

Sharing the Sun: Community Solar in Ohio

Ruchie Pathak & Jeffrey B. Jacquet

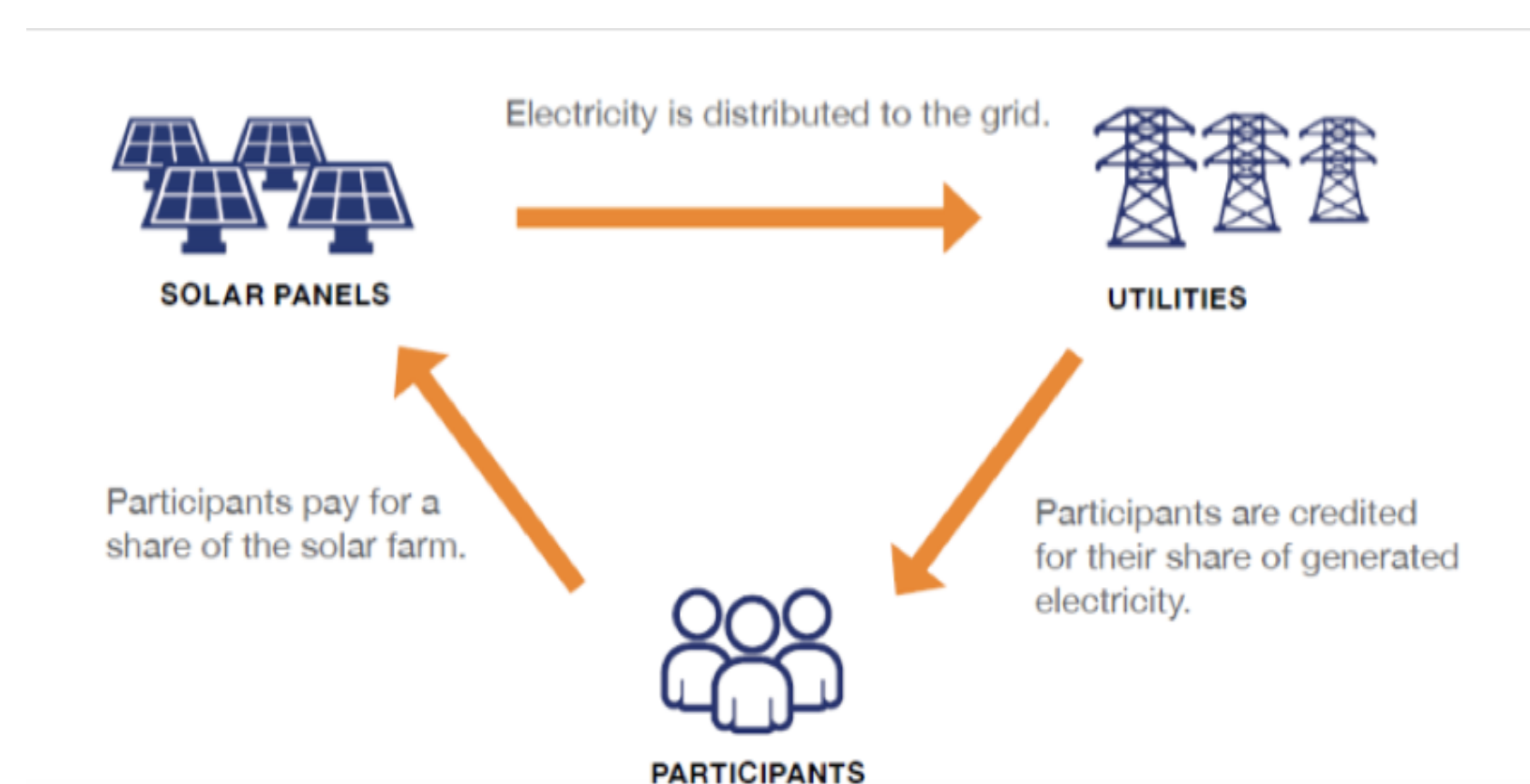
INTRODUCTION

A community solar project is a solar electric system, either community-owned or third-part-owned, which provides power and financial benefits to multiple community members” [1,2]. Such a project not only expands access to solar energy for all, including low-to-moderate income customers most impacted by a lack of access, but also allows the multiple community subscribers to receive credit on their electricity bills for their share of the power produced; thus, building a stronger, distributed, and more resilient electric grid [3]. It is being rapidly adopted nationwide, with 40 states at present, with at least one community solar project on-line, “with 1,523 cumulative megawatts installed through 2018” [3].

