



Strategic Plan for Transitioning Buncombe County to 100% Renewable Energy by 2042

Author: Green Built Alliance and the Blue Horizons Project
Community Council

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Acknowledgement of Native American Land



The Blue Horizons Project Community Council humbly acknowledges that the land we are on is the ancestral land of the Anigiduwagi, more commonly known as the Cherokee. This land was acquired through violence, oppression, coercion, and broken treaties.¹ For thousands of years, the Cherokee thrived in **ᏊᏃᏃᏃᏃ (To Ki Ya Sdi)**, “the place where they race,” or Asheville, as it is known today.²

¹ Asheville CVB. (2022, January 11). *Ancient Asheville: Celebrating the Cherokee influence on Southern Appalachia*. Explore Asheville. Retrieved from <https://www.exploreasheville.com/articles/post/ancient-asheville-celebrating-the-choerokee-influence-on-southern-appalachia/>

² Deeds, R. of. (2021, November 5). *As long as the grass shall grow*. ArcGIS StoryMaps. Retrieved from <https://storymaps.arcgis.com/stories/e9913eb717dc4e68aeb7a7c7d3f42c3>

Strategic Plan for Transitioning Buncombe County to 100% Renewable Energy by 2042

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Blue Horizons Project Community Council meeting

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Strategic Plan for Transitioning Buncombe County to 100% Renewable Energy by 2042

Acronyms:

BAU – Business as Usual	ICE – Internal Combustion Engine
BBC – Better Buildings Challenge	IRA – Inflation Reduction Act
BC – Buncombe County	KPI – Key Performance Indicators
BHP – Blue Horizons Project	KW – Kilowatts
BHPCC – Blue Horizons Project Community Council	KWH – Kilowatt Hours
BIPOC – Black, Indigenous, and People of Color	LEED - Leadership in Energy and Environmental Design
BTU – British Thermal Units	LMI – Low- and Moderate-Income
CAO – Community Action Opportunities	LOSCVC – Land of Sky Clean Vehicle Coalition
CCS – Carbon Capture and Storage	MHO – Mountain Housing Opportunities
CEI – Clean Energy Impact	MMT – Million Metric Tons
CI – Carbon Intensity	MPO – Metropolitan Planning Organization
COA – City of Asheville	MSD – Metropolitan Sewer District
COP – Coefficient of Performance	MW - Megawatts
CPCN – Certificate of Public Convenience and Necessity	MWDC – Megawatts DC
CSMG – Critical Services Microgrid Group	MWH – Megawatt Hours
DEP – Duke Energy Progress	NC – North Carolina
DER – Distributed Energy Resource	NCDEQ – North Carolina Department of Environmental Quality
DOE – Department of Energy	NCDOT – North Carolina Department of Transportation
DSM – Demand Side Management	NCUC – North Carolina Utilities Commission
EE – Energy Efficiency	NEVI – National Electric Vehicle Infrastructure Program
EEAS – Energy as a Service	NREL – National Renewable Energy Laboratory
EIA – Energy Information Association	PPA – Power Purchase Agreement
EITF – Energy Innovation Task Force	PV – Photovoltaic
ESN – Energy Savers Network	Q&A – Questions and Answers
EV – Electric Vehicle	RE – Renewable Energy
EVSE – Electric Vehicle Supply Equipment	REC – Renewable Energy Credit
FBRMPO – French Broad River Metropolitan Planning Organization	RFP – Request for Proposal
GBA – Green Built Alliance	RFQ – Request for Quote
GBH – Green Built Homes	ROI – Return on Investment
GHG – Green House Gas	SAF – Sustainable Aviation Fuels
GSA – Green Source Advantage	SEER – Seasonal Energy Efficiency Ratio
GW – Gigawatts	UCD – United Community Development
GWH – Gigawatt Hours	USGBC – United States Green Building Council
HAARP – Heating/Air Repair and Replacement Program	VMT – Vehicle Miles Traveled
HELOC – Home Equity Line of Credit	VPP – Virtual Power Plant
HPWH – Heat Pump Water Heater	WNC – Western North Carolina
HVAC – Heating Ventilation and Cooling	WWC – Warren Wilson College
	WWTP – Wastewater Treatment Plan

Definitions of Key Terms:

Equity: Equity is “the state of being just, impartial, and fair.” Buncombe County’s Racial Equity Plan envisions “systems, policies, and practices that support equity for all people and an organizational culture that embraces diversity and inclusion.”³

Renewable Energy: Renewable energy refers to energy from sources that are not depleted by use. This may include: solar PV, solar thermal, wind, hydropower, geothermal, ocean energy; biomass resources, including agricultural waste, animal waste, wood waste, spent pulping liquors, combustible residues, combustible liquids, combustible gases, energy crops, or landfill methane; waste heat derived from a renewable energy resource and used to produce electricity or useful, measurable thermal energy at a retail electric customer's facility; or hydrogen derived from a renewable energy resource. It does not include peat, fossil fuel, or nuclear energy.⁴

Energy Efficiency: Energy efficiency is the use of less energy to perform the same task or produce the same result. Energy-efficient homes and buildings, compared to traditional buildings, use less energy to heat, cool, and run appliances and electronics. Energy-efficient manufacturing facilities use less energy to produce goods.⁵

Electrification: Electrification is the shift from any non-electric source of energy to electricity at the point of final consumption, and it is an emerging trend in global energy markets.⁶ Examples include shifting from a gas-powered lawn mower to an electric one, shifting from a gas-powered car to an electric one, or shifting everything that uses fossil fuels to directly using electricity.

Greening the Grid: This a phrase used to refer to transitioning our electric grid (the infrastructure which provides us with electricity) to one that no longer uses fossil fuels (coal, natural gas, etc.) and instead uses renewable energy (see above definition).

Local: We define ‘local’ to be within Buncombe County. We will define ‘regionally local’ for renewable energy generally as sited in Western North Carolina (WNC) as well as some of the near border areas of Tennessee.

Initiative: We define initiatives as any concerted action toward the goal by some entity within our community.

³ Deeds, R. of. (2021, November 5). *As long as the grass shall grow*. ArcGIS StoryMaps. Retrieved from <https://storymaps.arcgis.com/stories/e9913eb717dc4e68aeb7a7c7d3f42c3>

⁴ *North Carolina*. NCUC. (n.d.). Retrieved from <https://www.ncuc.gov/Reps/rep.html>

⁵ *Energy efficiency: Buildings and industry*. Energy.gov. (n.d.-a). <https://www.energy.gov/eere/energy-efficiency-buildings-and-industry>

⁶ Sun, Yinong, Paige Jadun, Brent Nelson, Matteo Muratori, Caitlin Murphy, Jeffrey Logan, and Trieu Mai. 2020. *Electrification Futures Study: Methodological Approaches for Assessing Long-Term Power System Impacts of End-Use Electrification*. Golden, CO: National Renewable Energy Laboratory. NREL/TP-6A20-73336. <https://www.nrel.gov/docs/fy20osti/73336.pdf>.

Part One: Executive Summary and Introduction



Western North Carolina Mountains

Summary

The leadership of Buncombe County, with strong support from the community, has committed to a county-wide goal of 100% renewable energy by 2042. This is an ambitious goal, which recognizes and embodies the need and urgency for a rapid energy transition. Meeting the energy transition goal is going to require a great deal of effort and requires all sectors of the local economy to change. Meeting the goal will need to be a community-wide effort.

The Blue Horizons Project Community Council’s (BHPCC’s) mission is to address the current climate crisis by supporting the community in achieving this goal, primarily through community engagement, program implementation support, and collaboration with Buncombe County, the City of Asheville, and Duke Energy. The BHPCC will promote and support these efforts in a way that ensures social justice and equity are at the forefront of all work undertaken.

The Strategic Plan aims to define the community's current energy use and recommend methods to transition to 100% renewable energy by 2042. The resulting Plan was created by analyzing and prioritizing a series of initiatives, policies, and community engagement actions. This Plan aims to promote work and innovation across the proposed initiatives by providing actionable guidance for pursuing renewable energy in a just and equitable way.

The BHPCC, along with the City and County governments, cannot currently fully fund or mandate the transition to 100% renewable energy. Therefore, this transition will require efforts throughout our community, including additional legislative and policy changes at all levels of government. The BHPCC also created a policy task force to discuss potential policies to implement at the local level, as well as actions they will take to advocate for state and federal policies that would help our community achieve its 100% renewable energy goals.

The BHPCC, Buncombe County, the City of Asheville, and our community are pursuing 100% renewable energy not only to address the climate crisis, but also because our residents will see immense benefits from being powered by 100% renewable energy. These benefits include mitigating climate change and protecting global and local ecosystems through lowering carbon-dioxide (CO₂) and other greenhouse gas (GHG) emissions, but also includes reductions in a dozen other air pollutants (collectively referred to as social costs of atmospheric releases, or SCARs) that are damaging to human health.⁷ In addition, a renewable energy system will reduce energy costs and provide workforce development opportunities to the community. The BHPCC recommends prioritizing initiatives that not only emphasize renewable energy and equity, but also reduce GHG emissions and SCARs.

The Blue Horizons Project's 100% Renewable Energy by 2042 Strategic Plan Committee laid the groundwork and spearheaded the development of this Plan. Throughout the process, other committees, such as the Community Engagement Committee and the Technology Committee, helped immensely with sections that were related to their fields. As needs arose, new committees were created, such as the Transportation Committee. At times, partner organizations offered insight and information. There were several rounds of reviews by Green Built Alliance (GBA) staff, BHPCC members, a BIPOC focus group, external organizations, and the community. Extensive collaborative work went into this Plan, and it could not have been accomplished without the support and tireless work of countless individuals and organizations.

⁷ Drew T Shindell (2015) The Social Cost of Atmospheric Release, *Climatic Change* journal, 130:313–326doi:10.1007/s10584-015-1343-0,<https://link.springer.com/article/10.1007/s10584-015-1343-0>



City of Asheville Sunset – photo credit Sean Pavone

“Achieving 100% renewable energy is a huge challenge that requires change in all local economic sectors. This will be a community effort, beyond the control of any one entity.”

Key Findings

Key findings of this Plan are as follows:

- Achieving 100% renewable energy is a huge challenge that requires change in all local economic sectors. This will be a community effort, beyond the control of any one entity.
- The main technical pathways are energy efficiency, electrification, and greening the grid.
- The main action pathways for this goal are implementing the initiatives, policy changes, and community engagement.
- Our current energy use is dominated by transportation fuels (around half), with electricity and natural gas representing about one fourth of energy demand each.
- Our community must produce much more local renewable energy for the transition, but electrification and efficiency improvements can reduce this requirement by about 50% (see Part Two and APPENDIX A). This is mostly due to electricity’s advantage of being far more efficient than fossil fuels for specific tasks.

- Energy efficiency and local renewable energy production have significant local benefits (increased cost savings, cleaner air and water, workforce development, and resiliency) and are prioritized as key elements of this Plan, especially when they improve equity.
- Local policies should be implemented to support the community moving toward this goal in a just and equitable way.
- State and federal policies drastically impact the ease of achieving local goals, so the Blue Horizons Project (BHP) should engage in and organize community advocacy for state and federal policy change.
- Efforts should be made to acquire needed data, especially in energy use, renewable energy production, and Buncombe County's capacity for renewable energy production.
- Implementing the energy transition will require substantial capital investment but would likely lower the overall cost of energy. Energy costs with 100% renewable energy will be lower than with business as usual.

