

Supplementary Guide for Solar Committee

Option 1 section - Rooftop Solar Panel Installation

Having solar panels on the roof shows that Augustana is dedicated to reducing their carbon footprint. Solar panels on your roof will stand out (whether you like the aesthetics of that or not!). The benefits could include recruiting people who would like to join an environmentally conscious church, having a sense of pride within the congregation, and being a role model for other churches. There is typically more liability associated with installing rooftop solar, and more risks. This is highly dependent on the financing option Augustana chooses. Unexpected issues may arise (such as weather delaying installation, or necessary roof repairs). Overall, Solar energy is slowly becoming competitive with fossil fuel energy. The cost of installing solar panels has decreased every year since [2009](#), a trend that is expected to continue. In comparison, the price of utility electricity is expected to increase. How much solar energy you are able to generate is limited to your roof space, angle, and orientation/bearing. So any energy not provided by the solar panels will still come from fossil fuels or partial solar garden subscription. It is important to start the process of going to solar energy by getting an energy [audit](#). There are many options associated with installing solar panels on the roof of Augustana which gives flexibility and allows for Augustana to generate and consume renewable energy while obtaining the maximum financial benefits. Generally, rooftop solar panels can be divided into two categories: ownership of solar panels or leasing solar panels.

Ownership

A. Paying the full upfront cost of the solar panels

Advantages	Disadvantages
Generate free electricity for the entire life span of the panel	Paying the full upfront cost of solar panels is often difficult for nonprofits
Possibility of making money by selling extra electricity generated by solar panels.	Tax incentives are not received. For example, the 30% federal tax credit cannot be received by Augustana.
Less research, and time spend entering agreements associated with loans or PPAs	Raising the money to purchase solar panels may be time intensive.

B. Solar loan: You can receive a loan to pay for the solar panels, and make payments over time.

Advantages	Disadvantages
Augustana will still own the solar panels, but the payment will be spread out.	Being tied to a loan may be undesirable and a burden that lasts a long time

Leaves room to spend money on energy audits, and increasing the churches energy efficiency	Interest rates may increase the overall price Augustana will pay for the solar panels
	Tax incentives are not received

Solar lease/ Power Purchase Agreement (PPA): With this option the company you lease the solar panels from will own the solar panels on your roof. Alternatively there is a Limited Liability Corporation ([LLC](#)) Similar to a [PPA](#), but in this case you could see if there were any nearby neighbors or people within the congregation to buy solar panels. These people would sign a PPA with the congregation.

Advantages	Disadvantages
Receive all of the energy that is generated from the solar panels	It can take a very long time to enter into a PPA. Many congregations that worked with Interfaith Light have noted that negotiating a PPA took much longer than expected.
Standard agreements allow you to buy the solar panels at any time if you wish.	You will pay a monthly fee. For a solar lease the monthly fee is fixed, like a rent payment. For a PPA you will purchase all of the energy generated by the panels using a set Kilowatt hour price. (i.e. your monthly payment will differ depending on how much energy you produced that month).
The third party will get any rebates, tax breaks, and financial incentives. Which reduces the monthly fee you have to pay for the energy.	The congregation will not own the solar panels.
With this option the third party is responsible for all of the maintenance and repairs. However, there is usually minimal maintenance over the entire solar panels lifetime which reduces the importance of this benefit	

Many churches choose to enter into a PPA, so there are many examples, and advice on how to take this route.

Community solar vs rooftop solar: which is better?

Should you subscribe to a community solar project, or buy or lease solar panels? The answer would depend on your personal requirements and preferences. Below is an approximate comparison of the three.

Community Solar, Own & Lease Alternatives for Residential Solar

	Community Solar	Own	Lease
Reduce carbon emissions	Yes	Yes	Yes
Available to renters	Yes	No	No
Unaffected by shaded (or otherwise unsuitable) roof	Yes	No	No
Zero (or low) upfront costs	Yes	No	Yes
Simplicity of transaction	Yes	No	Yes
Ablity to own the system	No	Yes	No
Benefit from incentives and subsidies	No	Yes	No
Highest lifetime savings	No	Yes	No

Data source: solar-estimate.org

Option 2 section - Solar Garden participation

Another way to engage in powering your church building (or any building) with solar panels is to invest in a solar garden. Solar gardens are extensive collections of solar panels that belong to a municipality or community, allowing community members to make use of solar energy without making a major up-front investment through installation. The basic idea is that members who choose to partake will pay or “subscribe” to the solar garden on a monthly basis, the same way you would pay a utility bill. “In virtual net metering, a community solar subscriber is given credit on their electricity bill for their share of solar power that is fed back to the grid by the community solar farm”¹. The garden will then provide members with a portion of the power it is producing each month. The panels and associated equipment are owned by either a third party or by the community itself.