AIM

As a new renewable energy practice, community solar is projected to diffuse throughout many U.S. energy systems in coming years [4]. But the success of this diffusion depends on a web of factors like the cultural and political settings in which the diffusion of an innovation takes place, the characteristics of the solar project itself, and the individuals (innovators) interested in adoption. Therefore, the aim of this study is to understand the development of three community solar projects in Ohio by:

- I. exploring the factors (economic, environmental) that drove/ influenced the establishment of such projects, and
- II. comprehending people’s general reactions towards them.



Shows Community Solar at both Utility-level and Community-level (Source: EPA, 2016)

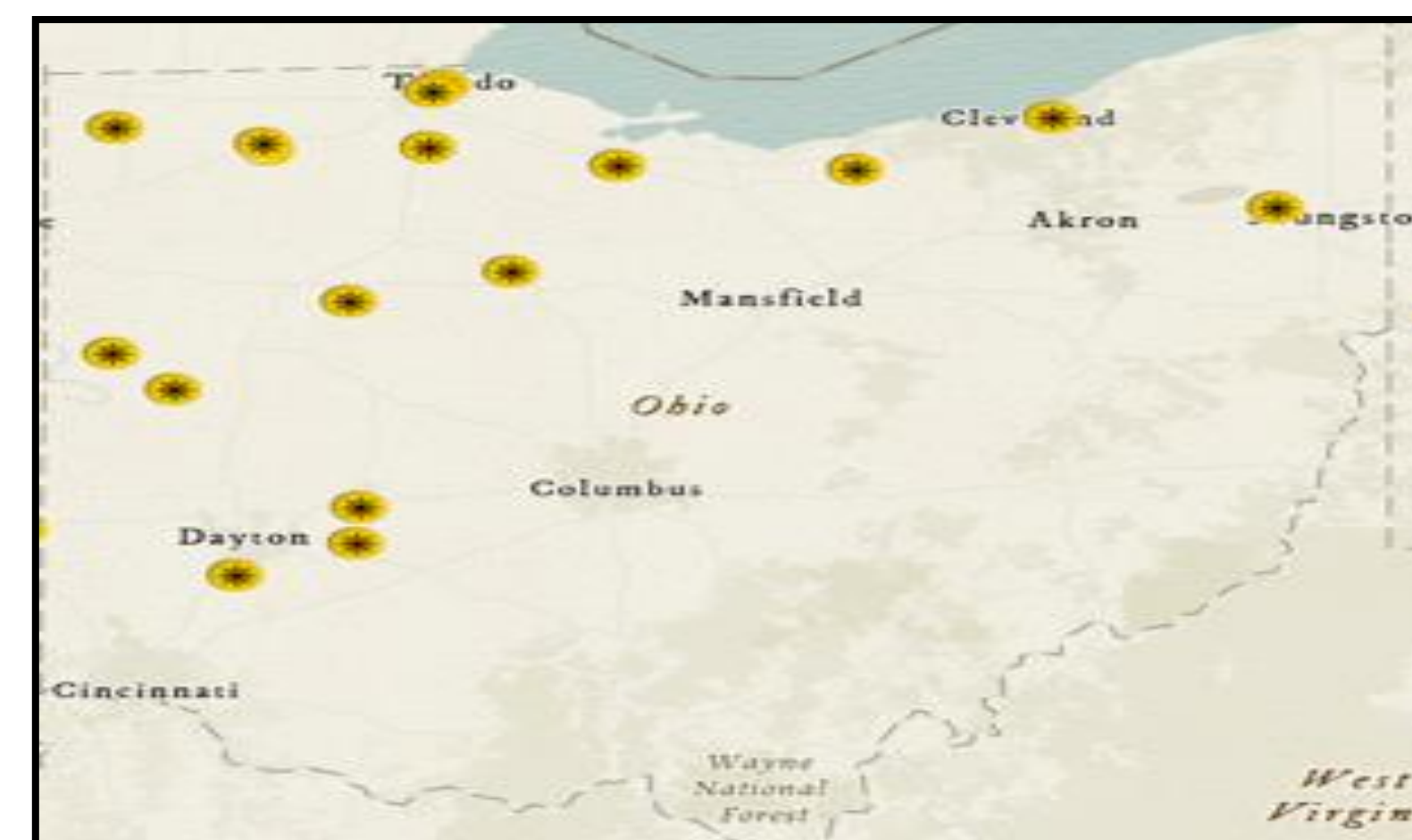
METHODS

This exploratory research involved collection of primarily qualitative data, collected through key informant interviews conducted in following three sites (see map below):