The Big Picture

Achieving 100% Renewable Energy is an ambitious goal, and while the BHPCC recommends specific actions and provides insight into timeline and implementation, the key to success will be a whole systems approach, with three interdependent technical pathways and three interdependent action pathways. All six of these pathways will inform the priorities and actions between now and 2042.

The three essential technical pathways for the transition are: (1) embracing energy efficiency, (2) electrification, and (3) greening the grid. These pathways are interdependent — improving efficiency makes electrification and greening the grid easier, and the benefits of electrification and greening the grid continually increase alongside one another.

The action pathways are: (1) implementing the initiatives, (2) policy changes and policy advocacy, and (3) community engagement. The foundation of the Plan is that to successfully achieve 100% renewable energy by 2042, these three areas of action must be integrated into every step. The whole community must be engaged, not just in planning, but also in action, to ensure the transition is just, equitable, and benefits all members of our local, national, and global communities.

Overview of Recommended Initiatives and Policies

The BHPCC compiled and analyzed a list of over 75 potential initiatives for feasibility, scale of impact, equity impact, and cost versus benefit (see APPENDIX D), and reduced them to the initiatives that deserve near-term focus in achieving 100% renewable energy by 2042. Each of

these initiatives and their descriptions are included in Part Three. The initiatives have been organized into six categories (in no particular order): (1) Utility Scale Renewable Energy and Storage, (2) Residential and Commercial Renewable Energy and Storage, (3) Low-Income Energy Efficiency/Renewable Energy, (4) Building Efficiency and Electrification, (5) Transportation, (6) Large Energy Users.

The Strategic Plan Committee ranked these initiatives for feasibility, scale of impact, equity, and cost versus benefits, and selected the top initiatives to prioritize at this time. We fully expect the initiatives on this list and their priority to change over time due to the ongoing work of the BHPCC.

Figure 1 - Intro - Initiatives to Pursue



In addition to the top priority initiatives, BHP will advocate for four local policy changes that will support this transition: (1) increased incentives for green development, (2) improved permitting and inspections processes to reduce costs and time required for incorporating green technologies, (3) establishment of a liaison/ombudsman at the City and County to help developers navigate these new technologies and policies, and (4) creation of a financing structure to support the transition.

Community engagement will be essential to all these initiatives and policies, in order to raise support, connect with beneficiaries of these opportunities, inspire entrepreneurial actions, and advocate for change.

Overview of Next Steps

Of the top priority initiatives, some are already ongoing, some should be implemented as programs of the Blue Horizons Project, and some should be implemented by other entities with support and advocacy from the BHPCC. To leverage our existing, albeit limited, resources it is our hope and intention that through our community engagement and advocacy, individuals from within the BHPCC and the community will come forward as champions for specific initiatives. Successful policy advocacy by the BHP will also help create economic incentives that can multiply the effect of our efforts.

An additional and important next step will be to continue improving upon this Plan by revisiting it every few years until the 100% renewable energy goal is achieved. Aspects of the Plan, such as the priority of its various initiatives, will need to be revisited on an ongoing basis. This Plan will be a living document, evolving and improving as new data, technologies, and opportunities emerge. As stated in the key findings, achieving 100% renewable energy by 2042 is an extremely ambitious goal, and will require coordinated and innovative efforts from across Buncombe County.

Part Two: Methods and Process

The BHPCC and its Strategic Plan Committee felt it was important to have a strong foundation and thorough process to arrive at the Strategic Plan results. The methodology and process of the Strategic Plan are:

1. Understand local priorities and prior efforts to guide strategy.
2. Analyze current baseline energy use in Buncombe County.
3. Understand technical pathways to 100% renewable.
4. Develop a vision of a future 100% renewable energy system.
5. Catalog ongoing initiatives and successes and determine priority for future action.
6. Develop criteria to assess different proposals for action.
7. Nominate new and potential initiatives and evaluate each for prioritization.
8. Determine necessary legislative and policy changes at the local, state, and federal level.
9. Prioritize new and potential action initiatives based on evaluations.
10. Determine ways to engage the community with all the above.
11. Incorporate feedback from equity focus group, City and County, BHP, and community.
12. Establish metrics to measure impacts of implemented programs and policies.
13. Continue to develop recommendations based on emerging information and update the Plan as needed.

Local Priorities and Building on Prior Work



Community Listening on Burton St.

The Blue Horizons Project Community Council (BHPCC) understands that public input and listening to the interests, desires, needs, and priorities of the community is an essential part of

creating and successfully implementing the Strategic Plan, and have accomplished much work in this area. This section summarizes past and ongoing work by the BHPCC (and BHPCC's predecessor, the Energy Innovation Task Force), GBA, the City of Asheville, and Buncombe County. The BHPCC relies heavily on this body of work, combined with ongoing community engagement, to establish the priorities for this Plan.

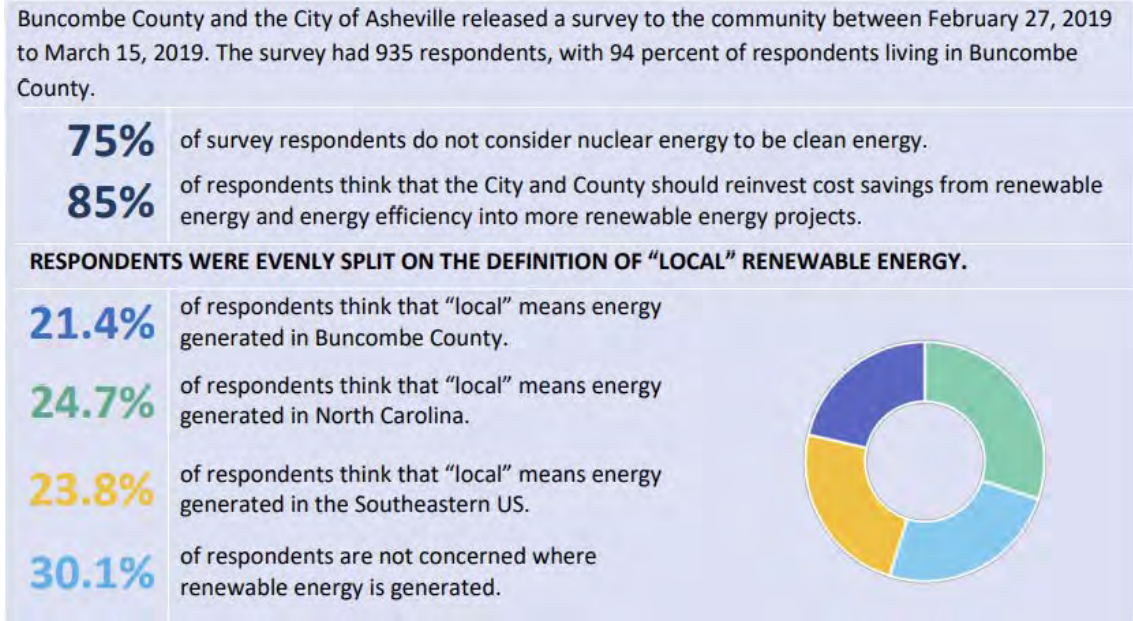
Moving to 100 Report

In 2018, Buncombe County and the City of Asheville hired a consulting agency, the Cadmus Group, to create a report on the City and County's pathways for reaching 100% renewable energy by 2042. This report is called "Moving to 100 Percent: Renewable Energy Transition Pathways Analysis" which will be referred to as the "Moving to 100 Report." BHPCC chose to lean heavily on Cadmus' extensive research in determining local priorities. Their work included consulting with local stakeholders through workshops, interviews, and surveys. The following is an abbreviated version of their findings about community priorities:

- **Local Renewable Energy Development.** The report emphasized the importance of local renewable energy projects that supply economic, health, environmental, and educational benefits to the community. The community should be involved in decision-making and education on renewable energy and energy efficiency.
- **Affordability and Equity.** Any actions taken to increase renewable energy should be affordable and equitable. Low-income households should benefit from and not be burdened by additional costs for renewable energy and efficiency. Housing should be affordable, safe, and healthy. Air quality should be clean for all. All voices, particularly people of color and low-income households, need to be heard.
- **Efficiency First.** Weatherization and energy efficiency technologies and behaviors should be prioritized, especially for low-income households.
- **Engagement and Collaboration with the Utilities.** The utilities are an essential part of this transition, so BHPCC must engage with them, and the City and County should provide more incentives for local renewable energy.
- **Resiliency.** Energy storage will improve the resiliency of the local community by reducing dependence on the grid and impact in the event of grid failures.⁸

⁸ CADMUS. (2019, July 31). *Moving to 100 Percent: Renewable Energy Transition Pathways Analysis for Buncombe County and the City of Asheville*. Retrieved from <https://www.buncombecounty.org/common/sustainability-office/documents/renewable-energy-draft-report.pdf>

Figure 2 – Intro - Results from 2019 Buncombe County and City of Asheville public survey on the priorities for transitioning to 100 percent renewable energy from the “Moving to 100 Report.”



The above findings, acquired by community engagement, are important for this Plan for several reasons. This report confirms the messages received through BHP’s community engagement efforts and bolsters the weight of initiatives and policies which improve upon the above values. In summary, local solutions that promote equity and resilience and provide local benefits are a key priority for the community.

While the "Moving to 100 Report" covered renewable energy goals for City and County operations in addition to the overall community, this Strategic Plan focuses solely on the community-wide goal. In doing so, it expands on the “Moving to 100 Report” by:

- Considering all sectors of energy use, including transportation and building energy use beyond electricity and natural gas.
- Further developing the key role of electrification in reducing energy use.
- Giving greater emphasis to efficiency programs and conservation.

The Buncombe County Comprehensive Plan 2043

Buncombe County’s 2043 Comprehensive Plan was adopted in May of 2023 after significant public input. Several themes relevant to the community-wide goal of reaching 100% renewable energy by 2042 emerged from that plan:

- Participants want to protect the local environment, including air, water, and soil.
- Participants are concerned about the cost of living and want more affordable housing options.

- Participants want safe, affordable travel options, like biking, walking, and public transit.
- Participants want to eliminate barriers to entering the workforce and earn higher wages, which can be achieved by partnering with regional institutions to provide support services like affordable and quality childcare, transit access, and training opportunities.
- The community wants to expand energy efficiency in new construction and renewable energy resources across the County.

Figure 3 – Intro - Buncombe County 2043 Comprehensive Plan (Draft) Public Input Word Cloud ⁹



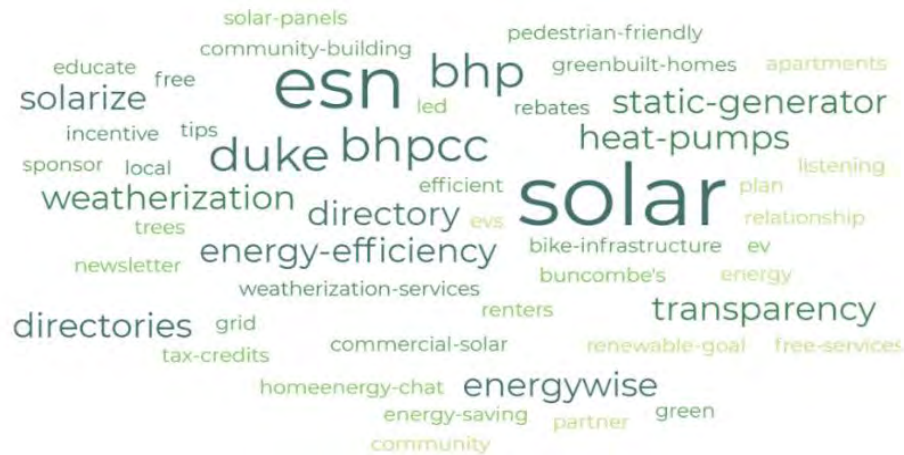
Blue Horizons Project Community Engagement

Blue Horizons Project staff and volunteers have collected community input via tabling at events around Buncombe County, Home Energy Chats, and presentations to various groups. Community members frequently expressed requests such as:

- Expanded rebates for residential solar and energy efficiency.
- Rate transparency from utilities and utility willingness to work towards renewable goals.
- Expanded bike and pedestrian infrastructure.
- Continued investment in low-income programs like Energy Savers Network (ESN).
- Guidance on credits, rebates, etc., especially regarding the Inflation Reduction Act (IRA).
- Transparency and public communications from the City and County regarding current projects and sustainability investments.

