

Solar America Board for Codes and Standards

SUSTAINABLE, MULTI-SEGMENT MARKET DESIGN for Distributed Solar Photovoltaics

Interstate Renewable Energy Council

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Study Report Overview

This report discusses the important differences between retail and wholesale photovoltaic (PV) markets and provides examples of policies that have been implemented in the United States in both of these markets. The Retail Market Policies section discusses policies that enable end-use retail electric customers to invest in PV systems to meet some or all of their electricity needs. The Wholesale Market Policies section, by comparison, discusses policies that enable small and medium scale project developers to develop distributed generating facilities that will serve nearby retail electric utility load.

Why the Report is Important

There are two important and distinct markets for solar PV investment—a retail market and a wholesale market. In areas of the United States that are experiencing the most significant growth in PV investment, state and local policy makers have taken important differences between retail and wholesale markets into account in establishing policies that promote growth in both market segments. This multi-segment approach allows interrelated policies to function best in their designated roles, extending the benefits of PV to the widest possible range of participants.

Issue

Policies that support growth in U.S. PV markets are in many cases different than those that have been used to facilitate PV market development in other countries. While the United States has relied on retail market policies, such as net metering, some other countries have relied heavily on wholesale policies, such as feed-in tariffs (FITs), to facilitate investment in PV. This paper originated as an effort to examine whether U.S. net-metering policy has been evolving in the direction of wholesale policies, such as FITs, that have facilitated PV market growth outside of the United States. There has also been significant interest in developing wholesale policy options to expand market opportunities beyond retail, self-generation markets.

Key Findings

Successful retail policies allow retail customers to generate and use PV power to serve their electric power needs with minimal effort. They provide easy enrollment, have minimal ongoing obligations and no hidden fees, and avoid the creation of taxable benefits and regulatory requirements that can often accompany participation in wholesale market programs.

Successful wholesale policies create opportunities to optimally locate distributed PV projects in a way that maximizes benefits to ratepayers while minimizing cost. Effective wholesale policies create sustainable markets that avoid boom-bust development cycles and promote and capture cost reductions through market-responsive pricing mechanisms.



Solar America Board for Codes and Standards Recommendations

Although the details of policy design may vary within the policy categories discussed in this paper, this study finds three strategies that appear essential to establishing robust retail and wholesale markets for PV systems at a state level.

- Successful market design makes investment in a PV system cost-effective by closing the gap between PV system costs and relevant retail or wholesale cost-effectiveness benchmarks. Achieving cost-effectiveness often requires implementation of a well-considered mix of the policies discussed in this paper.
- Successful policies provide market participants with clarity and stability regarding the financial benefits that will result from a PV system investment. Without transparency and predictability regarding the financial benefits of an investment, market participants will lack the ability to make an economically rational assessment when evaluating a PV system investment opportunity.
- Successful policies structure retail rates to reflect the actual costs and benefits provided by customers who invest in PV systems to meet their onsite electrical energy needs so as to facilitate wise choices that drive PV markets in a direction that can most quickly move away from incentives.

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For more information, visit the Solar ABCs Website:

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The Solar America Board for Codes and Standards (Solar ABCs) is a collaborative effort among experts to formally gather and prioritize input from the broad spectrum of solar photovoltaic stakeholders including policy makers, manufacturers, installers, and consumers resulting in coordinated recommendations to codes and standards making bodies for existing and new solar technologies. The U.S. Department of Energy funds Solar ABCs as part of its commitment to facilitate widespread adoption of safe, reliable, and cost-effective solar technologies.

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