



Amount: \$300,000

Grant End Date: December 31, 2019

Project Title: Blue Horizons - Efficiency Network Program

Summary Statement: Buncombe County, the City of Asheville, Duke Energy Progress, and other partners propose a pilot program to centralize, enhance, and expand access to weatherization and energy efficiency upgrades for low-income households in the county. This effort will make the limited existing community resources more effective, empower residents to make better energy decisions, and contribute to local carbon reduction goals. Through analysis, communication, and active engagement, the project will streamline, combine, and improve services to create a model for energy efficiency and carbon reduction that can be applied in many jurisdictions across the Southeast that struggle with funding and program coordination challenges.

Lead Applicant: Buncombe County

Jeremiah P. LeRoy, Sustainability Officer
Office of Sustainability
Jeremiah.leroy@buncombecounty.org
828-250-4976 Office
828-545-2918 Cell

Funding Requests: Year 1 - \$150,000; Year 2 – \$150,000

Partner(s): City of Asheville, Duke Energy Progress, Green Built Alliance, Community Action Opportunities, NC Sustainable Energy Association (NCSEA)

Making the Case

Need: Buncombe County has over 37,000 people (16%) living in poverty; and nearly 40% of local Duke Energy Customers are considered low income (200% of federal level). These residents are disproportionately affected by increasing energy costs and environmental strain. Buncombe County, the City of Asheville, Duke Energy Progress, and other local stakeholders formed a cooperative partnership, the **Energy Innovation Task Force (EITF)**, to plan for a cleaner energy future and avoid construction of a 190 megawatt peaking plant. Peak energy demand is driven primarily by cold winter mornings and in 2016 over 3,400 low-income households in the County received heating subsidies totaling over \$500,000. The EITF has an active Programs Group, made up of community agencies that provide low income energy efficiency/weatherization services, including Community Action Opportunities, Habitat for Humanity, Mountain Housing Opportunities, and others. This group has identified a pressing need to analyze services, scope limitations, funding sources, and administrative processes in order to leverage all existing resources to create a more holistic and effective approach to low income energy efficiency efforts.

Solution: The County proposes a combined, standardized process for intake, work orders, application evaluation, and work verification. Cooperation among stakeholders will reduce cost, application barriers,

Amount: \$300,000

Grant End Date: December 31, 2019

and will expand access to more diverse populations. This single point of contact will empower communities through engagement/education, perform home audits, determine eligibility, make referrals, and verify work efficacy at project completion. The solutions will be publicly available and transferable.

Result: The pilot will identify 100 homes for the first round of improvements. Homes with the greatest needs will receive whole-home retrofits (10-15 homes), while remaining clients will be directed to other program partners to provide more traditional, lower-cost weatherization and efficiency services. The post retrofit analysis will provide a more clear understanding of the “recipe” of services need to get the most out of efficiency efforts. The project will have a significant impact for these homeowners in terms of energy efficiency, improved home health, and lower energy cost burden. Pilot families will see greater economic stability and will be liaisons within their communities. In addition, this effort will work toward the broader community goal of reducing peak demand and providing a cleaner, healthier future for the whole community.

Replicability: This pilot project is based in part on the Knoxville Extreme Energy Makeover (KEEM) program. A site visit and interviews were conducted with KEEM program managers to discuss the logistics and challenges of adapting this model with less funding and infrastructure. Most communities will have similar limitations and can use this project to adapt the model to fit their needs.

Definition of Success: The ultimate goal of this project is to validate an integrated approach to energy retrofits. Current programs providing these services struggle to deliver quantifiable, scalable results. Success will be determined by verifying energy savings in pilot homes, breaking down barriers among existing programs, increasing participation among diverse communities, and moving toward Utility Commission-approved self-funding programs (Duke Energy is applying to the NC Utilities Commission for the creation of a verified savings in incentive programs (kW/kWh), rather than the current estimated savings structure).

Measurement: Retrofits/weatherization will be verified by a weather-normalized before-and-after analysis of energy use intensity for each home. Saving will be reported in kWh, kW, cost, and CO₂e (using local cost and fuel mix). Program partners will have developed and tested a unified intake, approval, and verification standard. Community outreach and education success will be measured by participation and feedback from new, diverse communities, as compared to pre-pilot levels.

