



# SunShot Prize

## RACE TO THE ROOFTOPS

### *COMPETITION RULES*

September 12, 2012

#### KEY COMPETITION DATES AND DEADLINES

<b>PRE-RELEASE DEVELOPMENT PERIOD</b>	
Draft Competition Rules Announced and Public Comment Period Began	June 13, 2012
Public Comment Period for Draft Competition Rules Ended	5 PM ET, July 13, 2012
<b>COMPETITION PERIOD</b>	
Competition Rules Released and Registration to Compete Period Begins	September 12, 2012
Pre-Submission and Submission Period Begins	December 31, 2012
Registration to Compete Deadline	5 PM ET, October 31, 2014
Pre-Submission Assessment Period Ends	November 30, 2014
Phase I Prize Submission Deadline	5 PM ET, December 31, 2014
Phase II Prize Submission Deadline (Specified Independently for Each Phase I Submission)	12 Months after Phase I Submission
<b>ANNOUNCEMENTS OF WINNERS</b>	
Anticipated Date for Announcing Prize Winners and Awarding Phase I Prizes	Summer 2015
Anticipated Date for Awarding Phase II Prizes	Spring 2016

For any question, please contact: [SunShot.Prize@ee.doe.gov](mailto:SunShot.Prize@ee.doe.gov)

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## I. INTRODUCTION

The U.S. Department of Energy (DOE) SunShot Initiative aims to make subsidy-free solar energy cost-competitive with conventional forms of energy by the end of the decade. SunShot drives American innovation in manufacturing, engineering, and business through a series of programs designed to spark and promote market solutions to solar energy development and clean energy growth.

The global average wholesale price for photovoltaic (PV) modules fell from \$4.10 per watt (W) in 2007 to \$2.40/W in 2010. The average spot price of solar modules has continued to fall and is below \$1/W in 2012, while the capacity-weighted average of behind-the-meter U.S. PV system prices declined from \$7.90/W to \$6.20/W over the same period.<sup>1</sup> Despite unprecedented cost reductions for solar hardware over recent years, the total price to install and commission residential and small-commercial scale solar energy systems remains high. Designing and implementing practices that enable dramatic reductions in the associated non-hardware costs — deemed the "soft costs" — of solar is now the greatest challenge to achieving national targets for attaining cost-competitive solar by 2020. The SunShot Prize will motivate a new class of solar innovators, directing their efforts at solving the soft cost challenge.

The \$10 million **SunShot Prize** challenges the ingenuity of America's businesses and communities to make it faster, easier, and cheaper to install rooftop solar energy systems. Successful competitors will deploy domestically and in two phases, at least 6,000 new rooftop photovoltaic installations at an **average pre-subsidy non-hardware cost of \$1 per watt**. Winners will break this significant price barrier, considered to be unachievable a decade ago, and prove that they can repeatedly achieve a \$1 per watt non-hardware cost using innovative, verifiable processes and business practices.

## II. THE PRIZE

The SunShot Prize is a cash award for the first three teams that deploy, in two phases, at least 6,000 small-scale (2–15 kilowatt) rooftop PV systems (residential, commercial, and public-sector rooftops) with non-hardware costs averaging one dollar per watt (\$1/W) for completed installations deployed during a continuous duration starting after the time of registration until December 31, 2014.<sup>2</sup> At least 5,000 systems must be deployed during Phase I and at least an additional 1,000 systems must be deployed during Phase II.

This challenge embodies the spirit of the SunShot mission in spreading novel business models and streamlining overly arduous processes, while also aggressively driving the market toward greater transparency and efficiency.

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<sup>1</sup> Barbose, G.; Darghouth, N.; Wiser, R. (2011). Tracking the Sun IV: An Historical Summary of the Installed Cost of Photovoltaics in the United States from 1998 to 2010. Berkeley, CA: Lawrence Berkeley National Laboratory. <http://eetd.lbl.gov/ea/EMS/re-pubs.html>.

<sup>2</sup> For this Prize, watt is defined as the nameplate direct current (DC) peak power rating. Teams may receive Federal, state, local, and other subsidies for their projects. However, these subsidies will not be considered in determining the \$1/W average non-hardware cost target. See Section IV for exact details.

The first three teams to submit eligible, qualified, winning entries will receive cash awards in two phases based on the order in which their submissions are received:

Prize Winner	Maximum Cash Award (Awarded in Two Phases)
First Team	\$7,000,000
Second Team	\$2,000,000
Third Team	\$1,000,000

The first entrant<sup>3</sup> to successfully achieve the target non-hardware cost and meet all Phase I and Phase II requirements will receive a total cash prize of \$7 million and rights to use the title “SunShot Prize Winner of America’s Most Affordable Rooftop Solar.” The second and third successful entrants will receive a total of \$2 million and \$1 million in cash, respectively, and be designated SunShot Prize Winners.

In order to obtain the maximum cash award, a competitor must complete a second phase (Phase II) of the Prize. Phase II is intended to assess business sustainability. During Phase II, business sustainability is determined by the demonstration of at least an additional 1,000 installed systems using the same processes and practices employed during Phase I. Phase II installations must be completed within a twelve month period commencing at the time of Phase I submission. Prize money will be awarded to the winning participants for Phase I and Phase II as follows:

Prize Winner	Phase I 5,000 rooftop systems non-hardware costs averaging \$1/W or less	Phase II Additional 1,000 rooftop systems non-hardware costs averaging \$1/W or less
<b>First Team</b>	\$5,000,000	\$2,000,000
<b>Second Team</b>	\$1,500,000	\$500,000
<b>Third Team</b>	\$750,000	\$250,000

DOE reserves the right to close the contest after three successful entries have been received and evaluated or for other reasons identified by DOE. DOE reserves the right to suspend, cancel, extend, or curtail the SunShot Prize competition as required or determined by appropriate DOE officials. Nothing within this document or in any documents supporting the SunShot Prize competition shall be construed as obligating DOE or any other Federal agency or instrumentality to any expenditure of appropriated funds, or any obligation or expenditure of funds in excess of or in advance of available appropriations.

