS**

By submitting a concept paper or a full application to DOE, Applicants consent to DOE's use of Federal employees, contractors, and experts from educational institutions, nonprofits, industry, and governmental and intergovernmental entities as Reviewers. DOE selects Reviewers based on their knowledge and understanding of the relevant field and application, their experience and skills, and their ability to provide constructive feedback on applications.

DOE requires all Reviewers to complete a Conflict-of-Interest Certificate and Nondisclosure Agreement by which they disclose any actual or apparent conflicts and agree to safeguard confidential information contained in Concept Papers, Full Applications, and Replies to Reviewer Comments. In addition, DOE trains its Reviewers in proper evaluation techniques and procedures.

Applicants are not permitted to nominate Reviewers for their applications.

### **C. ANTICIPATED ANNOUNCEMENT AND AWARD DATES**

DOE expects to execute cooperative agreements and announce the awards on or about September 2013. Project start dates are expected to be in October 2013.

## **VI. AWARD ADMINISTRATION INFORMATION**

### **A. AWARD NOTICES**

DOE will carefully consider all of the information obtained through the application process (e.g., Full Applications, reviewer comments, Replies to Reviewer Comments, and information obtained through pre-selection conference calls and meetings and presentations) and evaluate each compliant and responsive Full Applications based on the criteria and program policy factors.

## **1. REJECTED SUBMISSIONS**

Noncompliant and nonresponsive Concept Papers and Full Applications are rejected by the Contracting Officer and are not considered for award. The Contracting Officer sends a notification letter by email to the technical and administrative points of contact designated by the Applicant in EERE eXCHANGE. The notification letter states the basis upon which the Concept Paper or Full Application was rejected.

## **2. CONCEPT PAPER NOTIFICATIONS**

Applicants are promptly notified of DOE's determination to encourage or discourage the submission of a Full Application. DOE sends a notification letter by email to the technical and administrative points of contact designated by the Applicant in EERE eXCHANGE. DOE provides Applicants with instruction to locate the feedback and comments in EERE eXCHANGE from reviewers in the notification letter in order to guide the further development of the proposed project.

Applicants may submit a Full Application even if they receive a notification discouraging them from doing so. By discouraging the submission of a Full Application, DOE intends to convey its lack of programmatic interest in the proposed project. Such assessments do not necessarily reflect judgments on the merits of the proposed project. The purpose of the Concept Paper phase is to save Applicants the considerable time and expense of preparing a Full Application that is unlikely to be selected for award negotiations.

A notification letter encouraging the submission of a Full Application does not authorize the Applicant to commence performance of the project. Please refer to Section IV.H.2 of the FOA for guidance on pre-award costs.

## **3. FULL APPLICATION NOTIFICATIONS**

Applicants are promptly notified of DOE's determination. DOE sends a notification letter by email to the technical and administrative points of contact designated by the Applicant in EERE eXCHANGE. The notification letter may inform the Applicant that its Full Application was selected for award negotiations or not selected.



Written feedback on Full Applications is made available to Applicants before the submission deadline for Replies to Reviewer Comments. By providing feedback, DOE intends to guide the further development of the proposed project/solution and to provide a brief opportunity to respond to Reviewer comments

**i. SUCCESSFUL APPLICANTS**

A notification letter selecting a Full Application for award negotiations does not authorize the Applicant to commence performance of the project. At this stage, DOE selects Full Applications for award negotiations, not for award. Applicants do not receive an award until award negotiations are complete and the Contracting Officer executes the cooperative agreement. DOE may terminate award negotiations at any time for any reason.

Please refer to Section IV.H.2 of the FOA for guidance on pre-award costs.

**ii. UNSUCCESSFUL APPLICANTS**

By not selecting a Full Application, DOE intends to convey its lack of programmatic interest in the proposed project. Such assessments do not necessarily reflect judgments on the merits of the proposed project. DOE hopes that unsuccessful Applicants will submit innovative ideas and concepts for future FOAs.

**B. ADMINISTRATIVE AND NATIONAL POLICY REQUIREMENT**

The following administrative and national policy requirements apply to Prime Recipients. The Prime Recipient is the responsible authority regarding the settlement and satisfaction of all contractual and administrative issues. Prime Recipients are required to flow down these requirements to their Subrecipients through subawards or related agreements.

**1. NATIONAL POLICY ASSURANCES**

Project Teams, including Prime Recipients and Subrecipients, are required to comply with the National Policy Assurances attached to their cooperative agreement.

**2. REIMBURSEMENT**

The target timeframe for reimbursement after a deliverable is verified and accepted by DOE and a properly submitted invoice with supporting documentation is received, is 14 days, however, it may take longer if proper invoice documentation is not submitted.

### **3. PROOF OF COST SHARE COMMITMENT AND ALLOWABILITY**

Upon selection for award negotiations, the Prime Recipient must confirm in writing that the proposed cost share is allowable in accordance with applicable Federal cost principles.

The Prime Recipient is also required to provide cost share commitment letters from Subrecipients or third parties that are providing cost share, whether cash or in-kind. Each Subrecipient or third party that is contributing cost share must provide a letter on appropriate letterhead that is signed by an authorized corporate representative. The letter must state, in unconditional and unequivocal terms, its commitment to provide cost share. The letter may not include any conditions for receipt of the cost share contributions. The letter must state the amount and form of cost share, the source and precise nature of the contribution, and the duration and timing of the commitment (e.g., two years beginning in Fall 2013).