Project Design

Annual Accomplishments:

Single Point of Contact (Year 1): The initial phase of this project will be focused on creating a unified process that connects, combines, streamlines and enhances existing EE/weatherization services in Buncombe County. The most immediate step will be to recruit and retain the Program Manager to begin day to day operations, including:

- Analyzing current retrofit and weatherization services. Determine where gaps, barriers, or limitations exist in current services. Overlaps will be targeted to eliminate redundancy. This role informs and coordinates stakeholders.

Amount: \$300,000

Grant End Date: December 31, 2019

- Acting as the liaison between participants and service providers. The Program Manager will facilitate and coordinate services, engaging with existing service providers and residents to match participants with services, assist residents with navigating the system and developing strategies, and generating work orders.
- Providing energy expertise. Participant's education is key throughout the home analysis process. At the conclusion of year one, experience and feedback will inform a list of "recipes" to maximize energy savings per home and minimize unrestricted funds required to reach the optimal savings.

Service provider engagement (Y1): Existing service provider engagement in these initial steps will be critical to program success. Existing service providers have agreed to identify potential program participants. The local weatherization program agency, Community Action Opportunities (CAO) currently has a waiting list of approximately 50 homes for retrofit services. An additional 50 homes will be identified through other community partners as well as the list of homes receiving federal heating subsidies (LIHEAP) through the County. All program service providers participating in the process will work together to develop a unified intake form and process. This coordination is an opportunity to streamline work order generation, completion, and verification.

Initial Data Analysis (Y1): North Carolina Sustainable Energy Association (NCSEA) has agreed to partner with this project at a 50% cost share to provide pre-retrofit data analysis of 100 homes to be identified to participate in the pilot. Each participating household will sign a utility usage release form allowing access to the customer's utility data from Duke Energy. Using this and other data about the home, NCSEA will evaluate the energy demands for each home. NCSEA will categorize homes into energy intensity use, heating intensity, baseload use, etc. in order to inform prioritization of homes that would receive the most benefit from whole-home retrofits and lower cost retrofits/weatherization services. It is projected that 10 to 15 homes will receive whole-home services. The Program Manager will perform energy audits (HERS or BPI analysis) to confirm candidates and to generate work orders or a "recipe" of retrofit services.

Community Engagement (Y1): The program will develop and enhance community engagement in the targeted communities using an approach that will include creation of a Community Action and Advisory group. This group will be made up of community residents, advocates and other stakeholders and will assist in the communication, marketing and delivery methods that will help inform the day-to-day programming. An independent consultant and facilitator has been identified and will assist in forming the advisory group as well as designing an equitable and inclusive process for community engagement. This consultant will also facilitate focus groups of residents who have received program services in order to continually address barriers to participation and provide feedback that can allow for continuous process improvement.

Upgrades and Education (Y1,Y2): Service providers will implement energy saving measures including but not limited to: air sealing, duct sealing and/or replacement, insulation/fenestration improvements, and HVAC replacement. CAO is currently the most experienced provider and has contractors already in place to implement the high end retrofit projects.

Amount: \$300,000

Grant End Date: December 31, 2019

Lower intensity upgrades will be provided through Energy Savers Network, a program operated under the Green Built Alliance (formerly WNC Green Building Council). Energy Savers Network is a community-led, volunteer based program that provides basic energy efficient upgrades for low income households. This volunteer led model requires little overhead and allows the program to provide their services in a very cost effective manner - an average of \$300 per home.

In addition, the Program Manager will provide additional education to program participants that will focus on teaching participants how to maintain their upgrades, do-it-yourself strategies and proactive energy conservation behaviors.

Evaluation, Measurement and Verification (EM&V) (Y1, Y2): A defining characteristic of the project is the accurate evaluation and communication the program's impact. NCSEA will be provided industry compliant post-retrofit energy savings measurement and verification. This will include two years of pre retrofit utility data and one year of post retrofit data. Reporting will include total energy use, use patterns, and major end use breakdowns. Retrofit "recipes," contractors, and home type/vintage will allow comparisons of actual savings. This analysis will inform program management and improve program impacts for application in Buncombe County, and in other jurisdictions in the future.

