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Preview: Photovoltaic
Technology Characterization
Review



Preview: Photovoltaic Technology Characterization Review

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Feedback

The Solar Electric Power Association would appreciate feedback on this and past reports, as well as new areas of research we should consider in the future. Please take a moment to provide comments and suggestions through an online survey:

<http://tinyurl.com/SepaReportFeedback>

About the Authors

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<http://www.solarelectricpower.org>

Letter from SEPA Leadership



September 16, 2010

Utility and Solar Industry Colleagues,

The photovoltaic markets are changing rapidly, in part due to changes in technology. Ten years ago crystalline and amorphous silicon were the only photovoltaic materials in commercial operation and manufacturing was a customized design and manual labor operation. Today, a cadmium telluride manufacturer is the largest producer in the world, companies can buy fully automated turn-key production lines off-the-shelf, and there are a number of new PV materials and companies poised to enter the marketplace at scale. Crystalline silicon, a tried and true technology that has been the foundation of the industry to-date, is increasingly having to share the industry's growth with its thin film brethren. The industry's and technologies' increasing complexity is a sure sign of maturation.

The *PV Technology Characterization Review* is designed to provide a baseline of information across the major commercialized PV materials, ranging from cost to efficiency to environmental impacts. Utilities are asking increasingly detailed questions about these new technologies and the direct and indirect trade-offs when making technology choices and partnering with companies on projects large and small. By no means does this review give any 'answers,' but rather, it can serve as a reference for comparison and understanding for moving forward.

If you have any suggestions or comments, feel free to contact either of us.

David Rubin
SEPA Board Chairman
Pacific Gas & Electric Company

Julia Hamm
Executive Director
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SEPA Research Report Summaries

Electric Utilities and Solar: A Market Review (2008)

This utility solar market report, which includes the solar integration rankings, discusses future solar market development issues that have arisen in 2007 and 2008, and their implications for utility involvement in solar.

Utility Solar Procurement (2009)

This report identified best practices for traditional utility solar procurement (RFPs/PPAs) and innovative new acquisition methods that may present cost or efficiency solutions for both utilities and the solar industry.

Utility Solar Tax Manual (2009)

In 2008, Congress extended the federal solar investment tax credit for eight years and removed the utility exemption, allowing regulated investor-owned utilities to utilize the credit. This manual provides detailed explanations of the tax provisions related to the bill, as well as exploring other tax issues such as Clean Renewable Energy Bonds, and unique business tax structures and issues.

Decoupling Utility Profits from Sales: Issues for the Photovoltaic Industry (2009)

The reduced sale of electricity creates an inherent problem for electric utilities in maintaining long-term operating revenue, especially as the solar industry expands. Decoupling is a regulatory policy option that can change the way utilities recover revenues to adjust this disincentive. This decoupling white paper introduces the concept into the solar community, explaining what decoupling is, and defining the different types. It includes a case study showing how solar market development in the future might affect utility rates under decoupling.

Distributed Photovoltaic Generation for Regulated Utilities (2009)

This analysis looks at both the regulatory and practical issues surrounding the installation of utility-owned distributed photovoltaics by investor-owned utilities.

Photovoltaic Incentive Programs Survey (2009)

In coordination with SEPA, an electronic survey was developed and distributed by U.S. utility and state PV incentive program managers to consumers who installed PV systems and received a rebate to offset the cost. The survey

asked about the participants' satisfaction and experiences with the installation, incentive, interconnection, and ongoing maintenance of their systems. The resulting report analyzed the data across geographies to draw distinctions and parallels across the country

Top Ten Utility Solar Rankings 2009 (2010)

This report is the third of SEPA's annual survey of US utilities' grid connected solar. The results are top ten rankings of the most solar integrated utilities.

International Utility Survey: Utility Procurement Influences & Practices (2010)

Gartner and SEPA conducted a survey of 134 utilities in Europe and the United States to understand their requirements and objectives for implementing photovoltaic (PV) technologies in their energy generation portfolios. This telephone survey was complemented, in the U.S., by an online survey.