

MANNA FoodBank: Solar Panel Installation

RFP for Coronavirus State and Local Fiscal Recovery Funds

MANNA FoodBank

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Application Form

Question Group

Buncombe County requests proposals for projects to help the community recover from and respond to COVID-19 and its negative economic impacts.

Buncombe County has been awarded \$50,733,290 in Coronavirus State and Local Fiscal Recovery Funds (Recovery Funding), as part of the American Rescue Plan Act. To date, Buncombe County has awarded projects totaling \$23,093,499, leaving a balance of \$27,639,791 available to award.

Visit <http://www.buncombecounty.org/recoveryfunding><http://www.buncombecounty.org/recoveryfunding><http://www.buncombecounty.org/recoveryfunding><http://www.buncombecounty.org/recoveryfunding><http://www.buncombecounty.org/recoveryfunding> for details.

This infusion of federal resources is intended to help turn the tide on the pandemic, address its economic fallout, and lay the foundation for a strong and equitable recovery.

Buncombe County is committed to investing these funds in projects that:

- Align to county strategic plan and community priorities
- Support equitable outcomes for most impacted populations
- Leverage and align with other governmental funding sources
- Make best use of this one-time infusion of resources
- Have a lasting impact

Proposals shall be submitted in accordance with the terms and conditions of this RFP and any addenda issued hereto.

[Click here for the full terms and conditions of the RFP](#)

Organization Type*

Nonprofit

Nonprofit documentation

If nonprofit, attach IRS Determination Letter or other proof of nonprofit status.

1.91 TAX Exempt Letter Updated 3.18 approved by NF.pdf

Name of Project.*

MANNA FoodBank: Solar Panel Installation

New/Updated Proposal*

Is this a new project proposal or an updated version of a proposal submitted during the earlier (July 2021) Recovery Funding RFP?

New project proposal

Amount of Funds Requested*

\$283,875.00

Category*

Please select one:

- Affordable Housing
- Aging/Older Adults
- Business Support/Economic Development
- Environmental/Climate
- Homelessness
- K-12 Education
- Infrastructure and/or Broadband
- Mental Health/Substance Use
- NC Pre-K Expansion
- Workforce

Environmental/Climate

Brief Project Description*

Provide a short summary of your proposed project.

MANNA FoodBank is requesting a one-time investment of \$283,875 to install solar panels on our planned new distribution facility in Buncombe County. This solar installation will enable MANNA to contribute to a cleaner, healthier environment through the use of a sustainable energy resource. The solar energy system will also yield substantial utility savings for our organization, which will be reinvested in our mission to end hunger in Western North Carolina.

In 2019, MANNA identified the essential need for a new facility due to serious safety issues, capacity limitations, flooding threats, and the potential site encroachment from a greenway project. Our limited capacities were strained beyond critical mass as we rapidly reorganized our operations to provide enough food for the exponential number of people seeking assistance because of COVID. MANNA has entered into a contract to purchase 24 acres of land in Swannanoa on which to build a larger, safer facility.

Project Plan*

Explain how the project will be structured and implemented, including timeframe.

MANNA is requesting funding to install a 307 SunPower 410 solar panel array on our new facility planned for 3 Old Bee Tree Road in Swannanoa, NC. This efficient system will be supplied by the local firm Sugar Hollow Solar, based in Fairview, NC. This solar array is designed to produce 178,500 watts per year at a cost of only \$2.57 per watt. The system is valued at \$358,875, a cost that will be reduced by \$75,000 after a rebate from Duke Energy. The total installed price will be \$283,875. The thirty-year value of the system is estimated to be \$514,102. The transition to solar aligns with MANNA's commitment to financial stewardship and our concern for the environment. In thirty years, the SunPower solar system will save 4,070 tons of CO2 emissions from entering the atmosphere, equivalent to 51,817 trees growing for ten years, 352,530 gallons of gasoline saved or taking 664 cars off the road for one year. The annual estimated savings on MANNA's utility bill will be \$14,985, which will be reinvested in our mission to end hunger in WNC. This project will also give security to the local power grid while providing a clean source of energy for WNC.

MANNA is already a community leader in our recycling and food rescue efforts. In our present facility, we recycle all possible packaging, paper, or organic materials. What little food waste is incurred in our operations is donated to area farmers for feed.

MANNA is using a design-build approach to construct a new affordable and efficient facility. In collaboration with volunteers, partner food distribution agencies, staff, board, and the community, we have begun the design phase of a new 100,000 square foot food bank and possible community garden. We have hired the local firm, Beverly Grant, as our General Contractor. This project is projected to be completed by the end of the Calendar Year of 2023. Once the new roof is completed, the installation of the solar panels will take a minimum of four months.

