The purpose of this modification is to correct numbering errors in section headings in this Funding Opportunity Announcement (FOA) and to make the following additional revisions to the FOA:

1. Add "Appendix of any letters of support from external entities (1 page maximum per letter)" on pg 4 under the Concept Papers Required Documents Checklist.

2. Add "Attach any letters of support from external entities (1 page maximum per letter)." on pg 37 in the "Content and Form of Concept Papers" - Qualification and Resources section.

3. Add "Attach any letters of support from external entities (1 page maximum per letter)." on page 40 in the Content and Form of Full applications - Technical Qualifications and Resources section.

A revised copy of the FOA with changes highlighted in yellow is attached.

*Please submit all questions regarding this FOA to **SunShot.Incubator@ee.doe.gov.**

FINANCIAL ASSISTANCE
FUNDING OPPORTUNITY ANNOUNCEMENT

SOLAR ENERGY TECHNOLOGIES PROGRAM,
OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY,
U.S. DEPARTMENT OF ENERGY

SUNSHOT INCUBATOR PROGRAM

Funding Opportunity Number DE-FOA-0000651

CFDA Number 81.087

FOA Issue Date:	**February 7, 2012**
Submission Deadline for Letters of Intent to Apply: (OPTIONAL)	**April 2, 2012**
Q&A Webinar for Applicants:	**March 5, 2012**
First Deadline for Questions to SunShot.Incubator@ee.doe.gov:	**5 PM ET, April 2, 2012**
Submission Deadline for Concept Papers:	**5 PM ET, April 9, 2012**
Expected Date of Concept Paper Notification:	**5 PM ET, April 27, 2012**
Q&A Webinar for Applicants:	**May 16, 2012**
Second Deadline for Questions to SunShot.Incubator@ee.doe.gov:	**5 PM ET, May 21, 2012**
Submission Deadline for Full Applications:	**5 PM ET, May 29, 2012**
Expected Date for Release of Reviewer Comments:	**5 PM ET, June 25, 2012**
Submission Deadline for Replies to Reviewer Comments: (OPTIONAL)	**5 PM ET, June 28, 2012**
Expected Dates of Pre-Selection Conference Calls and Presentations:	**July 9-July 20, 2012**
Expected Date for Selection Notifications:	**August , 2012**

- To facilitate the timely review of applications, Applicants are kindly requested to submit a Letter of Intent to Apply, as described in Section IV.B of the Funding Opportunity Announcement (FOA), to SunShot.Incubator@ee.doe.gov as early as possible.
- 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/ Mandatory	FOA Section	Deadline
Letter of Intent to Apply		Optional	IV.B	April 2, 2012

Concept Paper	• Single document in Adobe PDF consisting of:
	  ○ Abstract (1 page maximum)
	  ○ Project Description (3 pages maximum)
	  ○ Summary of Qualifications and Resources (1 page maximum)
	  ▪ Appendix of one-page resumes for each team member
	  ▪ Appendix of any letters of support from external entities (1 page maximum per letter)
	  ○ Business Plan/ Commercialization Strategy (1 page maximum)
	• Summary Slide (1 page)
		Mandatory	IV.C	5PM ET, April 9, 2012

Full Application	• Project narrative (23 pages maximum in Adobe PDF format), consisting of:
	  ○ Title Page (1 page maximum)
	  ○ Project Overview (5 pages maximum)
	  ○ Business Plan (3 pages maximum)
	  ○ Qualifications and Resources (2 pages maximum)
	  ○ Work Plan (12 pages maximum)
	• Milestones Table (no page limit, Microsoft Excel format)
	• Deliverables (2 page maximum, Microsoft Excel format)
	• Summary Slide (1 page maximum in Adobe PDF format)
	• SF-424 (no page limit, Adobe PDF format)
	  ○ SF-LLL, if applicable
	• SF-424a (no page limit, Microsoft Excel format)
	• Budget Justification PMC 123.1 (no page limit, Microsoft Excel format)
	• Environmental Impacts Questionnaire (no page limit, Adobe PDF format)
	• Other Sources Of Funding Disclosure (no page limit, Adobe PDF format)
	• Ineligibility Disclosure (2 pages maximum, Adobe PDF format)
		Mandatory	IV.D	5 PM ET, May 29, 2012

Reply to Reviewer Comments	• Single document in Adobe PDF consisting of:
	  ○ Up to 2 pages of text
	  ○ Up to 1 page of images
		Optional	IV.E	5 PM ET, June 28, 2012

EXECUTIVE SUMMARY

Federal Agency:	U.S. Department of Energy (DOE), Office of Energy Efficiency and Renewable Energy (EERE), Solar Energy Technologies Program (SETP)
FOA Title:	SunShot Incubator Program
FOA Type:	Continuation of existing technology development program
FOA Number:	DE-FOA-0000651
CFDA Number:	81.087
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Submission Deadline for Replies to Reviewer Comments: (OPTIONAL)	5 PM ET, June 28, 2012
Expected Dates of Pre-Selection Conference Calls and Presentations:	July 9-July 20, 2012
Expected Date for Selection Notifications:	August, 2012
Expected Date for Execution of Awards:	September, 2012
Expected Start Date for Projects:	September 2012
Application Process Overview:	Please see Section II.B of the FOA for an overview of the application process. The application process consists of the following steps: • Letter of Intent to Apply: **Optional**. 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. • Concept Paper: **Mandatory**. 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 Application. See Section IV.C of the FOA for content and form requirements for Concept Papers. • Full Application: **Mandatory**. See Section IV.D of the FOA for content and form requirements for Full Applications. • 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. • Pre-Selection Conference Calls: At discretion of DOE. See Section II.B.6 of the FOA for further information. • Pre-Selection Presentations: At discretion of DOE. See Section II.B.7 of the FOA for further information. 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.
Means of Submission	All submissions must be submitted to DOE's online application portal, EERE eXCHANGE (https://eere-exchange.energy.gov), before the submission deadline. See "Required Documents Checklist" on p.4 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 24 hours in advance of the submission deadline, as noted in Section IV.F of the FOA. See Sections IV.F and IV.I.1 of the FOA for further information.
Concise Program Description	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.
Total Amount to Be Awarded	Approximately $12 million is expected to be available for new awards under this FOA.
Anticipated Awards	DOE may issue one, multiple, or no awards under this FOA. Awards will be made in 3 categories: • Tier 1a awards for hardware development: Up to $1 million over up to 12 months to accelerate transition of a proof-of-concept to a prototype; • Tier 1b 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; and • Tier 2 awards for hardware and non-hardware solutions: Up to $4 million (typical award $1-2 million) over up to 18 months to scale up prototype to pilot-scale production or beta product launch;
Types of Funding Agreements	Cooperative Agreements with payable deliverables
Period of Performance	Tier 1a and Tier 1b awards: Up to 12 months Tier 2 awards: Up to 18 months divided into two 9-month budget periods

Eligibility	• **Standalone Applicants:** Only startup businesses incorporated in the United States are eligible to apply for funding as Standalone Applicants.[1] [2] • **Project Teams:** Only Project Teams led by startup businesses with less than 500 employees and incorporated in the United States 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.	
Cost Share Requirement	Tier 1a and Tier 1b awards	≥ 20% of the Total Project Cost
	Tier 2 awards	≥ 50% of the Total Project Cost
Number of Applications	• An Applicant may submit separate and self-contained applications for Tier 1a, Tier 1b, and Tier 2 awards. Each application must have a different Principal Investigator (PI) and be for a completely different project and solution. • Applicants may submit an application for a Tier 2 award even if they did not receive a Tier 1 award previously. • Applicants may apply for funding if they received a Tier 1 award under prior Incubator Programs. However, Applicants are not 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 any SunShot Incubator Program. Applicants that have previously received a Tier 2 award under the SunShot Incubator Program or Photovoltaic Technology Incubator Program can only apply to this program with a new product.	
Agency Contact	Applicants may contact DOE through the following email addresses: • SunShot.Incubator@ee.doe.gov for questions regarding this FOA. Insert FOA name in subject line of emails. Answers will be posted at: https://eere-exchange.energy.gov/FAQ.aspx?FoaId=467b6123-63b9-48b0-b738-46f0fa961356Select the SunShot Incubator FOA in the dropdown menu. • EERE-ExchangeSupport@hq.doe.gov for questions regarding EERE eXCHANGE. Insert FOA name in subject line of emails. Answers will be sent directly to Applicants. 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.	
Application Forms	Required forms for Full Applications are available at https://eere-exchange.energy.gov.	

[1] 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.

[2] A Standalone Applicant is an Applicant that applies for funding on its own, not as part of a Project Team.