### III. PRIZE ELIGIBILITY

Teams must meet the technical performance specifications and submission evaluation<sup>4</sup> and each of the following qualifying requirements:

<sup>3</sup> Submission with earliest timestamp as specified in Section V.

<sup>4</sup> Discussed in Sections IV and V.

- A. A team must have a single legal entity representing the entire team. This entity shall be designated the Team Lead. The Team Lead is responsible for providing and meeting all submission and evaluation requirements.<sup>5</sup> The Team Lead shall be a private or publicly traded company or an institution of higher education, an association, or other nonprofit organization, that maintains a primary place of business in the U.S.; or an individual (whether participating as a single individual or leading a group) who shall be a U.S. citizen. The Team Lead must have a valid DUNS number<sup>6</sup> at the time of the registration. The Team Lead must meet the following criteria:
1. Is validly existing, duly organized, and in good standing in the jurisdiction of its organization
  2. Can receive payments that are legally made from the U.S. in U.S. dollars
  3. Has a bank account into which funds can be legally deposited from the U.S. in U.S. dollars
  4. Has insurance, self-insurance, or other risk management means as required by law and determined by DOE, in its sole discretion, to be adequate to protect against any potential claims, losses, and damages arising from Team's participation in the SunShot Prize.
- B. Any entity that has substantial active involvement on the team's Prize performance must be included as a team member. Examples of entities that may be part of a team include, but are not limited to, solar developers, installers, local and State governments, electric utilities, code officials, municipal planners, nonprofit groups, financial institutions, institutions of higher education, associations, and other nonprofit organizations.
- C. Each team member must be either: (1) a legal entity established pursuant to U.S. Federal or State laws, with operations in the U.S. or its Territories or; (2) a foreign legal entity having an officially recognized place of business in the U.S. or its Territories.
- D. Local governments, State governments, townships, municipalities, authorities, or any other organization with substantial interest or control by a local or State authority may participate as a team member but such an entity cannot be a Team Lead.
- E. In accordance with 15 U.S.C. § 3719(i), the Team Lead shall provide proof of general liability insurance of \$1 million per incident and a \$5 million umbrella policy for claims by a third party for death, bodily injury, or property damage or loss resulting from an activity carried out in connection with the competition, with the Federal Government named as an additional insured under the Team Lead's insurance policy. Additionally, registered participants must agree to indemnify the Federal Government against third

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<sup>5</sup> Discussed in Section V.

<sup>6</sup> Obtain a Dun & Bradstreet Data Universal Numbering System (DUNS) number (including a plus 4 extension, if applicable) at <http://fedgov.dnb.com/webform>.

party claims for damages arising from or related to competition activities and for damage or loss to Government property resulting from such an activity.

- F. The Team Lead and all team members must agree to assume any and all risks related to the SunShot Prize and waive all claims against the Federal Government and related entities, except in cases of willful misconduct, for any injury, death, damage, or loss of personal property, revenue or profits, whether direct, indirect, or consequential, arising from their participation in the competition, whether the injury, death, damage, or loss arises through negligence or otherwise.
- G. The Team Lead shall submit all required documentation and evidence in English and all accounting figures shall be in U.S. dollars. Submissions will be reviewed, evaluated, and audited by independent third parties, subject to professional standards of confidentiality.
- H. A team shall submit a Teaming Agreement (Agreement) signed by an authorized official or representative of each team member that adequately describes the relationship between the team members, the roles and responsibilities of the team members, and the duration of the Agreement. Additionally, the Agreement shall describe dispute and conflict resolution amongst the team members (including disputes related to participation, project, and/or installation costs), allocation of prize award amount(s) to team members, confidential or proprietary information between team members, and how and when the Agreement is subject to termination.<sup>7</sup>

#### IV. INSTALLATION SPECIFICATIONS

The performance criteria detailed below seek to ensure that the winning teams implement scalable, sustainable, and transferable practices. DOE procedures for verifying performance criteria via comprehensive subject-matter experts and third-party audits are described in Section V.

<b>Table 1 – INSTALLATION REQUIREMENTS AND RELATED TERMS</b>	
<b>Number of Installations</b>	<p><b>Phase I:</b> Minimum five thousand small-scale (minimum two kilowatt and maximum fifteen kilowatts) distribution-grid-connected, rooftop-mounted photovoltaic systems.</p> <p><b>Phase II:</b> Minimum one thousand systems meeting the same requirements as in Phase I.</p>
<b>Eligible Systems</b>	<p>A completed system is defined as a distribution-grid-connected, rooftop-mounted PV installation with a unique interconnection and a valid interconnection agreement from the local electric utility. The population of eligible systems are all systems installed during the eligible performance period within the eligible performance region, defined as follows:</p> <p><b>Performance Period:</b> Between the continuous duration <math>t_0 = MM_0/DD_0/YYYY_0</math> (starting time) and <math>t_1 = MM_1/DD_1/YYYY_1</math> (ending time) [<math>t_0</math> and <math>t_1</math> are selected by each team</p>

<sup>7</sup> Discussed in Section V.