⁹ Comprehensive plan 2043. (n.d.). Retrieved from [https://www.buncombecounty.org/common/planning/calendar-files/compplan/web-docs/Draft%20Plan/Draft%20Comprehensive%20Plan%20\(Translatable%20Text%20Version\).aspx](https://www.buncombecounty.org/common/planning/calendar-files/compplan/web-docs/Draft%20Plan/Draft%20Comprehensive%20Plan%20(Translatable%20Text%20Version).aspx)

Figure 4 – Intro - BHP Community Engagement Word Cloud from FY23



These community priorities have shaped the Strategic Plan in every way possible and are still ongoing. The BHPCC is committed to diversity, equity, inclusion, and justice. In that effort, staff at GBA and volunteers at BHPCC have worked with members of different community groups to expand the diversity of voices on the BHPCC. However, the outreach thus far has not resulted in a full representation of the diversity present with our community, and we recognize that as a weakness of this Plan. To help address this weakness and pursue better equity and inclusion, BHPCC hired Dr. J Hackett to conduct an equity review of the Blue Horizons Project Community Council practices and an equity review of this Strategic Plan, the results of which informed the final drafts of the 100% Renewable Energy by 2042 Strategic Plan.

Identifying Parameters

The BHPCC conducted several meetings to set parameters for the process as follows:

Geography. BHPCC will focus on energy consumed within Buncombe County.

Time Period for Energy Use Data. The framework of data analysis is on an annual timescale because that is the data currently available from Duke Energy. BHPCC needs to be practical and acknowledge what level of data we can consistently get from Duke Energy, though we hope to lobby for more detailed data. We should ask Duke if they can provide the energy consumption date on a seasonal, monthly, or even hourly basis, but not plan for this.

Energy Units. The BHPCC decided to measure energy in terms of watt hours - a unit of electricity, instead of measuring energy in terms of British Thermal Units - a unit of heat, to mirror our commitment to replacing fossil fuels with electricity, which is measured in watt hours. 1 KWH is thermally equivalent to 3,412 BTUs, and 1 MWH is 1000 KWH, or thermally equivalent to 3,412,000 BTUs or 3.4 MMBTU (million BTU).

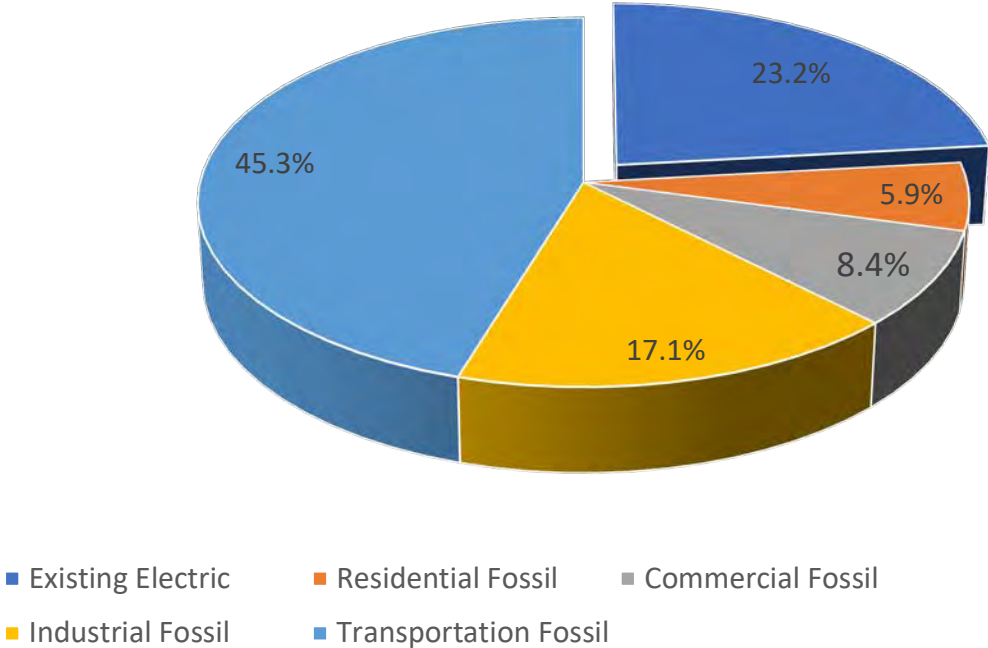
Tracking Progress. BHPCC will track progress of the Plan by dividing the amount of energy consumed in Buncombe County by the amount of renewable energy produced for consumption. The goal is met when the resulting percentage is at or above 100%. We will also track progress by calculating GHG emissions created in Buncombe County.

The Current Situation

As shown in Figure 5 below, electricity makes up 23.2% of Buncombe County’s energy use, and some renewable electricity is provided through solar farms, Duke Energy electricity, rooftop solar, limited hydroelectric power, and a small amount of biofuel. However, our current energy system is dominated by transportation (mostly gasoline and diesel) at 45.3% of energy consumption, roughly twice the size of the entire electric sector. Natural gas and the use of oil and propane in buildings makes up the remainder of energy use.

Figure 5 - Intro - Buncombe County Electric Use vs Direct Use of Fossil Fuel by Sector for 2018 (%)

Buncombe County Energy Consumption Breakdown



As of 2023, Buncombe County and the City of Asheville are just beginning to make progress in moving to 100% renewable energy. As we outline in the Technical Strategy section below and in APPENDIX A, renewables are (as of 2021) only about 7-8% of our electricity

production, and electricity itself is only around one quarter of our overall energy consumption. Which means that we are only about 2% towards our goal of being powered by 100% renewable energy.¹⁰ We still have a long way to go.

Current Initiatives and Previous Successes



Solar Installation at Isaac Dickson School

Despite the challenge ahead of us, there is significant reason for hope. We have promising new policies in place at the federal and state levels, and our community is beginning to engage in the effort. Here, BHPCC documents and celebrates some of the initiatives and policy successes we have achieved and plans to continue scaling up. Many of the initiatives listed as current or recommended in the “Moving to 100 Report” are now completed successes or ongoing initiatives for this Plan. Also, several of the legislative recommendations have been achieved or surpassed.

It is important to note that the successful initiatives listed below are only a part of what is happening in our community towards the goal of 100% renewable energy. Every economic sector in our community can participate in these efforts, and it is beyond the BHPCC’s capability to track all of them. Many individuals and businesses in Buncombe County are dedicated to green building practices, home retrofits, rooftop solar projects, EV purchases, electric HVAC conversions, and more. We celebrate and encourage these efforts in addition to the successes of our direct work.

¹⁰ Energy, D. (2021, April 28). *Clean generation remains duke energy’s focus as it plans to triple renewable energy this decade*. Duke Energy | News Center. <https://news.duke-energy.com/releases/clean-generation-remains-duke-energys-focus-as-it-plans-to-triple-renewable-energy-this-decade#:~:text=Currently%2C%207%25%20of%20Duke%20Energy’s,grow%20to%2023%25%20by%202030>.

Successful Community Initiatives in Buncombe County as of 03/2023

The below successes were achieved through community efforts and BHP collaboration. Most of these efforts are considered successes of our whole community, although the primary movers vary depending on the initiative. For example, the City and County governments have spearheaded implementation of numerous solar projects, and provided funds for a successful Solarize campaign, but most of the funds for that effort came from homeowners throughout Buncombe County. Duke Energy has also been the primary mover in several efforts. These efforts are listed here because they represent our community as a whole - businesses, non-profits, utility companies, City and County government, property owners, renters, and homeowners - coming together to move our community toward the 100% renewable energy goal.

Renewable Energy and Storage

- Green Built Alliance, with City and County funding, operated a successful Solarize Asheville-Buncombe campaign, during which 180 households installed solar, totaling 1.45 MW. An additional 12kw system was donated to the local nonprofit Beloved.
- 300 KW of RE was installed through Appalachian Offsets in 2022.
- A resolution passed for all County-funded schools to have solar, and for all new buildings to be certified LEED gold.
- Over 12 MW of solar were installed by or on City and County facilities, and a feasibility study was completed for floatovoltaics (floating solar).
- Duke Energy developed and installed solar, storage, and microgrids in Buncombe and surrounding counties, totaling 2.10 MW Solar PV and just over 13 MW Battery Storage (including in a picogrid and microgrid), and plan to install more solar and battery storage over the next few years.

Low-Income Energy Efficiency / Renewable Energy

- The Neighbor-to-Neighbor Program installed 125 KW of solar on the homes of low-income residents in fiscal years 2022 and 2023.
- Energy Saver's Network programs received additional funding to expand. They provide weatherization and HVAC replacements to low-income residents for increased energy efficiency and electrification.

Transportation

- The County passed a sustainable fleet resolution and purchased 4 F150 EV trucks.
- 4 electric buses were added to the City fleet.

- Buncombe County has 62 Public EV charging stations.¹¹
- Asheville and Buncombe County completed and proposed expansions of greenways to increase connectivity and accessibility.¹² There is also a Buncombe County systemwide greenways master plan in process to further expand greenways in the County.¹³

Community Engagement

- The City and County offered continued funding for the Blue Horizons Project.
- “Home Energy Chats,” personal home energy consultations, saw promising engagement.
- Duke canceled/indefinitely delayed plans for a Peaker plant at Lake Julian, based partially on the efforts of the BHPCC’s predecessor, the Energy Innovation Task Force.

Policy Achievements



The “Moving to 100 Report” outlined several policy changes that would be helpful in meeting the 100% RE goal. Some of those policy changes are still needed and have been included in the recommended legislative and policy changes in Part Three.

H951 and Duke Carbon Plan. The passage of H951¹⁴ and the subsequent Duke Carbon¹⁵ Plan focus on achieving 70% reductions in 2005-level carbon emissions by 2030 and 100% by 2050. This will likely involve more renewable energy than the Renewable Energy Portfolio Standard

¹¹ *Alternative fueling station locator.* Alternative Fuels Data Center: Alternative Fueling Station Locator. (n.d.). <https://afdc.energy.gov/stations/#/find/nearest?location=buncombe%20county&fuel=ELEC&page=9>

¹² *Greenways.* The City of Asheville. (2023, March 14). <https://www.ashevillenc.gov/departments/transportation/greenways/>

¹³ *Future planning: Buncombe’s new Principal Planner Eyes Greenway expansion, increased accessibility, & more.* Buncombe County Center. (2023, May 5). <https://www.buncombecounty.org/countycenter/news-detail.aspx?id=20686>

¹⁴ *House Bill 951 / SL 2021-165 (2021-2022 session) - North Carolina General Assembly.* ncleg.gov. (2022). Retrieved from <https://www.ncleg.gov/BillLookup/2021/H951>

¹⁵ *IRP Reference Information Portal - Duke Carbon Plan.* Duke Energy. (n.d.). Retrieved from https://www.duke-energy.com/our-company/about-us/irp-carolinas?_ga=2.168630117.595529348.1652797757-1798073204.1652797757

(REPS), although some carbon emission reductions may come from nuclear energy. Former EITF Co-Chair Julie Mayfield, now a State Senator, was key to achieving this legislative progress.