### **4. COST SHARE PAYMENTS<sup>23</sup>**

All proposed cost share contributions must be reviewed and approved in advance by the DOE Contracting Officer (or his/her designee) and incorporated into the project budget before the expenditures are incurred.

Cost share may be paid in equal installments over the life of the award. In the alternative, the Prime Recipient may pay the entire cost share amount in the initial months of the award. DOE will not accept any proposal to pay the entire cost share amount in the final months of the award.

DOE may deny reimbursement requests, in whole or in part, or modify or terminate cooperative agreements where Prime Recipients (or Project Teams) fail to comply with DOE's cost share payment requirements.

### **5. SUBJECT INVENTION UTILIZATION REPORTING**

To ensure that Recipients (both Prime Recipients and Subrecipients) holding title to subject inventions are taking the appropriate steps to commercialize subject inventions, DOE requires Prime Recipients to submit bi-annual reports for the life of the subject invention on the utilization of subject inventions and efforts made by Prime Recipients or their licensees or assignees to stimulate such utilization. The subject invention utilization reports will be submitted to [Sunshot.Incubator@ee.doe.gov](mailto:Sunshot.Incubator@ee.doe.gov).

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<sup>23</sup> Please refer to Section III.B of the FOA for guidance on cost share requirements.

With this bi-annual report a brief summary of the company's finances is also required (cash on hand, revenue generated since last report, funds raised over the life of the company and from whom, and how much cash was expended over the last year broken out by month)

## **6. FUNDING AGREEMENTS WITH FFRDCs AND GOGOS**

Please refer to Section II.C.2 of the FOA for guidance on contracting arrangements with FFRDCs and GOGOs.

### **C. REPORTING**

Recipients are required to submit periodic technical, financial, and other reports, including:

- Research Performance Progress Reports: technical progress reports submitted on a quarterly basis;
- Monthly status calls.
- SF-425: financial status reports submitted on a quarterly basis;
- Scientific/technical conference papers and proceedings must be submitted to DOE's E-Link System;
- SF-LLL: reporting on lobbying activities relating to the project;
- Annual indirect cost proposals;
- Annual audits of for-profit recipients;
- Annual property inventories;
- Closeout reporting, such as final scientific/technical report, final invention and patent report, and final property report; and
- Subject invention utilization reporting.

Research Performance Progress Reports are submitted every three months. These written reports shall be in a short letter format, approximately 5 to 15 pages in length each, with emphasis placed on the status and data results as well as a brief overview of the progress made. These reports are required and are independent of the verifiable deliverables discussed in this FOA. Each report shall be followed one week later by a conference call during which the Prime Recipient shall present on its technical progress to date. These reports and conference calls are required and are independent of the verifiable deliverables discussed in this FOA. These reports should contain detailed information and should be marked as proprietary if they contain proprietary information. The DOE does not intend to release these reports.

At the end of the project the DOE requires a final report to be completed. This (and only this) report is intended for public release and so therefore should not contain any proprietary information.

## **VII. AGENCY CONTACTS**

### **A. COMMUNICATIONS WITH DOE**

Applicants may contact DOE through the following email addresses:

- For questions or technical issues with EERE Exchange, email [EERE-ExchangeSupport@hq.doe.gov](mailto:EERE-ExchangeSupport@hq.doe.gov). Responses will be sent directly to Applicants.
- For questions regarding this FOA, Applicants may contact DOE at [SunShot.Incubator@ee.doe.gov](mailto:SunShot.Incubator@ee.doe.gov). Insert the FOA number in the subject line of emails. Questions regarding an Applicant's specific idea and if the specific idea is "what DOE is looking for" will not receive responses. Questions that seek to clarify the application process may receive responses to be posted at: <https://eere-exchange.energy.gov/FAQ.aspx?FoaId=c68a237f-11d0-47da-b25a-ccf6acd45a38>
- DOE will not accept or respond to communications received by any other means – including telephone calls, faxes, etc. Emails sent to addresses other than [SunShot.Incubator@ee.doe.gov](mailto:SunShot.Incubator@ee.doe.gov) will be disregarded.
- DO NOT CONTACT DOE employees directly. Questions asked directly to DOE employees will be disregarded.
- Please read this document in full before submitting questions to DOE. Answers to many commonly asked questions can be found in this document.

## **VIII. OTHER INFORMATION**

### **A. FOAS AND FOA MODIFICATIONS**

FOAs are posted on DOE's website (<https://eere-exchange.energy.gov/Default.aspx>), Any modifications to the FOA are also posted to this website.

### **B. OBLIGATION OF PUBLIC FUND**

The DOE Contracting Officer is the only individual who can make awards on behalf of DOE or obligate DOE to the expenditure of public funds. Any perceived commitment or obligation by any individual other than the DOE Contracting Officer, either explicit or implied, is invalid.

### **C. REQUIREMENT FOR FULL AND COMPLETE DISCLOSURE**

Applicants are required to make a full and complete disclosure of the information identified in Sections III.C.3, IV.D.9, and IV.D.10 of the FOA. Disclosure of the requested information is mandatory. Any failure to make a full and complete disclosure of the requested information may result in:

- The rejection of a Concept Paper, Full Application, and/or Reply to Reviewer Comments;
- The termination of award negotiations;
- The modification, suspension, and/or termination of a funding agreement;
- The initiation of debarment proceedings, debarment, and/or a declaration of ineligibility for receipt of Federal contracts, awards, and financial assistance and benefits; or
- Civil and/or criminal penalties.