Duke Energy Progress currently has a scheduled roll out of AMI (smart meters) for the region over the next 18 months. As a part of this partnership, they have agreed to provide all of the initial homes in this pilot with early deployment of AMI which will facilitate more accurate and detailed data collection. Residents will also receive a post-retrofit consultation reviewing reduction in energy use, cost, and carbon. This will allow additional education regarding current use and strategies for ongoing improvements through low-cost/no-cost actions.

Program Continuation: Most planning and implementation steps described above will occur within the first months of the project's first year (see milestones table). The exception will be EM&V. While some portion will take place in year one, several months of post-retrofit data are needed for energy use reports. The second year of the project will look functionally similar to year one, however, lessons learned will inform ongoing outreach, eligibility, and resource allocation. Key areas will be increasing single family participants and adding multi-family pilots, potentially reaching significantly more residences as the program scales up. Program partners will rely heavily on the Community Advisory group for continuous feedback. Once statistically significant post-retrofit data has been analyzed, the program will identify high-efficacy strategies to increase savings and facilitate participation. Findings will be socialized to develop future partnerships.

The current structure of Duke incentive programs applies assumed energy improvements to various upgrades; the goal is to use verified savings to ensure delivered performance. As such Duke Energy is submitting a program for approval by the NC Utilities Commission that will allow for purchase of verified energy savings from EE retrofits. They have received approval for such a program in their Ohio territory and expect that approval of the program for North Carolina could happen as early as June 2018. If approved the program could significantly impact the long term feasibility of the project by helping to offset the costs of retrofits for eligible homes.

This program has received the full support of both local governments and the regional investor owned utility, as well as the broader EITF. As such, the County and its partners are fully committed to working together to ensure the ongoing success of this initiative. With County Commission approval, the



Amount: \$300,000

Grant End Date: December 31, 2019

Sustainability Office will continue to use its Community Clean Energy Fund to provide resources to this program, as well as to advocate for and leverage all available resources from program partners to ensure continued success.

Funding Requests:

Year One: \$150,000; Year Two: \$150,000

Match and Source:

Buncombe County: \$60,000 cash match; the County will provide a total of \$60,000 to the program which will cover the costs of equity and diversity training, equity consultation services, as well as additional EE retrofits.

City of Asheville: \$15,000 cash match; the City will provide funding to perform EE retrofits on homes within city limits.

Duke Energy: \$17,800 in-kind; early deployment of AMI for the initial 100 homes identified to take part in the pilot (at \$178 per meter). The program will also make use of existing Duke Energy incentives/rebates. These will be tracked but cannot realistically be estimated in advance for budgetary purposes.

NCSEA: \$10,000 in-kind; NCSEA has agreed to provide assistance with EM&V, program development, and technical assistance in both pre and post retrofit analysis.

Implementation Responsibility: The Buncombe County Sustainability Officer as well as the City of Asheville Energy Programs Coordinator will be responsible for implementation and oversight. After recruitment and selection, the day to day coordination will be the responsibility of the Program Manager.

Fiscal Responsibility: Fiscal oversight will be the responsibility of Buncombe County. The county will contract with Green Built Alliance for the Program Manager position. The remaining funds for outreach, EM&V and EE retrofits will remain with the Buncombe County Sustainability Office and be disbursed to partnering community agencies on an as needed basis to cover invoiced and approved expenses.

Major Milestones	Success Metrics	Responsible Party	Timeline	Budget
Program Manager Retained	Contract executed for Program Manager – Salary/Overhead	County/GB A	Jan 2018	\$90K
Service Provider Summit	Agreement formalized; pilot intake form created and distributed.	All Partners	Feb 2018	NA
Equity Training	Completion of GARE training for program partners and participating EITF members	All Partners EITF	Jan 2018	\$10K