Duke Energy’s Green Source Advantage Choice Plan. This opportunity likely supersedes third party ownership of solar via power purchase agreements. More research is needed.

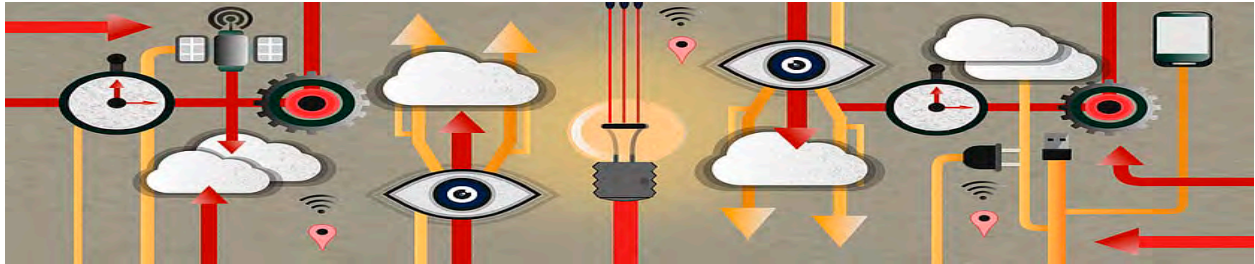
Implementing a State Green Bank. This effort is underway with the North Carolina Clean Energy Fund.¹⁶ The bank has been established, top executives chosen, and funding identified.

Enabling Community Shared Solar. Duke has announced a 40MW community shared solar pilot program.¹⁷ To date, this program has not been pursued because compensation rates have been too low to justify the expense of the program. Under the 2022 Inflation Reduction Act (IRA), however, community solar programs receive additional credits above the standard 30% if they provide a minimum number of subscriptions to low-income residents, potentially leading to economic viability. Exploring this opportunity is a current initiative.

The Inflation Reduction Act (IRA) provides funding to individuals, organizations, and communities for various renewable energy and energy efficiency technologies.¹⁸

North Carolina Executive Order 246¹⁹ creates reduced pollution goals and directs NC to pursue net-zero emissions, prioritize environmental justice, and develop clean transportation.²⁰

Technical Strategy for Transitioning to 100% Renewable Energy



In order to reach 100% Renewable Energy by 2042, we need to drastically increase our pace of work. Our analysis, presented in full in APPENDIX A, shows that we need to: (1) improve energy efficiency, (2) end the use of fossil fuels through adopting superior electric alternatives, and (3) increase renewable energy production to end the use of fossil fuels on the grid.

¹⁶ North Carolina Clean Energy Fund. (n.d.). Retrieved from <https://www.nccleanenergyfund.com/>

¹⁷ *NC Shared Solar*. Duke Energy. (n.d.). Retrieved from <https://www.duke-energy.com/home/products/renewable-energy/nc-shared-solar?jur=NC02>

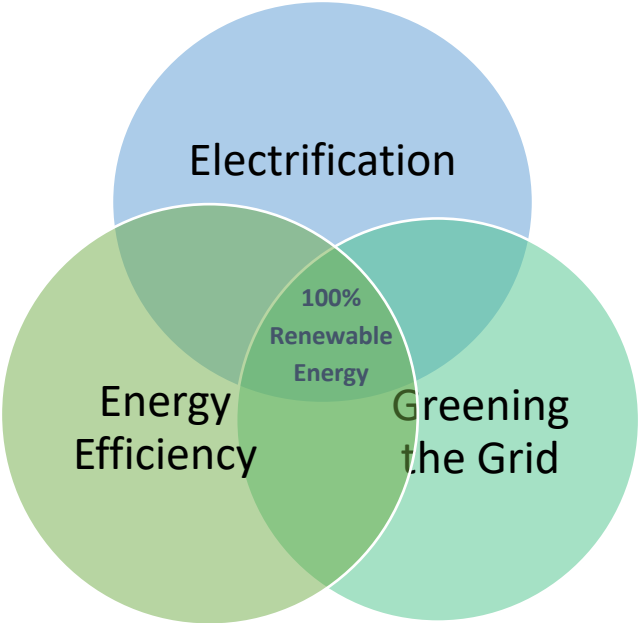
¹⁸ The United States Government. (2023, March 27). *Inflation reduction act guidebook*. The White House. Retrieved from <https://www.whitehouse.gov/cleanenergy/inflation-reduction-act-guidebook/>

¹⁹ *North Carolina Office of the governor*. Environment | NC Gov. Cooper. (2022, January). <https://governor.nc.gov/issues/environment>

²⁰ Kelly, D. (2022, January 7). *Governor Cooper’s new Executive Order will raise climate ambition and build a more equitable clean energy economy*. Environmental Defense Fund. <https://www.edf.org/media/governor-coopers-new-executive-order-will-raise-climate-ambition-and-build-more-equitable>

These three pathways have become the basic structure for our technical strategy. These pathways can be combined in numerous ways to achieve our goal, but we will need to make major investments every single year until 2042 to meet the goal.

Figure 6 – Methods and Processes - Technical Pathways

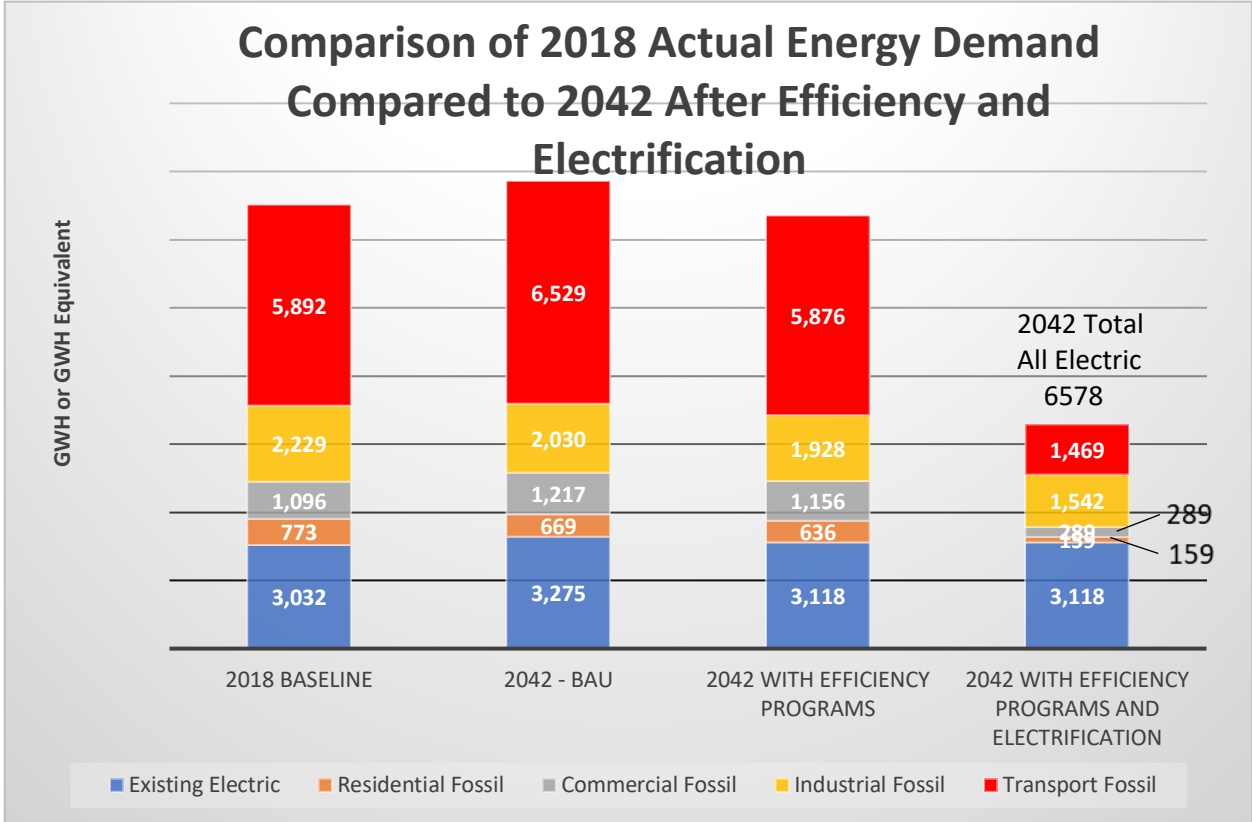


The BHPCC technical strategy was led by technical and modeling expert Brad Rouse and is adapted for Buncombe County from the 100% renewable methodology developed by Dr. Mark Z Jacobson at Stanford University.^{21 22} Dr. Jacobson has also released a plan for NC showing the steps needed and implications of a state conversion to 100% renewable.²³

Figure 7 illustrates how much energy can be saved through efficiency upgrades and electrification — according to reasonable assumptions described in APPENDIX A. We predict that improved efficiency and electrification can reduce 2042 energy demand by 50% in Buncombe County, making it much easier to fulfill this demand with renewable energy. The greatest decline comes from reducing energy use through electrification, especially of home heating appliances and electric vehicles, both of which result in around 75% energy reduction when electricity is substituted for fossil fuels. (Note: The far-right column in Figure 7 would be 100% electric energy, whereas the non-blue components of the other columns are direct use of fossil fuels).

²¹ Climate Warrior: Climate Activism and Our Energy Future, (2022), Wisdom House Books
²² Jacobson, M. Z. (2021). *100% Clean, Renewable Energy and Storage for Everything*. Cambridge University Press.
²³ Jacobson, M. Z. (2021). *Zero Air Pollution and Zero Carbon From All Energy Without Blackouts at Low Cost in North Carolina*. Stanford University.

Figure 7 - Comparison of Buncombe County Actual Energy Demand Compared to 2042 After Efficiency and Electrification



The future of our energy system may also include biofuels, as some models estimate their use will triple by 2030 or using renewable electricity to create gas or liquid fuel (e.g., hydrogen through electrolysis).^{24 25} The scale of these alternatives will be limited during the transition, and they may be most useful in the “hard to electrify” sectors of industry and transport (high-temperature industrial processes, shipping, long-haul trucks, and air transportation).

Buncombe County will still depend on Duke Energy for much of our electricity, including electricity imported from the Duke Energy system. With the new North Carolina Utilities Commission (NCUC) Carbon Plan based on the H951 legislation, these imports will include more zero-carbon and renewable energy than assumed in the "Moving to 100 Report." Hopefully we will continue to benefit from legislative successes such as H951 and the IRA, but under current plans, electricity imports from Duke will not be 100% renewable nor zero carbon by 2042. Consequently, greening the grid will require offsetting those non-renewable imports from Duke.

²⁴ Reid, W. V., Ali, M. K., & Field, C. B. (2020, January). *The future of bioenergy*. Global change biology. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6973137/>

²⁵ IEA. (2021, November). *Transport biofuels – analysis*. IEA. <https://www.iea.org/reports/transport-biofuels>

Several initiatives of this Strategic Plan are focused on increasing locally produced renewable energy. These initiatives not only help us meet our renewable energy goal, but also benefit the local community. While it is important to maximize the capacity of local renewable resources, we will also need to consider acquiring ‘regionally local’ or non-local renewable resources through purchase power agreements (PPAs) and/or renewable energy credits (RECs). BHPCC continues to investigate the benefits and drawbacks of local production, the current inventory of renewable resources, and the capacity for local renewable energy production.

