Solar for Georgia's Nonprofits

Challenges and Opportunities

May 2018

Southface

Author: Shan Arora, Program Manager, Policy + Systems Technology, Southface

Contributors: Kavin Manickaraj, Technical Project Manager, Research + Incubation, Southface
Allen N. Bradley, J.D., Trusted Counsel

Southface

For the last 40 years, Southface has led research, design, and implementation of a regenerative future for the Southeast. We are a group of change makers with a laser-focus on generating the outcomes that lead to vibrant, healthy communities for all. It is this singular vision, this dedication to creating the policies, technologies, buildings, and communities to improve human lives that propels us forward. It is the underpinning of the programs and services we craft, the data we track, and the outcomes we share with our peers, our community, and our leaders.

Acknowledgements

Southface would like to thank all of the nonprofits who provided details of their solar systems and energy improvements for this paper. Their willingness to provide their statistics and insights allows Southface to share the success story of Georgia's nonprofits who are going solar. Southface also appreciates the assistance of Allen Bradley of Trusted Counsel. He provided invaluable insight into the tax issues related to nonprofits' ability to monetize the federal tax incentives.

Introduction

In 2015, Southface launched its *Solar for Georgia's Underserved Markets* initiative. Through this initiative Southface seeks to facilitate the installation of solar photovoltaic (PV) systems on nonprofits and communities of faith (collectively referred to herein as "nonprofits"), municipalities, and multifamily affordable housing developments.[1] To date Southface has completed dozens of solar assessments for nonprofits, as well as numerous whole building energy assessments that included onsite generation of solar electricity. As a result of the effort so far, the following nonprofits have gone solar:

- Chatsworth Boys & Girls Club – 9.8 kilowatt (kW) installed in February 2017.
- Atlanta Neighborhood Charter School – 41 kW installed in September 2017.
- Cliff Valley School – 59 kW installed in August 2017.
- The Friends of Disabled Adults & Children – 100 kW installed in November 2017.
- Salvation Army Metro Atlanta Red Shield Services Emergency and Transitional Housing Facility – 28 kW installed in February 2018.

Through this process, we were able to identify the challenges of getting solar to Georgia's nonprofits, learn about best practices and funding opportunities, and increase our capacity to perform solar assessments and make informed recommendations.

In this paper, we present a short history of nonprofit solar systems in Georgia, a summary of the three factors to consider when going solar, summaries of the five nonprofits that have gone solar, and financing solutions that nonprofits or foundations may want to consider. This paper is designed to provide a nonprofit or foundation with an overview of the topic. Any nonprofit seeking to go solar should perform a thorough assessment with assistance from trained professionals. Southface may also be able to perform the assessment free of charge.

Solar on Georgia Nonprofits – The First Wave

Solar PV technology was invented in 1954 and soon made history in Georgia when the first solar-powered telephone call was made near Americus in 1955.[2] Thereafter, geopolitical events like the 1973 oil crisis highlighted the importance of energy independence.[3] By the 2000s, solar PV was becoming more common in parts of the country. The market was being driven not only by the declining price of the technology, but also by a growing appreciation of solar power's benefits, such as:

- Providing a buffer against rises in the price of grid-purchased electricity;
- Reduced environmental impact; and
- Energy independence.

Solar PV in Georgia in 1955.

[1] Southface's articles about municipalities and multifamily affordable housing developments are available at SaportaReport.com.

[2] Statistic and photo from Nagy, A. April 25, 2014. *60 Years Ago Today, Bell Labs Unveiled the Solar Cell*. Retrieved April 15 from https://gizmodo.com/60-years-ago-today-bell-labs-unveiled-the-solar-cell-1567543841.

[3] Pickerel, K. January 4, 2018. The *long history of solar PV.* Retrieved April 15, 2018 from https://www.solarpowerworldonline.com/2018/01/long-history-solar-pv.

The market for solar PV received a boost through the Energy Policy Act of 2005, which created a 30 percent federal income tax credit (ITC) for qualifying solar systems. However, to take advantage of the ITC, an organization must have federal income tax liability to offset. Tax-exempt organizations such as nonprofits are unable to take advantage of the ITC. In addition, many of these groups did not have, and continue not to have, the upfront capital required to pay for a PV system.

Chris Kids installed a 23.7 kW system in 2011 via funding from the Georgia Environmental Finance Authority.

Therefore prior to 2015, almost all of the solar systems on nonprofits in Georgia were funded either partially or wholly via government loans and / or grants. This allowed for a handful of nonprofits across the state to install relatively small onsite solar systems. These early solar systems established a track record of reliability and continue to allow for peer-to-peer discussion regarding the benefits of "going solar."

A few nonprofits went solar via Georgia Power's Advanced Solar Initiative (ASI), which was approved by the Public Service Commission (PSC) in November of 2012. ASI added 210 megawatts (MW) of solar through 2015, including 90 MW of distributed generation (DG) which was defined as projects up to 1 MW. All power would be sold to the grid with DG electricity being bought for 13 cents per kWh and allocated by a lottery system.