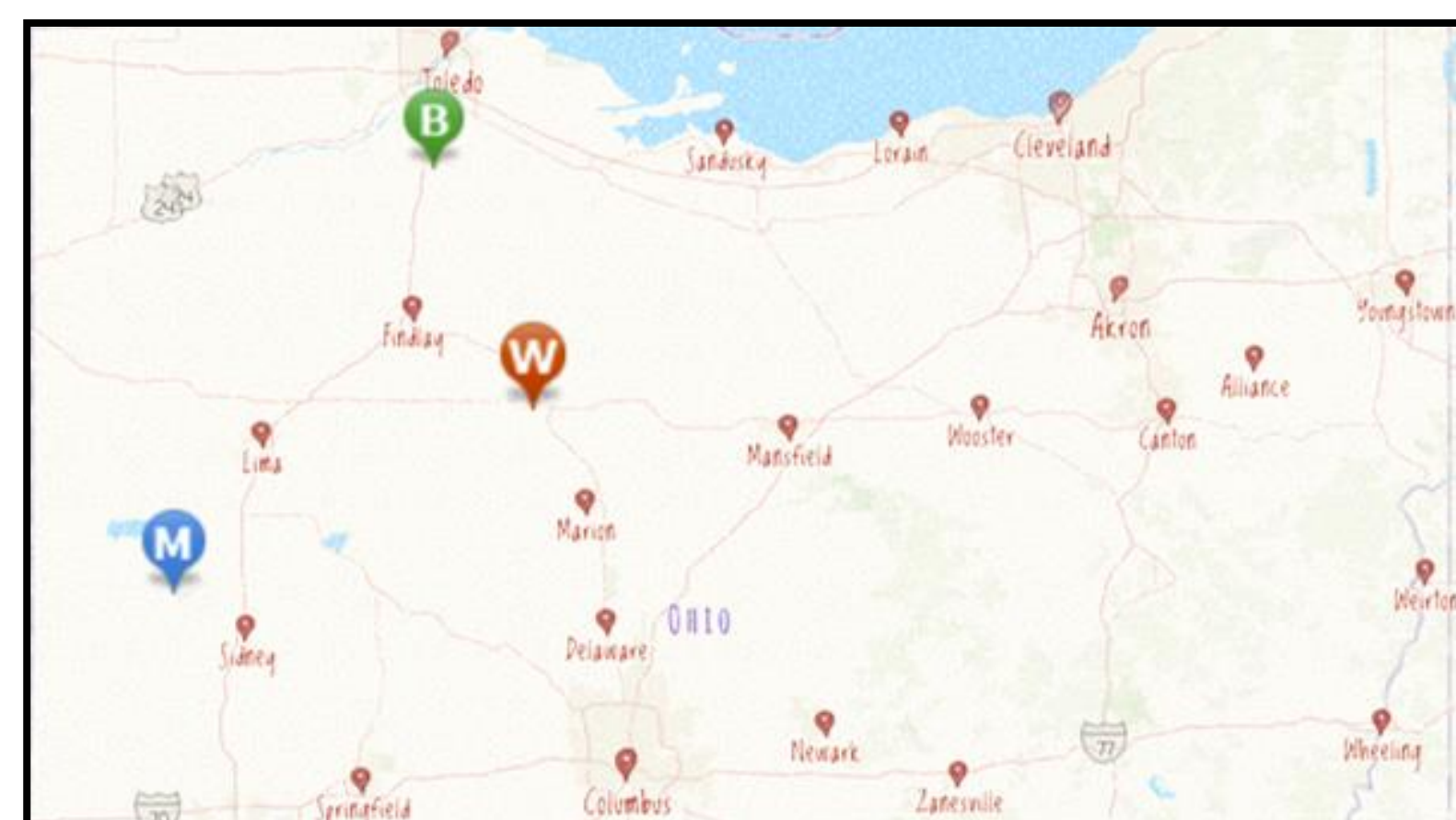
- **Bowling Green**: A 20 MW solar facility developed in 2016 under an agreement between AMP and NextEra Energy Resources
- **Minster**: A 2-MWac solar array combined with a 7-MW storage facility, completed in 2016 by Half Moon Ventures and S&C electrics;
- **Wyandot**: A 10MW solar farm completed in 2010, owned by PSEG Solar Source and was developed by juwi solar Inc.