	<p>individually; <math>t_0</math> must be after registration; <math>t_1</math> is on or before December 31, 2014], all system installations completed by the competing team or its partners or affiliates in a team-selected performance region are considered to be part of the population and must be provided as part of the submission package. The completion date for an installation is defined as the date of grid interconnection. Installations completed prior to team registration do not qualify.</p> <p><b>Performance Region:</b> A selected subset of counties and county-equivalents (e.g., cities, parishes, boroughs) where team members operate. If one installation located in a given county is to be considered in the population, then all installations in that county must be included. If a team elects to exclude one installation in a county, then all installations in that county must be excluded from the population.</p>
<p><b>Total Sales Price for Individual Systems</b></p>	<p>The total pre-subsidy price, for eligible systems includes all hardware and non-hardware fees such as permitting, interconnection, inspection, installation labor, financing, and contracting.</p> <p><b>Host Owned Systems:</b> The sales price is the total price paid by the customer.</p> <p><b>Third-Party Owned Systems:</b> The equivalent price per watt for a third-party owned system is calculated as the maximum of the following two values:</p> <ul style="list-style-type: none"> <li>• Fair market value (FMV) declared as base for all calculations to receive subsidies (including Federal, State, local, and other)</li> <li>• Present value of net cash flows paid by the system off-taker for the duration of the lease or the power purchasing agreement (PPA) as described in the binding contract or agreement dated effective at the time of the SunShot Prize application submission.</li> </ul> <p>The discount rate used for calculating net present value of future cash flows should not exceed 10%.</p>
<p><b>Hardware Component Costs</b></p>	<p>Hardware components for a given solar energy system are defined as the material components comprising a solar energy system physically located on the host site. Hardware components include, but are not limited to, photovoltaic modules, inverters, racking, cabling, conduits, and energy monitoring systems. Hardware component cost is the associated price or equivalent price paid for solar energy system hardware by the solar dealer/installer/developer.</p> <p>For hardware components obtained via an arms-length transaction the hardware component cost is the price recorded on the bill of sale from the third-party (all contracts between buyer and seller will be audited to ensure arms-length nature of individual transactions).</p> <p>For all other hardware components the hardware component cost is equal to the price that would be paid by a third-party for such hardware via an arms-length transaction (i.e., the equivalent hardware component cost). The equivalent hardware component cost for a single component for a given system is determined by reporting bills of sale for</p>

	<p>all such transactions for that component over the same time period. The weighted average price over the given accounting quarter in which the system is completed is the accepted equivalent component price.</p> <p>Additionally, reported hardware costs cannot be artificially high. They must reflect market trends as guided by solar module spot rates or related indices.</p>																																				
<p><b>Non-hardware Costs</b></p>	<p>The non-hardware costs for a given system is defined as the difference between the total sales price for the individual system and the total hardware component costs, as defined above; i.e.:</p> <p style="text-align: center;">Non-hardware Costs = Total Sales Price – Hardware Component Costs</p> <p>In this definition, non-hardware costs include a set of tangible quantities, e.g., transactional fees (for permits, inspection, and interconnection), installation labor costs, system design, and marketing. The non-hardware cost metric also embeds a broader economic perspective about localized supply-demand conditions, market transparency, profits, and overhead.</p>																																				
<p><b>Average Non-hardware Costs Calculation Method</b></p>	<p>The following method must be used to calculate the average non-hardware costs:</p> <table border="1" data-bbox="435 783 1471 1797"> <thead> <tr> <th>Term</th> <th>Unit</th> <th>Range</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><math>N</math></td> <td>--</td> <td>Phase I: <math>\geq 5,000</math>, Phase II: <math>\geq 1,000</math></td> <td>Total number of systems in population</td> </tr> <tr> <td><math>i</math></td> <td>--</td> <td><math>1, 2, \dots, N</math></td> <td>Index to label each individual system in population</td> </tr> <tr> <td><math>P_i</math></td> <td>U.S. dollars (\$)</td> <td><math>&gt; 0</math></td> <td>Total sales price or equivalent price of system <math>i</math></td> </tr> <tr> <td><math>C_i</math></td> <td>watts (W)</td> <td>2,000 to 15,000</td> <td>Nameplate peak DC capacity of system <math>i</math></td> </tr> <tr> <td><math>H_i</math></td> <td>U.S. dollars (\$)</td> <td><math>&gt; 0</math></td> <td>Total hardware costs for system <math>i</math></td> </tr> <tr> <td><math>S_i = P_i - H_i</math></td> <td>U.S. dollars (\$)</td> <td><math>&gt; 0</math></td> <td>Total non-hardware costs for system <math>i</math></td> </tr> <tr> <td><math>s_i = \frac{S_i}{C_i}</math></td> <td>U.S. dollars (\$)</td> <td><math>&gt; 0</math></td> <td>Non-hardware costs normalized to installed capacity for system <math>i</math></td> </tr> <tr> <td><math>\bar{s} = \frac{1}{N} \sum_{i=1}^N s_i</math></td> <td>dollars per watt (\$/W)</td> <td>0 to 1</td> <td><b>Average normalized non-hardware costs price for all <math>N</math> system</b></td> </tr> </tbody> </table>	Term	Unit	Range	Description	$N$	--	Phase I: $\geq 5,000$ , Phase II: $\geq 1,000$	Total number of systems in population	$i$	--	$1, 2, \dots, N$	Index to label each individual system in population	$P_i$	U.S. dollars (\$)	$> 0$	Total sales price or equivalent price of system $i$	$C_i$	watts (W)	2,000 to 15,000	Nameplate peak DC capacity of system $i$	$H_i$	U.S. dollars (\$)	$> 0$	Total hardware costs for system $i$	$S_i = P_i - H_i$	U.S. dollars (\$)	$> 0$	Total non-hardware costs for system $i$	$s_i = \frac{S_i}{C_i}$	U.S. dollars (\$)	$> 0$	Non-hardware costs normalized to installed capacity for system $i$	$\bar{s} = \frac{1}{N} \sum_{i=1}^N s_i$	dollars per watt (\$/W)	0 to 1	<b>Average normalized non-hardware costs price for all <math>N</math> system</b>
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<p><b>Pricing Distribution</b></p>	<p>The maximum allowable percentage of installs within the population with non-hardware costs per watt exceeding <b>\$2.00/W, \$2.50/W, and \$3.00/W</b> is as follows:</p> <table border="1" data-bbox="675 323 1232 588"> <thead> <tr> <th data-bbox="675 323 1122 478">Percentage of allowable installs with non-hardware costs exceeding ...</th> <th data-bbox="1122 323 1232 478"></th> </tr> </thead> <tbody> <tr> <td data-bbox="675 478 1122 512">\$2.00/W</td> <td data-bbox="1122 478 1232 512">10%</td> </tr> <tr> <td data-bbox="675 512 1122 546">\$2.50/W</td> <td data-bbox="1122 512 1232 546">5%</td> </tr> <tr> <td data-bbox="675 546 1122 588">\$3.00/W</td> <td data-bbox="1122 546 1232 588">1%</td> </tr> </tbody> </table> <p>That is: 90% of all installed systems within the population must be at or below \$2.00/W; 95% must be priced at or below \$2.50/W; and 99% must be at or below \$3.00/W.</p>	Percentage of allowable installs with non-hardware costs exceeding ...		\$2.00/W	10%	\$2.50/W	5%	\$3.00/W	1%
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\$2.50/W	5%								
\$3.00/W	1%								
<p><b>Rooftop Systems</b></p>	<p>Eligible systems must be installed on rooftops of businesses, residences, or public facilities. A system must be rooftop mounted on a habitable building structure. For example, a shed or a dog house does not qualify as a habitable building structure. A home addition such as a garage or sunroom qualifies as a habitable structure. Furthermore, recognized system size and its completion date are defined in a dated interconnection letter from the local electric utility. For larger installations such as a system on an apartment complex or residence hall, where the system size may exceed 15 kW, the installation will be eligible only if there are multiple interconnection letters stating that the size of each interconnection is less than or equal to 15 kW.</p>								
<p><b>System Owner(s) Subsidies</b></p>	<p>System owners may take any Federal, State, local, or other subsidies or financially advantageous provisions (including the Investment Tax Credit and Modified Accelerated Cost Recovery System). For the purpose of determining achievement with the \$1/W target, the Total Sales Price for Individual Systems and the Hardware Component Costs will be based on pre-subsidy prices. For solar leases, third-party owned systems, or for systems such that owner and host differ, the non-hardware costs, as defined as the equivalent price per watt minus all applicable hardware costs, must average \$1/W or less. In this case, the following rules apply: it is the responsibility of every team to provide certified filings, including amendments, of all subsidies and rebates (Federal, State, local, and other) clearly stating the pre-subsidy valuation for all participating systems even if these subsidies and rebates are claimed by one or multiple third-parties (including parties not explicitly part of the team). For any system with multiple associated subsidy or rebate filings, all such filings must be submitted. Failure to submit any of these filings will automatically disqualify the system.</p>								