Currently, MANNA is in the due diligence phase of acquiring a 24-acre parcel located at 3 Old Bee Tree Rd Swannanoa, NC. The geotechnical and Phase 1 Environmental investigations are complete, and the Phase 2 Environmental Report is expected in mid-July. This parcel is part of a larger 40+ acre tract that includes a Brownfield application and remediation due to an industrial solvent spill from a previous owner. MANNA plans to beneficially reuse this land to build a food bank for the betterment of our community.

MANNA has committed to upholding our values of equity, diversity, and inclusion as we undertake this project. This focus was key to our selection of Beverly Grant as our General Contractor for this project. Our Facilities Committee and Board of Directors valued the firm's commitment to hiring local workers and to their employment practices that highlight their priorities of equity and diversity.

Statement of Need*

Describe the need that this project will address. Include data to demonstrate the need, and cite the source of the data.

MANNA's mission is to involve, educate, and unite people in the work of ending hunger in WNC. Poverty precipitates food insecurity. Hunger is a severe manifestation of poverty. In Buncombe County, 12.2% of the population lives below the poverty level (ACS, 2015-2019). WNC Health Network reports that 25.5% of adults in Buncombe County "often or sometimes ran out of food and did not have money to buy more." Assistance from a food pantry can help people stretch their budgets to pay for other basic needs like rent, utilities, or health care.

CO2 emissions are a major contributor to global climate change which is driving weather-related disasters across the planet. MANNA's installation of solar panels is another way to help people in poverty because climate disasters, poverty, and poor health outcomes are inextricably linked. Tragically, people in poverty suffer most from climate change due to living in sub-standard housing and having fewer financial resources for disaster recovery. For example, though Hurricane Fred brought devastation to a wide segment of Haywood County, those living in mobile homes bore the worst of the loss of life and home.

The cost savings from MANNA's proposed solar panel installation will also enable MANNA to invest more resources in our healthy food initiatives to address the health inequities that disproportionately plague people in poverty. Sadly, 88% of our clients reported in a survey that they "bought the cheapest food available, regardless of the nutritional value, in an attempt to reduce costs. Food insecurity is strongly

associated with chronic disease and poor health outcomes, both of which disproportionately affect productivity and earning potential. Communities that focus on public health can reduce health care costs, improve quality of life, and reduce inequalities in health outcomes in disadvantaged populations” (CDC, 2017).

Link to COVID-19*

Identify a health or economic harm resulting from or exacerbated by the public health emergency, describe the nature and extent of that harm, and explain how the use of this funding would address such harm.

Funding for solar panels from Buncombe County will enable MANNA to contribute to a cleaner environment. Climate change disproportionately impacts people in poverty, the same people MANNA supports in our mission to end hunger. A record number of residents were plunged into a financial crisis overnight because of the health and economic consequences of COVID-19. Asheville ranks 9th in the nation in midsize cities with the highest percentages of leisure, retail, and hospitality-related workers, industries that were hardest hit by the pandemic. In a matter of days, the number of people seeking assistance from our pantries, many for the first time in their lives, increased by an astounding 61%. During this crisis, MANNA distributed 9,170,975 pounds of food assistance in Buncombe County, 28% of our total distribution. 69% of this food was healthy staples, and 29% was fresh produce.

COVID also disproportionately impacted communities of color in Buncombe County. 15% of the County’s COVID cases occurred among Latino people, though they comprise 6.5% of the County’s total population (USA Facts, 2021). During the pandemic, MANNA utilized our mobile market program to schedule additional food distributions to Black and Latino neighborhoods that were heavily impacted by the pandemic.

Population Served*

Define the population to be served by this project, including volume and demographic characteristics of those served.

The beneficiaries of MANNA’s programs are the thousands of people experiencing food insecurity in Buncombe County and WNC, many of whom commute to work in Buncombe from across the region. Regional surveys show that as many as 1 in 4 people in Buncombe County, or 66,000 residents, struggle to afford enough food for the entire month. (WNCHN, 2020). Even pre-COVID, Buncombe County was experiencing a socio-economic perfect storm as the gap between income and cost of living continued to widen. As inflation, the high cost of living, and rising fuel costs continue to devastate limited incomes, many people are relying on food resources from MANNA to help make ends meet.

Special populations are particularly at risk for food insecurity. Seniors are the fastest-growing demographic in Buncombe County. 14.6% of seniors in Buncombe have incomes below 125% of the poverty level, putting them at higher risk for hunger (ACS, 2019). Single women raising children are also among the most vulnerable residents to food insecurity, as 32% of single mothers in Buncombe County live below 125% of the poverty level (ACS, 2019).

