

Net Valuation of Solar to and from the Electrical Grid

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21st Century Solar



- U.S. installed 4,750 MW in 2013—nearly 15x installed in 2008
- Annual weighted average PV system prices: \$2.89/W in 2013
- \$13.7 billion—the market value of all PV installations completed in 2013

energy.gov/sunshot Source: GTM/SEIA. U.S. Solar Market Insight Q4 2013. March 2014. https://www.greentechmedia.com/





SunShot Utility Scale Progress by Q4 2012



U.S. Department of Energy



Soft Costs Dominating Overall Costs



Up to 50% 64% of the cost of a solar installation

Source: "Benchmarking Non-Hardware Balance-of-System (Soft) Costs for U.S. Photovoltaic Systems, Using a Bottom-Up Approach and Installer Survey – Second Edition," Friedman et al., NREL, October 2013. http://www.nrel.gov/docs/fy14osti/60412.pdf



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SunShot Partnering with State and Local Officials



Last FY13 Application Round Closed in June 2013





SolarOPs: 4,000 individuals, all 50 states, more than 1,100 local government entities through partnership workshops and e-learning activities



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Rooftop Solar Challenge (2011-2013)



- 22 teams, 50 million people
- Best practices developed, shared, and harmonized
- Easier, cheaper, and
 one week faster to go
 solar on average^{*}

*Based on preliminary analysis.



Innovative Solar Deployment Models



Rooftop solar – technical potential is roughly25% of residential rooftop space; reflects both:

- Potentially large number of residents who could install solar on their homes; and
- Potentially large percentage of residents who lack ready access to solar

Shared and community solar models could:

- Reduce siting barriers
- Take advantage of economies of scale
- Provide opportunities for innovation and partnerships

Technical rooftop space accounts for structural constraints, roof area and shading. Source: Rooftop Photovoltaics Market Penetration Scenarios. NREL, 2008.



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SunShot RFI--Net Benefits and Costs of Distributed Solar Energy and Innovative Solar Deployment Models

- Request for Information (RFI) on the net valuation of distributed solar photovoltaics (PV) and the electric grid; and on solar deployment models, seeking info:
 - Related to the "net metering" discussions nationwide
 - Replicable shared and community solar programs
- RFI closed 2/28/14, but for more info please see "RFI---Net Benefits and Costs of Distributed Solar Energy and Innovative Solar Deployment Models"
 - https://eere-exchange.energy.gov/
 - This website lists all EERE Funding Opportunity Announcements (FOAs) and RFIs



Select SunShot Fiscal Year 2013 Awards and Awardees

Award Name	Description, Awardees and Links	Total Dollar Amount
Incubator 8	Incubator 8 helps solar startups rapidly refine and commercialize promising cost-reducing hardware and non-hardware solutions. Awardees (17) in TX, CA (8), WA, FL, MA, VA, PA, AR, CO, and MN. <u>http://www1.eere.energy.gov/solar/sunshot/incubator.html</u>	\$12 million
Rooftop Solar Challenge II	Assists the deployment of innovative, local government-level solutions that eliminate market barriers and lower the soft costs of grid-tied solar PV. Awardees (8): Broward County (FL), CCSE (CA), CUNY (NY), CESA (NH, MA, CT, VT); Iowa; MARC (multi-state); Optony; (multi-state) WA state, (WA). http://www1.eere.energy.gov/solar/sunshot/rooftop_challenge.html	\$12 million
SUNRISE Solar Utility Networks: Replicable Innovations in Solar Energy	Enables utility planning and reliable system operations under high levels of solar energy generation. Awardees (8): PEPCO, AWS True Power, Clean Power Resarch, Hawaii (HECO), UCSD, Electricore, EPRI, NRECA. http://www1.eere.energy.gov/solar/sunshot/sunrise.html	\$8 million
GEARED Grid Engineering for Accelerated Renewable Energy Deployment	Continuing workforce training network to increase the penetration of distribution photovoltaic (PV) generation. Awardees (5): EPRI, Electricore, MissU, UCF, IREC. http://www1.eere.energy.gov/solar/sunshot/geared.html	\$15 million
SolarMAT Awards - Solar Manufacturing Technology	Development and demonstration of innovative manufacturing advances, with a focus on manufacturing techto drive down the cost of manufacturing and/or implementing efficiency-increasing technology in manufacturing. <u>http://www1.eere.energy.gov/solar/sunshot/solarmat.html</u>	\$15 million



Thank You!

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