

SOLAR MARKET GROWTH

SMALL-SCALE SOLAR DEVELOPMENT OPPORTUNITIES FOR UTILITIES ACROSS THE UNITED STATES

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THE OPPORTUNITY

Over the past several years, OneEnergy Renewables (OER) has developed a niche within utilities that are seeking to build a more distributed power system.

As the price of solar continues to drop and the waiting line (interconnection queue) for approval to build large-scale renewable energy projects slows development, small electric utilities throughout the country are trying to find ways to secure renewable energy for themselves rather than waiting for their larger power providers to switch away from fossil fuels. Solar photovoltaics have become affordable to develop at the smaller scale of less than 20 megawatts (MW), enabling projects avoid the interconnection queue.

THE PURPOSE

To stay competitive in an ever-growing solar market, OER is looking to expand its small-scale solar presence into new regions of the country. OER partnered with a Capstone team from the Masters of the Environment (MENV) program at University of Colorado Boulder to identify electric utilities throughout the country that are most likely to pursue future small-scale solar developments. The MENV Capstone team sought to determine which specific utilities (IOUs, Co-Ops, and Munis), geographic regions, and markets will provide the best opportunities, both now and in five years, and develop a strategy for the development of those projects.

Types of Utilities

Investor Owned Utilities (IOU)

IOUs are publicly traded entities that generate and distribute electricity. There are 168 IOUs in the U.S. that serve over 100 million customers. This equates to 72% of all electricity.

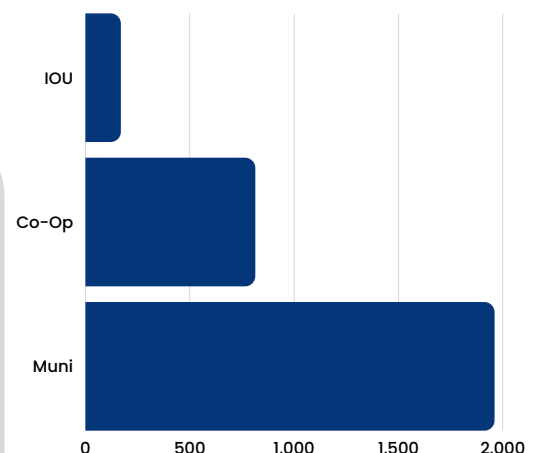
Cooperatives (Co-Ops)

Cooperatives are not-for-profit, member-run utilities. They are present in 47 states, but most prevalent in the Midwest and Southeast. There are 812 cooperatives within the U.S. that serve 20 million customers.

Municipal Utilities (Munis)

Municipal utilities, or public utilities, are non-profit government entities that own and operate the utility. There are 1,958 municipalities in the U.S. that serve 24 million customers.

Number of Utilities

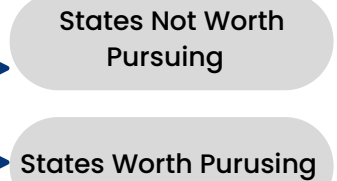


THE PROCESS & DATA

PHASE 1

In Phase 1, the team looked at state-level policies and utility structures, then grouped states with the most potential for small-scale solar development based on select criteria. 18 states were found to have potential that warranted further investigation.

Phase 1 High Level States & Larger IOU Overview



PHASE 2

Phase 2 consisted of interviews with the various utility structures and non-governmental organizations (NGOs) in order to find out market trends and utilities' unique interests in small-scale solar development. Interviews consisted of email correspondences, Zoom meetings, and phone calls. We approached over 700 utilities for interviews and achieved a 7% response rate.

