Renewable Energy Finance

Solar Securitization: A Status Report

Value Proposition

The U.S. solar industry is an $11.5 billion market with over 360,000 systems in place. Securitization of the cash flows associated with distributed solar systems (i.e., those serving residential and commercial customers) represents an emerging investment opportunity for institutional money managers.

Background

Every day, more energy falls on the United States—in the form of sunshine—than the country uses in an entire year.

Over that same time period, annual deployment grew dramatically from roughly 700 to 90,000 installations per year. The industry is currently on pace to install one PV system every four minutes.

Continued Industry Growth and Cash Flows

The U.S. Department of Energy’s (DOE) Sunshot Initiative has targeted an additional two-thirds cost reduction by 2020 and set a goal of solar energy production fulfilling 14% of total U.S. electricity needs by 2030, up from less than 1% currently. Meeting this generation target will require sustained growth of 25% per year, consistent with near-term independent projections.

Improving economics, in part driven by lower cost of capital, and strong demand due to state Renewable Portfolio Standards (RPS) and customer desire for clean energy will help drive that growth. RPS programs—which require increasing levels of renewable energy generation in the electricity mix—are currently instituted in 29 states and Washington, D.C.

The capital investment to construct a solar system is generally repaid through a lease or power purchase agreement (PPA) contract. At present, cash flows from these contracts represent roughly $93 million per year in the United States.
Preparing for Securitized Investment

Industry experts identified several critical items to address investor risks:

1. Standardize contracts and other documentation and installation practices
2. Improve publicly available data addressing renewable energy risks
3. Inform investors on the valuation of renewable energy generation assets.

To meet that challenge, over 150 members of the industry—including leading developers, law firms, financiers, and analytic entities—participate in the Solar Access to Public Capital (SAPC) working group, a project led by the National Renewable Energy Laboratory (NREL) and funded under DOE’s Sunshot Initiative.\(^1\)

SAPC recently completed development of standard lease and PPA contracts for widespread industry adoption. This milestone is expected to improve consumer transparency, lower transaction costs, increase deal flow, and enable project cash flows to be pooled for securitization and other public capital investment.

In addition, SAPC is actively pursuing other risk-reduction efforts to engage institutional investment, including:

- Developing best practices in system installation and maintenance for consistency in build quality, operating performance, and cash flow
- Constructing performance datasets to comprehend and enable mitigation of production risk
- Engaging the rating agencies to provide shadow ratings of mock residential and commercial portfolios to further the industry’s understanding of investor risk perception.

For additional information on SAPC activities and solar industry deployment and cost reductions, please contact: sapcinfo@financeRE.nrel.gov.

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2 Feldman, D. Conversation. Golden, CO, NREL.
4 See the history of photovoltaics at http://inventors.about.com/od/timelines/a/Photovoltaics.htm.
8 See the SunShot Initiative website: http://www1.eere.energy.gov/solar/sunshot/index.html.
10 For more on RPS programs, see the Database of State Incentives for Renewables and Efficiency (DSIRE) at http://www.dsireusa.org/rpsdata/index.cfm.