Acknowledging Limitations

Process

The process of creating the 100% Renewable Energy by 2042 Strategic Plan has been extensive and highly collaborative, relying on support from many individuals and groups.

In one of its first meetings, the BHPCC Strategic Plan Committee adopted the group motto: *“Talk about a dream, try to make it real — we will leave no stone unturned or pathway unexplored while planning for 100% renewable energy. We will collaborate, listen, and hold each other accountable, while being respectful of everyone’s perspective and time.”* The committee genuinely strove to turn over each stone and explore all pathways. Yet, BHPCC are only so many, and are human and imperfect. As such, this report too is imperfect, and undoubtedly has gaps. It most certainly could benefit from more perspectives and voices, especially those from BIPOC (Black, Indigenous, and People of Color) communities. BHPCC intends for this Strategic Plan to be an ongoing effort and to expand the included perspectives as we move forward.

Equity

At the outset of work on the Strategic Plan, BHPCC relied heavily on the voices of others (“Moving to 100 Report,” Buncombe County 2043 Comprehensive Plan, etc.) to provide more perspectives and information. We also planned to implement a listening project with additional voices from communities that were underrepresented in the BHPCC and Strategic Plan committee. Due to unforeseen circumstances, the listening project was delayed. However, at the beginning of 2023, BHPCC was able to hire a consultant, Dr. J Hackett, to begin the much-needed work of integrating diverse voices to look at the Plan through an equity lens. Moving forward, any work on the Strategic Plan needs to include more diverse voices and prioritize equity in all undertakings. We hope that as the Plan evolves and improves, this equity and diversity aspect will evolve and improve as well in more meaningful and tangible ways.

Data

Not all the data that BHPCC hoped to use for modeling in the Strategic Plan was readily available. Much of this missing data revolves around energy, such as energy use across all sectors

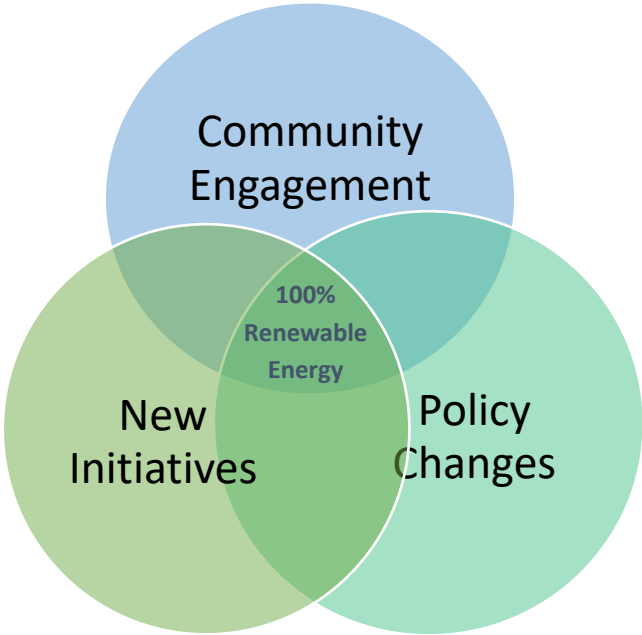
and time scales. Specific data on energy production is also difficult to procure, leaving us with unanswered questions such as: How much renewable energy that is being produced within Buncombe County is being fed to the grid (Duke Energy), and how much is being directly used for power at the source of production? What is the potential capacity of renewable energy production within Buncombe County?

BHPCC lacked data in other sections as well, such as some data for new or potential initiatives, financial logistics for funding, etc. BHPCC decided during the initial Strategic Plan conversations to try and get the data to the best of our ability and incorporate all available data into the Plan. Despite the eventual need for detailed financial and market penetration analysis of each initiative, only a limited cost-benefit analysis, with input from subject matter experts, was possible for this Plan's proposed initiatives at this time. For the areas where BHPCC was not able to get the desired data, we used what data was available to model and make informed assumptions (see APPENDIX A). As initiatives are moved forward, efforts should be made to acquire additional data.

Part Three: A Whole Systems Approach- Getting to 100% Renewable Energy by 2042

Our vision of a future of 100% renewable energy in Buncombe County by 2042 is possible through pursuing the three technical pathways discussed in Part 2. The Strategic Plan committee determined what that looks like in our community and organized the necessary steps into three essential action pathways: (1) initiatives to be undertaken, (2) policy changes to be implemented or supported, and (3) community engagement. These strategic and action areas must work together, as each is vital to the success of the others and to realizing our vision.

Figure 8 - Whole Systems Approach - 6 areas for 100% RE



New Initiatives

From the beginning, BHPCC members expressed a strong preference toward initiatives that can achieve tangible progress toward our 100% renewable energy goal. The Strategic Plan Committee and BHPCC developed a list of initiatives (refined from over 75) for consideration.

We define initiatives as any concerted action toward the goal by an entity within our community. The list of possible actions and initiatives is vast and will change over time. The initiatives discussed here are just a snapshot of the present-day priorities and are only a fraction

of what is to come. A central conclusion of this Plan is that proposing and implementing initiatives will be the ongoing work of the BHPCC, so while this Plan identifies and prioritizes some initiatives for current action, it is only the start of this process.

These initiatives will be the work of the community, not solely the BHP. However, the BHP can support and encourage initiatives in the community and can sometimes undertake specific initiatives through the non-profit convener of the BHPCC (currently GBA). The role of BHP will be as either (1) supporter of the initiative or (2) lead implementor of the initiative, although in some initiatives it will be a blend of the two. Of course, in a general sense, BHP “supports” any effort in our community that moves toward our goals. “Support” for these initiatives instead means the BHP will use community engagement efforts, policy recommendations, or BHP staff/volunteers in assisting other organizations who have the lead role in an initiative.

The Strategic Plan Committee, with input from BHPCC members and committees, conducted preliminary analysis on 26 potential initiatives, broken into the following “initiative topics” (in no particular order of importance):

1. Utility Scale Renewable Energy and Storage
2. Residential and Commercial Renewable Energy and Storage
3. Low-Income Energy Efficiency / Renewable Energy
4. Building Efficiency and Electrification
5. Transportation
6. Large Energy Users

These initiative topics generally align with the technical pathways (greening the grid, energy efficiency, and electrification) and energy using sectors (residential, commercial, industrial, transportation). For more information on these pathways and sectors see Part Two and APPENDIX A. Initiatives that serve low-income residents were placed into their own category due to the importance of equity, while transportation is its own category due to its large percentage of overall energy use. Large energy users will benefit from special focus and are included as their own topic. The potential new initiatives are as follows:

Topic 1: Utility Scale Renewable Energy and Storage



Agrivoltaics (Left) and Floatovoltaics (Right)

Initiative 1: Transmission-Scale Solar (>20MWac). These are very large solar installations which require large blocks of (ideally flat) land, limiting local feasibility, though this is the lowest cost solar option.

Initiative 2: Floatovoltaic solar. Floatovoltaic solar is transmission scale solar floating on bodies of water. Local potential includes installing them on Lake Julian and/or the North Fork Reservoir. Buncombe County has paid for and begun a feasibility study to gain insight and information on this local opportunity.

Initiative 3: Agrivoltaics. Agrivoltaics is the installation of solar on working agricultural land, designed to allow farm equipment to pass underneath and for agricultural practices to continue. It is more expensive than transmission scale solar, but cheaper than rooftop solar. Buncombe County agricultural land for agrivoltaics could theoretically provide all of the County energy needs while providing local benefits to farmers and the community.

Initiative 4: Green Source Advantage (GSA) Choice Expansion.²⁶ GSA Choice is an expansion of an existing Duke Energy program that would allow entities to develop transmission-scale solar outside of Buncombe County. Proposed Jan 2023, it would allow customers to contract with Duke or developers for up to 100% of their energy use with a battery storage option.

Initiative 5: Renewable Energy Credits (RECs) & Power Purchase Agreements (PPAs). Purchasing renewable energy from grid-connected renewable generators (commonly known as Renewable Energy Credits or RECs) allows consumers to claim the benefits of carbon-free energy.

²⁶ Energy, D. (2023, January 31). *Duke Energy to help customers go 100% renewable*. Duke Energy | News Center. Retrieved from <https://news.duke-energy.com/releases/duke-energy-to-help-customers-go-100-renewable#:~:text=Clean%20Energy%20Impact%20will%20be,or%20looking%20to%20install%20solar.>

Topic 2: Residential and Commercial Renewable Energy and Storage



Solarize Asheville Buncombe campaign

Initiative 1: Solarize Campaigns.²⁷ Solarize is a residential solar bulk-buying discount installation program, building on the 2022 initiative that installed 1.3MW of solar in the County.

Initiative 2: Appalachian Offsets.²⁸ Appalachian Offsets is an ongoing GBA program that applies carbon offset donations directly to local renewable energy. It could be expanded to include private donations, supporting decarbonization and moving us toward 100% RE.

Initiative 3: Microgrids. A microgrid is a local cluster of energy resources (i.e., PV and battery storage) that can operate independently from the grid. Unlike rooftop solar, microgrids can provide power even when the grid fails. Microgrids can also operate in conjunction with the grid, helping customers manage costs, participate in energy prosperity, and reduce carbon emissions. They can be a particularly valuable resource when the grid is under strain or needs flexibility to balance resources. Additionally, microgrids provide local benefits such as resilience, cost savings, workforce development, clean energy, etc.²⁹

Initiative 4: Community Solar + Storage. Community solar is a solar project or purchasing program in which the benefits flow to multiple customers such as individuals, businesses, or nonprofits. In most cases, customers benefit from solar energy generated at an off-site array.³⁰ Community solar customers can buy or lease a portion of the solar panels, and they typically receive an electric bill credit for electricity generated by their share of the system, similar to someone who has rooftop panels installed on their home. In Duke territory, however, this credit is limited to the avoided cost of energy, which is substantially lower than the retail rate.

²⁷ Asheville-Buncombe, NC. SOLAR CrowdSource. (2022, April 11). Retrieved from <https://www.solarcrowdsource.com/campaign/asheville-buncombe-nc/>

²⁸ Appalachian offsets. Appalachian Offsets | . (2022, October 20). Retrieved from <https://www.cutmycarbon.org/>

²⁹ Think Microgrid. (2021). Home. Think Microgrid. Retrieved from <https://www.thinkmicrogrid.org/>

³⁰ U.S. Department of Energy. (2023). Community solar. Energy.gov. <https://www.energy.gov/communitysolar/community-solar>

Topic 3: Low-Income Energy Efficiency / Renewable Energy



Energy Savers Network doing weatherization of low-income homes (Left) and creating custom storm windows (right)

Initiative 1: Energy Savers Network (ESN).³¹ An ongoing BHP/GBA program, ESN provides energy efficiency upgrades and education at no cost to income qualified county residents (other than those living in multi-family buildings). This initiative is to continue ESN and grow its scale. ESN has completed approximately 1000 Tier 1 upgrades (lower-cost basic retrofits such as LEDs, weatherstripping, duct sealing, etc.) since 2016, using both staff and volunteers, and has recently begun to provide a limited amount of Tier 2 (higher-cost, more advanced retrofits such as heating system repair or electrification) upgrades to clients with high energy burdens.

Initiative 2: Community Action Opportunities (CAO).³² CAO operates a Tier 2 retrofits program for income qualified residents of a multi-county area, including Buncombe County. Historically, CAO has served fewer clients than ESN, typically around 40 clients per year in Buncombe County. However, new federal funding opportunities (IRA) offer possibilities for CAO to serve more residents with their comprehensive services. Through this initiative, BHP will encourage CAO's expansion and increase collaboration between ESN and CAO.