### **D. RETENTION OF SUBMISSION**

DOE expects to retain copies of all Concept Papers, Full Applications, Replies to Reviewer Comments, and other submissions. No submissions will be returned. By applying to DOE for funding, Applicants consent to DOE's retention of their submissions.

### **E. MARKING OF CONFIDENTIAL INFORMATION**

DOE will use data and other information contained in letters of intent, concept papers, full applications, and replies to reviewer comments for evaluation purposes.

Letters of intent, concept Papers, full applications, replies to reviewer comments, and other submissions containing confidential, proprietary, or privileged information must be marked as described below. Failure to comply with these marking requirements may result in the disclosure of the unmarked information under the Freedom of Information Act or otherwise.

The cover sheet of the letter of intent, concept paper, full application, reply to reviewer comments, or other submission must be marked as follows and must identify the specific pages containing confidential, proprietary, or privileged information:

## Notice of Restriction on Disclosure and Use of Data:

Pages [\_\_\_] of this document may contain confidential, proprietary, or privileged information that is exempt from public disclosure. Such information shall be used or disclosed only for evaluation purposes or in accordance with a financial assistance between the submitter and the Government. The Government may use or disclose any information that is not appropriately marked or otherwise restricted, regardless of source.

The header and footer of every page that contains confidential, proprietary, or privileged information must be marked as follows: “Contains Confidential, Proprietary, or Privileged Information Exempt from Public Disclosure.” In addition, every line and paragraph containing proprietary, privileged, or trade secret information must be clearly marked using double brackets i.e. [[text]] DO NOT use highlighting, it is very difficult to read many applications marked using highlighting.

In the event of a Freedom of Information Act (FOIA) request, proprietary information is not made available. If DOE receives a FOIA request seeking an application, DOE will contact the applicant and ask them to provide a copy of the file with their proposed redactions. These redactions would be reviewed by a DOE legal representative to ensure that the applicant only redacted items which were in fact proprietary, and to make the final determination. The application would then be returned to the applicant for approval. This process would be repeated until all parties agree on what information is proprietary.

## **F. TITLE TO SUBJECT INVENTIONS**

Ownership of subject inventions is governed pursuant to the authorities listed below.

- **Intellectual Property Developed under this Program**

Patent Rights. The government will have certain statutory rights in an invention that is conceived or first actually reduced to practice under a DOE award. 42 U.S.C. 5908 provides that title to such inventions vests in the United States, except where 35 U.S.C. 202 provides otherwise for nonprofit organizations or small business firms. However, the Secretary of Energy may waive all or any part of the rights of the United States subject to certain conditions. (See “Notice of Right to Request Patent Waiver” in paragraph I below.)

- Domestic Small Businesses, Educational Institutions, and Nonprofits: Under the Bayh-Dole Act (35 U.S.C. § 200 et seq.), domestic small businesses, educational institutions, and nonprofits may elect to retain title to their subject inventions. **Notwithstanding any definition used for the eligibility requirement for this FOA, “small businesses” as used for patent and invention rights under the Bayh-Dole Act means “a small business concern as defined at section 2 of Pub. L. 85-536 (15 U.S.C. 632) and**

**implementing regulations of the Administrator of the Small Business Administration” (35 U.S.C. § 201(h)).**

- All other parties: The Federal Nonnuclear Energy Research and Development Act of 1974, 42. U.S.C. 5908, provides that the Government obtains title to new inventions unless a waiver is granted. An applicant or recipient may request a waiver in advance of or within 30 days after the effective date of an award. Even if such advance waiver is not requested or the request is denied, the recipient will have a continuing right under the award to request a waiver of the rights of the United States in identified inventions, i.e., individual inventions conceived or first actually reduced to practice in performance of the award. Any patent waiver that may be granted is subject to certain terms and conditions in 10 CFR 784. A waiver shall only be granted if it is determined that the waiver would best serve the United States and the general public. This determination shall be made according to the considerations set forth at 10 CFR 784.4 including a commitment by the recipient to agree to U.S. manufacturing or other activities that would benefit the U.S. economy.

**G. GOVERNMENT RIGHTS IN SUBJECT INVENTIONS**

Where Prime Recipients and Subrecipients retain title to subject inventions, the U.S. Government retains certain rights.

**1. GOVERNMENT USE LICENSE**

The U.S. Government retains a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States any subject invention throughout the world. This license extends to contractors doing work on behalf of the Government.

**2. MARCH-IN RIGHTS**

The U.S. Government, by law (see 35 U.S.C. § 203), retains march-in rights with respect to all subject inventions. March-in rights are intended to ensure that Government-funded inventions are commercialized so that the public can benefit from the government funding of the technology. March-in rights may also be used to alleviate public health or safety needs, in situations when use of the invention is required by Federal law, or to enforce the U.S. Preference Provision of the Bayh-Dole Act (see 35 U.S.C. § 204).

Under “march-in rights,” the Government may require a Prime Recipient or Subrecipient who has elected to retain title to a subject invention (or their assignees or exclusive licensees) to grant a license for use of the invention to a third party. In addition, the Government may grant licenses for use of the subject invention when Prime Recipients, Subrecipients, or their assignees and exclusive licensees refuse to do so.