Disparities along racial lines point to lingering systemic barriers that unduly affect people of color. In Buncombe County, 26.3% of the Black population and 46.6% of the Latino population live below 125% of the poverty level, compared to 16.5% of the White population (ACS, 2019). As a corollary, Black and Latino’s people are two to three times more likely to face food insecurity than the White population (Feeding America, 2022). At MANNA, we are committed to the equitable distribution of our resources to ensure that disadvantaged and marginalized people have equitable access to adequate and nutritious food.

Results*

Describe the proposed impact of the project. List at least 3 performance measures that will be tracked and reported. If possible, include baselines and goals for each performance measure.

1. This project will result in the installation of 307 SunPower 410 solar panels on MANNA's new distribution facility planned for 3 Old Bee Tree Road in Swannanoa. Over the course of thirty years, it is estimated that the SunPower solar system will save 4,070 tons of CO2 emissions from entering the environment.
2. The completed solar panel installation will result in substantial savings in energy costs. Sugar Hollow Solar estimates that the 30-year value of the installation will be \$514,102. MANNA will reinvest these significant savings to fulfill our mission to end hunger in WNC.
3. The construction of this project will be completed by the local firm, Sugar Hollow Solar. The use of a local firm and local workers will provide a direct economic labor benefit to Buncombe County.

Evaluation*

Describe the data collection, analysis, and quality assurance measures you will use to assure ongoing, effective tracking of contract requirements and outcomes.

1. The environmental impact of the solar panel installation will be measured by:
 - The energy production of the solar panels, as tracked by the SolarEdge Monitoring System.
 - A comparative reduction analysis of CO2 emissions.
 - The energy cost savings over the grant period, calculated at \$14,985 per year.
2. The direct economic labor benefits to Buncombe County will be measured by:
 - The number of local workers needed to install the solar panels by Solar Hollow Solar. Sugar Hollow Solar is a Living Wage Certified Employer and often pays above the living wage. Sugar Hollow Solar also provides employees' health insurance, 401K, dental, paid vacation, and sick time.

Equity Impact*

How will this effort help build toward a just, equitable, and sustainable COVID-19 recovery? How are the root causes and/or disproportionate impacts of inequities addressed?

Support for MANNA's solar installation project will free up substantial financial resources that MANNA will reinvest to improve our services to marginalized communities in both Buncombe County and WNC. COVID disproportionately impacted Buncombe's Black and Hispanic populations, and both communities are twice as likely to experience food insecurity. Since the beginning of the pandemic, MANNA has scaled up our food distributions to meet the escalated need and to effectuate equitable outcomes in neighborhoods of color that were unduly burdened by the health and economic consequences of COVID.

The addition of solar panels to our new facility and the resulting benefit to our environment is yet another step MANNA can take to improve the health outcomes of the neighbors we serve. Disturbingly, Black people in Buncombe County are three times more likely to die from diabetes and 1.5 more likely to die from heart disease than their White counterparts (WNCHN, 2020). FDA Commissioner, Dr. Scott Gottlieb, said that "Improving the nutrition and diet of Americans would be a transformative effort toward reducing the burden of many chronic diseases, ranging from diabetes to cancer to heart disease." MANNA is committed to

providing more nutritious plates of food to influence the long-term health outcomes and well-being of high-risk populations.

Project Partners*

Identify any subcontractors you intend to use for the proposed scope of work. For each subcontractor listed, indicate:

- 1.) What products and/or services are to be supplied by that subcontractor and;
- 2.) What percentage of the overall scope of work that subcontractor will perform.

Also, list non-funded key partners critical to project.

MANNA's project partner for the proposed solar panel installation is:

- Sugar Hollow Solar, Fairview, North Carolina. Lead Contractor, Jake Feltenberger, Solar Specialist. Sugar Hollow Solar has over 10 years of experience installing solar installations in WNC. Sugar Hollow Solar will oversee 100% of the solar panel installation. Sugar Hollow Solar will also utilize 3rd party engineers, permit & inspection offices, logistical material delivery specialists (local and non-local), and utility employees (local and non-local).

MANNA's facility construction project partners are:

- Beverly-Grant, Inc.- General Contractor to lead the design and construction of this project.
- Civil Design Concepts, PA- Provide civil engineering and lot development plans for the project.
- Bunnell Lammons Engineering- Provide geotechnical investigation and reports.
- Quible & Associates, P.C.- Provide Phase 1 and 2 environmental investigations and reports.
- Dewey Property Advisors- Provide real estate transaction and construction consulting services.
- Marshall, Roth, & Gregory Law Firm- Provide real estate and legal services.