Initiative 3: Neighbor to Neighbor Solar(N2N).³³ N2N is an ongoing BHP/GBA initiative which provides solar installations for low-income households, with multiple funding sources. GBA selects a local solar installer and manages the process at no cost to the homeowner.

³¹ *Energy-efficiency upgrades for low income households.* Energy Savers Network. (2021, May 24). Retrieved from <https://www.energysaversnetwork.org/>

³² Community Action Opportunities 1 day ago When you're a part of the Life Works program. (2023, March 1). *Programs and services.* Community Action Opportunities. Retrieved from <https://communityactionopportunities.org/>

³³ *Neighbor to neighbor solar.* Blue Horizons Project. (2023, February 15). Retrieved from <https://bluehorizonsproject.com/n2n-solar/#:~:text=Neighbor%20to%20Neighbor%20Solar%20launched,the%20American%20Rescue%20Plan%20Act>

Topic 4: Building Efficiency and Electrification



Certified Green Built Home in Buncombe Count. NC

Initiative 1: Better Buildings Challenge (BBC)³⁴ BBC is a Department of Energy (DOE) initiative that connects building portfolio owners with technical and industry experts to develop cost-effective energy solutions and earn recognition for their efforts. The initiative is targeted at building portfolio owners, but municipalities can also encourage commercial building owners to participate.

Initiative 2: ENERGY STAR Benchmarking (Portfolio Manager)³⁵ ENERGY STAR Portfolio Manager allows building owners to track energy use, target efficiency improvements, compare year-to-year performance, and earn ENERGY STAR certification for high-scoring buildings.

Initiative 3: LEED for Cities.³⁶ LEED for Cities is a program that guides citywide sustainable initiatives regarding natural systems, energy, water, waste, transportation, and quality of life. Like the LEED building ratings, this system looks at sustainability through a holistic lens rather than just energy use. The County could implement this program through development incentives.

Initiative 4: Heat Pump Water Heater (HPWH) Promotion & Bulk Buying. HPWH technology reduces energy use by up to 75% versus standard electric or gas water heating.³⁷ This program would accelerate HPWH adoption through a bulk buying program. BHP would take the role of lead implementor and staffing would be required to identify participating plumbers, market the program, channel clients to contractors, and promote HPWH technology.

³⁴ *Better Buildings Challenge*. Department of Energy Better Buildings Challenge | Better Buildings Initiative. (n.d.). Retrieved from <https://betterbuildingsolutioncenter.energy.gov/challenge>

³⁵ *Benchmark your building using energy star® portfolio manager®*. ENERGY STAR. (n.d.). Retrieved from <https://www.energystar.gov/buildings/benchmark>

³⁶ *LEED for cities and Communities*. LEED for Cities and Communities | U.S. Green Building Council. (n.d.). Retrieved from <https://www.usgbc.org/leed/rating-systems/leed-for-cities-communities>

³⁷ ENERGY STAR. (n.d.). *Product finder - energy star certified water heaters*. ENERGY STAR Certified Water Heaters | EPA ENERGY STAR. <https://www.energystar.gov/productfinder/product/certified-water-heaters/results>

Initiative 5: Electrify HVAC (Heating Ventilation and Cooling) Systems. Heating systems are responsible for the most direct fossil fuel use in residential and commercial buildings. This program would promote using heat pumps in new construction and converting existing systems to heat pumps by publicizing the IRA incentives and educating contractors on heat pump technology benefits. On average, heating systems last about 15 years, so about 7% of all heating systems are upgraded each year, and the initiative would focus on these upgrades.³⁸

Initiative 6: Moderate Income Energy Upgrades and Consultations. This initiative is an expansion of the existing BHP Home Energy Chats community outreach program that helps residents answer the question: what can I do at MY house? This program would also invest in static web resources or referral services, which promote IRA incentives and Duke rebates. It would be similar to other successful programs, such as the one developed at NYSERDA³⁹.

Initiative 7: Planning Department Education for Applicants for New Construction and Major Remodels. Educating residents and developers could be very valuable for encouraging building and remodeling practices that increase energy efficiency, money savings, and resiliency. This educational programming could include a checklist (e.g., Green Built Homes⁴⁰ or ENERGY STAR) or other resources and recommendations, including relevant incentives and rebates.

Initiative 8: Expand Duke Multifamily Retrofit and Demand Side Management (DSM) Program (PowerShare).⁴¹ Expand utilization of Duke's DSM programs like PowerShare or Energywise, particularly in multifamily new construction. Participation requires landlord/owner sign-off, a barrier for renters. Participation is incentivized with an annual bill credit. By pre-installing devices and pre-enrolling new apartments, the barrier to renters can be eliminated.⁴²

Initiative 9: Expand Duke Energy Small Business Energy Saver Program.⁴³ Duke Energy's ongoing Small Business Energy Saver Program helps front the cost of energy efficiency upgrades. It includes recommendations based on a free energy assessment and credits toward up to 80% of selected improvements. This program should be expanded to target businesses that may fall outside of Duke's definition of "small businesses," such as minority or woman owned businesses. BHP should also use marketing and incentivization to increase participation.

³⁸ *When is it time to replace?* ENERGY STAR. (n.d.). Retrieved from https://www.energystar.gov/campaign/heating_cooling/replace

³⁹ *Home Energy Efficiency Programs.* NYSERDA. (n.d.). Retrieved from <https://www.nysesda.ny.gov/All-Programs/home-energy-efficiency-upgrades>

⁴⁰ *Green built homes: Green Built Alliance: Asheville, NC.* Green Built Alliance. (2023, January 3). Retrieved from <https://www.greenbuilt.org/programs/green-built-homes-2/>

⁴¹ *PowerShare - Business.* Duke Energy. (n.d.). Retrieved from <https://www.duke-energy.com/business/products/powershare?jur=IN01>

⁴² *Energywise Home.* Duke Energy. (n.d.). Retrieved from <https://www.duke-energy.com/home/products/energywise-home>

⁴³ *Small business energy saver - business.* Duke Energy. (n.d.). Retrieved from <https://www.duke-energy.com/business/products/small-business-energy-saver>

Topic 5: Transportation



Electric School Bus - Land of Sky event

Transportation is the largest source of GHGs in North Carolina² and energy use in Buncombe County. We must reduce vehicle miles traveled (VMT) and electrify transportation (other than aviation and long-distance trucking fuels, which will likely require renewable fuels, as discussed in APPENDIX C).

Initiative 1: Electrification of Public and Private Fleets. To encourage the conversion of fleets to electric vehicles (EVs), BHP can provide compelling cost-benefit analyses and case studies. While Asheville and Buncombe County face challenging geography and limited EV charging infrastructure, many fleets can benefit environmentally and economically through electrification. Transitioning to EV fleets will provide immense benefits.

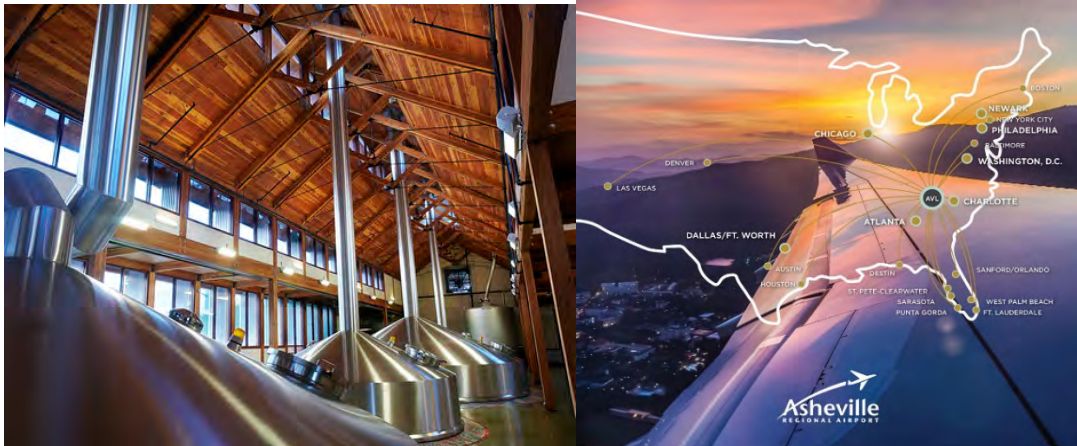
Initiative 2: Adoption of Electric Vehicles (EVs). The switch from internal combustion engines to EVs is a giant leap for most buyers, largely due to lack of information. Elevating awareness of EV benefits will increase EV adoption among individuals and businesses.

Initiative 3: Promote Expanded EV Charging Infrastructure. Much resistance to EVs is based on a perceived lack of charging infrastructure. Continuing to expand that infrastructure is critical. To address the need for Level 2 charging at workplaces and multifamily developments, the City and County should require these buildings to include EV chargers and allow EV owners to use existing 110v plugs. If mandates cannot be implemented, incentives should be provided.

Initiative 4: Reduce Vehicle Miles Traveled (VMT) Per Capita. VMT per capita is a vital metric for discussion of sustainable transportation. Strategic infrastructure for alternatives to driving, like bike lanes, transit, increased ridership, and high-density housing, will reduce VMT.

Initiative 5: Increasing Walkable Communities and Workplaces. Replacing car use with walking and biking can aid our energy goals and save money on fuel, parking, and car ownership. Our community can add greenways and bike paths along commuter routes, support high density, affordable housing on commuting paths, and offer financial rewards to green commuters and employers. Comprehensive planning now will make these future pathways possible.

Topic 6: Large Energy Users



New Belgium Brewing (Right), AVL Flight Map (Left). Photo from Explore Asheville - AVL⁴⁴

The commercial and industrial sectors comprise about 39% of total energy use in Buncombe County — 17.2% and 20.6% respectively (see Table 2, Appendix A). Many of the initiatives in topics 1-5 apply to energy use in these sectors, but there are areas of energy use not covered by these initiatives, especially electrification in industrial processes. Furthermore, some businesses or industries are large enough to benefit from a targeted, holistic approach.

Therefore, BHPCC should cultivate relationships with large energy users, as well as trade associations, to encourage voluntary electrification and renewable energy alternatives. Candidate large energy users for such future initiatives might include one or more of the following: Mission Hospital, Biltmore Estate, the Asheville Regional Airport, the brewery industry, the hotel/tourism sector, Pratt and Whitney, continuing care retirement communities (Deerfield or Givens estates), Asheville Mall, and Ingles markets and other retailers. BHP could host presentations to the Chamber of Commerce, the Tourism and Development Authority, Asheville Independent Restaurant Association, and Asheville Brewers Alliance to keep members and affiliates up to date on the latest incentives in the IRA and the best available technologies.

Such initiatives would continue the past and ongoing work of the Technology Committee, including discussions with Pratt and Whitney, presentations at Deerfield on geothermal heat pumps, and a proposed pilot project demonstrating the use of heat pumps in brewing. There could be significant opportunities, for example, to follow the lead of other airports and engage in a joint project with the Airport Regional Authority, given that the City of Asheville and Buncombe County are on their governing board (see discussion in Appendix C).

The BHPCC should actively seek new initiatives in partnership with large energy users and business-oriented groups. BHP would need additional resources and initiative champions to

⁴⁴ AVL Explore Asheville. (2023). Explore Asheville. Retrieved from <https://www.exploreasheville.com/meeting-planners/asheville-regional-airport-2023-news/>.

develop and maintain strategic relationships with the commercial sector. The ombudsman proposed in the policy section could be helpful to large energy users. Commercial and industrial partners of BHP could be part of co-branded marketing meant to celebrate and build momentum around green businesses.

