

Clean Energy Upgrades for Low-Income Households

RFP for Coronavirus State and Local Fiscal Recovery Funds

Green Built Alliance

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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. 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](#)

Coronavirus State and Local Fiscal Recovery Funds*

Name of Project.

Clean Energy Upgrades for Low-Income Households

Amount of Funds Requested*

\$500,000.00

Recovery Fund Eligible Category*

Please select one:

Assistance to households

Brief Project Description*

Provide a short summary of your proposed project.

This project supports low-income families with free solar energy systems and heating system upgrades. Low-income households typically have high energy burdens, meaning they spend a disproportionate share of their monthly income on energy. This proposal has two distinct pathways to support these families. The first is to improve their efficiency with more efficient heating systems. The second is to fund solar energy systems

for homes that are good candidates (roof orientation, quality of roof, etc.). We will work with subcontractors to get quotes and do the heating upgrades and/or install the solar panels, obtaining bulk discounts when possible. We will verify this work has been completed, pay the subcontractors, and track energy savings and solar energy production for the clients we serve. This project furthers the County's 100% renewable energy by 2042 goal, reduces utility bills, improves indoor air quality and enhances the quality and affordability of housing in our region.

Project Plan*

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

Our Energy Savers Network (ESN) team provides free energy-efficiency retrofits for low-income clients throughout Buncombe County. This work is funded by Buncombe County, the City of Asheville, private donors, and foundations. ESN is able to provide free basic retrofits. However, we don't have funding to support heating system repairs or upgrades. This funding would allow us to hire local HVAC companies to repair broken heat pumps and replace old oil, propane, and natural gas furnaces with new high-efficiency heat pumps or mini-splits.

The scope of this proposal is for three years. We already have a list of clients needing this service so we can begin work as soon as funding is granted.

The process:

- We identify clients via Eblen Charities, food pantries, churches, client referrals and neighborhood canvassing

- We set up a work day and gather information about the home and occupants

- We provide energy efficiency upgrades with staff and volunteers. A typical workday lasts 5-6 hours and is served by 2 staff and 2 volunteers

- during that workday we look at the heating system and determine if it needs repair or replacement

- We also determine if the home is a good candidate for solar, noting the age of the roof, orientation, tree coverage and ownership status

- For clients who need heating repair or replacement we contact our HVAC contractor (TBD) and schedule a time for them to visit the client. They will do so, provide us a quote, and for homes that are good candidates we will fund the replacement of their heating equipment. Ideally we will be replacing resistance heat or old oil/propane systems. Mini split heat pumps are a very efficient heating and cooling option suited for our climate here in the mountains, and can work well in mobile homes which we serve frequently. This process will take about 2-3 months.

- For homes that are good solar candidates we will refer them to Summit Solar, who is the solar installer selected for the Solarize Asheville-Buncombe campaign. Through other County and City of Asheville and local donor funding, we have already funded nine solar systems for low-income, primarily BIPOC families through the Neighbor to Neighbor program. We plan to continue our focus on BIPOC recipients. Summit Solar will provide a free analysis for a solar system. For a home that meets the criteria, we will then fund the solar system installation. This entire process takes about three to four months.

- Once the upgrades and/or solar installation process is complete we connect with the clients to hear their feedback on how the installation went and any areas of improvement. We gain access to their utility data through this process and will be tracking and reporting metrics like: housing type, location, race, energy savings per home, water savings, CO2 reduction, and price service per home.

- Over the course of this 3 year project we will look for opportunities to reduce cost by taking advantages of bulk buying, and other opportunities.

Statement of Need*

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

In Energy Savers Network's work, we often encounter homes that need their heating systems repaired or replaced and this is beyond our current scope. Therefore, we have designed a program to upgrade heating systems that will lower energy bills, improve indoor air quality, enhance comfort, and make homes more energy efficient. The greatest energy burdens, as much as 30% of a winter month's income, come from those whose primary heating source is electric resistance heat, oil, propane, or a malfunctioning electric heat pump. Winter energy bills are often over \$200 or even \$300 when monthly incomes might be \$1,000 or less (ESN data).