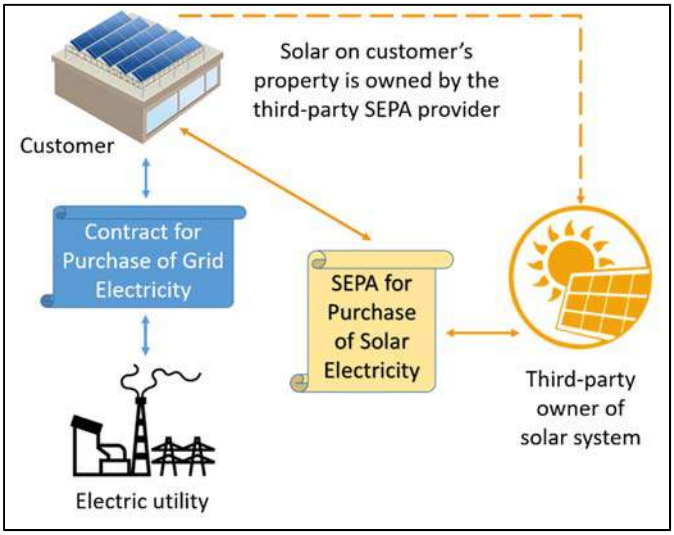
Bullock Science Center - Agnes Scott's first solar array, which was installed in 2013 as part of Georgia Power's ASI.

The largest amount of nonprofit ASI capacity is located on the campus of Agnes Scott College. In 2013, Agnes Scott was the only nonprofit to successfully build a solar project in the first year of ASI. The college won approval through ASI to build six arrays, four of which were completed as ASI projects. Through 20-year, fixed-priced contracts, the solar power produced by the four ASI arrays at Agnes Scott is tied directly into the electricity grid. The fifth array was financed by Agnes Scott and installed "behind the meter" such that all the energy is primarily used onsite. The sixth array was not built due to inability to find investor financing. Detailed information regarding Agnes Scott College solar systems can be found here: http://www.southface.org/the-journal/agnes-scott-solar-case-study.

The Georgia Free Market Financing Act of 2015

In 2015, Georgia enacted the Solar Power Free Market Financing Act (aka the "Solar Financing Act") that can provide financing solutions for nonprofits. The Solar Financing Act allows all types of customers to purchase solar electricity from PV panels located on their properties but owned by a third-party. This

means that tax-exempt organizations can purchase solar power with zero upfront investment. This type of third-party solar energy procurement agreement (SEPA) is new to Georgia and the Southeast.



Through a SEPA, a customer purchases electricity from a solar system first, and then from the grid.

Through a SEPA, the customer purchases solar electricity from the third-party owner of the solar system that is located on the customer's property. The customer also continues to purchase grid electricity from its existing electric utility when needed.

An important lesson Southface has learned through our *Solar for Georgia's Underserved Markets* initiative is that while nonprofits can technically take advantage of SEPAs, there is a limited SEPA market in Georgia. To date we are aware only of municipal governments having taken advantage of the SEPA financing structure. A couple of the main reasons for this are (i) syndicators of tax investors (often large banks) typically participate only in utility-scale solar energy transactions (for example, more than 20 megawatts), and (ii) firms that are in the solar finance business are looking for creditworthy investments and many nonprofits simply do not qualify.

Even in instances where the nonprofit has a larger electricity demand and six to seven days a week occupancy, solar financiers often require a co-signer to reduce the risk of selling solar electricity to a nonprofit whose creditworthiness may be difficult to ascertain. For these reasons, Southface is unaware of any nonprofit SEPAs in Georgia. However, as discussed later in this paper, we believe that there are opportunities for nonprofits to use SEPAs to access the benefits of solar.

Concerns Voiced by Nonprofits

Through the course of Southface's discussions with a variety of nonprofits, we heard several recurring concerns. Most were concerned about the reliability of PV systems. Absent improper installation, PV systems are very reliable. Another common concern was the level of maintenance required to keep the PV system in good working order. We reached out to multiple nonprofits that have had solar systems since the early 2010s and none of them have experienced any issues or performed substantive maintenance. For example, the Atlanta Community Food Bank installed a 42 kW system in 2011. They have observed about $10,000 in annual utility savings. To date, they have not experienced any issues or malfunctions, or needed to make any repairs to the PV system.[4]

Atlanta Community Food Bank 42 kW PV system.

[4] Capers, J. Senior Manager Facilities, Atlanta Community Food Bank. Email on March 29, 2018.

Another question posed by nonprofits is whether solar is the most cost-effective energy management solution when compared to energy efficiency measures that can be taken such as installation of efficient lighting, HVAC equipment, and building controls. These upgrades serve to lower a building's energy consumption and in turn lower the associated energy bills. The adoption of these conservation measures depends largely on both the initial cost and the return on investment. In recent years, LED lighting has become a low-cost and ubiquitous solution for conserving significant energy within a commercial building that offers a very fast return on investment.

Similarly, solar PV prices have dropped precipitously over the past decade with a 55 percent price decline in the last five years.[5] As this cost continues to decrease through economies of scale, solar-generated electricity becomes more attractive. Instead of adopting a conservation strategy only, a new option involves coupling energy efficiency with renewable energy generation to form an "energy management measure."

Southface has had several opportunities in recent years to compare the return on investment of PV solar to other energy management measures. As a core partner of the Grants to Green (G2G) program[6] and the Nonprofit Energy & Water Efficiency (NEWE) program,[7] Southface performed whole building energy assessments that evaluated the costs and benefits of both energy efficiency and solar. Both the G2G and NEWE programs provide matching grants to nonprofits for energy management measures including solar systems.

Table 1 contains the energy management measures Southface recommended to the Friends of Disabled Adults & Children (FODAC) following a detailed energy and water use site assessment. Individually, the recommended 100 kW DC rooftop solar system was predicted to achieve just under a 12-year payback. Coupled with the other recommended measures, the payback for the full energy management solution remained at 12 years, challenging the notion that a solar system is too costly to implement or incurs too long a return on investment. Instead, a building efficiency upgrade is the optimal time to consider solar as an additional energy management measure. This is especially true when grant funding may be applied. For FODAC, the dollar-for-dollar match from the G2G program effectively cut the payback in half resulting in less than a six-year return on investment.

[5] Solar Energy Industries Association. *Georgia Solar*. Retrieved February 14, 2018 from https://www.seia.org/state-solar-policy/georgia-solar.

[6] From 2008 to 2018, the Grants to Green program was a partnership between The Kendeda Fund, The Community Foundation for Greater Atlanta, and Southface to transform the nonprofit sector by encouraging nonprofits to renovate, expand, or construct buildings that are energy and water efficient. From 2018 onward, Grants to Green is expanding its focus outside metro Atlanta. The ultimate goal is to improve a nonprofit's facility to minimize environmental impact and increase the cost-efficiency of operations, making the financial savings available to be put back into the nonprofit's mission. For more information, please visit http://www.southface.org/programs/grants-to-green.

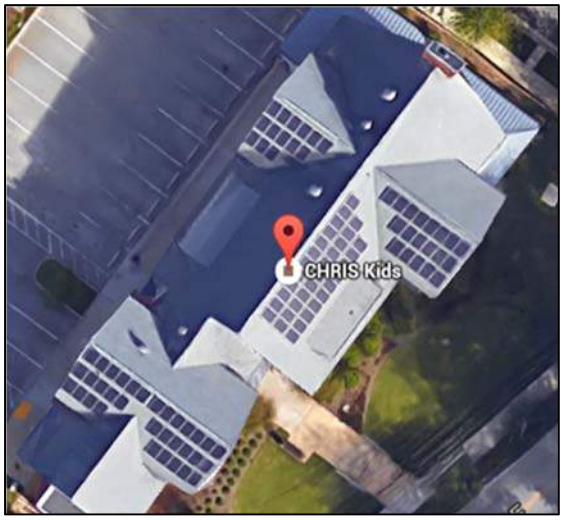
[7] The Nonprofit Energy & Water Efficiency Initiative is a partnership between Southface and the Boys & Girls Club of America and Feeding America to develop an energy and water efficiency program for the national nonprofit and foundation community. For more information, please visit http://newinitiative.southface.org.

Table 1. FODAC Energy Management Measures

Energy Management Measures	Projected Annual Cost Savings	Percent of Total Cost Savings	Cost from Contractor Bid	Simple Payback (Years)	Projected Electricity Savings (kWh)	Projected Natural Gas Savings (therms)
1. Point of Use Water Heater[8]	$1,115	4%	$1,625	1.5	-1,013	47
2. Smart Thermostats	$648	2%	$4,900	7.6	6,306	356
3. LED Lighting, Controls, and Fixtures	$9,392	30%	$85,000	9.1	59,857	0
4. 100 kW PV System	$17,870	57%	$199,134	11.1	134,271	0
5. High-Efficiency HVAC Units	$2,532	8%	$60,000	23.7	6,885	386
Total	**$31,557**		**$350,659**	**11.1**	**206,305**	**789**

Main Factors for Going Solar

Solar access is the most important factor in determining whether a solar system will be beneficial for a nonprofit facility. Generally, the building should have a well-maintained and structurally sound roof capable of accommodating the solar system with little or no shade. South-facing roofs are best because the greatest amount of solar exposure occurs across the southern horizon. However, depending on when the building is occupied, east- or west-facing roofs may also work (e.g., schools with east-facing roofs capture the benefit of morning and early afternoon sunshine during periods of peak occupancy). A nonprofit could also look at options to mount solar systems on the ground, on a pole, or even create a parking canopy. If the nonprofit's property does not have sufficient access to sunlight, then it is likely not a good candidate for onsite solar. Moreover, if the building's roof is not in good condition, then rooftop solar may not be an option until the roof has been repaired or replaced.



The Chris Kids array is on the building's south-facing and east-facing roofline and has limited obstructions.

The following factors are also important when determining if a solar system is appropriate for nonprofit buildings, which are typically classified as commercial buildings:

1. Average cost of electricity;
2. Electricity rate structure (also known as tariff); and
3. The building's occupancy schedule.

[8] Point of use water heaters heat water very near the sink, shower, or bath where the water is used, instead of a central heater. According to the U.S. Environmental Protection Agency, adding a point of use water heater may be the best option in terms of system-wide energy efficiency. For more information, please visit https://www.energystar.gov/products/water_heaters/point_use_pou_water_heaters.

Average Cost of Electricity

A building's average cost of electricity is the primary driver towards potential solar savings. To arrive at the average cost of electricity, the simple approach is to divide kilowatt hours (kWh) of electricity consumed during a period of time by the amount charged by the utility. The average cost of electricity for commercial customers in Georgia as of 2016 is 9.81 cents per kWh.[9] A building with a higher average cost of electricity may benefit immediately from an installed solar system. Although this is generally the rule to follow, there are some exceptions that depend on both the electricity rate structure and how a building is used. In these instances, both the rate of electricity consumption at a given time—known as the electricity demand—and the time that a building consumes electricity impact the magnitude of the cost savings and the financial payback over the life of the system.

Electricity Rate Structure

The average cost of electricity is impacted by the building's electricity rate structure. Southface identified two Georgia Power commercial tariffs as the most representative electricity rate structures for nonprofit organizations: Power and Light-Medium (PLM) and Time of Use-Energy Only (TOU-EO).[10] A nonprofit trying to understand how solar will impact its energy bill should keep in mind that there are additional fees associated with typical Georgia Power commercial tariffs that are charged based on electricity consumed.[11] Therefore, any nonprofit that lowers the amount of electricity purchased from the utility, either through energy efficiency or onsite generation of solar, will also lower the amount of fees it pays.

The PLM tariff applies to commercial buildings with an annual peak electric demand between 30 kW and 500 kW. Under this tariff, the price of electricity for a given month depends on the peak demand for the current month, peak demand for each of the previous 12 months, and electricity consumption for the current month. This is a good tariff for buildings that have a relatively stable consumption of electricity, i.e., they do not have spikes in electricity demand, because PLM prioritizes a low monthly demand and steady electricity consumption.

However, because monthly peak demand is a function of how much power a building is drawing within any 30-minute interval throughout the year, a building that has sudden increases in power demand from things like heating and cooling systems coming online can be hit with higher electricity prices. A spike in peak demand will also impact electricity prices for the next 11 months due to the demand ratchet. For these types of buildings that are on PLM, solar may decrease this sudden demand and result in a lower average cost of electricity.

The TOU-EO tariff is a commercial building rate structure with a bi-level electricity pricing structure; one for *on-peak* electricity use and the other for *off-peak* electricity use. This tariff defines *on-peak* as all weekday times between 2 p.m. and 7 p.m. from June to September (known as the summer months) while *off-peak* is defined as all periods outside of this range including weekends and holidays. The tariff

[9] U.S. Energy Information Administration. *State Electricity Profiles*. Retrieved February 14, 2018 from https://www.eia.gov/electricity/state.

[10] Most nonprofits for which we provided a solar or whole building energy assessment are Georgia Power customers. However, other electricity utilities in the state have similar tariffs as PLM and TOU-EO.

[11] Georgia Power's fees include Environmental Compliance Cost Recovery (ECCR), Nuclear Construction Cost Recovery (NCCR), Demand Side Management (DSM), Fuel Cost Recovery (FCR), Municipal Franchise Fee (MFF), and taxes.

describes an electricity price of 16.9 cents per kWh during the *on-peak* hours and a price of 8.2 cents per kWh during the *off-peak* hours. Additionally, any electricity consumption above 1,500 kWh between October and May is charged at 3.1 cents per kWh.

Although billing demand does not directly influence any electricity pricing, this tariff – similar to the PLM tariff – also contains a minimum bill clause. During periods of high peak demand and low electricity consumption, a given month's power bill may be the higher of either the calculated electricity charges or the minimum monthly bill described by the tariff. In this instance, the peak demand is the driver for the incremental cost of electricity.

It is important to note, however, that any excess solar electricity that is fed back to the grid will be purchased by Georgia Power at the avoided cost of about four cents per kWh regardless of whether a building is under the PLM or TOU-EO tariff. In essence, a building with an oversized solar system will not make a profit on excess electricity not used on-site. Therefore, an organization benefits the most from solar-generated electricity when under-sizing a solar system based on each month's electricity consumption.[12]

Occupancy Schedule

The final component for estimating the cost-benefit of a solar system is a building's occupancy schedule because a solar system is only functional during daytime hours. If a building is only operational at night, then a solar system for on-site electricity consumption only makes technical sense if it is accompanied by a battery. However, the time of use for most nonprofit buildings is not this straight forward.

Unlike the average cost of electricity and rate structure, this metric cannot be simply found by referring to a building's power bills. Instead, this requires a detailed estimate from building managers regarding weekly usage, daytime and nighttime operation hours, and weekend occupancy. In some instances, certain rate structures may provide interval data that supplement this information. During the summer billing months (June through September), the Georgia Power TOU-EO tariff details both *on-peak* and *off-peak* electricity consumption. Two identical buildings with similar electricity consumption, demand, and rate structure may realize drastically different solar-generated savings based solely on when the electricity is consumed.

Nonprofits That Went Solar with Southface Assistance

Below are summaries of the five nonprofits that recently went solar as a result of assistance provided by Southface. Four utilized grants and rebates to finance their solar system. One nonprofit paid for its solar installation using its own funds.

[12] As the price of battery storage continues to decline, a nonprofit may be able to incorporate storage with a solar system thereby allowing for a larger array. Excess solar produced during the day could be stored in the battery for use during the evenings and early mornings.

Chatsworth Georgia Boys & Girls Club

The Chatsworth Club ribbon cutting ceremony.

The Chatsworth Georgia Boys & Girls Club (Chatsworth Club), located in Murray County in northwest Georgia, is part of the Boys & Girls Clubs Serving Chattooga, Gordon, Murray, and Whitfield Counties (BGCGMW). In 2014, BGCGMW received a grant to install energy efficient lighting, upgrade the air conditioning system, and install low-flush toilets in one of their clubs. At the end of the first year, the property saved about $10,000. These monetary savings improved the club's program delivery.

The Chatsworth Club's 9.8 kW solar system was installed in February 2017.

This initial experience with efficiency retrofits changed BGCGMW's mindset on operations and technology. For example, BGCGMW replaced desktop computers that produce a lot of heat with tablets that do not emit heat. BGCGMW leadership viewed solar through this holistic approach to energy and recognized it as an educational opportunity for the children that it serves.

The Chatsworth Club's solar system was part of a larger energy management upgrade constructed to the EarthCraft Light Commercial[13] specifications. The entire project cost $120,000 but received $60,000 in funding from the NEWE program. The project also received $31,394 in rebate funding from Green Communities Fund, which is a rebate program offered by the Georgia Cities Foundation.

The Chatsworth Club's 9.8 kW solar system was installed by Alternative Energy Southeast in February 2017. According to Robbie Slocumb, BGCGMW's Chief Professional Officer, the installation took a few days and required minimal effort from Chatsworth Club's staff. In fact, BGCGMW is considering another solar project at another of its locations. Moreover, the savings are greater than expected and will continue to make a difference in how the Chatsworth Club operates.

The energy efficiency upgrades coupled with solar energy earned the Chatsworth Club an EarthCraft Light Commercial certification. The Chatsworth Club is now one of BGCGMW's most popular facilities to showcase to donors and community leaders. The new location has hosted several civic clubs as well as a business leader luncheon. The Club exemplifies "going green" and saving energy as priorities of BGCGMW, and it receives positive reviews from those who come to tour it.[14]

[13] EarthCraft Light Commercial is a regional green building certification program offering third-party recognition for environmentally responsible design and construction practices for small-scale, or "light" commercial buildings in the Southeast. It is best suited for commercial building projects sized 50,000 square feet or less, however all projects may be considered on a case-by-case basis. For more information, see http://www.earthcraft.org/earthcraft-professionals/programs/earthcraft-light-commercial.

[14] Slocumb, R. BGCGMW Chief Professional Officer. Email on April 4, 2018.

Atlanta Neighborhood Charter School – Elementary Campus

The Atlanta Neighborhood Charter School (ANCS) Elementary Campus participated in the G2G program in 2016. The G2G assessment resulted in Southface making the following recommendations:

1. Install high-performance LED lighting with occupancy or vacancy controls
2. Install solar PV electricity system
3. Install solar window film
4. Perform building envelope upgrades: foam insulation
5. Install web-based thermostats
6. Install low-flow plumbing fixtures

ANCS's 41 kW solar carport canopy is projected to save the school over $6,000 a year.

The total cost for all recommendations was $284,395. ANCS paid half the amount ($142,198) and G2G matched the remaining amount. The project also received $50,000 in rebate funding for the solar system from the Georgia Environmental Finance Authority (GEFA). Alternative Energy Southeast was selected to install a 41 kW solar carport canopy, which was completed in late 2017. ANCS projects that the solar canopy will result in utility savings of over $6,000 per year.[15]

Friends of Disabled Adults and Children

FODAC's 100 kW system is atop its warehouse in Stone Mountain, Georgia.

FODAC is a Georgia nonprofit organization that provides durable medical equipment such as wheelchairs and hospital beds at little or no cost to people with disabilities and their families. FODAC launched a capital campaign in 2016 with the goal to minimize expenses in order to maximize funds for its core mission. FODAC is housed in a 64,800 square foot building in Stone Mountain, has 18 full-time and 14 part-time staff. FODAC's annual budget of approximately $1.4 million has to cover the mortgage, utilities, employee salaries, and transportation costs (e.g., vehicle maintenance and fuel). FODAC cannot fulfill its mission without labor and transportation. Therefore, the expenses targeted by FODAC were debt finance and utilities. Through the 2016 capital campaign, FODAC raised enough money to pay off its mortgage, fund the installation of a new roof, pay for energy efficiency upgrades, and purchase a 100 kW or larger solar system.

Through a G2G assessment, Southface recommended a solar system, energy efficient lighting, high-efficiency water heating, and high performance HVAC. The total cost for all recommendations was

[15] Atlanta Neighborhood Charter School. *Solar Panels at Elementary Campus*. Retrieved May 1, 2018 from https://atlncs.org/elementary-campus/solar-panels-at-elementary-campus.

$350,659. FODAC paid half the amount ($175,330), and G2G matched the remaining amount. Radiance Solar was selected to install a 100 kW solar rooftop system, which was completed in late 2017.

According to Chris Brand, FODAC's President / CEO, FODAC's staff and donors are very proud of the organization's sustainability commitment while reducing the cost of operations. Their first full month after they completed all of their energy improvements resulted in a 50 percent reduction in their power bill. FODAC shows pictures of their solar array in every presentation they make.[16]

The Salvation Army Metro Atlanta Red Shield Services Emergency and Transitional Housing Facility

The purpose of The Salvation Army Metro Atlanta Red Shield Services Emergency and Transitional Housing Facility (Red Shield Shelter) is to provide strategic intervention, refuge and safe lodging for homeless men, women and families with children in crisis. Through a G2G assessment, Southface recommended a solar system, energy efficient lighting, water efficient plumbing, and HVAC controls.

Red Shield Shelter's 28 kW system.

The total cost for all recommendations was $362,986, which included solar, lighting, plumbing, and heating and cooling controls. G2G awarded $181,493 for the project and Red Shield paid for the remaining amount. The Green Communities Fund provided $18,300 in rebates for various efficiency upgrades that increased the capacity of the solar system. Georgia Power gave a $14,130 rebate on LED lighting.

Alternative Energy Southeast was selected to install a 28 kW[17] solar rooftop system, which was completed in February 2018. According to Chris Durand, Director of Management Services at The Salvation Army, staff, leadership, donors, and Board members have been encouraged and impressed by the Red Shield Shelter's solar installation, which is the first within Salvation Army's Metro Atlanta Area Command.[18]

Cliff Valley School

Three seventh grade students started Cliff Valley School's journey toward solar power when they asked "Why don't we have solar cells?" As the first school to earn the EarthCraft Light Commercial certification back in 2011, Cliff Valley was already an energy-conscious nonprofit.[19] The students' question helped motivate this Atlanta private school toward what would become a significant investment in solar energy and a further relationship with Southface.

Unlike the other projects highlighted, Cliff Valley did not participate in the NEWE initiative, G2G program, or any other grant / loan program for its solar system. Rather, it obtained a discounted

[16] Brand, C. FODAC President / CEO. Email on April 17, 2018.

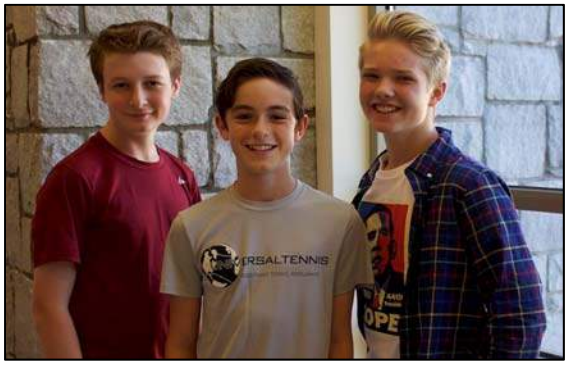
[17] thesouthernspirit. *Making the most of energy dollars.* Retrieved April 12, 2018 from https://www.southernspiritonline.org/making-the-most-of-energy-dollars.

[18] Durand, C. Director of Management Service, The Salvation Army – Metro Atlanta Area Command. Email on April 12, 2018.

[19] Cliff Valley School. *At-A-Glance*. Retrieved May 2, 2018 from http://cliffvalley.org/about/at-a-glance.

installation price by participating in the Solarize Decatur-DeKalb[20] campaign, a solar photovoltaic bulk-purchasing program that helped homeowners, businesses, and nonprofits in DeKalb County save on the cost of solar.

Southface worked with Hannah Solar, the commercial installer selected for Solarize Decatur-DeKalb, to analyze how much electricity the school uses, and because it is on a TOU rate, when it uses the electricity. Based on the building's electricity usage, Southface and Hannah Solar recommended a 62.56 kW system.



The three Cliff Valley School students whose question lead their school to purchase a solar system.

Through Solarize Decatur-DeKalb, DeKalb County nonprofits enjoyed the incredibly low price of $2 per watt for systems sized 25 kW or greater inclusive of taxes. That was 17 cents cheaper than the bids Southface was reviewing for a 97 kW system ($2.17) on a different building. Confident that this price represented a savings versus a non-Solarized price, Cliff Valley asked Southface to prepare a detailed return-on-investment analysis including the outright purchase of the system and foregoing federal investment tax credits.

Southface's analysis determined that a $125,120 direct purchase, without the benefit of the federal tax credit, would result in a 12-year payback on a system that is warrantied to last for 30 years. At the end of the 30-year warrantied life of the system Cliff Valley would realize total savings of over $220,000. These savings could be even greater if the cost of grid-purchased electricity were to rise higher than the modeled assumptions. Further, the panels could very well continue to produce electricity beyond their 30-year warrantied life, which would also increase the projected savings.

[20] Solarize campaigns are typically led by volunteers or by a city government and are geographically limited in scope (e.g., a neighborhood, city or county). The Solarize concept seeks to address three market barriers: cost, complexity and customer inertia.

- Cost: The organizers of a Solarize campaign solicit competitive bids from local installers to ensure that best-in-class materials are installed by qualified solar professionals for the lowest price. Each campaign selects one or two installers and then facilitates collective purchasing of solar systems in order to obtain a volume discount. Solarize also reduces the selected installer's marketing costs because the campaign volunteers typically handle lead generation. The installer then passes these "soft cost" savings on to the Solarize participants.
- Complexity: Solarize campaigns reduce complexity for customers by pre-selecting one or two installers through a competitive bidding process. While this restricts choice, the customer has the confidence of knowing that campaign organizers selected the installer through a competitive bidding process. The organizers then host workshops and "solar open houses" where prospective customers can become familiar with solar and get their questions answered. Because they are localized by city or county, these campaigns can also result in a streamlined permitting process for all Solarize participants.
- Customer Inertia: Solarize campaigns overcome customer inertia by offering a highly competitive price, with reduced complexity, as a limited-time offer. Enrollment periods typically last for three to four months with a requirement that contracts be signed within a few months after the enrollment period ends. Because they are also geographically limited in scope, neighbors learn of installations that have come online and this encourages those that are "on the fence" to act before the time period ends.

Cliff Valley School's leadership felt the return-on-investment numbers worked and that solar would further the school's mission. With the board facilities committee's recommendation, the school engaged Hannah Solar to install panels on the roof of the gym. A 59 kW installation was completed in early August 2017.[21] The school monitors system results on a monthly basis and reports lower monthly grid usage and cost savings thus far; the school will calculate the first year return-on-investment in September 2018.

Cliff Valley School's 59 kW system is installed on the roof of its gymnasium.

Cliff Valley communicated with parents, staff, and students about the solar system when it was completed, and received an enthusiastic response about the school's commitment to sustainability. Cliff Valley prominently displays the solar arrays on its website and according to Head of School Michael Edwards the project has been "nothing but positive" for the school.[22]

Financing

Between the beginning of 2015 and the end of 2017, Southface completed 24 solar assessments and four whole building energy assessments, which analyzed onsite solar for nonprofits. What we learned from this process is that if we lead with a solar assessment and identify nonprofits that are optimal solar candidates, we usually hit a barrier when it comes to financing. Most nonprofits do not have the funds to pay the upfront costs of solar. Those that do have difficulty overcoming the psychological barrier of not being able to take advantage of federal tax incentives that are available to taxable entities. Many are also weary of having capital campaigns to raise funds for a solar system, especially when they are currently or have recently completed raising funds for what they consider to be more pressing issues. In contrast, when we led with a source of funding, the nonprofit was more likely to go solar. Of the five examples in this paper, only Cliff Valley School paid for the entire cost of its solar system using existing funds.

The most straightforward approach for a nonprofit to get a solar system is to participate in a loan or grant program like G2G. Or it can fundraise for it or pay for the system from its general fund, like Cliff Valley School. However, based our experience, most nonprofits have pressing mission- or facility maintenance-related priorities that require funding. If a nonprofit is willing or able to purchase its solar system, then it should consider participating in a Solarize campaign if there is one in its area. Of note

[21] Cliff Valley School. *Solar Energy: Just one Way We Stand Out*. Retrieved May 1, 2018 from http://cliffvalley.org/powered-solar-energy.

[22] Edwards, M. Cliff Valley School Head of School. Email on April 12, 2018.

Solarize Carrollton-Carroll launched in April of 2018 and covers the greater Carrollton, Georgia area. Solarize Atlanta also launched in April of 2018 and covers the City of Atlanta.

Monetizing Federal Tax Credits

Another approach to financing is for nonprofits to monetize the federal tax incentives. As previously discussed, because nonprofits do not have taxable income, they cannot take advantage of federal solar tax incentives that decrease the final cost of the solar system by over 30 percent.[23] However, nonprofits can decrease the final cost of the benefits of the solar system by entering into a SEPA. If the electricity need of the nonprofit is great enough, its electricity rate is higher than average, and it is credit-worthy, the nonprofit may be a good candidate for a SEPA offered by one of the existing providers in the state.