I. Funding Opportunity Description

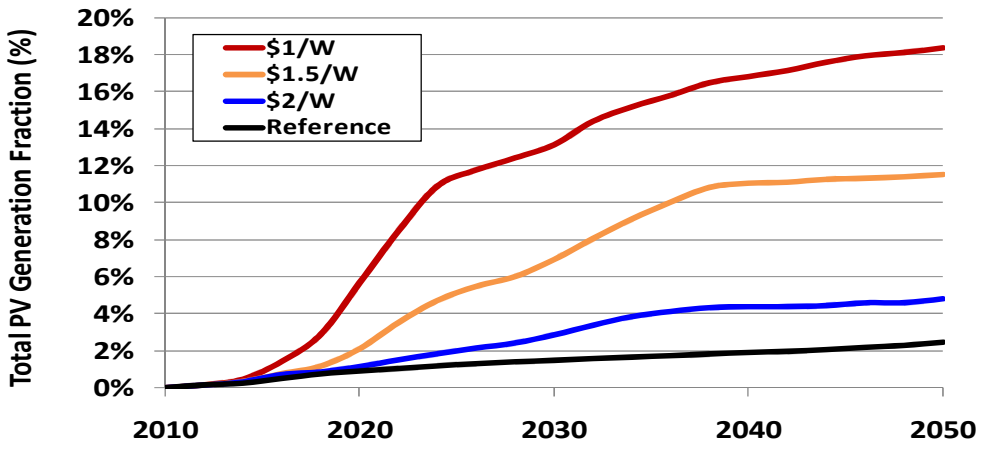
A. PROGRAM OVERVIEW

The DOE SunShot Initiative aims to reduce the installed costs of solar energy systems by 75% by the end of the decade, achieving 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.[3]

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, 5-6¢ per kilowatt hour (kWh). 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.

Figure 1: Total PV Generation Fraction by Year

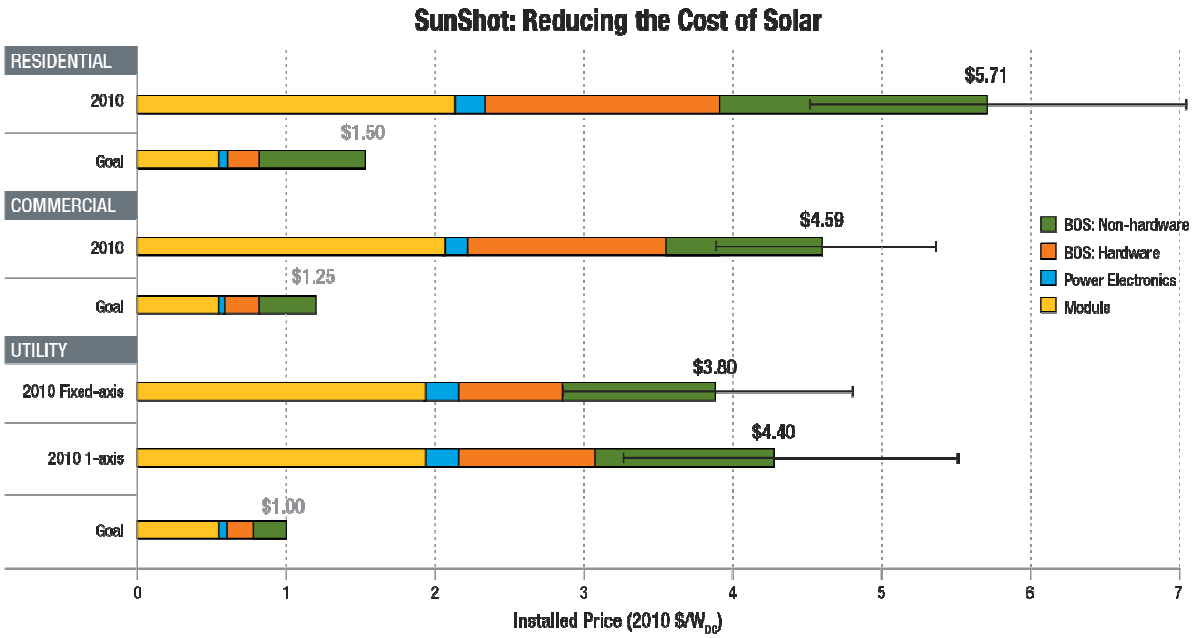


[3] For more information on the SunShot Initiative, please see www.energy.gov/sunshot.

Through its history, the SunShot Incubator Program has fostered development of PV technologies, concentrating solar power (CSP), power electronics, and BOS hardware innovations. The Incubator continues to demonstrate remarkable success since its inception in 2007; approximately $60 million of Federal investment has led to the creation of over 1200 jobs and has attracted more than $1.6 billion in follow-on funding to Incubator-funded companies.

The SunShot Incubator Program represents a significant component of the 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 ambitions 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 Figure 2).

Figure 2: 2010 Solar Installation Costs



Values obtained from Goodrich *et al*, 2011.

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

Hardware	
Design	**Production**
• Energy conversion efficiency • Materials requirements • Size / Weight • Complexity • Durability • Standardization	• Energy requirements • Process design • Tack Time • Reproducibility • Uniformity • Materials utilization efficiency
Monitoring and Testing	
• Mean time between failure • Guaranteed performance • Degradation rate • In-line analysis techniques	
Non-Hardware (soft costs)	
Customer Acquisition	**Financing and Contracting**
• Marketing / advertising • Sales calls / site visit • Bid preparation/phantom bids • Follow up • Signing contact / collecting payment	• Financing (capital expenses) • Insurance • Legal agreements (RFPs, PPAs, etc.) • Incentive application processing
Permitting, Inspection, and Interconnection	**Installation and Performance**
• Wait time for permits, inspection, and interconnection • Permitting expenses • Utility interconnection expenses • Idle crew and trucks	• Service (O&M) • Installation labor • Optimal system design

Early-stage Incubator assistance enables companies to cross technological barriers while providing the investment community a better level of understanding for decision making.

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 and to attract follow-on funding from private investors.

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

The DOE is dedicated to accelerating the timeline for merit review and selection, and may release hardware and/or non-hardware Incubator funding opportunities up to twice per year depending on funding availability. The DOE expects a concise overview, detailed statement of work, 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.

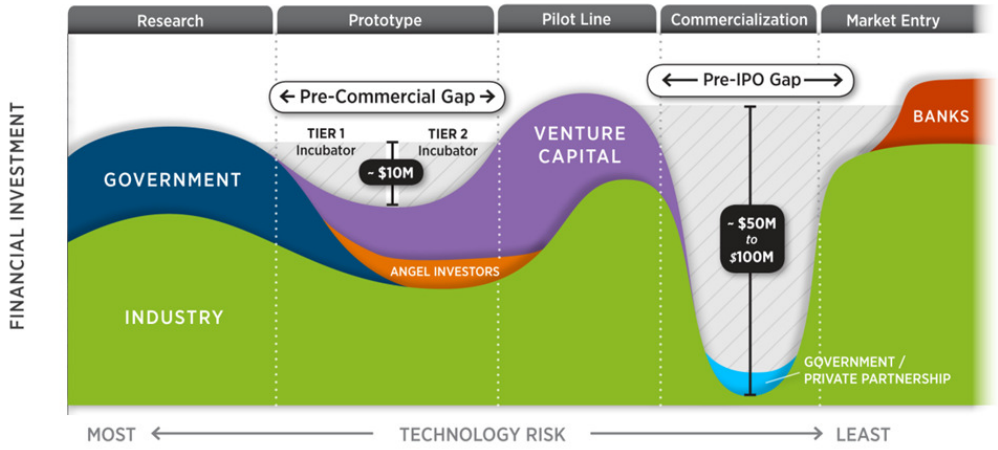
B. PROGRAM OBJECTIVES

The SunShot Incubator Program facilitates American small business' transitions from a proof of concept or business plan to domestic commercialization or deployment. The emphasis on proposed activities should be focused on addressing barriers to scale-up, commercialization, and deployment by 2015.

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.[4]

[4] For information regarding the SUNPATH program, please see http://energy.gov/articles/department-energy-invest-50-million-advance-domestic-solar-manufacturing-market-achieve.

Figure 4: Financial Investment Described by Technology Risk



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.

