

SolSmart Evaluation Research Insights

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The SolSmart program encourages local governments to address solar soft cost barriers through national recognition and no-cost technical assistance delivered through program partners and a national network of SolSmart Advisors. Achieving this national designation sends a signal to solar firms that a community is “open for solar business,” which may attract new businesses and provide economic development and job benefits. Applicant communities receive a designation of Gold, Silver or Bronze based on actions across permitting; planning, zoning, and development regulations; inspection; construction codes; solar rights; utility engagement; community engagement; and market development and finance.¹

Researchers from Missouri University of Science & Technology, Florida State University, University of Miami, and University of Texas at Austin conducted a mixed methods evaluation to determine the impact of the SolSmart program and make recommendations for improvement. For the 356 designated communities at the time of this evaluation, we used quasi-experimental techniques to estimate the impact of SolSmart while controlling for factors that vary over time and between places.

Overall, we found that the SolSmart program has both real and perceived tangible impacts on barriers to solar adoption in designated communities:

- **Increased Installations** – Using Lawrence Berkeley National Laboratory’s Tracking the Sun data, we found that SolSmart increases installed capacity by 67% or 69 kW/month, and the number of installations by 62% or 3 systems/month on average in a community. Across the country, SolSmart is associated with an additional 25 MW/month of installed capacity and 1,068 installations/month. This suggests we can attribute 300 – 450 MW of additional solar capacity and 12,800 – 19,200 new installations to SolSmart.² **As a result of this added capacity, \$10 million in taxpayer funds for SolSmart led to \$1-2 billion in additional solar investment.**
- **Increased Knowledge** – Surveys of government officials and solar installers indicate that from their point of view, the biggest impact of SolSmart is that it increases the level of knowledge among government officials, which likely leads to improved relationships between government officials and solar installers. In general, Gold communities tend to perceive more impacts than Silver and Bronze communities.
- **Faster Permits** – Using solar permitting data from the National Renewable Energy Laboratory, we found that SolSmart speeds up the permitting process by 7.5 days on average per installation, a result which is consistent with surveys. However, there was no evidence that SolSmart reduces the total project time from contract signing to Permission to Operate. We also did not observe benefits for inspection and interconnection. We can conclude that while a faster permit process is beneficial for consumers and solar installers, faster permitting alone does not speed up the permitting and interconnection process in general.

¹ SolSmart designations were awarded based on these eight categories during the time of this evaluation. More recently, the designation criteria have been reorganized into the following five categories: permitting and inspection; planning and zoning; government operations; community engagement; and market development.

² Assuming 1-1.5 years of increased solar market activity after SolSmart designation. There are insufficient data to estimate further.

Additional Impacts

Analysis of solar soft costs³ shows a small decrease for Bronze designees. Given the wide range of factors that influence solar soft costs, it is likely that the variation is too large and the specific elements described above do not dominate the overall soft costs.

Among SolSmart communities, there are more Bronze and Gold designations than Silver designations. Survey results suggest that most communities are motivated to participate in SolSmart to build their reputation for being solar-friendly and receive recognition for solar-friendly efforts. Communities may achieve these goals at all three levels of designation. Silver communities tend to have specific barriers for reaching the 3-day permitting turnaround, a requirement for achieving Gold.

As expected, SolSmart designations are more prevalent in locations with higher solar adoption and renewable-friendly policies. In addition, interview and survey data suggest that the SolSmart Advisors played an important role in encouraging participation. This may be an effective strategy to further increase participation across the country.

Participation and achievement in the SolSmart program can be predicted by community population size and income levels. Larger, wealthier communities tend to pursue SolSmart designation and earn more points within SolSmart. This suggests that community resources (in terms of leadership, technical, administrative, financial etc.) may be a limiting factor for increasing participation in the SolSmart program. Survey results suggest that Gold communities tend to have more resources in general, as well as more engagement by Building and Planning offices. Efforts to minimize administrative burden, reduce program complexity, and facilitate collaboration between local government offices may help to expand the reach of the program.

At the time of the evaluation, SolSmart communities chose from 105 actions across 8 categories to earn points toward a designation. **Every community takes a unique path – no two communities have achieved SolSmart designation in the same way.** This flexibility allows communities to find a combination of actions that achieve their goals and limitations, but also increases program complexity for choosing which actions to pursue. To explore patterns in what actions communities tend to pursue, we used cluster analysis to identify trends. Communities with larger populations and higher incomes (i.e., with more resources) tend to pursue more points in general, especially in the Community Engagement category. In contrast, communities that stop at the Bronze designation appear to struggle with Community Engagement, Inspection, and Planning, Zoning, and Development Regulations activities.

In general, actions related to Utility Engagement, Construction Codes, and Solar Rights tend to be less utilized, likely due to concerns about political palatability and jurisdiction limitations. However, survey results suggest that solar installers and owners rate Solar Rights and Construction Codes as among the most important. In addition, survey results suggest that government officials tend to perceive categories that are less utilized as less important and more difficult, particularly for Utility Engagement, Construction Codes, and Market Development and Finance. However, exploratory analysis suggests that higher Utility Engagement points are associated with higher installed capacity and number of

³ Using data from Bloomberg NEF to estimate soft costs as the transaction price of solar PV systems minus the price of the PV module, inverter, and balance of plant.

installations. This may be because communities that are able to achieve more Utility Engagement points have a more supportive local utility.

Overall, the SolSmart program is effective in lowering barriers to solar adoption in designated communities. Communities are interested in pursuing designation and achieving higher designations. If SolSmart were to expand to include other technologies, Gold communities are most interested in recognition and technical assistance related to electric vehicle infrastructure, while Bronze communities are most interested in energy efficiency. If there are future iterations of the program, it may be helpful to collect community-level data over time to facilitate further evaluation. SolSmart serves a valuable role in helping local governments achieve their renewable energy goals.

Multiple peer-reviewed publications are forthcoming from this research.

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