Since the creation of march-in rights in 1980, the Department of Energy has never exercised its march-in rights to any subject inventions. However, the Department’s history of not exercising march-in rights has no impact on the Department’s ability and willingness to exercise march-in rights if the Department determines that conditions exist that make march-in rights necessary. Specifically, the Department may exercise its march-in rights if it determines that such action is necessary under any of the four following conditions:

- The owner or licensee has not taken or is not expected to take effective steps to achieve practical application of the invention within a reasonable time;
- The owner or licensee has not taken action to alleviate health or safety needs in a reasonably satisfied manner;
- The owner has not met public use requirements specified by Federal statutes in a reasonably satisfied manner; or
- The U.S. Manufacturing requirement has not been met.

Any determination that march-in rights are warranted must follow a fact-finding process in which the contractor has certain rights to present evidence and witnesses, confront witnesses and appear with counsel (see 37 CFR § 401.6) and appeal any adverse decision (see 35 USC § 203(b)).

## **H. RIGHTS IN TECHNICAL DATA**

Data rights differ based on whether data is first produced under an award or instead was developed at private expense outside the award.

- **Background or “Limited Rights Data”:** The U.S. Government will not normally require delivery of technical data developed solely at private expense prior to issuance of an award, except as necessary to monitor technical progress and evaluate the potential of proposed technologies to reach specific technical and cost metrics.
- **Data Generated Under an Award:** Normally, the government has unlimited rights in technical data created under a DOE award. However, the awards under this FOA are covered by a special protected data statute. Under the authority of this special protected data statute, DOE will protect from public disclosure, for a period of five (5) years from the date of its development, data first generated or produced under an



award made under this FOA that would be a trade secret, or commercial or financial information that is privileged or confidential, if the information had been obtained from a non-Federal party. (See the provision entitled Rights in Data – Programs Covered Under Special Protected Data Statutes at 10 CFR 600 Appendix A to Subpart D). Notwithstanding the foregoing, DOE and the awardee may agree to categories of data that shall not be considered protected and shall be provided to DOE when requested without any claim that the data is protected such as general test or performance results demonstrating technical breakthroughs, milestones or achievements and general data demonstrating progress toward the SunShot Initiative’s objectives. For National Laboratories and FFRDCs, the data rights clause in Applicant’s Management and Operating (M&O) Contract will apply.

#### **I. FOREIGN ENTITY WAIVER REQUEST**

As set forth in Section III.A.4, all prime recipients receiving funding under this FOA must be incorporated (or otherwise formed) under the laws of a State or territory of the United States. If a foreign entity applies for funding as a prime recipient, it must designate a subsidiary or affiliate incorporated (or otherwise formed) under the laws of a State or territory of the United States to be the prime recipient.

To see a waiver for this requirement, the Applicant must submit a waiver request in the Full Application, which includes, the following information: entity name, country (or state) of incorporation, description of the work to be performed by that entity, and the location where the work will be performed. If the applicant is seeking a waiver to have a foreign entity serve as the prime recipient, the applicant must explain why it is necessary to have a foreign entity serve as the prime recipient. Waiver requests should explain how the waiver would further the purposes of this FOA and otherwise serve the interests of EERE. The Contracting Officer may require additional information before considering the waiver request. Save the Waiver Request(s) in a single filed titled:

“ControlNumber\_LeadOrganizatio\_Waiver.”

#### **J. NOTICE OF RIGHT TO REQUEST PATENT WAIVER**

Applicants may request a waiver of all or any part of the rights of the United States in inventions conceived or first actually reduced to practice in performance of an agreement as a result of this announcement, in advance of or within 30 days after the effective date of the award. Even if such advance waiver is not requested or the request is denied, the Recipient will have a continuing right under the award to request a waiver of the rights of the United States in identified inventions, i.e., individual inventions conceived or first actually reduced to practice in performance of the award. Any patent waiver that may be granted is subject to certain terms and conditions as stipulated in 10 CFR 784.

Domestic small businesses and domestic nonprofit organizations will receive the patent rights clause at 37 CFR 401.14, i.e., the implementation of the Bayh-Dole Act. This clause permits domestic small business and domestic nonprofit organizations to retain title to subject inventions. Therefore, small businesses and nonprofit organizations do not need to request a patent waiver.

#### **K. PROTECTED PERSONALLY IDENTIFIABLE INFORMATION**

Applicants may not include any Protected Personally Identifiable Information (Protected PII) in their submissions to DOE. Protected PII is defined as data that, if compromised, could cause harm to an individual such as identity theft. Listed below are examples of Protected PII that Applicants must not include in their submissions.

- Social Security Numbers in any form;
- Place of Birth associated with an individual;
- Date of Birth associated with an individual;
- Mother’s maiden name associated with an individual;
- Biometric record associated with an individual;
- Fingerprint;
- Iris scan;
- DNA;
- Medical history information associated with an individual;
- Medical conditions, including history of disease;
- Metric information, e.g. weight, height, blood pressure;
- Criminal history associated with an individual;
- Ratings;
- Disciplinary actions;
- Performance elements and standards (or work expectations) are PII when they are so intertwined with performance appraisals that their disclosure would reveal an individual’s performance appraisal;
- Financial information associated with an individual;
- Credit card numbers;
- Bank account numbers; and
- Security clearance history or related information (not including actual clearances held).

#### **L. ANNUAL COMPLIANCE AUDITS FOR FOR-PROFIT ENTITIES**

If a for-profit entity is a Prime Recipient or Subrecipient, it is required to have an annual compliance audit performed by an independent auditor. For additional information, please refer to 10 C.F.R. § 600.316 and for-profit audit guidance documents posted under the “Coverage of

Independent Audits” heading at <http://energy.gov/management/office-management/operational-management/financial-assistance/financial-assistance-forms>

## **IX. GLOSSARY**

**Applicant:** The entity that submits the application to DOE. In the case of a Project Team, the Applicant is the lead organization listed on the application.