Prioritizing the Initiatives

In principle, BHP supports all efforts towards our renewable energy goal. However, to translate a plan into action we must set priorities, and the strategic planning team engaged the BHPCC, BIPOC-led equity focus group, various committees, subject matter experts, and the community to study and rank initiatives. The knowledge and experience of over 100 community members and experts went into the assessment of these initiatives.

The prioritization process analyzed each initiative for feasibility, scale of impact, equity impacts, and cost versus benefit (explanations of ranking criteria can be found in APPENDIX D), selected the initiatives that scored highest, and then added several others which either had high equity ratings or were ongoing. A detailed analysis of initiative prioritization is presented in APPENDIX B and the top initiatives, selected for near-term prioritization, are shown below.

Figure 9 - Whole Systems Approach - Initiatives to Pursue



The identification of potential initiatives began in 2021 and continues to incorporate new and emerging data, studies, and technologies. This input included a BHPCC meeting in June 2023 devoted to considering the rankings and providing additional input to the Plan. The landscape is rapidly evolving, and there undoubtedly should be more initiatives added in the future.

Policy Changes



Buncombe County Court House and Asheville City Hall. ⁴⁵

Energy policies at local, state, and federal levels will have a huge impact on our ability to transition the community to 100% renewable energy. The "Moving to 100 Report" estimated that its list of state policy changes would achieve about 35% of the total renewable energy goal, far outdistancing the other individual strategies. Local decisionmakers can shape incentives for voluntary adoption of renewable energy (RE), energy efficiency (EE), and electrification, closing the gap between state requirements and the 100% renewable energy goal.

Recent policy changes have created a much more favorable environment for achieving the renewable energy goals. The passage of H951 in NC codifies a much greater percentage of carbon free and renewable energy that Buncombe County will be importing from Duke Energy’s resource mix by 2042 and aims for zero carbon emissions by 2050. This increase in renewable energy from Duke is vastly different from the projections used to develop the “Moving to 100 Report.” Additionally, the federal Inflation Reduction Act (IRA) creates an unprecedented level of new funding and incentives for renewable energy transition and energy efficiency. Nevertheless, most analysts believe that these are still not sufficient to reach the national and state decarbonization goals by 2050, let alone Asheville and Buncombe County’s community-wide 100% renewable energy goal by 2042. Additional policy changes are needed.

⁴⁵ Buncombe County Court House and Asheville City Hall. (2023). Lavilo. Retrieved from <https://lavilo.com/travel-book/asheville-city-hall>.

Below are BHPCC's policy recommendations that will propel us toward our 100% renewable energy goal. APPENDIX H details the feasibility, impact, equity, and cost benefits of these and other policy changes. Voluntary local programs are the most feasible and actionable way we can push beyond the state decarbonization standards to meet the 2042 deadline.

Policy Initiative 1: Incentives for green development. Buncombe County and the City of Asheville are limited by state law in their ability to regulate new development. The main policy leverage available is to provide incentives for developers who electrify, include renewable energy, provide EV charging, and build energy efficient structures.

First, the Buncombe County Commission and the City of Asheville should create a tax rebate grant for new construction that encourages green building, renewable energy generation, fully electric utilities, and EV infrastructure, similar to the affordable housing Land Use Incentive Grant in the City of Asheville. There should be incentives for both small-scale housing and multi-family housing. In addition, green building, renewable energy generation, and electrification components should be added to existing economic development incentives.

Additional opportunities to incorporate incentives in the City of Asheville include:

- Updating the Hotel Overlay map with green incentives and using a similar process for multi-family housing incentives
- Creating community benefits incentive table for multi-family housing projects
- Creating a small developer and/or single-family home incentive/grant for green building, renewable energy, and electrification
- Pre-enroll Conditional Zoning applicants in the Duke EnergyWise program

The incentives for these programs may include expedited approvals process, assistance navigating state and federal financial incentive funding programs where IRA is not available, and a tax rebate grant program for capital expenditures that help meet the 100% renewable energy goal. These tweaks to our economic/development policies should be considered "low-hanging fruit," with high feasibility, favorable cost benefit ratio, and potentially quick timeline.

Policy Initiative 2: Permitting and inspections improvements for cost savings and efficiencies. Review the process for permitting and inspections for both the City and the County and make recommendations for efficiencies and cost savings. A specific delivery date with the results should be requested. Expedited and lower cost procedures should be developed for key technologies needed for the transition to renewable energy, including heat pump water heaters, heat pump HVAC, solar, battery storage, EV charging, and electric induction ranges.

Policy Initiative 3: Establish liaison/ombudsman staff position(s) at City and County for developers and residents to navigate the permitting process for the above technologies. The

City and County need dedicated staff to achieve 100% renewable energy. This public-facing position would advocate for speed and cost reductions for builders and installers.

Policy Initiative 4: Create a financing structure to further the energy transition. One of the major barriers to energy system changes is that the costs tend to be up-front (capital), but the benefits occur based on fuel cost savings. Access to and cost of capital are major issues. This effort would improve community access to financing through the NC Clean Energy Fund (thereby leveraging funding through the IRA) and other sources. This effort could include providing contractors, residents, and organizations with access to capital on a preferential basis, including through Community Development Financial Institutions (CDFIs).

As previously mentioned, state and federal policies have an immense impact on our community's ability to meet the 100% renewable energy goal. As such, the BHP should engage in organizing community advocacy for state and federal policy and legislative changes by:

- Mobilizing support through emails lists and text alerts.
- Engaging in advocacy days.
- Writing letters to the editor.
- Teaming up with City and County lobbyists, attorneys, and sustainability staff to advocate.
- Utilizing media to formally endorse policies/legislative changes.
- Organizing allied NGOs and businesses to do policy advocacy.

Policy changes to support:

State policies:

- Speeding the H951 goal for 100% carbon free for Duke by 2050 to match our goal for 2042
- Strengthening building codes to mandate electrification and EV charging
- Enhancing third-party ownership regulations to allow power purchase agreements (PPAs)
- Provisions to make community solar programs feasible

Federal policies:

- Establishing a steadily increasing national carbon fee with revenues rebated to the public
- Legislation to reform the permitting process for large transmission projects including automated permitting so as to speed up renewable energy projects and reduce the intermittency problems of renewable resources
- Declaration of a Climate State of Emergency

Community Engagement



Green Built Alliance and Blue Horizons Project community engagement - Tabling

Why Community Engagement?

The Community Engagement Plan highlights initiatives internal to BHP staff, volunteers, and partners for promoting and implementing the full Strategic Plan. Community engagement is already ingrained in each individual initiative and policy; therefore, these actions will be used to support the success of the entire Strategic Plan. The Community Engagement Committee will continue to serve as a resource for the BHP Community Council (BHPCC) and its subcommittees, sharing best practices and providing guidance as needed.

Community engagement with Buncombe County residents, community groups, and businesses is critical to achieving the county’s goal and transitioning to 100% renewable energy by 2042. The Blue Horizons Project (BHP) was created to enlist the support of the entire community and provide easy access to resources, allowing everyone to be a part of creating a clean energy future. For further details and to view the community engagement plan see APPENDIX G.

Part Four: Next Steps for Success



Celebration - ESN Volunteer Appreciation Party

‘What Can You Do?’

Our key finding that our entire community can participate in this effort for 100% renewable energy deserves greatest emphasis. Every person, business, or organization in Buncombe County can contribute to the solution. Doing our part not only benefits the climate at large, but our immediate neighbors. Figures 10 and 11 show some of the main ways the members of our community can help achieve our shared dream of 100% renewable energy.

Figure 10 - What Can You Do - Residents

WHAT CAN YOU DO?

You can lower your energy bills and improve home air quality while participating in our 100% renewable energy goal for a more sustainable, equitable future in Buncombe County. Here are some opportunities to take advantage of:



ELECTRIFY EVERYTHING

- Switch your appliances from fossil fuels to electric (heat pump hot water heater, heat pump HVAC, induction stove, etc.).
- Upgrade to an electric or hybrid vehicle.
- Depending on your income you may qualify for upfront rebates and/or tax credits - you might even be able to get some appliances for FREE!



EMBRACE EFFICIENCY

- Get a home energy audit or utilize Duke Energy's Home Energy House Call
- Several income-dependent programs offer FREE home energy upgrades and/or consultations, even if you rent! These could include weatherization, changing bulbs to LEDs, heat pump HVAC systems, free solar array, and more.
- If you do not meet the requirements to have these done in your home for free, there are big tax credits that can reduce upfront costs.
- Volunteer or donate to help others in your community through programs like Energy Savers Network.



GREEN THE GRID

- Add solar to your home.
- Participate in Duke's EnergyWise and/or Renewable Advantage program.



LIVE MINDFULLY

- Reduce car trips: walk, bike, or take the bus whenever possible.
- Live more simply - only buy things you truly need, and consider how they are made, what they are made of, and the effects of shipping.
- Make lifestyle changes like air drying clothes, washing clothes with cold water, driving the speed limit, turning down the thermostat, etc.

CHARTING THE COURSE FOR CLEAN ENERGY TOGETHER

Figure 11 - What Can You Do – Businesses

WHAT CAN YOUR BUSINESS DO?

Your business can lower its bills and improve air quality while participating in our 100% renewable energy goal for a more sustainable, equitable future in Buncombe County. Here are some opportunities to take advantage of:



ELECTRIFY EVERYTHING

- Switch from fossil fuels to electricity for anything and everything that you can (new hot water heater/s, heat pump for HVAC, electric vehicle (EV) fleets).
- Tax credits are available to help with electrification.
- Add workplace EV charging for your employees.
- Landlords and developers should move to make new construction and existing homes all-electric and add EV charging.



EMBRACE EFFICIENCY

- Take part in ENERGY STAR benchmarking (Portfolio Manager) to reduce your energy use and save on overhead costs.
- Get a free energy audit and guidance on how to improve efficiency from Waste Reduction Partners.



GREEN THE GRID

- Add solar to your business, or offset your energy usage through Appalachian Offsets or Dukes Green Source Advantage or Renewable Advantage programs.
- Consider adding batteries and/or creating a microgrid, which can save you money and keep your business powered during an outage.



TAKE ADVANTAGE OF THE DUKE ENERGY SMALL BUSINESS ENERGY SAVER PROGRAM TO RECEIVE:

- A free energy assessment from an approved contractor.
- Free recommendations for ways to improve your energy efficiency based on the assessment.
- Duke includes turnkey installation through contractors and pays up to 80% of selected improvements upfront.

CHARTING THE COURSE FOR CLEAN ENERGY TOGETHER

What Next?

The BHP and community must go beyond menus of initiatives, policy changes, and community engagement activities to dramatically increase the pace of action and launch a full-scale implementation, consistent with the speed we need to achieve our 100% renewable energy goal by 2042. The BHP should marshal existing staff, funding, and volunteer engagement to strengthen ongoing initiatives, start new initiatives, support policy changes, raise funds, build a bigger community workforce, recruit and engage volunteers, and engage the community.

Pursue High Priority Initiatives

The Green Built Alliance staff who serve the BHP are funded by the City and County as well as grants and donations, and are fully engaged in assisting the BHPCC, performing community engagement work, writing this Strategic Plan, and operating ongoing initiatives like Energy Savers Network, Appalachian Offsets, and Neighbor-to-Neighbor Solar. These are examples of BHP taking the **lead** role, meaning that BHP staff have primary responsibility for the success of the initiative.