Approximately 5% of all heating and air systems fail on an annual basis. Many low-income families can't afford to have these fixed. We often find families relying on highly-inefficient free-standing radiant heaters, the expensive emergency backup strip heat for heat pumps, or air-polluting kerosene heaters (which should not be used indoors due to carbon monoxide poisoning potential).

We provide support and guidance to the low-income families we serve throughout the process of improving their homes. For heating systems, we will prioritize replacing electric resistance/baseboard heat and upgrading oil and propane heating systems as they are often old, leaky, and potentially contribute to poor indoor air quality.

The use of fossil fuels in energy production is also catalyzing the climate crisis with severe weather happening throughout the planet. Based on climate science and the need to change energy use from fossil fuels to clean energy, the County Commissioners have set the goal of 100% renewable energy by 2042. The County is already taking aggressive steps to improve the energy efficiency of and install solar energy on County buildings.

This program allows the County to grow its leadership and impact in this area while supporting housing affordability and local green jobs.

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.

Due to the pandemic, residents were instructed to stay at home. Many people lost their jobs and for those that kept their job, many people transitioned into remote working. As people spent more time at home, their living environment became even more important for their well being. With people at home, utility bills often went up as incomes went down. Heating repair and energy efficiency programs like those of Community Action Opportunities(CAO) and Energy Savers Network had to pause. This created a back-log of households needing support for their heating and improvements in their home energy efficiency. Given the limited CAO and ESN capacity, this hiatus represents a potentially permanent loss in energy efficiency upgrades in Buncombe County. This proposed program will make up for this loss.

Respiratory issues can also arise due to poor indoor air quality from heating systems that use oil, propane, kerosene or natural gas. Since COVID-19 affects the human respiratory system, having good indoor air quality is essential for getting healthy again and staying healthy. Replacing these fossil fuel systems with high-efficiency heat pumps will provide better air quality in these homes.

Population Served*

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

The population we serve through Energy Savers Network is low income households at 200% of the poverty line or lower living in Buncombe County.

The racial makeup, based on an analysis of clients served over the past several years, is as follows:

- 60% White
- 24% Black
- 13% Latino
- 2% Asian
- 1% Other

We serve approximately 200 households per year. We will be increasing that number this year because we are working on a retrofit of the Housing Authority of the City of Asheville (HACA) apartments. We will serve approximately 500-1000 households through the HACA project.

Candidates for the program anticipated in this request include new ESN clients and those who have received ESN services in the past whose heating systems are either resistance electric, oil, propane, or heat pumps which are no longer functioning properly.

Of the more than 600 clients ESN has served to date, 188 heat their homes through resistance heat and 96 heat their homes through oil. ESN records do not differentiate between natural gas and propane. These homes will continue to have high energy costs and a higher contribution to greenhouse gases and fossil based energy until these heating systems are replaced with higher efficiency electric options and potentially solar energy. This number of homes from ESN's former clients, plus new clients that ESN will be serving over the next several years, provides ample opportunities for ESN to serve under this program over the next several years.

Our initial phase focuses on owner-occupied homes (including mobile homes). In the future, we hope to expand to include renters, but will require significant financial support from landlords in exchange for our providing access to our bulk buying program and small grants.

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.

The primary impact of this project will be reduction of energy costs for low-income Buncombe residents. Secondary impacts include progress on achieving community renewable energy goals, reduction in carbon emissions, and a chance to inform future energy saving programs.

The program will combine the elements below to achieve these impacts. The number shown for each element is for illustration purposes – final numbers of each element will depend on a variety of factors.