<p><b>Subsidy Sharing Program for Third-Party Owned Systems</b></p>	<p>For each participating third-party owned system for which any subsidies or rebates are claimed, the system owner(s) must share a portion of the total claimed subsidy and rebate amounts with the system off-taker.</p> <p>For example, if only the Federal Investment Tax Credit (totaling 30% of claimed FMV) was claimed, then a portion must be disbursed to the system off-taker. Under a power purchase agreement, the credit may be distributed in terms of an allotment of generated electricity provided free of charge or a specified period with a reduced electricity purchase price. Under a lease agreement, the credit may be distributed in terms of a specific number of complimentary months. These are only provided as illustrative examples. It is the responsibility of the third-party owner to establish and justify an equitable Subsidy Sharing Program.</p>
<p><b>Permitting and Inspection</b></p>	<p>Each installation must meet all applicable local, State, and Federal statutes, laws, regulations and ordinances regarding proper installation and inspection procedures (including, but not limited to, building codes, electrical codes, and fire codes).</p>
<p><b>Interconnection</b></p>	<p>Each installation must follow utility-specific rules and regulations for connecting to the electric utility distribution system.</p>
<p><b>Performance Projections and Monitoring</b></p>	<p>As part of each individual installation, projected monthly and annual energy generation figures shall be provided to the customer. The projection may be obtained via the National Renewable Energy Laboratory’s (NREL) PVWatts™ calculator or other software package. Each system’s actual monthly generation shall also be tabulated. For all installations with more than three months of operation, the average absolute deviation of the projection from the actual output should not exceed 25%. For any deviation exceeding this limit, acceptable justification for extenuating circumstances must be provided (e.g., extraordinary weather patterns). Unacceptable reasons for excessive deviations include poor system design (e.g., shading), poor maintenance, or imprecise system modeling. Exhibit A shows how calculations for the average absolute deviation of the projection from the actual output are made.</p> <p><b>Note:</b> Systems with fewer than three months of data are excluded from this requirement.</p>
<p><b>Product Safety &amp; Certification</b></p>	<p>All installed system components shall be certified according to UL1703 or IEC61730 standards or other comparable standards. This includes, but is not limited to, PV modules, panels, mounting systems, AC modules, and charge controllers.</p>
<p><b>Warranty Periods</b></p>	<p>All installations must have an output manufacturer(s) warranty of at least 20 years. All installations must have a total system workmanship warranty that covers the installation of solar panels, inverters, racking, patented roof protection systems, roof penetrations, electrical and mechanical parts, and wiring for the duration of at least 10 years. All installations must have at least a one-year installer warranty.</p>