**Application:** The entire submission received by DOE, including the Letter of Intent to Apply, Concept Paper, Full Application, and Reply to Reviewer Comments.

**Cooperative Agreement:** A financial assistance instrument used by DOE to transfer money or property when the principal purpose of the transaction is to accomplish a public purpose of support or stimulation authorized by Federal statute, and substantial involvement between DOE and the recipient during the performance of the contemplated activity is anticipated.

**Cost Share:** The Prime Recipient share of the Total Project Cost.

**DOE:** U.S. Department of Energy.

**DOE/NNSA:** U.S. Department of Energy/National Nuclear Security Administration.

**EERE:** Office of Energy Efficiency and Renewable Energy (EERE), U.S. Department of Energy.

**FFRDCs:** Federally Funded Research and Development Centers.

**Financial Assistance:** Transfer of money or property to a recipient or subrecipient to accomplish a public purpose of support or stimulation authorized by Federal statute through grants or cooperative agreements and subawards. In DOE, it does not include direct loans, loan guarantees, price guarantees, purchase agreements, Cooperative Research and Development Agreements (CRADAs), or any other type of financial incentive instrument.

**FOA:** Funding Opportunity Announcement.

**GOGOs:** U.S. Government-Owned Government-Operated laboratories.

**Key Participant:** Any individual who would contribute in a substantive, measurable way to the execution of the proposed project.

**Prime Recipient:** The signatory to the funding agreement with DOE.

**Project Team:** The term “Project Team” is used to mean any entity with multiple players working collaboratively and could encompass anything from an existing organization to an ad hoc teaming

arrangement. A Project Team consists of the Prime Recipient, Subrecipients, and others performing or otherwise supporting work under a DOE funding agreement.

**RD&D:** Research, Development, and Demonstration.

**SETP:** Solar Energy Technologies Program, within the Office of Energy Efficiency and Renewable Energy (EERE), U.S. Department of Energy.

**Start-up Business:** An entity with less than 500 employees not including the employees of any parent companies, subsidiaries or other affiliated companies.

**Standalone Applicant:** An Applicant that applies for funding on its own, not as part of a Project Team.

**Subject Invention:** Any invention conceived or first actually reduced to practice under a DOE funding agreement.

**Total Project Cost:** The sum of the Prime Recipient share and the Federal Government share of total allowable costs. The Federal Government share generally includes costs incurred by FFRDCs and GOGOs.

## APPENDIX 1: RELEVANT DOE TECHNOLOGY READINESS LEVELS

| TRL | Description  |
|-----|--|
| 1   | <i>Basic principles observed and reported</i><br>Scientific research begins with a systematic study directed toward greater knowledge or understanding of the fundamental aspects of phenomena and of observable facts without specific applications or products in mind. The knowledge or understanding will later be translated into applied RD&D. Example might include studies of a technology's basic properties. |
| 2   | <i>Technology concept and/or application formulated</i><br>Invention begins. Once basic principles are observed, practical applications can be invented. Applications are speculative and there may be no proof or detailed analysis to support the assumptions.   |
| 3   | <i>Analytical and experimental critical function and/or characteristic proof of concept.</i> Active R&D is initiated. This includes analytical studies and laboratory studies to physically validate analytical predictions of separate elements of the technology. Examples include components that are not yet integrated or representative.   |
| 4   | <i>Component and/or breadboard validation in laboratory environment.</i> Basic technological components are integrated to establish that they will work together. This is relatively "low fidelity" compared to the eventual system. Examples include integration of "ad hoc" hardware in the laboratory.  |
| 5   | <i>Component and/or breadboard validation in relevant environment.</i> Fidelity of breadboard technology increases significantly. The basic technological components are integrated with reasonably realistic supporting elements so it can be tested in a simulated environment. Examples include "high fidelity" laboratory integration of components.   |
| 6   | <i>System/subsystem model or prototype demonstration in a relevant environment.</i> Representative model or prototype system, which is well beyond that of TRL-5, is tested in a relevant environment. This represents a major step up in a technology's demonstrated readiness. Examples include testing a prototype in a high-fidelity laboratory environment or in simulated operational environment.               |
| 7   | <i>System prototype demonstration in a operational environment.</i> It requires the demonstration of an actual system prototype in an operational environment, such as in a light duty vehicle on the road. Examples include testing a prototype battery in an operational hybrid gas-electric vehicle.  |
| 8   | <i>Actual system completed and qualified through test and demonstration.</i> Technology has been proven to work in its final form and under expected conditions. Examples include developmental test and evaluation of the system in its intended parent system to determine if it meets design specifications.  |
| 9   | <i>Actual system proven through successful mission operations.</i> The technology is applied and operated in its final form and under real life conditions, such as those encountered in operational test and evaluation. In almost all cases, this is the end of the last "bug fixing" aspects of true system development. Examples include using the system under various real life conditions.                      |

## APPENDIX 2: SAMPLE SUMMARY SLIDE

|  |   |  |
|--|---|--|
| <p>Title</p> <p>Institution/Company &amp; Principle Investigator</p> | <p>Total Project Cost: \$</p> <p>Cost Share: \$</p> | <p>Control Number</p> <p>DOE Funding: \$</p> <p>Duration: Months</p> |
|--|---|--|

| Month | Major Deliverables Summary |
|-------|----------------------------|
|       |                            |
|       |                            |
|       |                            |
|       |                            |
|       |                            |