Element (number ea)	Household Savings	Upfront Cost	Payback Yrs	Payback Total
Heat Pump Repair (30)	\$96,129	\$15,000	0.8	6.4
New Heat Pump(10)	\$166,958	\$75,000	9.0	2.2
New Minisplit (39)	\$651,136	\$195,000	6.0	3.3
Solar PV System (25)	\$492,592	\$230,000	16.8	2.1
Total (104)	\$1,406,816	\$515,000		2.7

The benefit for clients is expressed in terms of total cost reduction versus funder cost. To quantify payback, we worked with ESN's Measurement and Verification consultant using a home energy model to represent a typical local low-income home. The base case assumed use of ducted resistance heating and we compared that to a repaired or new heat pump or new mini-split ductless heat pump. We calculated the solar systems savings based on an 16% capacity factor. We assumed lifetimes (in years) of 5 for repair, 20 for new heat pumps/mini-splits, and 30 for solar. Overall payback, accounting for \$75,000 (out of \$590,000 total) admin costs, is 2.4. In other words, this program produces substantial returns to the community from the requested public investment.

The following performance measures, expressed in absolute terms and relative to the baseline above, will be considered in administering the project: (1) Total number of households helped. (2) Modeled energy cost savings. (3) Actual savings. (4) Results of customer satisfaction surveys.

Evaluation*

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

Our Evaluation, measurement and verification contractor (EMV) is Amy Musser with VandeMusser Design. We track the following measures for the houses we retrofit. VandeMusser verifies them.

- Location, size, type, age of home. and number of residents
- Utility company/companies serving the home
- Race of occupants
- Primary and secondary heating system types and air conditioning
- Water heater fuel source and size
- Measures installed including LED light bulbs, water aerators, weather stripping, air sealing, duct sealing and repair, insulation improvements, etc.
- Heating system repair or replacement needs
- Blower door results pre- and post- retrofit for homes
- If any appliances or heating systems were replaced or repaired
- How clients heard of us
- Staff and volunteer hours and tasks
- Date of retrofit
- Electric utility data pre-retrofit and post retrofit to determine actual energy savings

For this project we will adding the heating repair or replacement and the solar energy systems to the scope of work that Vandmusser performs for us.

Vandemusser will provide a report every six months on project accomplishments and any needs for improvement. These will be available to the County in a format that works well for your reporting back to the federal government.

We have also done client surveys and have received many great accolades from them.

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?

This effort will work toward a just, equitable, and sustainable COVID-19 recovery for a number of important reasons.

First, the purpose of our proposal is to provide energy bill reductions for those in Buncombe County who are below 200% of the poverty level. This part of the population is suffering disproportionately from the COVID-19 virus itself and from the economic fallout. The people we serve are more likely to be from racial and ethnic minorities that have suffered past inequities, and we anticipate that those who receive heating system improvements or solar through this program are more likely to come from those racial and ethnic minorities. Racial and ethnic minorities are disproportionately low-income and also bear the worst effects of climate change, a matter of environmental justice.

Second, these energy bill reductions represent a multi-year improvement in financial conditions, and reduce the risk of high energy bills, which can sometimes lead to eviction or dislocation at worst or added stress. The fact that savings occur year after year means a more long-term economic boost to our clients, and thereby increases the sustainability of their own financial situations.

Third, many of the financial incentives for saving energy, including EV cash incentives, federal solar income tax credits, and Duke Energy rebates, are not available to lower-income people. This program, through its focus on people of low-income, directly addresses that inequity.

Finally, investing in our local communities through this and similar programs provides local job opportunities. Our staff already includes Black, Latino, and white community members. Our subcontractors include members of the Black community as well.

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.

GBA has extensive experience working with a wide cross section of community partners to implement clean energy projects.

Regarding this project subcontractors will include Summit Energy on the solar installation side, and one or more local contractors for heating system installation and repair (TBD). We have worked with Rutherford Heating and Air and Morris Heating on previous projects and they are potential subcontractors.

The primary cost of this project will be HVAC equipment (minisplits or traditional heat pumps) and associated installation cost. We will determine during the project is whether we should engage the contractors in a "turn-key" solution whereby they provide both HVAC equipment and provide installation, or whether we purchase the HVAC equipment from the manufacturer and hire the subcontractors for installation only.

We will attempt to engage Duke Energy as a partner in the program, although current Duke rebates do not include minisplit heat-pumps.

We recruit clients from Eblen, Food pantries, Bounty and Soul, United Community Development and churches.