There may also be yet another financing approach for a nonprofit: it can identify a select group of benevolent investors who would be willing to invest in a solar system located on the nonprofit's property. In this example a possible financing structure is that the benevolent investors could form a special purpose entity (a "Solar SPE") that owns the solar system and enters into a SEPA with the nonprofit. Because the Solar SPE owns the solar system, it could potentially take advantage of the 30 percent federal ITC and accelerated depreciation. The Solar SPE could even sell the solar system to the nonprofit at the end of a certain period (e.g., six years). This approach summarized below may only be available in limited circumstances. Any nonprofit seeking to utilize this approach should seek the guidance of tax specialists and attorneys well-versed in SEPAs, the "excess benefit transaction rules" pursuant to Internal Revenue Code (IRC) section 4958, and the "passive activity loss" (PAL) rules of IRC section 469.[24]

The SEPA Should Pass the Excess Benefit Transaction Rules

The excess benefit transaction rules apply to 501(c)(3) and 501(c)(4) nonprofits and seek to prevent certain individuals who can substantially influence the nonprofit, i.e., a "disqualified person," from receiving an excess benefit from any transaction with the nonprofit. Disqualified persons include:

- Nonprofit board members;
- President, Executive Director, Chief Executive Officer, Chief Operating Officer, or a person who has ultimate responsibility for managing the nonprofit;
- Treasurer, Chief Financial Officer, or a person who has ultimate responsibility for managing the nonprofit's finances;
- Family members of a disqualified person.[25]

Ultimately, there is a "facts and circumstances" test that determines whether an individual is a disqualified person. However, it should be noted that not all transactions between a nonprofit and a disqualified person are presumed to be excess benefit transactions. The key takeaway for any nonprofit considering using this benevolent investor SEPA approach is to consult with competent legal, tax, and accounting advisors to determine compliance with the excess benefit transaction rules.

[23] Section 501(c) of the Internal Revenue Code, as amended.

[24] Southface does not provide tax, legal, or accounting advice. This material has been prepared for informational purposes only and is not intended to provide, and should not be relied on for, tax, legal, or accounting advice. A nonprofit should consult a tax, legal, and accounting advisor before engaging in any transaction or program.

[25] Treasury Regulation 53.4959-3.

Benevolent Investors Should Have Sufficient Passive Income

The PAL rules, if triggered, could disallow an investor from immediately using solar ITCs to offset the investor's active income (e.g., wages, capital gains and dividends from stock investments).[26] An investor in the Solar SPE may be subject to the PAL rules if he / she does not "materially participate" in the business of selling solar energy to off-takers.[27] In such case, the investor will have to establish material participation by satisfying one of seven tests established by the IRS that measure the number of hours he / she participates in the business.[28] In general, if the IRS were to determine that such an investor does not materially participate in the business of selling solar energy, then only the investor's income and tax liability from passive activities (e.g., rental income) could be offset by the ITC and accelerated depreciation from the Solar SPE.

If the Solar SPE is a partnership or S corporation, a member would generally be subject to the PAL rules if it is an individual, estate, trust or closely held C corporation. Widely held C corporations or publicly traded C corporations are not subject to the PAL rules. In general, closely held private C corporations can only use the ITC from passive activity if they have active income, which most generally do.[29] Therefore, for all types of investors except for widely held private C corporations, publicly traded C corporations, and closely held C corporations subject to certain limitations, it is advisable for the investor to have sufficient passive income to offset the solar ITC and take advantage of accelerated depreciation.

SEPA Rate Should Be Fair Market

The intention of the Solar SPE must be to lower the per kWh rate paid by the nonprofit for solar electricity. However, the Solar SPE should be careful to not set the SEPA rate too low because the IRS may deem the entire transaction as direct ownership by the nonprofit thereby eliminating the tax benefits. It is best for the Solar SPE to seek the advice of a qualified tax professional in determining the appropriate SEPA rate.

Duration of Ownership

To avoid tax credit recapture, the Solar SPE must retain ownership of the solar system for the five-year compliance period following the year the solar system was placed in service. Therefore, the Solar SPE should not consider selling a solar system before the sixth year it is in service. When it does sell the solar system to the nonprofit, it should do so at fair market value. An option allowing the nonprofit to purchase the system at below fair market value (e.g., $1) ***should not be written*** into the SEPA, largely because that may result in the IRS deeming the entire transaction as direct ownership of the solar system by the nonprofit from the start.

Conclusion

Going solar provides many benefits to nonprofits; financial reasons typically prove the most significant. If the system can be sized and priced properly, then the nonprofit can realize yearly savings that it can apply towards furthering its mission. As has been observed by some nonprofits that have already gone solar, aside from the monetary benefits, solar systems can also serve as a nonprofit's visible

[26] Section 469 of the IRC.

[27] Section 469(h) of the IRC.

[28] Regulation § 1.469-5T of Section 469 of the IRC.

[29] Section 469(e)(2) of the IRC.

commitment to helping its community, which can excite both the communities the nonprofit serves as well as prospective donors.

While financing solar on nonprofits continues to present challenges, we believe that 2018 and 2019 will provide Georgia with more examples of nonprofits going solar. The Grants to Green program will continue to be a source of matching funding, Solarize campaigns will continue to provide dramatically lower pricing for nonprofits that choose to purchase their systems outright, and some nonprofits may be able to go solar via a SEPA. While the "benevolent investors" SEPA may be an option, it has not been done in Georgia to our knowledge. The market may be ready, however, for traditional SEPAs to finally take the leap and finance solar on Georgia's nonprofits. Southface will continue to facilitate the deployment of all of these solutions and seek others that enable Georgia's nonprofits to go solar.