Amount: \$300,000

Grant End Date: December 31, 2019

Community Engagement consultation	Develop Strategy, create community advisory group.	Consultant, All Partners	Jan 2018, ongoing	\$25K
Homes identified and prioritized for retrofits	Energy usage data acquired and analyzed with NCSEA/ResiSpeak. Energy audits conducted.	Program Manager & NCSEA	Apr-Jun 2018	\$5K \$5K/ match
AMI Rollout	Smart meters installed in select homes	Duke Energy	Jan-March 2018	\$17.8K match
Energy Efficiency retrofits initiated – ongoing	Work orders generated, scheduled and executed. (100 homes year one, additional homes in yr. 2)	Program Manager	Jun 2018 – Dec 2019	\$165K \$100K Match
Initial retrofit completed and post analysis begun	Retrofits completed. Begin post-retrofit data analysis	Program Manager & NCSEA	Jun-Dec. 2018 Analysis ongoing	\$5K \$5K/ match
Participant feedback and engagement	Program participant feedback groups to identify barrier and potential improvements to outreach and design	Equity Consultant/ Program Manager	June 2018 – Dec 2019	Included in Consult fees

Project Description:

Community Sustainability: This project mitigates climate change through energy efficiency, reducing energy cost burdens and improving the health and well-being of low income residents. Programs with access to utility data and analysis provide the highest returns on investment, verifying claimed savings and optimizing best practices. Improvements to County housing stock will pay dividends for the service lives of the homes, saving energy and reducing atmospheric carbon for generations. Additionally, this program’s electricity demand reduction will assist in terminating plans for a 190 megawatt fossil-fuel-fired power plant. The lifecycle carbon savings from avoided plant construction, fuel delivery, and operation would exceed normal efficiency efforts.

Equity and Inclusiveness: Ensuring equity and inclusiveness in government programs has been an institutional challenge in Buncombe County and the City of Asheville. Local government has a history of implementing policies and practices which have resulted in exclusion, disparities in income and education, and often tense relationships between local government and residents.

This collaboration will take several important steps to ensure an equitable and inclusive design and daily operation. This process will begin by having all program partners participate in mandatory training. Representatives from the County, City, Duke, and the GBA will all participate in training provided by the Government Alliance on Race and Equity (GARE). GARE training will focus on addressing policy and



Amount: \$300,000

Grant End Date: December 31, 2019

institutional strategies that are driving the production of inequities in government programs and beyond. The training will also be open to all EITF members.

The program will also address equity and inclusiveness with the assistance of an independent consultant. The consultant will assist in developing a community engagement strategy that will include creation of a Community Action and Advisory group made up of community residents, advocates and other stakeholders. This group will assist in the communication, marketing and delivery methods that will help inform the day-to-day programming. In addition to help form and facilitate the advisory group the consultant will also facilitate focus groups of residents who have received program services in order to continually address barriers to participation and provide feedback that can allow for continuous process improvement.

Community Partnership: A variety of community resources are being leveraged to enhance the impact of the project. Buncombe County and the City of Asheville have budgeted \$75,000 from existing efficiency programs to support the project. Community Action Opportunities, will assist in identifying eligible program participants, significantly shortening their waitlist initially. Public offices and non-governmental organizations will collaborate to create centralized intake and administration standards that will increase efficacy for all service providers.

Duke Energy will assist in leveraging their existing programs to provide incentives and rebates for home retrofit projects. They offer rebates for lighting, insulation, HVAC, etc., which will help lower and/or offset the cost of the upgrades. A meeting took place on September 7th, 2017 with managers from all of Duke Energy's incentive and demand reduction programs in order to coordinate efforts and maximize efficacy. Duke will install "smart meters" for program participants in advance of a regional rollout to ensure effective measurement and verification for the program. The EITF will continue to be engaged in an advisory role and lend support to the partnerships throughout the implementation process.

Local Impact: Buncombe County and the City of Asheville have both adopted their own independent resolutions to support and mandate clean and efficient energy within their own organizations. However, the driving force behind this initiative is a collaborative local government resolution that created the Energy Innovation Task Force. When Duke Energy Progress released in modernization plan for Western North Carolina in 2015, it included the construction of two new natural gas power plants as well as a third peaking plant to be built in 2023.

In March of 2016 the City and the County took a unique and progressive step in adopting a joint resolution to create the EITF in partnership with Duke Energy. While the short term goal of the EITF is the delay or avoidance of the peaking plant, the greater purpose is provide a cleaner, affordable and smarter energy future in Western North Carolina. This project specifically works to advance both of these goals by creating stronger community partnerships, enhancing existing services, and filling gaps where current programs have limitations, all while serving some of the most vulnerable citizens in the County.