C. AREAS OF PROGRAMMATIC INTEREST

The list of potential technologies within each area of interest below is intended to be non-exclusive and non-exhaustive. 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
- Non tracking high concentration PV module concepts
- High efficiency concepts (e.g., multijunctions)
- Very low-cost module/cell/wafer processes

(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 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, 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
- Novel CSP components and systems

(5)Tools to address non-hardware costs of solar energy

- Information technology solutions
- Financial innovations
- Innovative business models
- Improved systems design
- Operations and maintenance innovations
- Integration of multiple permitting and code measurement and testing devices in a single platform
- Customer acquisition cost reduction
- Automated systems

(6) Plug-and-Play Wiring and Installation Techniques:

- Enhanced communication or handshaking between components that facilitates system verification, permitting, monitoring and repair
- Development of microinverter or "smart" inverter technology
- A technique that facilitates installation through self-diagnosis of the system
- Software innovations that streamline licensing, inspection, or installation

(7) Energy Storage:

- Advances in chemical, thermal, or mechanical energy storage techniques that promote the widespread use of solar energy
- Improved battery technology and materials
- Novel energy conversion processes

(8) Other: In addition to the above topic areas, this SunShot Incubator FOA is open to proposals 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. Note, however, certain types of projects are considered non-responsive and are outlined in the "Areas Specifically Not of Interest" section below (I.D).

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, the company would only be eligible for application to this FOA if the proposed technology, product, or solution is a completely different platform and product family from the company's existing products.
2) **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.
3) **Incremental improvements to existing technologies, products, or solutions:** DOE understands that incremental improvements to existing products can be extremely compelling and offer significant advantages; however, DOE is not seeking applications of this type and they will be considered non-responsive. An incremental improvement is one that is intended to replace or improve the current product.
4) **Heating** - This solicitation is not for applications which include solar hot water applications.
5) **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;
    - Transparent conducting oxide (TCO) development; or
    - Addition of junction(s) to existing multijunction devices for high-concentration PV 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; therefore, DOE will accept applications to this FOA in two categories: Tier 1 and Tier 2.

For both Tier 1 and Tier 2, Applicants must describe their plans to replicate and 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 "Contribution to Domestic Manufacturing"

1. TIER 1 AWARDS

The primary objective of Tier 1 of the SunShot Incubator Program is to accelerate the development of innovative solar and balance of system (BOS) technologies to the prototype stage. Generally, Tier 1 awards are provided to applicants that currently have a proof-of-concept or early prototype device and need to advance their design or assembly process to produce a commercially-relevant prototype.

Tier 1a Awards for Hardware Related Projects:
The entrance criterion for Tier 1a of this FOA is a lab-scale material, device, product, or process typically at Technology Readiness level TRL 4 (see Appendix 1) that is a quantitative, physical demonstration of the technology chosen for prototype development. 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. Small-scale baseline demonstrations are required for entrance into Tier 1a. 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.

Successful completion of Tier 1a is a commercially relevant technology (e.g., containing no cost-prohibitive materials) assembled with commercially 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 an attractive investment to private investment.

Tier 1b Awards for Non-Hardware Concepts:
The entrance criterion for Tier 1b of this FOA is a clear understanding of a challenge that increases the cost of a solar installation and a well-articulated plan to solve 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 1b award, a successful awardee will be able to produce a commercially relevant technology or product (e.g., fully functioning software, website, etc). This development effort will move the awardee into a position to apply for a Tier 2 award under the SunShot Incubator Program. In addition, successfully achieving this level of development significantly de-risks the proposed concept to the point that it is an attractive investment to private investors.

2. TIER 2 AWARDS FOR HARDWARE AND NON-HARDWARE CONCEPTS

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

For hardware based applications, the entrance criterion for Tier 2 is a solar or BOS technology with a demonstrated baseline of a commercially relevant lab-scale prototype material, device, module, or system that can be scaled up to pilot production within an 18-month time frame, which is typically TRL 5 (see Appendix 1). 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 a potentially 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. It is the intent that those selected for award will manufacture their product or processes in the United States.

For non-hardware projects, the entrance criterion for Tier 2 is an alpha product or capability ready for beta and/or V1.0 development and public release. This is intentionally vague so that a breadth of creative solutions is received. However, Tier 2 requires that something already exists and is already developed. 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 solar industry and/or public.

II. AWARD INFORMATION

A. AWARD OVERVIEW

Approximately $ 12 million is expected to be available for new awards under this FOA, subject to the availability of appropriated funds. DOE anticipates making 3-9 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 start date for cooperative agreements to be September, 2012.

DOE will accept only new applications under this FOA. Applicants may not seek renewal or supplementation of their existing awards. See Section III.C.4 of the FOA for further information.

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

- **Tier 1a - Hardware development:** DOE may issue approximately 3-5 awards in this category. The ceiling funding level[5] is $1,000,000 and there is no floor funding level.[6] The minimum cost share requirement for a Tier 1a award is greater than or equal to 20% of the Total Project Cost.

[5] The "ceiling funding level" is defined as the maximum amount for an individual award made under this announcement.
[6] The "floor funding level" is defined as the minimum amount for an individual award made under this announcement.

- **Tier 1b - Non-hardware development:** DOE may issue approximately 3-5 awards in this category. The ceiling funding level[5] is $500,000 and there is no floor funding level.[6] 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 and/or Non-Hardware Projects:** DOE may issue approximately 1-3 awards in this category, with a typical value of $1-2 million. The ceiling funding level[5] is $4,000,000 and there is no floor funding level.[6] The minimum cost share requirement for a Tier 2 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

1. LETTER OF INTENT TO APPLY

To facilitate the timely review of applications, Applicants are kindly requested to submit an optional Letter of Intent to Apply to SunShot.Incubator@ee.doe.gov as early as possible. Applicants should include the name of the Applicant, the project tier (tier 1a, tier 1b or tier 2), and a brief description of the approach 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 is therefore encouraged, but not mandatory.

2. QUESTION &ANSWER WEBINARS

DOE anticipates hosting two Question and Answer (Q&A) Webinars. The first Q&A webinar will be held on or around March 5, 2012, before the Concept Paper submission deadline. The second Q&A webinar will be held on or around May 16, 2012, before the Full Application submission deadline. Information regarding the Q&A webinars will be posted on https://eere-exchange.energy.gov/FAQ.aspx?FoaId=467b6123-63b9-48b0-b738-46f0fa961356 and will be sent by email to Applicants that submit a Letter of Intent to Apply. 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=467b6123-63b9-48b0-b738-46f0fa961356 .

3. CONCEPT PAPERS

The first step to apply for funding under this FOA is to submit a Concept Paper. 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 be are rejected by the DOE Contracting Officer and are not considered for award.

DOE will evaluate each compliant Concept Paper based on the criteria and program policy factors in Sections V.A.1 and V.B.1. Applicants will be notified of DOE's determination, as described in Section VI.A of the FOA.

4. FULL APPLICATIONS

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, among other items, an in-depth discussion of the proposed project or solution and a detailed budget.

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

Applicants may submit a Full Application even if they previously received a recommendation from DOE discouraging them from doing so as part of the Concept Paper 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.

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.1 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 or to supplement their Full Application.

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.

DOE will perform a preliminary review of Replies to Reviewer Comments to determine whether they are compliant, as described in Section III.C.1. Noncompliant Replies to Reviewer Comments will be rejected by the DOE 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.

Following receipt of the Replies to Review Comments, DOE will convene a panel of reviewers to discuss the merits of compliant and responsive Full Applications and Replies to Reviewer Comments.

6. PRE-SELECTION CONFERENCE CALLS

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

In addition DOE, in its discretion, may decide to hold any pre-selection conference calls with some or all of the applicants. If pre-selection conference calls are to be held, the DOE 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 additional 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

Once DOE completes its pre-selection conference calls, DOE identifies a subset of Applicants which it would like to invite to present their project through a webinar, 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 learn more about the proposed project. DOE may obtain additional 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 DOE 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.

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. SELECTION

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 Application based on the criteria and program policy factors in Sections V.A.2 and V.B.1. DOE may select or not select a Full Application for award negotiations.

Applicants will be promptly notified of DOE's determination. Please refer to Section VI.A of the FOA for guidance on award notices.

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.

The Deliverables Table in the Full Application will form the basis of project negotiations with DOE.

Separately, the DOE Contracting Officer or Grants Management Specialist will review the proposed budget for the project and work with the selected Applicant to resolve any issues relating to the budget.

The DOE 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 DOE 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 DOE 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 contractor has the administrative and programmatic capabilities to perform.

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

C. DOE FINANCIAL ASSISTANCE AGREEMENTS

Through Financial Assistance Agreements, DOE provides financial and other support to projects that have the potential to realize DOE's statutory mission. DOE does not use such agreements to acquire property or services for the direct benefit or use of the U.S. Government.

1. COOPERATIVE AGREEMENTS

DOE will use Cooperative Agreements to provide financial and other support to Prime Recipients.[7] 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 below.

