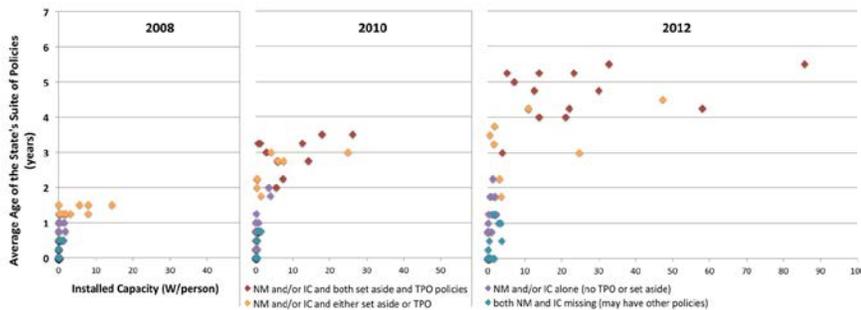


# NREL Policy Stacking Theory Correlates Key Indicators with Solar Market Success

Highlights in  
Research & Development

Analysts gain insight into how policies and demographic contexts combine to support state solar markets.



Histogram plots showing solar policy and solar market development in the 48 contiguous U.S. states and the District of Columbia for 2008, 2010, and 2012.

If economics were the only factor driving the installation of solar photovoltaic (PV) energy systems, then all states should see increases in installed PV capacity due to falling prices. However, this is not always the case. Rather, nonfinancial incentive policies and population can explain 70% of PV capacity growth. Other non-policy factors—such as economic context, solar resource availability, competing electricity prices, and interest in sustainability—also play a role in driving solar market growth. By better understanding how policy and non-policy factors combine to support solar market development, state and local governments can effectively craft PV-enabling legislation that fits their unique context.

NREL evaluated the time-dependent relationships between policy implementation and the success of solar markets using historical data for installed capacity of behind-the-meter solar PV and legislative records from 2007 to 2012. The foundational policies being measured included net metering (NM) and interconnection (IC), solar set-asides within renewable portfolio standards (RPS set-aside), and third-party ownership (TPO) policies. Using these factors, the researchers plotted solar market growth for all 48 contiguous states and the District of Columbia.

The general trend shows how the age and composition of a state's suite of solar policies impacts the development of a robust PV market. After having best practice net metering and interconnection policies in place for a few years, most states that implement set-asides or a TPO policy experience rapid increases in solar markets. Solar set-asides in an RPS are valuable for successful solar markets, especially in states with less favorable demographic and economic backgrounds. In addition, the analysts performed a detailed evaluation of "outliers"—states that do not fit the general pattern—which reinforced previous findings that the most effective policies for a state are ones that are tailored to its specific context. The resulting report, *The Effect of State Policy Suites on the Development of Solar Markets*, includes a case study that explains why Illinois should consider modeling Pennsylvania's solar strategy rather than California's.

**Technical Contact:** Elizabeth Doris, [elizabeth.doris@nrel.gov](mailto:elizabeth.doris@nrel.gov)

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## Key Research Results

### Achievement

NREL's Integrated Applications Group evaluated the time-dependent relationships between policy implementation and the success of solar markets using historical data for installed capacity of solar photovoltaic energy systems.

### Key Result

The analysis found that states with a combination of three or four foundational and market-enabling policies have been largely successful in creating robust solar markets. An evaluation of outlier states reinforces the conclusion from earlier work that the most effective policies for a state are ones that are tailored to its specific context.

### Potential Impact

Policymakers who want to support solar markets within their jurisdictions have struggled with the perceived unclear relationship between implementation of specific policies and increases in solar installations. This study provides insight into why solar legislation may spur robust growth in one state, but have a limited effect in a neighboring state.

**NREL is a national laboratory of the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, operated by the Alliance for Sustainable Energy, LLC.**

15013 Denver West Parkway  
Golden, CO 80401  
303-275-3000 | [www.nrel.gov](http://www.nrel.gov)

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