Image or Graph

| Project Summary  |
|--|
| <ul style="list-style-type: none"> <li>• <b>Minimum size 14 Font (Do Not Enlarge This Box)</b></li> <li>• Describe: Major Aspects of Product, Development and Deployment, Fit in Market</li> <li>• Be brief so that this slide can be easily read</li> </ul> |

| Impact   |
|--|
| <ul style="list-style-type: none"> <li>• <b>Minimum size 14 Font (Do Not Enlarge This Box)</b></li> <li>• Describe: How does the project address SunShot Cost goals? When will this product be commercialized and aid in reaching SunShot goals? Cost improvements over current market leading product.</li> <li>• Be brief so that this slide can be easily read</li> </ul> |

### Appendix 3: Reviewer Scoring Guidelines

| Rating                | Score     | Scoring Definitions   |
|-----------------------|-----------|---|
| <b>Superior</b>       | <b>10</b> | All aspects of the criterion are comprehensively addressed. The application has one or more significant strengths, <b>no notable weaknesses</b> , and leaves no doubt regarding the applicant's capability to perform.  |
|                       | <b>9</b>  | All aspects of the criterion are comprehensively addressed. The application has one or more significant strengths and no more than a few weaknesses that are easily correctable, where <b>the number and/or level of significance of the strengths far outweigh those aspects of the weaknesses</b> . The application leaves no doubt regarding the applicant's capability to perform.  |
| <b>Good</b>           | <b>8</b>  | All aspects of the criterion are adequately addressed. The application has one or more strengths and may have one or more weaknesses, and <b>the number and/or level of significance of the strengths outweigh those aspects of the weaknesses</b> . Scoring within the Good rating depends on the relative degree to which the strengths outweigh the weaknesses. The application demonstrates the applicant's capability to perform.  |
|                       | <b>7</b>  |   |
| <b>Satisfactory</b>   | <b>6</b>  | Most aspects of the criterion are adequately addressed. The application has one or more strengths and may have one or more weaknesses. <b>The number and/or level of significance of the strengths slightly outweigh those aspects of the weaknesses</b> . Scoring within the Satisfactory rating depends on the relative degree to which the strengths outweigh the weaknesses. The application demonstrates a reasonable likelihood of the applicant's capability to perform. |
|                       | <b>5</b>  |   |
| <b>Marginal</b>       | <b>4</b>  | Some aspects of the criterion are <b>not</b> adequately addressed. The application may have one or more strengths and has one or more weaknesses, and <b>the number and/or level of significance of the weaknesses outweigh those aspects of the strengths</b> . Scoring within the Marginal rating depends on the relative degree to which the weaknesses outweigh the strengths. The application leaves doubt regarding the applicant's capability to perform.                |
|                       | <b>3</b>  |   |
| <b>Unsatisfactory</b> | <b>2</b>  | Most aspects of the criterion are <b>not</b> adequately addressed. The application may have strengths, but also has <b>several weaknesses</b> . The application fails to demonstrate the applicant's capability to perform.   |
|                       | <b>1</b>  |   |
| <b>Deficient</b>      | <b>0</b>  | The application is non-responsive with regard to the criterion or does not address the criterion at all.  |

## Appendix 4: Sample Deliverables Tables

Please Note: These deliverables tables are meant as EXAMPLES ONLY. The numbers and deliverables will not pertain to any one project. The applicant SHOULD NOT try to fit their project into these metrics. The applicant should use the metrics which are best to describe their project and accurately illustrate the improvements in functionality their project is accomplishing over the course of the award period.

### HARDWARE

SunShot Cells, Inc. /PI: John Smith – [jsmith@sunshotcells.com](mailto:jsmith@sunshotcells.com) , (555)123-4567