DOE will use deliverable-based payments as the method of payment for awards issued under this FOA. Specifically, the Prime Recipient will be paid at each payable deliverable accomplished and verified in accordance with the schedule of deliverables negotiated between DOE and the Prime Recipient. Payment is made after a deliverable is met and verified. If a deliverable is not

[7] The Prime Recipient is the signatory to the funding agreement with DOE.

met by the specified deadline, the payment is not made. Failure to meet a deliverable by the specified deadline may result in the termination of an award. Delays are not acceptable.

It is the responsibility of the Applicant to set a deliverables schedule that is both challenging and achievable. The scores that applications receive will be heavily weighted towards the deliverables schedule that the Applicant commits to in their proposal. An overly aggressive and unrealistic deliverables schedule is undesirable because no funds will be paid until deliverables are achieved. Overly conservative deliverables will not be evaluated favorably under the criteria and program policy factors described in Sections V.A and V.B of the FOA.

2. FUNDING AGREEMENTS WITH FFRDCS AND GOGOS

Funding agreements with DOE/NNSA FFRDCs take the form of Work Authorizations issued to DOE/NNSA FFRDCs through the DOE/NNSA Field Work Proposal system for work performed under Department of Energy Management & Operation Contracts. Funding agreements with non-DOE/NNSA FFRDCs and GOGOs generally take the form of Interagency Agreements.

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 will 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 details contained in the Full Application and negotiated during award negotiations. If the schedule is not met the DOE can end the award.

III. ELIGIBILITY INFORMATION

A. ELIGIBLE APPLICANTS

1. DOMESTIC ENTITIES – STANDALONE APPLICANTS

Only startup businesses[8] incorporated in the United States 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 startup businesses incorporated in the United States 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.

[8] 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.

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 organized under the laws of the United States with 500 employees or less .

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, $60M in government funds have been awarded, the companies receiving these funds then proceeded to raise over $1.6B in venture capital and private equity funds and create over 1200 jobs. This represents success on multiple fronts and has added in the advancement of the solar program's goals.

2. DOMESTIC ENTITIES – PRIME RECIPIENTS FOR PROJECT TEAMS

Only Project Teams[9] led by startup businesses incorporated in the United States 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. Therefore, 40% of the award funds could be spent with a non-domestic entity, however, the rational for this distribution of funds would need to be clearly articulated. The work would need to be performed within the U.S. per section Section IV.H.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.

3. OTHER DOMESTIC ENTITIES – MEMBERS OF PROJECT TEAMS

For-profit entities, educational institutions, and nonprofits[10] that are incorporated in the United States are eligible to apply for funding as a member of a Project Team.

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[9] 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.

[10] Nonprofit organizations described in section 501(c)(4) of the Internal Revenue Code of 1986 that engaged in lobbying activities after December 31, 1995 are not eligible to apply for funding as a Prime Recipient or Subrecipient.

Federally Funded Research and Development Centers (FFRDCs) and Government-Owned Government-Operated laboratories (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 not eligible to apply for funding under this program. However, any subsidiaries or affiliates incorporated in the United States may be eligible to apply if they meet the criteria stated in Section III.A of the FOA. Please also see Section IV.H.5, "Performance of Work in the United States."

B. COST SHARING OR MATCHING

1. COST SHARE REQUIREMENTS

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

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

- Tier 2 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 proposal to pay the entire cost share amount in the final months of the award.

Cost share is calculated with the following formula:

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

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. 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. There is a $200,000 in-kind salary cap. The salary allowed is what the competitive rate is for the work being performed not the historical salary of the principle investigator doing the work. The proposed in-kind salary will be closely scrutinized and audited. 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.

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 DOE Contracting Officer and incorporated into the project budget before the expenditures are incurred.

Applicants may wish to 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 Sections IV.C and IV.D 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. Please refer to

Sections VI.B.3-4 of the FOA for guidance on the requisite cost share information and documentation.

C. OTHER

1. COMPLIANT CRITERIA

Concept Papers, Full Applications, and Replies to Reviewer Comments that meet the criteria below are deemed compliant. Noncompliant submissions are not considered for award.

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, III.C.1, III.C.3, and III.C.4 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.

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, III.C.1, III.C.3, and III.C.4 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.

DOE performs a preliminary review of 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.

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

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 rejects 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, and 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 an 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 single and self-sufficient applications for Tier 1a, Tier 1b and Tier 2 awards. Each application must have a different Principal Investigator (PI) and be for a completely different platform and product family.

Applicants may submit an application for a Tier 2 award even if they did not receive a Tier 1 award previously.

Applicants may apply for funding if they received a 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 FORMS

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

B. CONTENT AND FORM OF LETTERS OF INTENT TO APPLY

To facilitate the timely review of applications, Applicants are kindly requested to submit an optional Letter of Intent to Apply to SunShot.Incubator@ee.doe.gov as early as possible. Applicants should use "DE-FOA-420000642 LOI" as the subject line, include the name of the Applicant, the project focus (e.g., customer acquisition), and a brief description of the technology and why it is innovative (2-3 sentences). Submission of Letters of Intent to Apply ultimately result in a faster and optimally organized review, and are therefore, strongly encouraged but not mandatory.

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 submitted as a single document in Adobe PDF format.
- 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 control number[11] 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 content and form requirements, including maximum page lengths, described below. If Applicants exceed the maximum page lengths indicated below, DOE will review only the authorized number of pages and disregard any additional pages.

Figure 5. Content Requirements for Concept Papers

SECTION	PAGE LIMIT	DESCRIPTION

Abstract	1 page maximum	• State the tier for which the Applicant is applying (Tier 1a, Tier 1b or Tier 2).
		• State the total proposed budget and cost share.
		• Describe succinctly:
		  ○ The essence of the transformative concept or product;
		  ○ How the proposed project will develop this concept; and
		  ○ The potential impact that the proposed project would have on the relevant field and application.

Project Description	3 pages maximum	• Describe:
		  ○ The Applicant, what it is, what it does, and its current capabilities.
		  ○ The proposed project including its basic operating principles and how it is unique and innovative.
		  ○ How the target outcomes support the Sunshot goal of $1/W.
		  ○ 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 outcome (e.g., website launch).
		  ○ The current state-of-the-art in the relevant field and application, including key shortcomings, limitations, and challenges and how the proposed project will overcome the shortcomings, limitations, and challenges in the relevant field and application;
		  ○ The key risks/issues associated with the proposed development plan and how they will be addressed;
		  ○ 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.

Qualifications and Resources	1 page maximum	• 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. • Attach one-page resumes for each participating team member as an

[11] 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 it has 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.

		appendix. Resumes do not count towards the page limit. Multi-page resumes are not required or allowed. • Attach any letters of support from external entities (1 page maximum per letter).
Business Plan/ Commercialization Strategy	1 page maximum	• Describe succinctly: ○ Statement of intent to manufacture resulting products or processes in the United States. ○ 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, ○ The phases of development required for the proposed technology, starting from its current stage of development and continuing to commercial deployment, ○ The approach anticipated for scaling/launching the proposed project and the scalability/cost issues related to this approach, ○ The anticipated number of US jobs created, ○ The specific phase of development that will be executed during the proposed DOE project, ○ Why a successful project outcome will result in commercial development, i.e., why the innovation will provide a competitive edge, ○ 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 ○ The subsequent investment that will be required to achieve full commercial deployment.
Summary Slide	1 page	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 should include the following information: • Description of the proposed project; • Potential impact of the proposed project relative to the state of the art, i.e., uniqueness of the innovative concept; • Project overview consisting of the proposed period of performance, requested DOE funding, proposed cost share, total budget for the entire project period, and a breakdown of the project's key deliverables; and • A listing of key personnel.

D. CONTENT AND FORM OF FULL APPLICATIONS

Applicants may submit a Full Application even if they receive a notification in response to their Concept Paper discouraging the submission of a Full Application. Through such notifications, DOE intends to convey its initial 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.

Full Applications must conform to the following requirements:

- All Full Applications 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 control number, which is the same number used for the Concept Paper,[12] 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 and within the specified page limitation for each section. Strict adherence is required.

DOE provides detailed guidance on the content and form of each component below.