Non-funded partners that will be critical to our facility construction project are MANNA's 243 partner agencies, 115 of which are located in Buncombe County, which will influence the design and functionality of our new facility. As we diligently move forward through the next phases, important feedback from our staff, massive volunteer corps, and community partners will influence the ultimate design of our new facility. Throughout this process, MANNA will solicit feedback about features that have the potential to improve the efficiency, functionality, and safety of our operations.

Capacity*

Describe the background, experience, and capabilities of your organization or department as it relates to capacity for delivering the proposed project and managing federal funds.

MANNA has considerable experience managing sizeable projects, delivering results, and reporting on grant expenditures at the federal, state, and local levels. We have accurately and successfully managed federal contracts for many years with the USDA and, more recently, the SBA. On the State level, MANNA has stewarded multi-year contracts with NC DHHS and State-appropriated funding sources. MANNA is a successful sub-recipient of North Carolina's first-in-the-nation health and wellness Medicaid expansion pilot, Healthy Opportunities. MANNA services a broad portfolio of national, state, and local funding from private foundations and regularly meets all the contractual requirements of accounting and reporting for these grants.

MANNA's 20-member Board of Directors (BOD) will provide the final authorization for all phases of our construction project. Our BOD members are elected and volunteer their time to serve on the board. MANNA's

BOD is comprised of a diverse membership with a wide range of community experiences. All of MANNA's financial activities are regularly monitored and audited by an independent accounting firm.

At the inception of this initiative, MANNA established a Facilities Leadership Committee that is comprised of key construction industry partners, several knowledgeable Board members, key operations and facilities staff, and MANNA's Senior Leadership Team. This committee will continue to oversee this project until completion. Our Chief Executive Officer, Claire Neal, is supervising MANNA's construction projection. The implementation phase will be led by Rudi Sommer, MANNA's Facilities and Safety Manager.

Budget*

Provide a detailed project budget including all proposed project revenues and expenditures, including explanations and methodology. For all revenue sources, list the funder and denote whether funds are confirmed or pending. For project expenses, denote all capital vs. operating costs, and reflect which specific expenses are proposed to be funded with one-time Buncombe County Recovery Funds.

Download a copy of the budget form [HERE](#). Complete the form, and upload it using the button below.

Buncombe County Solar Panel Request 4.12.22.pdf

Special Considerations*

Provide any other information that might assist the County in its selection.

Sugar Hollow Solar Presentation.pdf

MANNA's commitment to installing solar panels aligns with Buncombe County's strategic goal of Environmental and Energy Stewardship and the County's 2025 goal to reduce greenhouse gas emissions. By installing solar panels, MANNA will be investing in a cleaner environment for all residents of Buncombe County.

A strategic partnership with Buncombe County will enable MANNA to build a greener new distribution facility in Buncombe County that is more environmentally sustainable and healthier for all the County's residents. The substantial savings from the solar installation will be reinvested in our programs, allowing MANNA to continue to provide food today, help people improve their ability to access food resources tomorrow, and help pave the way for our neighbors to equitably sustain food security over their lifetimes.

File Attachment Summary

Applicant File Uploads

- 1.91 TAX Exempt Letter Updated 3.18 approved by NF.pdf
- Buncombe County Solar Panel Request 4.12.22.pdf
- Sugar Hollow Solar Presentation.pdf

OGDEN UT 84201-0029

In reply refer to: 4077967774
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BODC: TE

MANNA FOOD BANK INC
627 SWANNANOA RIVER RD
ASHEVILLE NC 28805-2445



009764

Employer ID Number: 58-1514800
Form 990 required: Yes

Dear Taxpayer:

This is in response to your request dated Jan. 25, 2018, regarding your tax-exempt status.

We issued you a determination letter in January 1984, recognizing you as tax-exempt under Internal Revenue Code (IRC) Section 501(c)(3).

Our records also indicate you're not a private foundation as defined under IRC Section 509(a) because you're described in IRC Sections 509(a)(1) and 170(b)(1)(A)(vi).

Donors can deduct contributions they make to you as provided in IRC Section 170. You're also qualified to receive tax deductible bequests, legacies, devises, transfers, or gifts under IRC Sections 2055, 2106, and 2522.

In the heading of this letter, we indicated whether you must file an annual information return. If a return is required, you must file Form 990, 990-EZ, 990-N, or 990-PF by the 15th day of the fifth month after the end of your annual accounting period. IRC Section 6033(j) provides that, if you don't file a required annual information return or notice for three consecutive years, your exempt status will be automatically revoked on the filing due date of the third required return or notice.

For tax forms, instructions, and publications, visit www.irs.gov or call 1-800-TAX-FORM (1-800-829-3676).

If you have questions, call 1-877-829-5500 between 8 a.m. and 5 p.m., local time, Monday through Friday (Alaska and Hawaii follow Pacific Time).