| Deliverable | Date                | Deliverable Title  | Verification Process & Additional Notes   |
|-------------|---------------------|--|---|
|             | Month               | Deliverable Description: Specific, Measurable, Quantitative  | What, Who, Where  |
|             | % total DOE funding | <i>Deliverable Metrics should be those which best reflect the functionality of the proposed product</i>  |   |
| D0          | 11/1/2013           | <b>Baseline Performance</b><br>Technical (e.g. cell efficiency, area, inverter efficiency, system efficiency, number of parts, canting accuracy, batch sizes, reliability testing, manufacturing throughput, etc.)   | Technical   |
|             | 1                   | <ol style="list-style-type: none"> <li>Provide Four (4) cells (Area &gt; 100 cm<sup>2</sup>) with performance characteristics: Voc &gt; 600mV, Jsc &gt; 30mA/cm<sup>2</sup>, and a FF &gt;0.65</li> <li>Inverter efficiency &gt;85%</li> <li>Canting accuracy &lt;10 mrad</li> <li>Throughput &gt;1 products/hr</li> <li>Number of parts in product &lt;150</li> <li>1 product passes DH1000 Damp Heat Testing</li> </ol>                    | <ol style="list-style-type: none"> <li>Cells will be delivered to NREL for testing of Voc, Jsc, FF results will be delivered to DOE from NREL for deliverable verification</li> <li>Inverter efficiency verified by DOE visit or DOE appointed representative</li> <li>Canting accuracy verified by DOE visit or DOE appointed representative</li> <li>Verified by video and/or DOE representative visit or DOE appointed third party</li> <li>Verified by component count and design schematics</li> <li>Sample delivered to NREL for testing</li> </ol>   |
|             | 20%                 | <ol style="list-style-type: none"> <li>1 product passes DH1000 Damp Heat Testing</li> </ol> Business (e.g. letters of support, orders, sales, MOU, feedback from X customers, PPA, etc.)   | Business <ol style="list-style-type: none"> <li>Letters of support delivered to DOE via email</li> </ol>  |
| D1          | 02/1/2014           | Technical  | Technical   |
|             | 4                   | <ol style="list-style-type: none"> <li>Provide Four (4) cells (Area &gt; 150 cm<sup>2</sup>) with performance characteristics: Voc &gt; 650mV, Jsc &gt; 32mA/cm<sup>2</sup>, and a FF &gt;0.70</li> <li>Inverter efficiency &gt;90%</li> <li>Canting accuracy &lt;8 mrad</li> <li>Throughput &gt;2 products/hr</li> <li>Number of parts in product &lt;125</li> <li>1 product does not fail when tested at wind speeds of 100 mph</li> </ol> | <ol style="list-style-type: none"> <li>Cells will be delivered to NREL for testing of Voc, Jsc, FF results will be delivered to DOE from NREL for deliverable verification</li> <li>Inverter efficiency verified by DOE visit or DOE appointed representative</li> <li>Canting accuracy verified by DOE visit or DOE appointed representative</li> <li>Verified by video and/or DOE representative visit or DOE appointed third party</li> <li>Verified by component count and design schematics</li> <li>Products delivered to agreed upon testing site and still functions after exposure to 100 mph wind for 1 hour</li> </ol> |
|             | 30%                 | Business <ol style="list-style-type: none"> <li>Provide 3 New Letters of Support</li> <li>Feedback in writing from 3 potential customers</li> </ol>  | Business <ol style="list-style-type: none"> <li>Letters of support delivered to DOE via email</li> <li>Feedback delivered to DOE via email</li> </ol>   |
| D2          | 06/1/2014           | Technical  | Technical   |
|             | 8                   | <ol style="list-style-type: none"> <li>Demonstrate Four (4) cells (Area &gt; 150 cm<sup>2</sup>) with Voc &gt; 700mV, Jsc &gt; 36mA/cm<sup>2</sup>, and a FF &gt;0.75</li> <li>Inverter efficiency &gt;95%</li> <li>Canting accuracy &lt;5 mrad</li> <li>Throughput &gt;10 products/hr</li> <li>Number of parts in product &lt;110</li> <li>Inverter Reliability Modeled for performance in 0 C and 60 C climate</li> </ol>                  | <ol style="list-style-type: none"> <li>Cells will be delivered to NREL for testing of Voc, Jsc, FF results will be delivered to DOE from NREL for deliverable verification</li> <li>Inverter efficiency verified by DOE visit or DOE appointed representative</li> <li>Canting accuracy verified by DOE visit or DOE appointed representative</li> <li>Verified by video and/or DOE representative visit or DOE appointed third party</li> <li>Verified by component count and design schematics</li> <li>Model results delivered to DOE and/or model demonstrated to DOE via webinar</li> </ol>                                  |
|             | 20%                 | Business <ol style="list-style-type: none"> <li>Provide 2 MOU's</li> <li>5 products sold</li> </ol>  | Business <ol style="list-style-type: none"> <li>Copies of MOU's delivered to DOE via email</li> <li>Copy of Receipts of Sale or Purchase Orders delivered to DOE via email</li> </ol>   |



|           |                  |   |   |
|-----------|------------------|---|---|
|           |                  | 3. Letter for approval of install of sample products at customer site   | 3. Copy of Letter delivered to DOE via email  |
| <b>D3</b> | <b>10/1/2014</b> | <p>Technical</p> <ol style="list-style-type: none"> <li>Demonstrate Four (4) cells (Area &gt; 150 cm<sup>2</sup>) with Voc &gt; 750mV, Jsc &gt; 40mA/cm<sup>2</sup>, and a FF &gt;0.85</li> <li>Inverter efficiency &gt;99%</li> <li>Canting accuracy &lt;1 mrad</li> <li>Throughput &gt;100 products/hr</li> <li>Number of parts in product &lt;101</li> <li>3 modules pass TC200 testing</li> </ol> <p>Business</p> | <p>Technical</p> <ol style="list-style-type: none"> <li>Cells will be delivered to NREL for testing of Voc, Jsc, FF results will be delivered to DOE from NREL for deliverable verification</li> <li>Inverter efficiency verified by DOE visit or DOE appointed representative</li> <li>Canting accuracy verified by DOE visit or DOE appointed representative</li> <li>Verified by video and/or DOE representative visit or DOE appointed third party</li> <li>Verified by component count and design schematics</li> <li>Modules delivered to NREL and testing is done</li> </ol> <p>Business</p> |
|           | <b>12</b>        |   |   |
|           | <b>30%</b>       | <ol style="list-style-type: none"> <li>Signed PPA</li> <li>30 products sold</li> <li>1 product installed at customer site</li> </ol>  | <ol style="list-style-type: none"> <li>Copy of PPA delivered to DOE via email</li> <li>Copy of Receipts of Sale or Purchase Orders delivered to DOE via email</li> <li>Verification from Customer of Install and photographic evidence delivered to DOE</li> </ol>  |