1. PROJECT NARRATIVE (23 pages maximum in Adobe PDF format)

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

Figure 6. Content Requirements for Project Narrative

Title Page (1 page maximum)	The application must include a title page stating the application control number, the project title, relevant tier (either Tier 1a, Tier 1b, or Tier 2), name of the Applicant, Principal Investigator (with postal address, telephone and fax numbers, and email address), and two or three sentences describing the area that the application addresses. If an Applicant is already manufacturing at a pilot scale or higher, a brief description of the current capability or product technology and an explanation how the proposed project is for a completely different technology platform must be

[12] 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 it has 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.

	provided.
Project Overview (5 pages maximum)	• The Project Overview must conform to the following structure and contain the following information: o *Background:* ▪ Provide a summary of the proposed project and how it meets the SunShot Initiative objectives. This section should discuss the history, successes, and current status of the Applicant's product development. ▪ 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. o *Objectives:* o This section should contain a high-level narrative discussion introducing the project objectives that will be pursued under this effort over its 12-month (Tier 1) or 18-month (Tier 2) 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. o *Overview of Costs and Commercial Viability:* o The approach of this SunShot Incubator Program is to specifically accelerate the development of 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. o Note: This section should be a concise overview and summary of the detailed cost analysis that is 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. o *Conclusion:* o Any closing remarks the Applicant feels should be discussed prior to the technical work plan.
Business Plan (3 pages maximum)	• The Business Plan must contain the following information: o Statement of intent to manufacture resulting products or processes in the United States. o 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. ○ Statement of intent to license proposed technology, if applicable. ○ 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. ○ Discussion of the capital plan to reach maturity and the source of anticipated funds to support the effort should be detailed. The business strategy must 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. ○ Statement of intent to conduct relevant operations in an environmentally safe manner in the United States. ○ Discussion of how commercialization of the product or process meets or exceeds the goals of the SunShot Initiative. ○ Discussion of management expertise commensurate with the proposed level of effort and goals.
Technical Qualifications and Resources (2 pages maximum)	• 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. • 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 required or allowed. • 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 IV.I of the FOA for further information. • Attach any letters of support from external entities (1 page maximum per letter).
Statement of Project Objectives (12 pages maximum)	• The Statement of Project Objectives (SOPO) must conform to the structure shown in Figure 7 and contain the following information: ○ 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. o Tier 1 projects may consist of a single 12-month phase. The Technical Work Plan should be divided into two 9-month phases for Tier 2 projects, with Phase 1 covering the first 9 months and Phase 2 covering the second 9 months. o 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 objective). Each deliverable should not simply have a corresponding task. o Each task must be broken out into component Subtask sections to specify the activities that will be conducted to accomplish the task. o Specific milestones, that are intermediary steps toward the project deliverables, must be identified in each subtask. Milestones should be verifiable but are not delivered for payment like deliverables. The milestones must demonstrate that a detailed plan has been constructed to achieve aggressive deliverables. o Milestones are DOE's way of tracking progress between deliverables and the Applicant's way of showing reviewers that a detailed plan has been constructed to achieve the deliverable.

Figure 7: Content Requirements for Statement of Project Objectives

Scope of Work: Explain the final objective or deliverable that is to be produced and how it can be accomplished through separate tasks.

Task 1: Distinctive Title, Date range of activity, Associated Deliverables (D1, D2, etc.), Associated Milestones (M1, M2…) contained in all subtasks.

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, Associated Milestones (M1, M2…)
Instructions: Describe the specific and detailed work efforts that go into achieving the higher-level tasks. Specify the evaluation techniques that will be used and the result that will be generated. Identify milestones that can track the progress towards achieving deliverables.

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. MILESTONES TABLE (no page limit, Microsoft Excel format)

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

The milestones discussed in the Work Plan must be tracked in a Milestones Table (see Figure 8 for an example, and the provided template that illustrates the content requirements) that must be submitted in an .xls or .xlsx format. The provided template serves to illustrate the content of the Milestones Table and can be used as a starting document to create the applicants Milestone Table. The Milestones Table must outline the anticipated progression of all subtask milestones on a monthly basis, starting with the baseline value and ending with the milestone for that subtask. A short description of the deliverables must be listed in the Milestones Table along with the planned delivery date. Further instructions are provided in the provided Milestones Table template that serves only to illustrate content requirements for the Milestones Table. This document will eventually become the primary document used to track progress and will be a useful tool for reviewers to see how the applicant believes they will accomplish the overall project goal.

Figure 8. Sample Milestones Table

Milestones Template		See the comments in each cell and the instructions on the instructions tab of this workbook.			
Task/ Subtask	Description	Month 1	Month 2	Month 3	Month 4
Task 1(D1, D2..)	Provide a short description of the task here	A more detailed explanation of the task can be provided here			
Subtask 1.1 (MS1,..)	Provide a short description of the subtask here	Describe the anticipated progress of a specific task for the given time period and list any milestones	Describe the anticipated progress of a specific task for the given time period and list any milestones	Describe the anticipated progress of a specific task for the given time period and list any milestones	
Subtask 1.2 (MS2, MS3)	Provide a short description of the subtask here		Describe the anticipated progress of a specific task for the given time period and list any milestones	Describe the anticipated progress of a specific task for the given time period and list any milestones	Describe the anticipated progress of a specific task for the given time period and list any milestones
Task 2 (etc)					
Deliverables		Add a short description of the deliverable and its delivery date in the appropriate time box.		Add a short description of the deliverable and its delivery date in the appropriate time box.	

3. DELIVERABLES (2 pages maximum in Microsoft Excel format)

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

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. Specifically, the Prime Recipient will be paid at each payable deliverable accomplished and verified in accordance with the schedule of deliverables negotiated between DOE and the Prime Recipient. Payment is made after a

deliverable is met and verified. If a deliverable is not met by the specified deadline, payment is not made. Failure to meet a deliverable by the specified deadline may result in the termination of an award for material non-compliance with the cooperative agreement.

The Applicant must propose concrete 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 the DOE or a third party. ***This means that although reports are required as part of the FOA, they cannot not be used as deliverables. Reports summarize observations, deliverables validate functionality.*** It is the Applicant's responsibility to convince the reviewers that the proposed deliverables demonstrate clear progress towards the final project goal. The milestones discussed in the Work Plan, including Tasks and Subtasks, form the foundation for defining and achieving 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 extreme care in drafting the Deliverables Table. An example Deliverables Table is provided as an Excel file in the required documents section of the eXCANGE posting for this FOA. Achievement and verification of the deliverables will result in payments to the Prime Recipient. 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 one of the most, if not the most, important part of this application, and form the basis for award negotiations once a project is selected.***

The deliverables which are proposed by the applicant will be vetted, discussed and negotiated in details following selection and announcement of award negotiations. During this process the DOE retains the right to fund the project at a lower level then proposed and change deliverables as required. The applicant retains the right to not accept these changes, at which point the award would not be provided.

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 9 for examples of acceptable and unacceptable metrics to define a deliverable. Although reports

may not be used as deliverables under any circumstances, a data set may be acceptable deliverable for a non-hardware project. 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. Models, designs and computer code 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 the 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 9. Non-exhaustive Examples of Acceptable and Unacceptable Deliverable Metrics

Acceptable Metrics for Hardware Related Proposals

- Efficiency
- Processing speed
- Yield
- Material utilization
- Uniformity
- Number of parts, holes, welds
- Heat loss
- Corrosion resistance
- Mechanical strength
- Mean time between failure

Acceptable Metrics for Non-Hardware Proposals

- Functioning code
- Number of customers surveyed
- Licenses granted
- Online traffic
- Bids generated

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. Reviewers must be able to easily see if and how proposed technologies will be able to aid in the achievement of SunShot goals. Under this Incubator

effort, it is more effective to use other metrics which can be directly measured and rapidly verified to define the deliverables. This will facilitate the rapid release of funds when deliverables are verified as being achieved. Cost reduction through supportive 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, then a clear cost benefit is achieved, which can be discussed in the application.

The Applicant's baseline of the technology 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 would 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 might be reduced parts count. Finally, a non-hardware baseline example could include functioning code, or refined design templates. The baseline data must be representative of the tier the Applicant is responding to. 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 of an award (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.

a. Tier 1 Awards

Applicants to Tier 1 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 this deliverable and the short Tier 1 period of performance, the verification of this baseline is expected to occur within the first 30 days of the project start date. DOE acknowledges the early stage of Tier 1 projects and anticipates that many Prime Recipients 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 for successful and timely verification of the project baseline deliverable.

In addition to this baseline deliverable, it is anticipated that at least five (5) verifiable deliverables will be identified. Note that the following deliverable requirements should be planned and budgeted as detailed in Figure 10 and Figure 11 below:

- 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 four (4) additional 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.
- A final deliverable is due at month 12. This deliverable must be a finished alpha product /prototype product that is capable of undergoing tests and satisfactorily meeting the goals defined within the proposal (not a report). 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 approximately six (6) project deliverables (1 baseline, 4 interim, 1 final), but collectively, these project outcomes should encompass the requirements needed to fully substantiate the exit criteria of the Tier 1 program.