<b>Operations and Maintenance Contracts</b>	Every third-party owned system should be covered under an operations and maintenance agreement for the duration of the off-taker’s agreement.
<b>Insurance</b>	In addition to the insurance requirements in Section III, installations should be covered under construction insurance packages required by local authorities such as general liability insurance, construction liability insurance, auto insurance, marine cargo insurance, and workers compensation. Workers compensation insurance should cover volunteer labor if installations relied on volunteers during construction. A third-party owned system should have insurance coverage for the duration of the off-taker’s agreement.
<b>Business Sustainability Approach</b>	Teams must demonstrate the sustainability of the business model to deploy solar in subsidy-free U.S. markets. Future installations must prove feasible without subsidies and rebates at an average non-hardware cost of \$1/W. A team’s ability to optimize resources and realize cost-savings will be significant in determining the SunShot Prize Winners. Business sustainability is defined by: <ul style="list-style-type: none"> <li>• Completing an additional 1,000 installs as required in Phase II, and</li> <li>• Subsidy Sharing Program’s total disbursements to off-takers. This applies only to third-party owned systems.</li> </ul>

## V. EVALUATION OF SUBMISSIONS

### A. Evaluation Review Committee

Section 105 of Public Law 111-358, the America COMPETES Reauthorization Act of 2010, amended the Stevenson-Wydler Technology Innovation Act of 1980, 15 USC 3701 et seq., by adding a new section 24, which generally authorizes Federal agencies to award prizes competitively to stimulate innovation that has the potential to advance the mission of the respective agency. Among other things, section 24 requires DOE to appoint qualified judges to select the winner of the competition. DOE will establish an Evaluation Review Committee (ERC) composed of Federal and non-Federal subject matter experts, including third-party organizations, to review entries submitted under this competition and determine whether performance data successfully meets the Prize specifications detailed in this document. A subject matter expert may be experts from DOE, NREL, or elsewhere in the public sector, and/or experts from the private sector. Members of the ERC are collectively knowledgeable of the solar industry, engineering, and business including finance, accounting, and marketing. The ERC will review all eligibility qualifications and installation specifications for submissions.

### B. Submission Requirements

**Step 1: Registration.** All teams must register to compete for the SunShot Prize. There is no charge to register to compete. Registration opens September 12, 2012 and closes at 5 PM ET on October 31, 2014. Registration details are posted at

[eere.energy.gov/solar/sunshot/prize.html](http://eere.energy.gov/solar/sunshot/prize.html).

To register, the following information is required:

1. **Names and contact information of the Team Lead and all team member organizations.**
2. **Concept Paper.** This document explains, in ten pages or fewer, how the team intends to satisfy the SunShot Prize requirements including enabling innovations in strategy, marketing, operations, value chain management, and finance. It should also detail model cost structures, calculations, cost reduction drivers, and the accounting, financial, and economic impacts of subsidies (Federal, State, local, other) on business sustainability. For business models that use third-party owned systems, a Subsidy Sharing Program should be explicitly described in the Concept Paper. Concept Papers will be treated as business or trade secrets exempt from Freedom of Information Act (FOIA) disclosures as allowed by law.
3. **Signed Teaming Agreement.** DOE will not arbitrate, intervene, advise on, or resolve any matters between team members. Each team shall submit a Teaming Agreement (Agreement) signed by an authorized official or representative of each team member that adequately describes the relationship between the team members, the roles and responsibilities of the team members, and the duration of the Agreement. Additionally, the Agreement shall describe dispute and conflict resolution mechanisms amongst the team (including disputes related to participation, project, and/or installation costs), allocation of prize award amount(s) to team members, confidential or proprietary information between team members, and how and when the Agreement is subject to termination.
4. **Opting to keep registration status confidential for up to 60 days.** As part of the registration, a team may request to keep its registration status confidential for a maximum of 60 calendar days from the date of registration. If requested, DOE will, subject to applicable law, not disclose or release any information about the team's expressed intent to compete in the SunShot Prize. If confidentiality is not requested in the registration, DOE will have unlimited rights to disclose and release information about the team's registration. In this case, DOE may coordinate joint or unilateral public announcements.
5. **Confirmation that the prospective entrant has read and agrees to the SunShot Prize rules.**

All SunShot Prize contenders must register prior to submission for Phase I. Registration allows DOE sufficient preparation time to evaluate submissions.

#### **Rules for Modifying Team Structure and/or Teaming Agreement after Registration**

For a team, the Team Leader may not change. A new registration is required to modify a Team Lead, and consequently, this will impact the eligible performance period. Team members, other than the Team Lead, can join or withdraw according to the following rules:

1. Modifications to a team's structure and teaming agreement must be provided to DOE.

2. Modifications can be submitted at any time after registration and up to the time of Phase I submission.
3. Modifications should not occur during Phase II of the competition.
4. Withdrawing team members must provide written justification and consent from other team members.
5. Installations by joining team members are only considered eligible after the submission of modification to DOE.
6. Two registered teams can consolidate into a single team. A Team Lead for one of the original teams must be named the single Team Lead of the consolidated cohort. The eligible performance period is defined by the later of the two initial registration dates.
7. Modifications will be reviewed and assessed by DOE, and a ruling regarding acceptability will be issued. The ruling will be posted publicly on the SunShot Prize webpage. DOE reserves the right to disqualify a team if there were material changes to the team structure or the teaming agreement.

**Step 2: Pre-Submission Assessment.** Following registration, DOE will evaluate the entrant's registration materials, based on the SunShot Prize conditions and requirements. DOE, within approximately 30 calendar days, will encourage or discourage team Prize participation based on the proposed approach in a written correspondence, called a Concept Paper Assessment Letter (CPAL). An encouraged concept does not evidently violate any Prize conditions or requirements or their intent. A discouraged concept may violate one or more conditions or requirements or their intent. In this case, the CPAL will detail the specific concerns with the concept. A full submission based on the implementation of a discouraged concept without modification may not qualify for winning the SunShot Prize.

If a registered team does not submit a Concept Paper as part of the registration, the entrant's registration will be deemed incomplete. In this case, DOE will send a letter confirming the entrants' registration deficiency. The entrant may subsequently submit a Concept Paper to complete its registration.