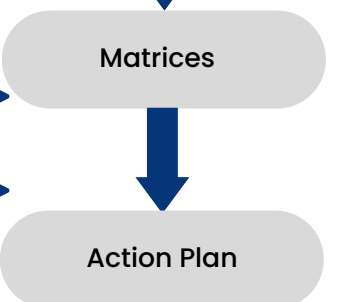
Phase 2 Interviews and Data Collection



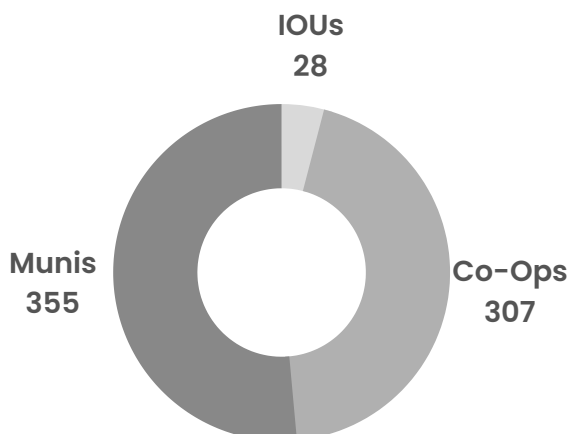
PHASE 3

In Phase 3 the team compiled all utility research into comparisons matrices to identify and rank conditions for success.

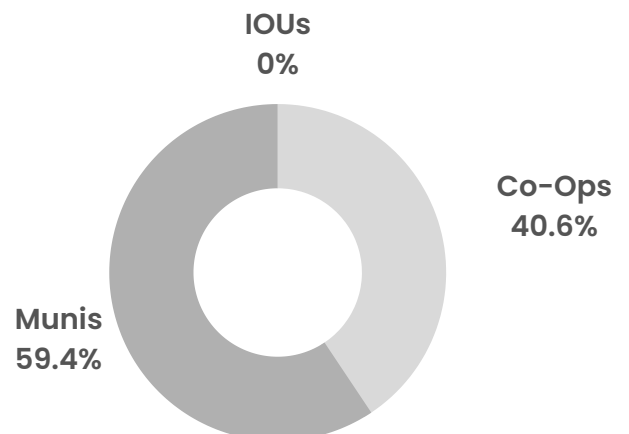
Phase 3 Analyze Data & Generate Recommendations for Future Action



Number of Utilities Contacted (By Type)



Percentage of Interest (By Type)



1,400+ MW

Identified for immediate
small-scale solar
development

**195,000+
MW**

Identified for future small-
scale solar development

10+

Utilities identified for
immediate small-scale
solar development

FINAL DELIVERABLE

The MENV Capstone team synthesized its findings into a charter, a business strategy that will advise OER on the best regions for new small-scale solar development. The charter provides specific recommendations on two regions that are interested in development now. It also provides information on key criteria to look for in the future for states that were deemed to have potential. The charter includes matrices that rank utilities within the two favored regions from highest potential to lowest potential for new development. It also explains why those regions should be further pursued. In addition, a comprehensive matrix of all utilities within the 18 states will be provided as an index for quick information-gathering and research notes. The charter was presented to OER in November 2022 through a lunch-and-learn meeting with the MENV Capstone team.

WHAT WE LEARNED

This project has reinforced the need to understand local interests when it comes to the development of renewable energy projects. When looking for future development opportunities, it is important to understand local interests, needs, and roadblocks. Through our direct outreach, we were able to gather important information on the unique landscapes within each utility and region and how they would support or hinder development.

OER worked with the MENV Capstone team as independent consultants throughout the entire process. This allowed the Capstone team to take full ownership of the research and recommendations. The Capstone team in turn gained experience in communicating with a client, organizing its own research, identifying valuable insights from its research, and using its insights to provide actionable advice for a renewable energy development entity.

ACKNOWLEDGEMENTS

We would like to thank all of our interviewees for their generous support to our project. This project could not have been successful without the consistent and great communication with our partners at OER, Nathan Stottler and Gavin Berg, to ensure we provided a valuable charter. We would also like to thank our MENV Advisor, Josh Radoff, for his help in editing and finalizing our results.