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MANNA FOOD BANK INC
627 SWANNANOA RIVER RD
ASHEVILLE NC 28805-2445

Sincerely yours,

Stephen A. Martin

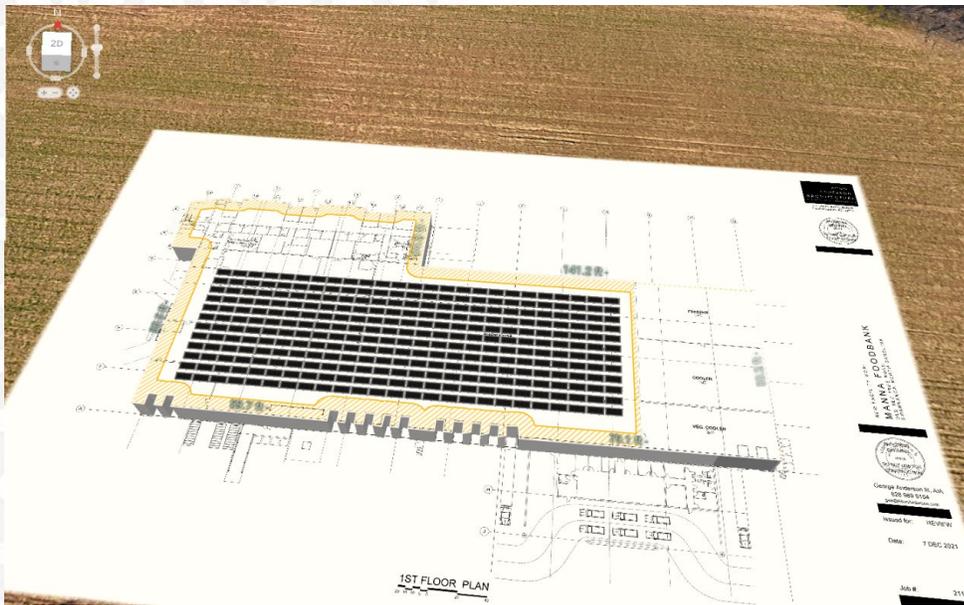
Stephen A. Martin
Director, EO Rulings & Agreements



SUGAR HOLLOW SOLAR

Sweetening the current

Beverly-Grant :: 126.0kW Qcell 420W Solar Installation by Sugar Hollow Solar



SUGAR HOLLOW SOLAR

Born and raised in Fairview, NC, and founded by two cousins, Phelps Clarke & Doug Ager, **Sugar Hollow Solar** has been helping homeowners, businesses, and government go solar in western North Carolina and upstate South Carolina since 2010.

We offer an array of solutions to reduce our neighbors' carbon footprints by specializing in the design, installation, and maintenance of solar arrays, battery backup and EV chargers.

Honesty. Reliability. Expertise.

- First core value is **Do The Right Thing**
- All work done by our team (not subcontractors)
- Top rated solar company in WNC
- Deeply rooted in community in WNC



www.sugarhollowsolar.com | Honesty. Reliability. Expertise.



Who We Are

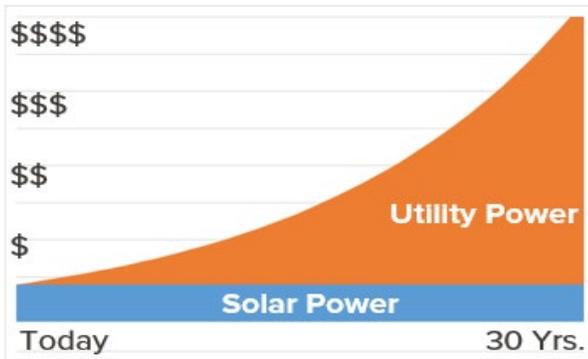
One of the area's most reputable renewable energy companies. We pride ourselves on consistently providing customers with high-quality solar systems. Our team has over 65 years of combined experience helping people save money while making the switch to clean, renewable energy.

Why Go Solar

Hedge Against Rising Energy Costs.

Electricity prices keep going up and up, rising on average more than 3% per year. Based on your current power bill, the choice to remain with Unknown over the next 30 years is very expensive.

Hedge against increased costs.



Offset Your Tax Liability.

Commercial Solar investments qualify for a 26% federal ITC. They also qualify for a 5-year depreciation schedule under the federal Modified Accelerated Cost Recovery System with 50% first year bonus depreciation.

<http://programs.dsireusa.org/system/program/detail/676>



Be a Part of the Solution - Your Customers Will Thank You.

Over the next 30 years, your system will save 3637.3 Tons of Co2 emissions, equivalent to:

51,817



352,530



664.3



PRESENTED BY

Jake Feltenberger, Solar Specialist, Sugar Hollow Solar, Inc.