If a registered team submits a Concept Paper as part of the registration but does not receive a CPAL within 30 calendar days following registration, the entrant may contact DOE to request a CPAL. DOE will respond with a CPAL within an expected 10 calendar days.

If an entrant receives a discouraging CPAL from DOE, the entrant may submit another Concept Paper without a new registration but only for one time.

If a registered entrant does not receive a CPAL from DOE on or before November 30, 2014, the entrant may not submit to compete in the SunShot Prize.

**Step 3: Full Phase I Submission.** Registered entrants with CPALs may submit full applications on or after December 31, 2012 and before 5 PM ET, December 31, 2014. In order to be considered a complete submission, the following must be included:

1. **Concept Paper Assessment Letter.** A copy of the received CPAL must be provided. A registered team without a CPAL may not submit to compete in the SunShot Prize and will be disqualified.
2. **Data Release Form.** In evaluating submissions, DOE may share information/data with a limited number of organizations to examine installation quality, audit an entrant’s financial and business records, conduct site visits to deployed installations, evaluate business sustainability, or perform any other examination required to determine eligibility for the Prize. Entrants must sign and submit the Data Release Form (Attachment 1).

All non-Federal parties (including, but not limited to ERC members, subject-matter experts, and independent examiners) requiring installation information for the purposes of this competition must sign conflict of interest and non-disclosure agreements prior to receiving entry information. Entrants must clearly mark all data in their entry package considered to be patentable, a trade secret, or proprietary.

3. **Certification of Eligibility.** The entrant must provide a certification that the eligibility requirements, detailed in Section III, are fully met. Entrants must do so by completing the Certification of Eligibility (Attachment 2). The attachment includes a statement that submitted systems constitute the population, not a sample, of all eligible installations deployed by the entire team (team members, partners, and affiliates) during the performance period in the performance region.
4. **Teaming Agreement.** A legally binding teaming agreement dated effective at the time of submission must be signed by legal representatives of all team member organizations. This agreement should govern roles, responsibilities, prize allotments, disputes, conflict resolution, confidentiality, duration, and termination. This agreement may be identical to the agreement submitted during registration or it may be a modified agreement as long as it contains the required terms explained earlier. Changes to the teaming agreement are subject to the rules outlined above.
5. **Team Submission Portfolio.** Entrants must submit documents that, at a minimum, clearly provide the following records in order to be considered eligible for the prize.

**Table 2 – PHASE I TEAM SUBMISSION PORTFOLIO**

Team Submission Portfolio Item	Format	Required Information/Document
Team Profile	20-30 pages	<ul style="list-style-type: none"> <li>• Prize narrative that includes:               <ul style="list-style-type: none"> <li>○ Overall concept</li> <li>○ Approach and methods</li> <li>○ Differentiating drivers and strategy, marketing, operations, value-chain management, and financial structures</li> <li>○ Market impact</li> <li>○ Team composition including partners/affiliates</li> </ul> </li> </ul>

		<ul style="list-style-type: none"> <li>○ Subsidy Sharing Program details</li> <li>● Total number and rated capacity of systems</li> <li>● Systems per State and county or county equivalent</li> <li>● System sector distribution (residential, commercial, public sector)</li> <li>● Owner distribution (host owned, third-party owned)</li> </ul>
<b>System Population Profile</b>	Single Microsoft Excel spreadsheet formatted as per sample posted on SunShot Prize website	<p>Data for each system in population, including:</p> <ul style="list-style-type: none"> <li>● Total installed price (\$)</li> <li>● Rated capacity (kW)</li> <li>● Hardware components (panels, inverters, etc.)</li> <li>● Hardware component costs breakdown</li> <li>● Non-hardware costs breakdown</li> <li>● Generation per month since installation completion (kWh)</li> <li>● Street address of installation location</li> <li>● System owner/host customer</li> <li>● Customer acquisition channels</li> <li>● Install date</li> <li>● Interconnection date</li> <li>● Solar contractor/installer</li> <li>● Building inspection date and report</li> <li>● Utility inspection date and report</li> <li>● Total number of billable man-hours needed to complete project associated labor costs</li> <li>● All subsidy and rebates filings (Federal, State, local, other) (if any)</li> </ul>
<b>Labor &amp; Operations</b>	7-10 pages	<ul style="list-style-type: none"> <li>● Narrative of operations</li> <li>● Installation staff qualifications</li> <li>● Installation team composition(s)</li> <li>● Installation team labor costs</li> </ul>
<b>Permits &amp; Certifications</b>	No page limit	<ul style="list-style-type: none"> <li>● Solar installer license(s)</li> <li>● Industry certification/awards (if any)</li> <li>● General liability insurance</li> <li>● Construction liability insurance</li> <li>● Auto insurance (if any)</li> <li>● Marine cargo insurance (if any)</li> <li>● Workers compensation insurance</li> </ul>

**Step 4: Full Phase II Submission.** Phase II installations must be completed within a 12 month period commencing at the time of Phase I submission. To verify completion of Phase II, the applicant must submit the following materials no later than 12 months after the application’s Phase I submission. The applicant must also agree to supply the DOE-selected auditors and examiners with any and all information requested to ensure that the goals have been met.