A total of 12 individuals were interviewed between September 2019 to December 2019, using a purposive snowball sampling technique, among key informants [5,6], which included current managers or project heads of municipally owned/utility-owned community solar projects, university extension agents, representatives from area businesses/industries, community groups, elected officials and local government employees,

Map 1: Shows the distribution of some of the solar projects (of 1 MW capacity or more) within Ohio. (Source: North American Cooperation on Energy Information (NACEI), 2017)



Map 2: Shows the three sites selected for this study.



Maps created using ArcGIS® software by Esri. For more information about Esri® software, please visit www.esri.com.

RESULTS

- ✓ The overarching conclusion of this study, is that the establishment of a community solar project, especially third-party-owned installations, often occurs as a result of some policy or legislation, ratified either at federal or state level (or both), which makes it absolutely mandatory for electric utilities to switch to such clean alternatives and also makes it favorable for them offering certain ‘incentives’ that can contribute towards the reduction of system costs.
- ✓ The facilities at Minster and Bowling Green have encouraged cost-savings among consumers, in terms of lower electricity bills.
- ✓ Development of solar triggered local economic development by encouraging employment and providing benefits to local businesses in almost all cases.
- ✓ It functioned as an ‘educational tool’ for people to visit and understand how the system works.
- ✓ The solar fields have also appeared to give these three communities a shared sense of identity, with solar putting them “on the map.”
- ✓ Public reaction was completely positive for Wyandot and rather mixed in case of other two, with few expressing dissent, and some indicating unfamiliarity and general indifference towards it.
- ✓ These solar fields might have played a role in encouraging more solar installations in schools, homes and nearby villages.

Solar Facility at Bowling Green



Photo by: Ruchie Pathak

Solar field at Village of Minster



Photo by: Ruchie Pathak

CONCLUSIONS

As of May 2019, nine large-scale solar project proposals representing 1,325 MWs of potential capacity were submitted to the Ohio Power Siting Board, out of which six have been approved [7]. With many more such initiatives coming up, it’s crucial to develop a holistic understanding of the community attitudes and the preferences of potential and/or actual consumers towards them to encourage the development of more such renewable energy projects. According to studies, community renewable energy initiatives have the potential to influence and boost the transition towards low-carbon energy systems [8,9].

BIBLIOGRAPHY

1. Coughlin, J., Grove, J., Irvine, L., Jacobs, J. F., Phillips, S. J., Sawyer, A., & Wiedman, J. (2012). *A Guide to Community Shared Solar: Utility, Private, and Nonprofit Project Development*. Bonneville Environmental Foundation and Northwest SEED.
2. Teliska, M. (2018, September 10). Northern U.S. states lead the way with community solar projects. *Axios*.
3. Solar Energy Industries Association. (2020). *Community Solar*.
4. Weaver, Anne, "The Social Acceptance of Community Solar: a Portland Case Study" (2017). Dissertations and Theses. Paper 3882. doi: 10.15760/etd.5770
5. Marshall, M. (1996). The key informant technique. *Oxford University Press*, 13(1).
6. Tongco, M. D. C. (2007). Purposive Sampling as a Tool for Informant Selection. *Ethnobotany Research & Applications*, 5, 147–158.
7. Hall, P. K., Bachelor, E., & Romich, E. (2019). Solar Energy Development in Ohio. In *Farmland Owner's Guide to Solar Leasing*. University of Arkansas: National Agricultural Law Center.
8. Bauwens, T. (2016). Explaining the diversity of motivations behind community renewable energy. *Energy Policy*, 93, 278.
9. Rogers, J. C., Simmons, E. A., Convery, I., & Weatherall, A. (2008). Public perceptions of opportunities for community-based renewable energy projects. *Energy Policy*, 36(11), 4217–4226.

ACKNOWLEDGEMENTS

Thanks to all the participants for their support and valuable time.