Mountain Housing Opportunities continues to refer clients to ESN. We anticipate that this program will also involve an expansion of our relationship with them, particularly in our being able to engage some of their clients who are benefitting from MHO's Furnace Fund. Often, the Furnace Fund's budget limitations keep MHO from choosing the most energy efficient option. We anticipate being able to use these funds to make

specific grants to MHO so that they might choose more efficient options, such as replacing a resistance heat furnace with a new resistance heat furnace versus the higher short term cost / lower long term cost option of a heat pump.

We are already in discussions with additional partners in the HVAC equipment and installation space to possibly obtain discounts for services based on buying in bulk as well as our philanthropic purpose.

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.

Green Built Alliance has been advancing sustainability in the built environment in the region for 20 years. Our diversity of projects, programs, and staff allows us to improve the energy efficiency, affordability, comfort and health of a whole host of buildings from small mobile homes to larger certified green homes and support solar energy systems for schools, like the latest Isaac Dickson Elementary school PV project.

We have the staff, skill set, clients and network already in place implement this program.

Here are a few stats that show our impact:

Green Built Homes or LEED-H certified by GBA: 2,480

Educational Green Building Directories distributed: 300,000

People educated on sustainability by Green Built Alliance: 12,500

Collective savings on energy bills: \$1,309,624

Metric tons of CO2 savings annually: 15,000+

Gallons of water savings annually: 108,211,550

Low-income homes in Buncombe County that have received efficiency upgrades since 2017 by Energy Savers Network (a program of Green Built Alliance): 600

In 2018-19 we did a similar heating repair and replacement program via Duke's Helping Home fund. Through that program we replaced 22 heat pumps or mini-splits. That funding has since dried up.

In 2010 we received ARRA funding for a neighborhood energy efficiency project. Sam Ruark, GBA's ED, managed a \$1M energy efficiency upgrade for Sonoma County, CA from 2010-2012. Therefore, we have experience implementing projects funded by the federal government via local government contracts.

One donor has already committed to making an investment of \$10,000. We are seeking additional funding from private donors, businesses, charities, and government.

We have successfully executed numerous annual contracts with both Buncombe County and the City of Asheville. In FY21, we executed the (ongoing) Solarize Asheville-Buncombe campaign that includes the Neighbor to Neighbor free and reduced-cost solar program we hope to extend with this funding.

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.

Recovery-Funds-budget for Green Built Alliance.xlsx

Special Considerations*

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

1) Note on total funds requested: We have written the proposal to fund this project over three-years. This project can also be scaled as there are many households that could benefit from improved or new heating systems and solar electric systems. In particular, the project can be scaled easily by increasing the term from three years to five. If the reviewers of this proposal determine that less money should be allocated, we can adjust the scope by reducing the number of household's served or by reallocated the funds among different program components.

Based on organizational capacity and community need we have written the request based on what we can feasibly implement over three years.

(2) Review of project compared to county commitments to invest in projects that satisfy goals:

- Align to county strategic plan and community priorities. This project fits in two main strategic priorities – the community goal of 100% renewable energy and the community goal of providing more affordable housing.

- Support equitable outcomes for most impacted populations. This project focuses on low-income residents of Buncombe County and will serve a greater share(compared to overall population) of racial and ethnic groups that have been subject to historic injustices and disparities.

- Leverage and align with other governmental funding sources. ESN and Solarize Asheville's Neighbor 2 Neighbor effort are existing projects with government and wide community support, including tapping into other sources of funds to combine with this funding.

- Make best use of this one-time infusion of resources. As documented elsewhere in this proposal, these investments will have a payback, in terms of benefits to low-income community members, of 2.4 times the investment of these funds.

- Have a lasting impact. Benefits anticipated from this project will extend from 5-30 years from their expenditure, based on the long-lasting nature of energy projects.

Thank you for considering this request.

File Attachment Summary

Applicant File Uploads

- Recovery-Funds-budget for Green Built Alliance.xlsx

List expenses here			\$	-		
List expenses here			\$	-		
List expenses here			\$	-		
			Total	\$	590,000.00	