## NON-HARDWARE

| Deliverable Table  |                    |  |   |
|--|--------------------|--|---|
| PVSoftware, Inc. /PI: John Smith – <a href="mailto:Jsmith@PVSoftware.com">Jsmith@PVSoftware.com</a> ,<br>(555)123-4567 |                    |  |   |
| Deliverable  | Date               | Deliverable Title  | Verification Process & Additional Notes   |
|  | Month              | Deliverable Description: Specific, Measurable, Quantitative  |   |
|  | %total DOE funding | <i><u>Deliverable Metrics should be those which best reflect the functionality of the proposed product</u></i>   |   |
| D0   | 11/1/2013          | <b>Baseline Performance</b>  | Technical   |
|  | 1                  | Technical <ol style="list-style-type: none"> <li>1. Initial wireframe of product (v0.1)</li> <li>2. Product architecture diagram</li> <li>3. Example output</li> </ol>   | <ol style="list-style-type: none"> <li>1. Wireframe documentation sent to DOE and/or displayed to DOE via screen sharing webinar or DOE login to system</li> <li>2. Architecture documentation sent to DOE</li> <li>3. Screen Shot sent to DOE</li> </ol>   |
|  | 20%                | Business <ol style="list-style-type: none"> <li>1. Provide 3 letters of support</li> <li>2. # of leads generated: ≥50</li> <li>3. # of leads sold: 10</li> <li>4. Q1 2012 MUV (monthly unique visitors): 0</li> <li>5. Coming soon page added with “Sign up to be notified” functionality</li> </ol> | Business <ol style="list-style-type: none"> <li>1. Letters of support delivered to DOE via email</li> <li>2. Documentation will be provided to DOE</li> <li>3. Documentation will be provided to DOE</li> <li>4. DOE will be given access to an the awardee’s Google Analytics data</li> <li>5. Doe can submit an e-mail address to be notified when new</li> </ol> |

|    |           |   |   |
|----|-----------|---|---|
|    |           |   | functionality becomes available.  |
| D1 | 02/1/2014 | <b>v.0.5 Complete</b>   | Technical   |
|    | 4         | What: Initial product is on the web<br>Technical  | Alpha Functionality:<br>1a. Submit data via an online data form<br>1b. Login into Platform<br>1c. Navigate to report view<br>1d. See that real-time as data is routed correctly to test buyers  |
|    | 30%       | Business<br>1. Functional initial product (v0.1)<br>2. API calls = 100<br><br>1. 5 customers signed up to be alpha testers<br>2. # of leads generated: ≥100<br>3. # of leads sold: 20<br>4. Q2 2012 MUV (monthly unique visitors): 100<br>5. Feedback from Potential Clients: 5 | Business<br>1. Documentation will be provided to DOE<br>2. Documentation will be provided to DOE<br>3. Documentation will be provided to DOE<br>4. DOE will be given access to an the awardee's Google Analytics data<br>5. Feedback delivered to DOE via email |
| D2 | 06/1/2014 | <b>v0.7 Complete</b>  | Technical   |
|    | 8         | Technical   | 1. Beta Functionality:<br>* User A can login<br>* User A can submit a form application request<br>* User A can upload files<br>* User A can view steps for approval<br>* User A can record comments   |
|    | 20%       | Business<br>1. Feedback provided from 10 Beta tester  |   |

|           |                  |   |  |
|-----------|------------------|---|--|
|           |                  | <ol style="list-style-type: none"> <li>2. # of leads generated: ≥500</li> <li>3. # of leads sold: 100</li> <li>4. Q3 2012 MUV (monthly unique visitors): 1,000</li> <li>5. Feedback from Potential Clients: 10</li> <li>6. 3 marketing agreements signed</li> </ol> | <ul style="list-style-type: none"> <li>* User B can add users</li> <li>* User B can upload/download files</li> <li>* User B can record comments</li> <li>* User B can mark workflow steps complete</li> <li>* User B can approve a permit application request</li> </ul> <p>Business</p> <ol style="list-style-type: none"> <li>1. Documentation will be provided to DOE</li> <li>2. Documentation will be provided to DOE</li> <li>3. Documentation will be provided to DOE</li> <li>4. DOE will be given access to an the awardee's Google Analytics data</li> <li>5. Feedback delivered to DOE via email</li> <li>6. Documentation will be provided to DOE</li> </ol> |
| <b>D3</b> | <b>10/1/2014</b> | <b>v1.0 Complete – Minimum Viable Product</b>   | <p>Technical</p> <ol style="list-style-type: none"> <li>1. DOE can access system and performs all functions a customer or installer would need</li> </ol> <p>Business</p> <ol style="list-style-type: none"> <li>1. Documentation will be provided to DOE</li> <li>2. Documentation will be provided to DOE</li> <li>3. DOE will be given access to an the awardee's Google Analytics data</li> </ol>  |
|           | <b>12</b>        | <p>Technical</p> <ol style="list-style-type: none"> <li>1. Functional initial product (v1.0) <ul style="list-style-type: none"> <li>○ Product open to public and fully functional</li> </ul> </li> </ol>  |  |
|           | <b>30%</b>       | <p>Business</p> <ol style="list-style-type: none"> <li>1. # of leads generated: ≥1000</li> <li>2. # of leads sold: 200</li> <li>3. Q4 2012 MUV (monthly unique visitors): 5,000</li> <li>4. Installer using the system: 20</li> </ol>                               |  |

|  |  |  |  |
|--|--|--|--|
|  |  |  | 4. Signed agreements will be sent to DOE |
|--|--|--|--|