Figure 10: Example Tier 1a Deliverable Table

Tier 1: DELIVERABLE TABLE				
Incubator Company:				
PI:	**Ph:**		**E-mail:**	
12-Month Duration				
Task Number and Title	**Criteria and Deliverable** (**S**pecific, **M**easurable, **A**chievable, **R**elevant, **T**imely) What, How, Who, Where?	**Date (Months after contract start)**	**% of total DOE funding***	**Additional Notes**
-- **Baseline** Performance		1	20%	Unencapsulated and packaged with desiccant. Must be tested immediately after removal from packaging
2 Process Integration		3	15%	Work with DOE to determine the best measurement technique to verify this uniformity over the full device area
1 Performance		5	10%	Same requirements as baseline deliverable
3 Reliability Testing		7	10%	Thermal cycling and light soaking done in accordance with IEC testing standards as permitted by DOE facilities
2 Process Integration		10	15%	
1 Final Prototype Deliverable		12	30%	
****Quarterly Technical Progress Reports**			--	Short letter format, emphasizing status
Draft/Final Technical Progress Report			---	
Final Review		12-months after subcontract execution		Detailed accomplishments and status

Figure 11: Example Tier 1b Deliverable Table

Tier 1: DELIVERABLE TABLE				
Incubator Company:				
PI:	Ph:		E-mail:	
12-Month Duration				
Task Number and Title	Criteria and Deliverable (Specific, Measurable, Achievable, Relevant, Timely) What, How, Who, Where?	Date (Months after contract start)	% of total DOE funding*	Additional Notes
-- Baseline		1	20%	Refined design templates and decision tree
1 Customer / supplier advanced research		3	10%	Advanced market research will be used to scope out customer base
2 Website design		6	20%	Final design with links but not working code
1 Customer / supplier advanced research		9	10%	Final design with links but not working code
3 Code Development		10	10%	Functioning site with working code
2 Final Deliverable		12	30%	Final website that functions on platforms such as…
**Quarterly Technical Progress Reports			--	Short letter format, emphasizing status
Draft/Final Technical Progress Report			---	
Final Review		12-months after subcontract execution		Detailed accomplishments and status

b. Tier 2 Awards

Tier 2 will consist of two (2) phases, with each phase being nine (9) months in duration. After the end of the first 9-month stage, the Applicant must present (through a webinar or during a site visit) on its progress to date and its strategy for completing the next phase of work. Note that the following deliverable requirements should be planned and budgeted as detailed in Figure 12 and Figure 13 below.

- Approximately 10–14 (5–7 per phase) deliverables, which represent incremental progress toward the 18-month exit criteria.
- A comprehensive midpoint deliverable in month 9 that should be a clear indicator of progress.

- A final deliverable of the product or solution due at month 18. This deliverable must be a finished product (not a report) that is capable of undergoing tests and satisfactorily meeting the goals defined within the proposal. The payment for this deliverable must be a minimum of 30% of the Total Project Cost.

Figure 12: Hardware Example Tier 2 Deliverable Table

Tier 2: Deliverable Table				
Incubator Company:				
PI:	**Ph:**		**E-mail:**	
Phase I				
Baseline-to-Date				
Task Number and Title	**Criteria and Deliverable** (**S**pecific, **M**easurable, **A**chievable, **R**elevant, **T**imely) What, How, Who, Where?	**Date (Months after contract start)**	**% of total DOE funding***	**Additional Notes**
-- **Baseline Performance**		2	10%	To be verified at DOE within experimental uncertainty
2 **Process Integration**		4	5%	We will work with DOE to determine the best measurement technique to verify this uniformity over the full device area.
1 **Cell Performance**		5	10%	To be verified at DOE within experimental uncertainty
3 **Preliminary Reliability Testing**		7	5%	Thermal cycling and light soaking done in accordance with IEC testing standards as permitted by DOE facilities
2 **Process Integration**		8	5%	We will work with DOE to determine the best measurement technique to verify this uniformity over the full device area.
9-Month Mark		9	10%	Demonstrate adequate pilot production
Phase II				
1 **Advanced Cell Performance**		11	5%	Verification of online program
3 **Reliability Testing**		13	5%	Demonstrates interconnect forces sufficient for module assembly
4 **Cost Performance**		14	5%	Costs based on equipment quotes and name plate capacity substantiated by current throughput
4 **Cost Performance**		15	5%	Costs based on equipment quotes and name plate capacity substantiated by current throughput
3 **Reliability Testing**		16	5%	Demonstrates interconnect forces sufficient for module assembly
5 **Scale-up**		18	30%	Demonstration of a pilot-production run-rate (cells/h) and how this corresponds to a yearly run-rate (kW)
****Quarterly Technical Progress Report**				Short letter format, emphasizing status
Draft/Final Technical Progress Reports				
Final Review				

Figure 13: Non-Hardware Example Tier 2 Deliverable Table

Tier 2: Deliverable Table				
Incubator Company:				
PI:	**Ph:**		**E-mail:**	
Phase I				
Baseline-to-Date				
Task Number and Title	**Criteria and Deliverable** (Specific, Measurable, Achievable, Relevant, Timely) What, How, Who, Where?	**Date (Months after contract start)**	**% of total DOE funding***	**Additional Notes**
- **Baseline - program**		2	10%	To be verified at DOE. Fully functional alpha-version.
1 **Advanced research and surveys**		4	5%	Nationwide surveys will be used to gain better information on advertising and market needs
2 **Reliability testing**		5	10%	Verification to be negotiated with DOE
3 **User interface assessment**		7	5%	Site testes with consumers and installers
2 **Reliability testing**		8	10%	Verification to be negotiated with DOE
9-Month Mark		9	5%	Demonstrate project ready for widespread release (beta - version)
Phase II				
4 **Publishing**		11	5%	Verification of online program
4 **Publishing**		13	5%	Online user and installer survey
5 **Market participant engagement**		14	5%	Successful quotations transactions using new online tool
5 **Market participant engagement**		15	5%	Verification to be negotiated with DOE
2 **Reliability testing**		16	5%	Verification to be negotiated with DOE
6 **Expansion and Growth**		18	30%	Contracts for expansion, permitting, licensing, and financing
****Quarterly Technical Progress Report**				Short letter format, emphasizing status
Draft/Final Technical Progress Reports				
Final Review				

4. 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. The slide should include the following information:

- Description of the proposed project;
- Potential impact of the proposed project relative to the state of the art, i.e., uniqueness of the innovative concept.
- Project overview consisting of the proposed period of performance, requested DOE funding, proposed cost share, total budget for the entire project period, and a year-by-year breakdown of the project's key deliverables; and
- A listing of key personnel.

5. 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 submitted in Adobe PDF format.

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/sflllin.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 or cooperative agreement. The completed SF-LLL must be appended to the SF-424.

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 near Sept 28, 2012.

- 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.

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.

You must provide a separate budget for each year of support requested and a cumulative budget for the total project period. Use the SF 424A Excel, "Budget Information – Non Construction Programs" form on the DOE Financial Assistance Forms Page at http://energy.gov/management/office-management/operational-management/financial-assistance/financial-assistance-forms. The SF424A provides columns for each individual budget-year as well as the cumulative project-budget.

You 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 multiple, separate SF-424A forms for the following groups:

1) The project as a whole (i.e., all work to be performed by the Project Team under the DOE cooperative agreement);
2) Each FFRDC participant; and
3) Each sub-recipient that is performing at least $100,000 of the work under the DOE cooperative agreement, the sub-recipient must create:

Note that the following travel requirements should be planned and budgeted:

- 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).

Travel to Subrecipients shall be negotiated.

7. BUDGET JUSTIFICATION FORM PMC123.1 (10 tabs, Microsoft Excel format)

For each entity that is performing at least $100,000 of the work under the DOE cooperative agreement (as measured by the Total Project Cost), Applicants must create a PMC 123.1 Budget Justification. The PMC 123.1 form is provided in the required documents section of the eXCHANGE posting for this FOA. (https://eere-exchange.energy.gov) Justify 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. The DOE Contracting Officer may request a more detailed budget for a particular subaward, if your application is selected for negotiation. Provide an explanation of the source, nature, amount, and availability of any proposed cost sharing. "

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.[13] 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).

[13] 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 and its 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 DOE NEPA Compliance Officer.

9. OTHER SOURCES OF FUNDING DISCLOSURE (no page limit, Adobe PDF format)

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 DOE 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

Written feedback on Full Applications is made available to Applicants before the submission deadline for Replies to Reviewer Comments. Applicants have a brief opportunity (3-4 days) to prepare a short Reply to Reviewer Comments responding to one or more comments or supplementing their Full Application.

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.

Applicants are strongly encouraged to submit a Reply to Reviewer Comments, but it is not mandatory. 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.

Replies to Reviewer Comments must conform to the following requirements:

- The Reply to Reviewer Comments must be submitted in Adobe PDF format submitted as a single attachment in EERE eXCHANGE.

- In addition to uploading the Reply as a PDF, the text of the Reply must be inserted into the relevant textbox in EERE eXCHANGE system where the reviewer comments appear. The text must be identical. Any graphics or images do not need to be inserted into the textbox.

- 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,[14] 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. 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.

Figure 14. Content Requirements for Replies to Reviewer Comments

SECTION	PAGE LIMIT	DESCRIPTION
Text	2 pages maximum	• Applicants may respond to one or more Reviewer comments or supplement their Full Application.
Images	1 page maximum	• Applicants may provide graphs, charts, or other data to respond to Reviewer Comments or supplement their Full Application.

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 (see "Required Documents Checklist" on page 4 of the FOA) in EERE eXCHANGE;

[14] 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 it has 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 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.1 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 24 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.

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.

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, it is strongly recommended that Prime Recipients and Subrecipients consult with the DOE 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 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.[15]

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/sflllin.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.

[15] 18 U.S.C. § 1913.

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. FFRDCs and GOGOs can provide access to equipment for testing and characterization in a variety of settings. Below are a few examples of national lab facilities that can be leveraged for solar energy research. This list is not exhaustive. 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

1. WHERE TO SUBMIT

APPLICATION MATERIAL MUST BE SUBMITTED UNDER THIS ANNOUNCEMENT THROUGH EERE EXCHANGE at https://eere-exchange.energy.gov/ TO BE CONSIDERED FOR AWARD. You cannot submit an application through EERE Exchange unless you are registered. Please read the registration requirements below carefully and start the process immediately. Applications submitted by any other means will not be accepted.

If you have problems completing the registration process or submitting your application, send an email to the EERE Exchange helpdesk at EERE-ExchangeSupport@hq.doe.gov.
It is the responsibility of the applicant to verify successful transmission, prior to the Application due date and time.

2. REGISTRATION PROCESS REQUIREMENTS

There are several one-time actions that must be completed before submitting an Application in response to this Funding Opportunity Announcement (FOA), as follows:

- 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.

The applicant will receive an automated response when the Concept Paper, Application, and the Reply to Reviewer Comments. This will serve as a confirmation of receipt. Please do not reply to the automated response. 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.

The EERE Exchange registration does not have a delay; however, the remaining **registration requirements below could take several weeks to process and are necessary in order for a potential applicant and to receive an award under this announcement**. Therefore, although not required in order to submit an Application through the EERE Exchange site, **all potential applicants (Prime Recipients and Subrecipients) lacking a DUNS number, or not yet registered with CCR or FedConnect should complete those registrations as soon as possible**. Questions related to the registration process and use of the EERE Exchange website should be submitted to: EERE-ExchangeSupport@hq.doe.gov

- **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 Central Contractor Registry (CCR) at: https://www.bpn.gov/ccr/default.aspx. Designating an Electronic Business Point of Contact (EBiz POC) and obtaining a special password called an MPIN are important steps in CCR registration. Please update your CCR registration annually.

- **Prime Recipients** must register in FedConnect at https://www.fedconnect.net/. To create an organization account, your organization's CCR MPIN is required. For more information about the CCR MPIN or other registration requirements, review the FedConnect Ready, Set, Go! Guide at https://www.fedconnect.net/FedConnect/PublicPages/FedConnect_Ready_Set_Go.pdf

- By law, **Prime Recipients** are also required to register with the Federal Funding Accountability and Transparency Act Subaward Reporting System (FSRS) at https://www.fsrs.gov/.[16] Prime Recipients are required to report to FSRS the names and total compensation of each of the Prime Recipient's five most highly compensated

[16] The Federal Funding Accountability and Transparency Act, P.L. No. 109-282, 31 U.S.C. 6101 note.

executives and the names and total compensation of each Subrecipient's five most highly compensated executives. Please refer to https://www.fsrs.gov/ for guidance on reporting requirements.

DOE may not execute a cooperative agreement with the Prime Recipient until it has obtained a DUNS number and completed its CCR and FSRS registrations. In addition, the Prime Recipient may not execute subawards with Subrecipients until they obtain a DUNS number and complete their CCR registration. Prime Recipients and Subrecipients are required to keep their CCR and FSRS data current throughout the duration of the project.

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 performs a preliminary review of Concept Papers and Full Applications to determine whether they are compliant and responsive, as described in Sections III.C.1 and III.C.2 of the FOA. DOE also performs a preliminary review of Replies to Reviewer Comments to determine whether they are compliant, as described in Section III.C.1 of the FOA. Adhering to the discussion topics outlined in Figure 3 is highly advised.

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 and program policy factors in Sections V.A and V.B.1 of the FOA.

1. CRITERIA FOR CONCEPT PAPERS

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 proposes work that is unique and innovative but feasible;
- Whether the Applicant demonstrates a sound approach to accomplish the proposed objectives;
- Whether the Applicant envisions a project outcome and deliverables that are clearly defined;
- 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 their capabilities
- Quality of the discussion involving:
  - The phases of development required for the proposed project, starting from its current stage of development and continuing to commercial deployment,
  - The approach anticipated for scaling/launching the proposed project and the scalability/cost issues related to this approach,
  - The specific phase of development that will be executed during the proposed DOE project,
  - 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
  - The subsequent investment that will be required to achieve full commercial deployment.
- The potential to strengthen U.S. manufacturing capacity

(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**: 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.

- Applicants understand and explicitly state the baseline current cost relevant to and addressed by the proposed work.

- The benefits associated with the solution are articulated into a cost reduction with reasonable and rational assumptions which are clearly stated;

- 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 scores have the following meaning:

Figure 15. Scoring for Concept Papers

1	Applicant has strong potential to meet the requirement(s)
0	Applicant has the potential to meet the requirement(s)
-1	Applicant does not have the potential to meet the requirement(s)

The above criteria will be weighted as follows:

Figure 16. Weighting of Criteria for Concept Papers

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

DOE conducts an evaluation of each Concept Paper based on the criteria and program policy factors in Sections V.A.1 and V.B.1 of the FOA. Each Concept Paper will be reviewed by at least two reviewers. A Concept Paper that receives an average final score (Criteria 1 and 2) of less

than 0 will be discouraged from submitting a Full Application. A Concept Paper that receives an average final score (Criteria 1 and 2) above 0 will be encouraged to submit a Full Application. A Concept Paper that receives an average final score (Criteria 1 and 2) of zero will be evaluated by one or more additional reviewers to determine whether it should be encouraged to submit a Full Application.

2. CRITERIA FOR FULL APPLICATIONS

Full Applications are evaluated based on the following criteria:

(1) **Quality and Relevance of the Proposed Project Plan (50%)** - The Applicant should address this merit criterion in the following section(s) of its Full Application: Project Overview and Work Plan (see Section IV.D.1), Milestones Table (see Section IV.D.2), and Deliverables (see Section IV.D.3). This criterion involves consideration of the following factors:

- Extent of the innovation and disruptive potential to dramatically reduce costs to meet the SunShot Initiative goals;
- Extent that the Applicant shows a clear understanding of the importance of verifiable deliverables (see Section IV.D.3) and proposes deliverables that demonstrate clear progress.
- Quality of the applicants proposed deliverables validation methodology.
- Extent of differentiation with respect to existing commercial products or solutions;
- Quality of the proposed product or solution base-lined capability and its relevance to the specified tier level;
- Adequacy in demonstrating the ability to complete the work proposed;
- Adherence to the content and form requirements for Full Applications, including:
    - The quality, depth, and detail of the proposed project description;

- A detailed project plan and schedule to achieve stated goals;
- Articulation of tasks and subtask activities including milestones and deliverables; and
- Completion of the Deliverable Table and Milestones Table to the specified instructions. ***The Deliverables Table is of particular importance and great care and consideration should be taken in its construction.***

- 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.

(2) **Quality and Relevance of the Proposed Business Strategy (30%)** - The Applicant should address this merit criterion in the following section(s) of its Full Application: Business Plan (see Section IV.D.1 of the FOA). This criterion involves consideration of the following factors:

- **Contribution to Domestic Manufacturing**: 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.

- Relevance and value of project objectives in demonstrating development toward manufacturing and commercialization of the product in the United States;

- 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;

- A general (for Tier 1 responses) or detailed (for Tier 2 responses) discussion of the projects impact on total systems-level installed cost of solar;

- Even if the project is a subsystem component, it is important to show how it will integrate into a complete solution.

- 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;

- 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;

- Demonstration of a clear understanding of the goals of the SunShot Initiative with clear articulation of how the proposed project or solution will significantly aid in the overall achievement of its goals; and

- Clarity of the capital plan for commercialization as well as anticipated funds required to commercialize/publicly release the proposed project or solution.