**Table 3 – PHASE II TEAM SUBMISSION PROFILE**

<b>System Population Profile</b>	Single Microsoft Excel spreadsheet formatted as per sample posted on SunShot Prize website	Data for each system in population, including: <ul style="list-style-type: none"> <li>• Total installed price (\$)</li> <li>• Rated capacity (kW)</li> <li>• Hardware components (panels, inverters, etc.)</li> <li>• Hardware component costs breakdown</li> <li>• Non-hardware costs breakdown</li> <li>• Generation per month since installation completion (kWh)</li> <li>• Street address of installation location</li> <li>• System owner/host customer</li> <li>• Customer acquisition channels</li> <li>• Install date</li> <li>• Interconnection date</li> <li>• Solar contractor/installer</li> <li>• Building inspection date and report</li> <li>• Utility inspection date and report</li> <li>• Total number of billable man-hours needed to complete project associated labor costs</li> <li>• All subsidy and rebates filings (Federal, State, local, other) (if any)</li> </ul>
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**Audit of Phase I and Phase II Submissions.** As part of the Prize auditing procedure, the team must make available to DOE-selected auditors and examiners the following documents and materials. The audit may require supplementary materials to evaluate that the Prize targets have been achieved. Refusal to produce these documents or any supplemental documents may result in disqualification from the Prize competition.

**Table 4 – MANDATORY DATA LIST**

<b>Installations Profile</b>	<p><i>Proof for every installation, including documents and receipts that prove:</i></p> <ul style="list-style-type: none"> <li>• Total installed price</li> <li>• System monthly output in kWh since completed installation</li> <li>• System rated capacity</li> <li>• System components</li> <li>• Hardware component costs (\$)</li> <li>• Non-hardware costs (\$)</li> <li>• Footing details</li> <li>• Roof framing plan</li> <li>• Elevations</li> <li>• Electrical plans</li> <li>• Street address of installation location</li> <li>• System owner/host customer</li> <li>• Customer acquisition channels</li> <li>• Installation/lease contract or purchase order</li> <li>• Photographs of installation</li> </ul>
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	<ul style="list-style-type: none"> <li>• Solar installation permit (e.g., building, electrical)</li> <li>• Installation task order with dates and personnel</li> <li>• Install date</li> <li>• Interconnection date</li> <li>• Solar contractor/installer (if different)</li> <li>• Building inspection date and report and copy of all signed permits</li> <li>• Utility inspection date and report and copy of interconnection letter</li> <li>• System owner satisfaction survey results (if any)</li> </ul>
<b>Hardware &amp; Equipment (include price breakdown for system components)</b>	<ul style="list-style-type: none"> <li>• List of specialized installation equipment/tools (if any)</li> <li>• Nameplate power (kW, peak DC)</li> <li>• Module manufacture(s)</li> <li>• Module model number(s)</li> <li>• Model description: power rating, technology</li> <li>• Module quantity</li> <li>• Inverter manufacturer(s)</li> <li>• Inverter model(s)</li> <li>• Inverter quantity</li> <li>• Racking hardware</li> <li>• Other hardware (e.g., mounts, flashing, conduits, and wiring)</li> </ul>
<b>Permits &amp; Certifications</b>	<p><i>For every installation include:</i></p> <ul style="list-style-type: none"> <li>• Permits (electrical, mechanical, fire, other)</li> <li>• Permitting application forms</li> <li>• Module warranty</li> <li>• Inverter warranty</li> <li>• Performance guarantee</li> <li>• System (installation) certification with local authority</li> <li>• System (installation) registration with local authority</li> </ul>
<b>Design &amp; Deployment Plans (planned versus actual)</b>	<ul style="list-style-type: none"> <li>• Project baseline plans to deploy all installations including dates, deadlines, milestones, resources breakdown, and cost breakdown</li> <li>• Actual project plans to deploy all installations including dates, deadlines, milestones, resources breakdown, and cost breakdown</li> </ul>
<b>Partnerships, Agreements, and Ownership Structures</b>	<ul style="list-style-type: none"> <li>• Operation and maintenance contracts</li> <li>• Interconnection agreements</li> <li>• Industry partnerships or agreements (foreign or domestic)</li> <li>• Supplier(s) agreements or joint ventures (foreign or domestic)</li> <li>• Shareholder ownership structure including tax equity investors, special purposes funds or vehicles (foreign or domestic)</li> <li>• All stock purchase agreements (common or preferred), if any</li> </ul>
<b>Manufacturers &amp; Suppliers</b>	<ul style="list-style-type: none"> <li>• Seller company or companies</li> <li>• Solar contractor(s)</li> <li>• Contractor license number(s)</li> </ul>

<b>Financial &amp; Accounting Records<sup>8</sup> for 2012-2016</b>	<ul style="list-style-type: none"> <li>• Accounting books to include all financial transactions<sup>9</sup></li> <li>• Financial statements<sup>10</sup></li> <li>• Bank(s)/creditor(s) agreements and statements</li> <li>• Evidence of all financial transactions in general ledgers (i.e., invoices, purchase orders, payment receipts, checks, direct deposits, etc.)</li> <li>• All debt instruments or agreements (short-term, long-term, convertible, corporate bonds, IOUs)</li> </ul>
<b>Taxes &amp; Subsidies</b>	<ul style="list-style-type: none"> <li>• Federal and State tax returns for 2012-2016 (for applicable years) received or anticipated Investment Tax Credits, rebates, discounts, SRECs (solar renewable energy certificates), or other subsidies.</li> <li>• Certified filings including amendments of all subsidies and rebates (Federal, State, local, and other) for all participating systems even if these subsidies and rebates are claimed by one or multiple third-parties (including parties not explicitly part of the team). For any system with multiple associated subsidy/rebate filings, all such filings must be submitted. Failure to submit any of these filings will automatically disqualify the system.</li> </ul>

### C. How to Submit Entries

Teams are limited to one entry for the SunShot Prize. A complete entry submission that includes all items listed in Section V must be submitted at [eere.energy.gov/solar/sunshot/prize.html](http://eere.energy.gov/solar/sunshot/prize.html). The time of DOE receipt of a submission will be noted via a timestamp through the website.