PH: 828-571-0025

E: jake@sugarhollowsolar.com



The Sugar Hollow Solar Difference

Fully Licensed We hold all the necessary licensing in-house: NC Electrical License #31324-I, NC Contractor License 74015, NC Mechanical License #30384, SC Electrical License #M113905, SC Contractor License #G119816.

Fully Insured We have liability and worker's compensation insurance. Liability insurance covers replacement costs from any damage caused by equipment failure or faulty installation. Worker's compensation insurance protects the property owner from claims if someone is hurt while working on the job.

NABCEP Certified We have two NABCEP certified PV installation professionals on staff. Phelps Clarke certification #PV-101913-002550 and Graham Horne #PV-041115-01127.

Living-Wage Certified through Just Economics, LLC We provide all of our employees with a living wage. We also pay for education classes so our employees can stay up to date on the latest technologies and installation methods.

OSHA Certified **We are meticulous about keeping everyone safe throughout the installation process.** We have monthly safety training meetings where we educate our employees on safety issues and discuss any accidents or close calls so they won't happen again.

PRESENTED BY

Jake Feltenberger, Solar Specialist, Sugar Hollow Solar, Inc.

PH: 828-571-0025

E: jake@sugarhollowsolar.com



Interconnection Expert on Staff You won't have to worry about any problems interconnecting your new solar system with the utility, and all fees are included in our proposed price.

Wide Range of Knowledge **We're whole house energy experts.** We're not trying to sell you one solution; we're trying to help you find the best solution. We're experts at both mechanical and electrical systems. We don't just do grid-tied systems, we do battery backup, solar hot water, radiant heating, outdoor lighting, car chargers, and water pumping systems.

We routinely offer several different options of inverters which gives us the design flexibility to get the most value and the key features needed for your installation. Even if you don't desire a battery-backup now, we can design your system so that you can add it later.

Aesthetics **We can help you decide if the system is going to look good.** We believe aesthetics is an important part of sustainability and really care about how the system will look. From our initial site visit through the design process to the last rag on the array, the way the system looks is our utmost concern.

Aesthetics carries into our product choices. We choose an AEE racking system because their flashed feet have the lowest profile, and the universal end clamp allows us to hide the rail completely behind the array, as opposed to sticking out a few inches as they do on most other racking systems.

We generally lead with natural color PV modules because we think that the blue look of the panels with the white back sheets and clear anodized frames is appealing. We do offer all black panels and racking as an option, and will specify such panels in our initial design when we think it is appropriate. If you prefer the all black look, just let us know and we can update your proposal accordingly.

PRESENTED BY

Jake Feltenberger, Solar Specialist, Sugar Hollow Solar, Inc.

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Craftsmanship **If you can't afford to do it right. You can't afford to do it twice.** At Sugar Hollow Solar, we value craftsmanship in our work and it shows. We believe that quality is important to prevent future maintenance and safety issues.

We take extra time laying out the array on the roof so that it is square, level, and well positioned. We consider shade, aesthetics, code compliance and future expansion with each layout. We believe this is an important consideration and take the extra time to get it right.

We're careful with all our conduit runs. We use metal conduit for long exterior above ground conduit even when it's not required by code because we know what a long-run of PVC will do if exposed to the sun over the years.

We anchor our racks to framing members whenever possible, and check (usually by getting in the attic) to make sure we're hitting the framing members squarely. On new construction, we try to install our arrays during the rough-in phase when rafters are still visible and insulation isn't obscuring our view. This often-neglected step insures the array is properly fastened and that the attachment points won't leak over time. Furthermore, our careful blocking strategy minimizes thermal bridging through the roof, which is especially important for vaulted ceilings with metal roofs.

We use flashed feet for asphalt roofs and we use engineer approved direct attachment methods for metal roofs. If you have a standing seam metal roof, we may be able to install our array without penetrating the roof at all.

We take extra care to prevent any damage to the roof through the installation process. For example, we lay down foam in areas that will have a high degree of traffic. We know how to take special care around ridges and valleys where one wrong step can cause a leak.

We use an anti-seize compound on all hardware which allows us to easily remove module or replace components, if necessary.

We use stainless steel lags with aluminum rail feet when attaching the array to the roof to prevent the possibility for galvanic reaction and premature attachment failure. We use stainless steel wire management clips and try to keep zip-ties down to a minimum to reduce the potential for wires to sag onto the roof over time.

Basic lightning protection is included with all our systems. We also offer various levels of whole-house lightning protection options.

PRESENTED BY

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PH: 828-571-0025

E: jake@sugarhollowsolar.com



Testimonials

"When we sat down with the folks at Sugar Hollow and understood how the tax credits worked as well as the grants we could qualify for, going solar became an easy decision. If we could front the money, we could get it back and turn our energy burden into an asset. There was an obvious marketing opportunity too. We saw that going solar was aligned with our business values and an easy way to make a really big difference."

ANDY GIBBON, CO-FOUNDER OF DYNAMITE ROASTING CO.

"I manage a statewide solar program, Clean Energy for Us, and refer customers in Western North Carolina to Sugar Hollow Solar. I've pointed over one hundred homeowners to this company and haven't heard a single complaint. I recommend Sugar Hollow Solar based on their experience and reputation; competitive pricing and quality equipment; expertise and attention to detail; and community and business practices. SHS is a mature and stable company who take pride in every install and deliver the most value to the customer. Thanks, SHS for providing your services to Western NC!"

KATIE BRAY, CLEAN ENERGY FOR US

"We had been interested in the ability to apply solar panels to our animal hospital for several years but had not acted on the endeavor due to some of the older designs and technology. Sugar Hollow Solar introduced us to the system we selected and was very thorough in educating us in the new technology. Phelps Clarke met with us and evaluated our location to determine the most advantageous installation. Grey Nelson kept us up to date on every detail of the installation. We are pleased with the professionalism and expertise of these men and their company. Workmanship and site safety were both priorities. Should anyone be considering solar addition to their business or home they should look no further than Sugar Hollow Solar."

DEAN HUTSEL L AND CHARLES LLOYD, FAIRVIEW ANIMAL HOSPITAL, PA.

"Very professional and honest."

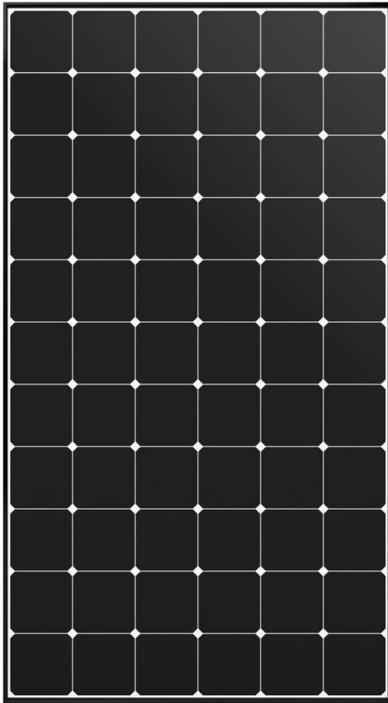
HANS DOELLGAST, JADE MOUNTAIN BUILDERS



390–420 W Residential A-Series Panels

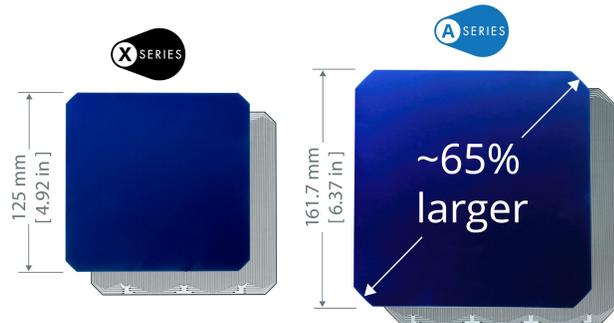
SunPower® Maxeon® Technology

SunPower® Maxeon® cell-based panels maximize energy production and savings by combining industry-leading power, efficiency, and durability with the most comprehensive power, product, and service warranty in the industry.^{1,2}



Highest Power Density Available

SunPower's new Maxeon Gen 5 cell is 65% larger than prior generations, delivering the most powerful cell and highest efficiency panel in residential solar.² The result is more power per square meter than any commercially available solar.¹



SunPower Maxeon Solar Cell Technology



Fundamentally Different. And Better.

- Cell efficiencies of over 25%
- Delivers leading reliability³
- Patented solid metal foundation prevents breakage and corrosion

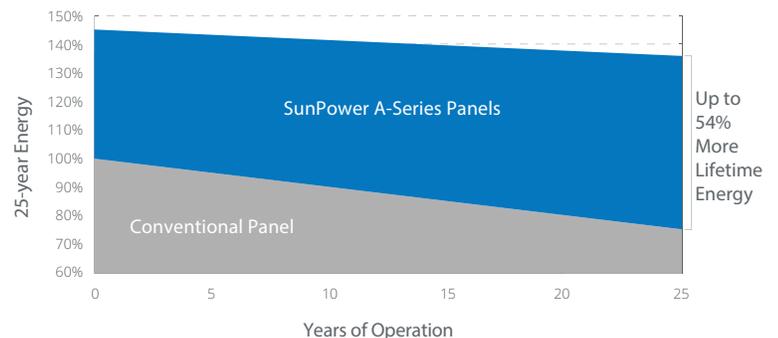
As sustainable as the energy it produces.

- Achieved the #1 ranking on the Silicon Valley Toxics Coalition's Solar Scorecard for 3 years running
- SunPower modules can contribute to your business's LEED certification⁴



Maximum Lifetime Energy and Savings

Designed to deliver up to 54% more energy from the same space over the first 25 years in real-world conditions like partial shade and high temperatures.¹



Best Reliability, Best Warranty

SunPower technology is proven to last and we stand behind our panels with the industry's most comprehensive 25-year Combined Power, Product and Service Warranty.

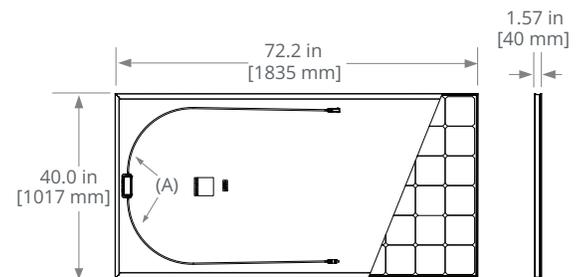


390–420 W Residential A-Series Panels

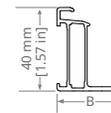
Electrical Data					
	SPR-A420	SPR-A415	SPR-A410	SPR-A400	SPR-A390
Nominal Power (P _{nom}) ⁵	420 W	415 W	410 W	400 W	390 W
Power Tolerance	+5/0%	+5/0%	+5/0%	+5/0%	+5/0%
Panel Efficiency	22.5%	22.2%	22.0%	21.4%	20.9%
Rated Voltage (V _{mpp})	40.5 V	40.3 V	40.0 V	39.5 V	39.0 V
Rated Current (I _{mpp})	10.4 A	10.3 A	10.2 A	10.1 A	9.99 A
Open-Circuit Voltage (V _{oc})	48.2 V	48.2 V	48.2 V	48.1 V	48.0 V
Short-Circuit Current (I _{sc})	10.9 A	10.9 A	10.9 A	10.9 A	10.8 A
Max. System Voltage	1000 V UL				
Maximum Series Fuse	20 A				
Power Temp Coef.	-0.29% / °C				
Voltage Temp Coef.	-136 mV / °C				
Current Temp Coef.	4.1 mA / °C				

Operating Condition And Mechanical Data	
Temperature	-40° F to +185° F (-40° C to +85° C)
Impact Resistance	1 inch (25 mm) diameter hail at 52 mph (23 m/s)
Appearance	Class A+
Solar Cells	66 Monocrystalline Moxeon Gen 5
Tempered Glass	High-transmission tempered anti-reflective
Junction Box	IP-68, TE (PV4S)
Weight	44 lbs (20 kg)
Max. Test Load ⁶	Wind: 187 psf, 9000 Pa, 917 kg/m ² back Snow: 187 psf, 9000 Pa, 917 kg/m ² front
Design Load	Wind: 62 psf, 3000 Pa, 305 kg/m ² back Snow: 125 psf, 6000 Pa, 611 kg/m ² front
Frame	Class 1 black anodized (highest AAMA rating)

Tests And Certifications	
Standard Tests	UL1703
Quality Management Certs	ISO 9001:2015, ISO 14001:2015
EHS Compliance	RoHS, OHSAS 18001:2007, lead free, Recycle Scheme, REACH SVHC-163
Available Listings	UL



FRAME PROFILE



- (A) Cable Length: 52 in +/-0.4 in [1320 mm +/-10 mm]
 (B) Long Side: 1.3 in [32 mm]
 Short Side: 0.9 in [24 mm]

1 SunPower 420 W, 22.5% efficient, compared to a Conventional Panel on same-sized arrays (280 W p-multi, 17% efficient, approx. 1.64 m²), 8% more energy per watt (based on PVSyst pan files for avg US climate), 0.5%/yr slower degradation rate (Jordan, et. al. "Robust PV Degradation Methodology and Application." PVSC 2018).

2 Based on search of datasheet values from websites of top 20 manufacturers per IHS, as of December 2019.

3 Jordan, et. al. Robust PV Degradation Methodology and Application. PVSC 2018.

4 Moxeon panels can contribute to LEED Materials and Resources credit categories.

5 Standard Test Conditions (1000 W/m² irradiance, AM 1.5, 25° C). NREL calibration Standard: SOMS current, LACCS FF and Voltage.

6 Please read the safety and installation guide for more information regarding load ratings and mounting configurations.

See www.sunpower.com/company for more reference information.

For more details, see extended datasheet: www.sunpower.com/solar-resources. Specifications included in this datasheet are subject to change without notice.

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