There are four types of organizing community solar:

1. Utility-Sponsored Communities - The utility company owns and operates a solar farm
2. Special Purpose Entities - individuals and corporations come together to form a business (an SPE), specifically for the development of a single or multiple community solar projects. The business may design, construct, and own the facility, then work with the local utility to allocate benefits to subscribers.
3. On-bill crediting model - allows energy consumers to invest in a local solar facility. In exchange, they receive a credit on their monthly power bill for their share of power produced.
4. Non-profit sponsored entities - This is when nonprofits create solar communities in low-income and underserved areas. These programs often include job training initiatives that aim to improve the local economy. Private donors fund these efforts.

This type of engagement promotes community collaboration on a larger scale, potentially allowing the garden to expand and benefit other members who want to make use of solar energy but are unable to install panels on their personal property.

Approximately 50% of all homes in the United States are unsuitable for panel installation due to lack of sunlight from orientation or shade. Community solar provides the opportunity to maximize potential sunlight by choosing the location you want to source it from.

¹ <https://www.solar-estimate.org/news/what-is-virtual-net-metering-and-who-is-it-for>

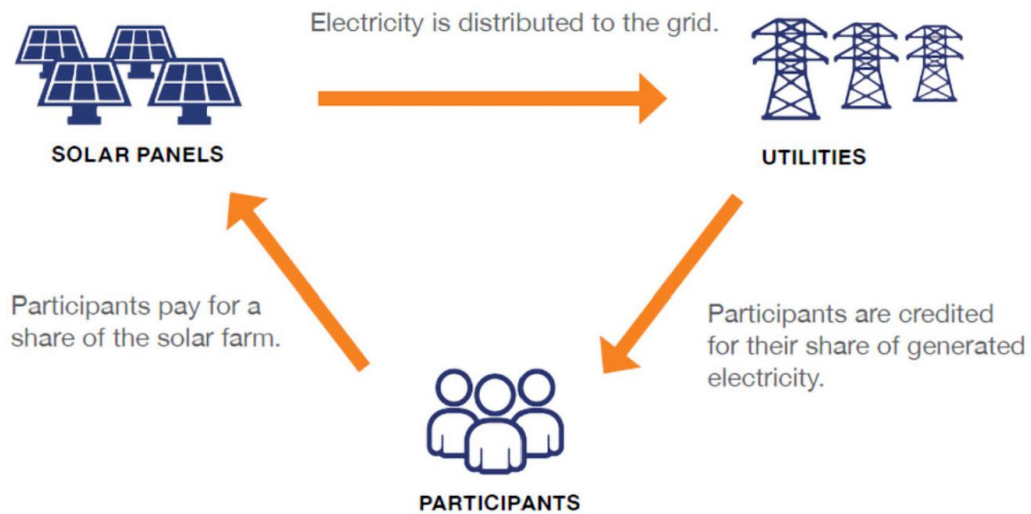


Image source: *United States Environmental Protection Agency*

The information provided here is sourced from [THIS LINK](#) which provides a great overview of community solar and many resources related to some of the financial details.

Advantages	Disadvantages
Community solar options require no installation or maintenance on the part of the member, meaning there are fewer associated expenses and efforts involved. It is a more accessible option than installing panels on a rooftop.	May not have the same long-term payoff as installations on the church itself, given that community solar cannot incur the same payoffs or incentives as private installation
It will not affect the aesthetic of the church or cause any spatial inconvenience during times of installation.	Is not as tangible of an investment for the church community - since you won't be seeing the solar panels as a reminder of your dedication to renewable energy, it may not have the same impact for the congregation
The larger the solar panel installation, the cheaper the price per kilowatt to produce and use the energy ²	

² <https://www.solarreviews.com/blog/community-solar-vs-home-solar>

<p>Spread awareness about solar throughout the community - the more people use the solar garden the more publicity it will get</p>	
<p>Some say that community solar is the future of energy in this country. Participating in it could effectively be helping to push the country as a collective towards a more sustainable future.</p>	