### D. Timestamp

Entries for the final submission of Phase I will be timestamped when a complete entry submission is received via online submission. DOE will conduct a compliance review to ensure all information was properly submitted. If DOE determines material is missing from an entry submission, the submitting Team Lead will be notified of missing information within 10 business days of receipt of the entry submission. A timestamp will be given once the missing information is received by DOE as part of a complete submission. All requirements listed in Section V must be fully satisfied for the entry to be considered complete.

Entries from different entrants will be evaluated for completeness in the order in which they are received. If, after DOE determines an entry is complete, a portion of the submitted installations do not meet specified requirements or a portion of records conflict with any of the requirements, DOE will notify the entrant. Entrants may submit revisions within 10 business days of DOE notification to retain the original timestamp. If the revision is submitted to DOE after 10 business days, the revised entry will receive a new timestamp upon receipt of the revised information. Entrants may revise a submission only one time. Revised entries that still do not meet all requirements will be disqualified.

<sup>8</sup> For applicable years

<sup>9</sup> Teams may use Sage Peachtree or Intuit Quickbooks or any other equivalent software.

<sup>10</sup> All financial statements should be prepared using GAAP (Generally Accepted Accounting Principles).

Phase II submission does not require a timestamp as long as it is submitted within the permitted 12 months.

## **E. Evaluation Process**

The evaluation process will determine SunShot Prize winners in meeting requirements and satisfying the examiners' evaluation, which will focus on feasibility in subsidy-free U.S. markets, technical quality of installations, business model sustainability, and industry impact. After completing the evaluation process, the ERC will determine SunShot Prize winners. The determination of winners is final. The first team to satisfy all qualifying criteria will receive the first cash prize.

The evaluation process consists of the following assessments:

1. **Submission Review.** The review examiners will determine:
  - a. Application completeness
  - b. Submission qualification
  - c. Accuracy and authenticity of all submitted records
2. **Technical Field Assessment.** Examiners will review evidence of installation qualification and compliance with requirements. Examiners may conduct random on-site visits of approximately 10% of the population of installations submitted by an entrant. It will be the responsibility of the installer to notify the resident and/or property owner prior to the installation being complete that they may be selected for review by DOE-selected examiners. It will be required that the team working with the auditing firm, make the necessary appointments with the homeowners and/or property owners for these onsite field assessments. Examiners will assess the quality of installations and compliance with installation specifications.
3. **Financial and Accounting Assessment.** Examiners will perform a complete audit to determine financial propriety of submissions. Auditors will review all financial transactions, accounting procedures, internal controls, financial terms, and financial reporting systems. All team members, by being included on a team, are subject to full disclosure for the auditing process and shall not withhold any information that auditors deem necessary to complete audits.
4. **Business Sustainability.** Examiners will evaluate the sustainability of teams' business models to deploy solar in subsidy-free U.S. markets. Future installations must prove feasible without subsidies and rebates at average non-hardware costs of \$1/W or less. Examiners will use the following datasets submitted by teams to objectively assess business sustainability:
  - a. Pre-subsidy sale prices
  - b. Pre-subsidy costs
  - c. Approach scalability by completing additional 1,000 installs (Phase II).
  - d. Subsidy Sharing Program total disbursements to off-takers (this applies only to third-party owned systems).

## **F. Selection & Awards**

Advised by an independent auditing firm and DOE-selected examiners, the Evaluation Review Committee will determine and name the SunShot Prize Winners. The anticipated date of Phase I winner announcements is September 1, 2015. The anticipated date of Phase II winner announcements is May 1, 2016.

If a team successfully completes Phase I and Phase II, then the team shall receive the maximum cash award and rights to use the title “SunShot Prize Winner.” The first team will have the rights to the title “SunShot Prize Winner of America’s Most Affordable Rooftop Solar.” If a team successfully completes Phase I but fails to complete Phase II, then the team receives only the Phase I cash award and does not receive the rights to use the title “SunShot Prize Winner.”

## **VI. QUESTIONS/COMMENTS**

Questions and comments regarding this competition, its requirements, technical specifications, or evaluation procedures can be submitted to [SunShot.Prize@ee.doe.gov](mailto:SunShot.Prize@ee.doe.gov) or at [eere.energy.gov/solar/sunshot/prize.html](http://eere.energy.gov/solar/sunshot/prize.html).

**EXHIBIT A**  
**Performance Deviation Calculation**

An example table of how performance may be tracked for an individual system is as follows:

<b>Month</b>	<b>Projected AC energy generation (kWh)</b>	<b>Actual AC energy generation (kWh)</b>	<b>Absolute deviation (kWh)</b>	<b>Percent deviation (%)</b>
Jan 2013	330	310	20	6.1
Feb 2013	341	342	1	0.3
Mar 2013	474	464	10	2.1
Apr 2013	455	415	40	8.8
...	...	...	...	...

Percent deviation is calculated as follows:

$$\text{Absolute deviation} = |\text{Projection} - \text{Actual}|$$

$$\text{Percent deviation} = \frac{\text{Absolute deviation}}{\text{Projection}}$$

The average percent deviation is the average of all the available months of data. The average percent deviation for this example (over the four-month period January through April 2013) is **4.3%**.

Attachment 1

**Data Release Form**

The undersigned hereby accept to release all technical, financial, and accounting information for Phase I and Phase II evaluations, as necessary, to the following:

- Evaluation Review Committee (ERC)
- DOE-selected auditors, examiners, and technical experts

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Print Name of Responsible Signatory

Name:

Title:

Phone:

Email:

Attachment 2

**Certification of Eligibility Form**

The undersigned hereby certifies that the entrant meets the eligibility requirements from Section III.

The undersigned hereby certifies that all installation specifications in Section IV are met.

The undersigned hereby certifies the submitted systems constitute the population, not a sample, of all eligible installations deployed by the entire team (team members, partners, and affiliates), during the performance period in the performance region.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Print Name of Responsible Signatory

Name:

Title:

Phone:

Email: