Solar Energy Development and Regulation in Carver County

Prepared by
Kate Gurke, Alison Kirgis, and Bixuan Sun

Students in PA 5721: Energy and Environmental Policy
Hubert H. Humphrey School of Public Affairs | University of Minnesota
Instructor: Elizabeth Wilson

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CARVER COUNTY

Resilient Communities Project

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Resilient Communities Project
University of Minnesota
330 HHHSPA
301—19th Avenue South
Minneapolis, Minnesota 55455
Phone: (612) 625-7501
E-mail: rcp@umn.edu
Web site: http://www.rcp.umn.edu

Resilient Communities Project

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To: Julie Frick, Director, Carver County Community Development Agency

From: Kate Gurke, Alison Kirgis, Bixuan Sun

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Re: Solar Energy Development and Regulation in Carver County

Issue

An increasing number of solar projects, driven by the commitments of both public agencies and private energy utilities to renewable energy, have been proposed in Carver County. The County has recently become aware of 13 separate alternative energy development proposals that have been sent to the Minnesota Public Utilities Commission, most of which involve solar power generation. However, Carver County has no systematic regulatory guideline in place for these potential developments. The County is also interested in acquiring more information regarding the potential individual returns on community solar installation investments. The community is concerned about a number of additional factors including the environmental costs of solar energy developments as well as the extent to which solar installations may be disruptive or intrusive. Ultimately, Carver County is seeking guidance regarding how best to engage in the regulatory process of solar facilities as well as best practices for encouraging the local community's participation in solar energy.

Problem Definition and Evidence

Solar industry is expanding rapidly in Minnesota. In 2013, Governor Mark Dayton signed the Solar Energy Jobs Act into law which requires 1.5% of energy to be produced from solar. However, federal tax credits on solar installation will be reduced in 2017, so it is important to consider development now. Carver County has received many solar energy development proposals and some of them are related to the "Aurora Solar" project, which is a 100-megawatt peaking resource proposal for Xcel Energy being developed by

Geronimo Energy. A number of cities in Carver County have made significant progress on solar development. For instance, the City of Cologne has signed the contract to power up to 100 percent of its city facilities' energy needs from community solar gardens developed by SunShare. Cologne has also become the first city in Minnesota to adopt solar as its exclusive municipal utility.

Additionally, the City of Waconia recently took part in a joint proposal for solar garden subscriptions, which could provide over 2 million kW-hrs of annual electricity usage and meet the demand of 80% of the top ten electricity users' demand in the city. However, most solar projects are currently in a relatively slow evaluative process due to the lack of systematic regulations.

Summary of Current Regulatory Obstacles

1. The lack of existing zoning regulations on solar gardens may lead to the close proximity of solar gardens to residences and the conflicts of land use.
2. There are also difficulties for the municipal utility customers to participate in solar development. The City of Chaska has municipal powered utility system that purchases its electricity from Minnesota Municipal Power Agency. According to Toby Saxon, the electric director for the City of Chaska, the interconnection agreement between the power agency and the municipal utility prohibits the city from generating electricity from solar installations. The participation in renewable energy needs to go through the power agency.
3. There is a need for the timely permitting and approval of solar projects since the current federal tax credit ends on December 31, 2016.
4. Community Solar is currently limited to almost exclusively Xcel customers.

Additional Concerns

1. Many residents are not aware of the financial benefits of participating in solar projects.
2. Residents are concerned about the impacts of large scale solar farms on their property values.
3. In addition, the mismatch in the time schedules between the peak generation of solar energy and the peak residential demand for electricity requires small municipal utilities to maintain its generation capacity without solar. This would also reduce the financial incentives to invest in solar installation for municipal utility agencies.

Regulations are thus needed to assure the least amount of intrusion on the community and to provide affordable, efficient and readily available solar energy to potentially all community members in Carver County.

Policy Recommendations

We have put forth four interrelated and multifaceted community solar policy recommendations, all of which we recommend as key components to achieving a successful and sustainable community solar initiative in Carver County.

1. **Create specific zoning guidelines and ordinances that address solar installations**. This is an important step to ensure the appropriate management of solar installations. It is also a complicated and challenging process that requires a significant amount of resources. From interviewing some solar developers and policy experts on this issue, we received some suggestions on how to get started.

- A good resource is a model solar ordinance developed for the Minnesota Department of Commerce. The ordinance can be found at The City of Falcon Heights recently updated its solar ordinance to account for the increasing solar related requests. This process of updating the solar ordinance was easy and without conflict, due predominantly to the model solar ordinance delineated above (Metropolitan Council, 2015). The model ordinance and other planning, zoning, and permitting issues related to solar are included in the Clean Energy Resource Teams' *Grow Solar: Local Government Solar Toolkit*, available at www.cleanenergyresourceteams.org/sites/default/files/MinnesotaPZPToolkit1.pdf.
- Solar farms usually generate significantly less revenue than other land use types, hence a lower tax return. However, solar gardens usually require low level of infrastructure and maintenance. Therefore, the best locations for solar farms are the ones that have little alternative value, such as for residential, commercial and agricultural use (Ross, 2014).
- The Federal Department of Energy has a SunShot Initiative that provides resources to help local governments facilitate the expansion of solar energy and develop specific solar ordinance. SunShot is also a founding member of the National Community Solar Partnership, which is a partnership with other federal agencies, state and local governments, private industry and non-profit organizations that work together to expand community solar across the nation. Their website provides a list of important resources on this issue: energy.gov/eere/sunshot/community-and-shared-solar.
- Working with solar companies is also a good way to get resources. When working with counties and communities that do not have specific solar regulation in place, they usually recommend consultants and sample solar

ordinance that help balance the needs from the communities and solar installations (Dana Hallstrom, MN Community Solar).

When developing the zoning regulations for solar installations, it is useful to utilize each proposal evaluation as an opportunity to complete and update the current regulating system and setting models for future proposals.

2. **Have clear communication with solar companies on the expectations and evaluating criteria of their proposal**. In Carver County, a recent proposal to build community solar garden in Bongards was approved while another proposal in the City of Watertown is likely to be denied. Scott Hoese, a local resident and landowner that is on the reviewing boards for both proposals, said in our interview that the solar companies that are rushing into projects without considering local residents' needs are not as likely to be approved. In addition, according to the Memorandum of the Watertown City Council meeting on April 9, 2015, the proposal submitted by SunShare did not provide sufficient information on the project, such as dimensions and setbacks for the proposal site, the details on the proposed solar arrays and fences, and the information on potential noise and glare. Prior communications on the expectations of the proposal and residents concerns might be helpful in this case for both Watertown City Council and SunShare to have a smoother application and evaluation process.

3. **Create solar education programs for local residents by collaborating with solar companies**. Solar development is a relative new issue to most residents in Carver County. It is a common to have the lack of information and misconceptions among communities. According to our interviews with three solar companies in Minnesota, the common concerns from residents include the financial returns from participating

in solar projects, the impacts on property values, noise and appearance and the environmental impacts from large solar farms. Based these specific concerns, the following information can be provided to residents.

- Financial returns: Subscribing to community solar gardens is a good option for residents to participate in solar energy when their roofs are unsuitable for solar panels. Currently, the electricity generated by the majority of community solar gardens in Minnesota is fed into Xcel's transmission grid. In exchange for the clean energy generated, the subscribers receive credits on their Xcel Energy electricity bills. This solar credit system not only helps subscribers save money on their monthly electricity bills but also allows them to stabilize the electricity rate for years to come. Specifically, it has been projected that the solar garden programs can have a cost-saving value of $1500 the first year with at least 25-year of subscription contract. By the 25th year, a family can save over $15,000 total in utility bill for the top ten energy users. (Lane Braaten, Director of Waconia Community Development Director, City of Waconia). Additionally, subscribers will hold the ownership share of the solar facility, which is a good investment option. Additionally, the panels and equipment have good scrap value after 25 years of operation and require low maintenance cost. (James Darabi, Solar Farm, Owner and Installer).
- Impact on property values: A recent analysis conducted by a state certified general appraiser in North Carolina shows that a large solar farm evaluated has no impact on the value of the properties adjacent to the solar farm (Kirkland, 2014). Because most solar gardens in Minnesota are still at the proposal phase and few of them is in operation, there is limited evidence on its impact on property value. It is important to create open conversations between solar developers and residents who have property close to proposed

solar garden sites and develop suitable plans accordingly. The local resident Scott Hoese also pointed out that landowners are able to charge higher rent for solar installations than for farm development, which is considered an economic benefit to landowners.

- Noise and appearance: Once installed, solar farms pose minimal noise during operation. At most, there may be a low, nearly inaudible hum from the unit. Different communities usually have different opinions regarding screening and fencing options for solar gardens. Some communities might want to showcase their commitment to clean and renewable energy and would like to have their solar gardens visible, while some communities do not want the solar gardens intrude the natural views and would like to reduce their visibility. There is certainly flexibility with these options.
- Environmental impacts: Solar energy is a clean energy source with no carbon and pollution emissions. Expanding solar energy is a crucial step toward sustainable development in Minnesota. In addition, creating multipurpose solar gardens is a good way to increase the land value and benefit the local environment. Fresh Energy, a Minnesota non-profit organization on environmental and energy issues, is raising the awareness of using solar garden sites for native plants and pollinator habitats. Native grass planted under solar arrays will benefit pollinators and serve as a natural filter for water in the local ecosystem.

In summary, creating solar energy education programs is an important step for alternative energy development in Carver County. Having the solar ordinances as the general guideline, the County also should to address the unique needs of different communities. Creating platforms for residents and city councils to interact and have

open dialogues with solar developers is an effective way to address their unique needs and make sure the solar gardens serve everyone in the communities.

4. **Develop a complete solar ordinance based on the experience with Xcel and set models when small municipals and cooperative utility are ready to engage**.Currently, community solar garden projects are largely limited to Xcel Energy customers. The level of participation in solar development for municipal and cooperative utilities is limited due to their long-term interconnection contracts with their power agencies. Although it can be frustrating for some customers who are not in the Xcel service territory and would like to participate in solar development, there is still hope. By starting with Xcel service territory, Carver County can start developing a complete system of solar ordinance and zoning plans (Kyle Roach, SunShare). When the local municipal and cooperative customers are able to participate in solar gardens, the regulatory process established based on the experience with Xcel will be able to facilitate the solar installation process, and there will be an established regulatory framework to follow.

Finally, we have created a video that summarizes many of the issues contained in this policy memo, available at https://www.youtube.com/watch?v=PX4o7C5Z-_s.

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