(3) **Capability of the Applicant/Project Team (20%)** - The Applicant should address this merit criterion in the following section(s) of its Full Application: Qualifications and Resources (see Section IV.D.1 of the FOA). This criterion involves consideration of the following factors:

- Qualifications of the Applicant's resources, and credentials, including previously demonstrated innovations, to achieve the project objectives (including proposed Subrecipients);
- Experience and demonstrated performance of the Applicant and Project Team, including ability of a Project Team to address objectives and goals than individual team members;
- Extent to which the Applicant/Project Team has the experience needed to complete the scope of work. For example, if a software solution business is proposed, members would, at a minimum, need experience in software development and business development

The above criteria will be weighted as follows:

Figure 17. Weighting of Criteria for Full Applications

Quality and Relevance of the Proposed Project Plan	50%
Quality and Relevance of the Proposed Business Strategy	30%
Capability of the Applicant/Project Team	20%

Submissions will not be evaluated against each other since they are not submitted in accordance with a common work statement.

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

The comments (but not the scores) will then 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 (see Sections II.B.5 and IV.E). 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

DOE has not established separate criteria to evaluate Replies to Reviewer Comments. Instead, Replies to Reviewer Comments are evaluated as an extension of the Full Application.

4. CRITERIA FOR PRE-SELECTION CONFERENCE CALLS

During pre-selection conference call, DOE representatives pose questions to the Applicant that are structured to uncover more information in areas relevant to the Full Application scoring criteria (see Section V.A of the FOA). These questions allow DOE to further assess the proposed project and provide the Applicant with the opportunity to respond to programmatic issues and concerns. Following the pre-selection conference call, DOE will assign a score of -1, 0, or 1 to the entirety of the Applicant's responses.

Applicants receiving a 1 will proceed to the next stage of the merit review process. Such Applicants may or may not be asked to prepare a pre-selection presentation. Applicants

receiving a -1 will be rejected. Applicants receiving a 0 will be asked to prepare a pre-selection presentation.

Figure 18. Scoring for Pre-Selection Conference Calls

1	Applicant adequately addressed the majority of the major program questions
0	Applicant adequately addressed some major program questions but other concerns remain
-1	Applicant did not adequately address the majority of the major program questions

5. CRITERIA FOR PRE-SELECTION PRESENTATIONS

During each pre-selection presentation, DOE representatives will meet with the Project Team and pose questions regarding the proposed project that are structured to uncover more information in areas relevant to the Full Application scoring criteria (see Section V.A of the FOA). These questions allow DOE to further assess the proposed project and provide the Applicant with the opportunity to respond to programmatic issues and concerns. Following the pre-selection presentation, DOE will assign a score of -1, 0, or 1 to the entirety of the presentation, including the Applicant's responses.

Applicants receiving a 1 will be recommended for funding to the Selection Official. Applicants receiving a -1 will not be recommended for funding. Applicants receiving a 0 will be presented to the Selection Official as "consider for funding."

Figure 19. Scoring for Pre-selection presentations

1	Applicant adequately addressed the majority of the major program questions
0	Applicant adequately addressed some major program questions but other concerns remain
-1	Applicant did not adequately address the majority of the major program questions

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 to submit 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;
- 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 an 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 announce selections under this FOA in August 2012 and to execute cooperative agreements on or about September 2012.

VI. AWARD ADMINISTRATION INFORMATION

A. AWARD NOTICES

1. REJECTED SUBMISSIONS

Noncompliant and nonresponsive Concept Papers and Full Applications are rejected by the DOE Contracting Officer and are not considered for award. The DOE 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 feedback 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.

a. SUCCESSFUL APPLICANTS

A notification letter selecting a Full Application for award negotiations does not authorize the Applicant to commence performance of the project. DOE selects Full Applications for award negotiations, not for award. Applicants do not receive an award until award negotiations are complete and the DOE 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.

b. 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 REQUIREMENTS

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. 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 2012).

3. COST SHARE PAYMENTS[17]

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.

4. 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 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.

5. FUNDING AGREEMENTS WITH FFRDCS AND GOGOS

[17] Please refer to Section III.B of the FOA for guidance on cost share requirements.

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 for Tier 1 awards are submitted at months 3, 6, and 9. 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.

Research Performance Progress Reports for Tier 2 awards are submitted at months 3, 6, 9, 12, and 15. 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. 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.

VII. AGENCY CONTACTS

A. COMMUNICATIONS WITH DOE

Applicants may contact DOE through the following email addresses:

- SunShot.Incubator@ee.doe.gov for questions regarding this FOA. Insert FOA name in the subject line of emails. Responses to questions are posted to "Frequently Asked Questions" on DOE's website every Friday or, at the latest, one business day before the submission deadline (https://eere-exchange.energy.gov/FAQ.aspx, select the SunShot Incubator FOA in the dropdown menu).

- EERE-ExchangeSupport@hq.doe.gov for questions regarding EERE eXCHANGE. Insert FOA name in the subject line of emails. Responses will be sent directly to the Applicant. DOE will refer any questions regarding the SunShot FOA to SunShot.Incubator@ee.doe.gov.

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.

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 these websites.

B. OBLIGATION OF PUBLIC FUNDS

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 SUBMISSIONS

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 Concept Papers, Full Applications, and Replies to Reviewer Comments strictly for evaluation purposes.

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 U.S. Government is not liable for the disclosure or use of unmarked information, and may use or disclose such information for any purpose.

The cover sheet of the Concept Paper, Full Application, Reply to Reviewer Comments, or other submission must be marked as follows and 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 or loan agreement 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, for example with double brackets or highlighting.

F. TITLE TO SUBJECT INVENTIONS

Ownership of subject inventions is governed pursuant to the authorities listed 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 retains march-in rights with respect to all subject inventions. Through "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. 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.

The U.S. Government 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

- A breach of the Preference for United States Industry provision set forth at 35 U.S.C. § 204.

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. 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).

J. 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.

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.

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	*Basic principles observed and reported* 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	*Technology concept and/or application formulated* 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	*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.
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.
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.
6	*System/subsystem model or prototype demonstration in a relevant environment.* 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	*System prototype demonstration in a operational environment.* 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	*Actual system completed and qualified through test and demonstration.* 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	*Actual system proven through successful mission operations.* 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

Control Number

Title

PI / Institution

Project Summary

Brief overview of project/solution or cost-reduction initiative being employed, including program structure, materials (if relevant), and methodology. Should also indicate what the applicant has already achieved and what their end-of-project goals are.

Market Impact

Brief overview of what specific soft cost problems this project is aiming to address, and how the plan outlined in the Project Summary specifically addresses these problems.

Relevence to $1/W

This section should include information on cost analysis done by the applicant, and specific ways in which the project can quantitatively reduce cost per watt for solar energy. In addition, the relevance to the SunShot goals and widespread implementation of solar energy can also be discussed here.

Key Personnel

Key personnel

Program Summary

Period of performance:
XX months

DOE funds: $XX
Cost-share: $XX
Total budget: $XX

	Key Milestones & Deliverables
1	• Baseline deliverable
2	• Midpoint deliverable
3	• Final deliverable

Representative figure or graphic

Concise broad goal (e.g. Establish Comprehensive Solar Market Database)

Appendix 3: Reviewer Scoring Guidelines

Rating	Score	Scoring Definitions
Superior	**10**	All aspects of the criterion are comprehensively addressed. The application has one or more significant strengths, **no notable weaknesses**, and leaves no doubt regarding the applicant's capability to perform.
	9	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 **the number and/or level of significance of the strengths far outweigh those aspects of the weaknesses**. The application leaves no doubt regarding the applicant's capability to perform.
Good	**8**	All aspects of the criterion are adequately addressed. The application has one or more strengths and may have one or more weaknesses, and **the number and/or level of significance of the strengths outweigh those aspects of the weaknesses**. 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.
	7	
Satisfactory	**6**	Most aspects of the criterion are adequately addressed. The application has one or more strengths and may have one or more weaknesses. **The number and/or level of significance of the strengths slightly outweigh those aspects of the weaknesses**. 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.
	5	
Marginal	**4**	Some aspects of the criterion are **not** adequately addressed. The application may have one or more strengths and has one or more weaknesses, and **the number and/or level of significance of the weaknesses outweigh those aspects of the strengths**. 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.
	3	
Unsatisfactory	**2**	Most aspects of the criterion are **not** adequately addressed. The application may have strengths, but also has **several weaknesses**. The application fails to demonstrate the applicant's capability to perform.
	1	
Deficient	**0**	The application is non-responsive with regard to the criterion or does not address the criterion at all.