For some initiatives, other organizations — governmental, non-profit, or business, may be better equipped to be in the lead, or may already be engaged in efforts to do so. Instead of being in the lead role, BHP can be in **active support** of such initiatives, leveraging the volunteer capacity of the BHPCC. For example, the Transportation Committee has recognized that other NGOs in the region, such as Land of Sky, are actively engaged in making transportation more efficient. BHPCC volunteers on the Transportation Committee are engaged with Land of Sky to support their efforts, ultimately in support of the 100% renewable energy goal. However, over time, BHP's role in all initiatives may continue to shift in response to changes in staff and funding.

The BHP will welcome and encourage champions for initiatives that do not yet have dedicated staff. These volunteer champions may be supported by a staff liaison as the idea gains traction. Champions will seek to define the initiative, present the business case to the BHPCC, and lobby for the effort both inside and outside of the BHPCC. The initiative may start as a pilot: funds can be raised, partners found, and if the team is successful, dedicated staff can be employed. BHPCC should continue to refine this model and provide support where possible.

BHPCC envisions a community-wide flourishing of initiatives and supports all community activities to move toward 100% renewable energy. BHPCC will consider, and integrate into the Plan, other ideas for policies or initiatives if a champion has come forward to lead the project.

The Strategic Plan committee considered over 75 potential initiatives and analyzed those that seemed most promising for feasibility, scale of impact, equity impact, and cost versus benefit. Using a simple numerical scoring system, the team prioritized the initiatives by overall point score. To create a list for BHPCC priorities, the team selected the highest-prioritized

initiatives as well as four additional ones: (1) Neighbor-to-Neighbor Solar, an existing program with high equity impact; (2) Community Solar and Storage, an initiative with a high equity impact; (3) Floatovoltaics, a program with ongoing momentum championed by a BHPCC member, and (4) Appalachian Offsets, an ongoing program of GBA.

This Plan suggests initial priorities based on a limited analysis without detailed cost-benefit information and recognizes that more extensive analysis will be beneficial before funds or significant staff time are committed for a project. Once new initiative efforts have a champion, a plan, and BHPCC support, more detailed cost-benefit and budget analysis will be required.

The recommendation of this Strategic Plan is that BHPCC move forward with this list of initiatives, detailed below, along with associated community engagement activities. For seven of these initiatives, BHP would be in the lead role and for the remaining eleven, BHP would provide active support. Next steps may include further scrutiny, finding a champion, increasing scale, or beginning implementation, depending on the initiative's current status. The recommended initiatives and timelines are outlined as follows:

Overall Initiatives to Pursue

Initiatives are ordered by BHP role and then by time frame.

Table 1 - Next Steps – Initiatives to Pursue – with BHP Role, Timeline, Leading Org., and Funding

Initiatives	BHP Role	Timeline	Potential Lead Org(s).	Potential Funding Source
Neighbor to Neighbor Solar*	Lead	Ongoing	GBA/BHP	ARPA Funding
Energy Savers Network*	Lead	Ongoing	GBA/ESN	City/County/Dogwood Funding
Appalachian Offsets*	Lead	Ongoing	GBA	
Heat Pump Water Heater Promotion & Bulk Buying	Lead	Near-Term	GBA/BHP	DOE Energy Futures
Solarize — Bulk Buying	Lead	Near-Term	GBA/BHP	City/County, Green Bank, Homeowners
Electrify HVAC Systems	Lead	Near to Medium-Term	GBA/BHP and City/County	DOE Energy Futures
Moderate Income Energy Upgrades and Consultations*	Lead	Near to Medium-Term	GBA/BHP	City / County
Community Action Opportunities (CAO)*	Support+	Ongoing	CAO/ESN	WAP Funding
Floatovoltaics	Support+	Ongoing	County	
Increasing Walkable Communities and Workplaces	Support+	Near-Term, Ongoing	City/County, MPO, Asheville on Bikes	
Electrification of Fleets and Adoption of Electric Vehicles	Support+	Near – Term, Ongoing	LOSCVC, MPO, City/County	IRA, City/County
Expand Duke Multifamily Retrofit and DSM program*	Support+	Near-Term	Duke, BHP to promote	Duke
Expand Duke Small Business Energy Saver Program*	Support+	Near-Term	Duke, BHP to promote	Duke
Microgrids	Support+	Near to Medium-Term	Critical Services Microgrid Group	
Promote Expanded EV Charging Infrastructure	Support+	Near to Medium-Term	Land of Sky	VW settlement
Agrivoltaics	Support+	Near to Long-Term	Critical Services Microgrid Group, WWC	
Reduce Vehicle Miles Traveled Per Capita	Support+	Medium-Term	City/County Comp Plans, Land of Sky, Asheville on Bikes	Federal and state funding
Community Solar + Storage	Support+	Medium-Term	Duke, NCSP (Solomon/Arcadia)	IRA

Note: * Indicates an initiative that is currently active.

Support+ means active engagement in support.

Advocate for Government Policies to Speed the Transition

Policies at the local, state, and federal levels have an immense impact on our 100% renewable energy goals, as well as our equity and social justice goals. As such, BHP should encourage policies that align with our goals and support the efforts to achieve them. We recommend four local policies be implemented:

- 1. Land use incentive grants for green development at both the City and County
- 2. Permitting and inspections improvements for cost savings and efficiencies
- 3. Establishing staff position(s) at City and County to provide a liaison/ombudsman for developers and others to navigate and accelerate the permitting process for energy efficiency and electrification technologies
- 4. Create a financing structure to further the energy transition.

At the state and federal level, the Blue Horizons Project (BHP) should also engage in organizing advocacy and community engagement for policy and legislative change.

Engage the Community

Community engagement is critical to all aspects of this Plan. This Strategic Plan recognizes that importance and recommends that the BHPCC and its members continue and enhance these efforts. All other aspects of the Plan will be amplified by increasing community excitement, involvement, collaboration and ownership of the 100% renewable energy goal and the programs needed to achieve that goal.

Develop the Workforce

Significant workforce development will need to occur in key areas as the transition to renewable energy takes place. The three technical pathways (energy efficiency, electrification, and greening the grid) and the related initiatives will all require an educated, skilled, and knowledgeable workforce. There is currently a shortage of such professionals, and this shortage is likely to worsen due to IRA incentives and the regional push for renewable energy. The IRA includes billions of funding dollars for projects that support renewable energy goals and fight the climate crisis, but those projects are dependent on workers who can execute the projects and maintain the equipment. We will need more electricians for upgrading the grid, installing solar panels, and building out EV infrastructure, and HVAC contractors and plumbers for installation of

heat pumps, ground source heating and cooling, heat pump water heaters, and other technology essential to the success of transitioning to renewable energy.⁴⁶

Workforce development is not just critical for the timely transition to renewable energy, but for the local economy and community. These jobs pay well above the local prevailing wage⁴⁷ and our community needs well-paying jobs as cost of living in Buncombe County continues to rise. The cost of living increased by 13.5% from 2021 to 2022 and rental rates are the highest in North Carolina, despite lower wages than other metropolitan areas in the state.⁴⁸ Training new tradespeople is especially important in the near-term, as roughly 25% of industry professionals are 55 or older and likely to retire soon, exacerbating the shortage.⁴⁹ ⁵⁰ Rewiring America estimates that 1 million more electricians will be needed nationally to meet the country's energy goals.⁵¹

This current and pending shortage is a true opportunity to improve the wellbeing of Buncombe County's residents while also meeting our renewable energy goals. BHP and/or the City and County should pursue partnerships with local trades unions, regional contractor associations, the North Carolina State Board of Examiners, as well as local educational institutions like AB Tech and UNCA, to expand apprenticeship programs.

Special attention should be given to training and employing women and individuals from BIPOC communities. Currently, women and BIPOC communities are vastly underrepresented in trades overall.⁵² This opportunity is not only beneficial, but essential, to closing that gap and making meaningful progress towards both equity and renewable energy. The BHPCC should take tangible steps to support these and other workforce development activities.

Raise the Funding Needed

The BHPCC will need to continue seeking funding for initiatives and community engagement activities. This funding may come from market investments, philanthropy, federal, state, and local governments, businesses, homeowners, car buyers, and utility companies. While it is currently beyond the capacity of BHPCC to exactly quantify the financial investment needed, the

⁴⁶ Owen, D. (2023, April 24). *The Great Electrician Shortage*. The New Yorker. <https://www.newyorker.com/news/dept-of-energy/the-great-electrician-shortage>

⁴⁷ *The Federal Register*. Federal Register :: Request Access. (2022, November 30). <https://www.federalregister.gov/documents/2022/11/30/2022-26108/prevailing-wage-and-apprenticeship-initial-guidance-under-section-45b6bii-and-other-substantially>

⁴⁸ Mackenzie, H. (2023, March 2). *Buncombe County "living wage rate" jumps 13.5% to \$20.10*. WLOS. [https://wlos.com/news/local/buncombe-county-living-wage-rate-jumps-135-to-2010-just-economics-of-western-north-carolina-executive-director-vicki-meath#:~:text=ASHEVILLE%2C%20N.C.%20\(WLOS\)%20%E2%80%94,%242.40%20over%20last%20year's%20number.](https://wlos.com/news/local/buncombe-county-living-wage-rate-jumps-135-to-2010-just-economics-of-western-north-carolina-executive-director-vicki-meath#:~:text=ASHEVILLE%2C%20N.C.%20(WLOS)%20%E2%80%94,%242.40%20over%20last%20year's%20number.)

⁴⁹ Owen, D. (2023, April 24). *The Great Electrician Shortage*. The New Yorker. <https://www.newyorker.com/news/dept-of-energy/the-great-electrician-shortage>

⁵⁰ Pontecorvo, E. (2023, January 12). *To get off Fossil Fuels, America is going to need a lot more electricians*. Grist. <https://grist.org/energy/electrician-shortage-electrify-everything-climate-infrastructure-labor/>

⁵¹ *Jobs report*. Rewiring America. (n.d.). <https://www.rewiringamerica.org/policy/jobs-report>

⁵² Guardian News and Media. (2023, April 20). *The US needs 1m more electricians to hit climate goals. can it recruit more women?*. The Guardian. https://www.theguardian.com/environment/2023/apr/20/us-electricians-shortage-recruit-women?CMP=Share_AndroidApp_Other

following opportunities should be pursued for maximum investment in the 100% renewable energy goal through policies, technologies, projects, programs, and behavioral changes.

- **Local government funding** — Continued and expanded support from Buncombe County and the City of Asheville are integral to this Plan. Local government funding has provided the baseline of support to get this effort off the ground.
- **Utility Funding** — Duke Energy provides funding for some energy efficiency programs. The company has also made investments in local photovoltaics (PV) and storage.
- **Foundations** — While foundations will likely be a small part of the funding, they can help support program implementation through nonprofits like Green Built Alliance (GBA).
- **Federal Government Funding** — the Bipartisan Infrastructure Law and Inflation Reduction Act (IRA) both include funding and tax incentives for installing PV, Electric Vehicle (EV) charging stations, EVs, heat pumps, heat pump water heaters, etc. Promoting this funding to our community can ensure that we receive the greatest possible allocation of these resources. APPENDIX E details the major components and benefits of the IRA for our goal.
- **Financial Institutions** - Green Bank-Loans, and other financial services for residential, commercial, and industry projects will increase adoption of renewable technologies
- **Private Donors** — In the next 10-20 years, an unprecedented transition of US wealth will occur as middle- and upper-class individuals pass their wealth to families and causes they care about.⁵³ BHP should motivate private donors to support the clean energy transition.
- **Individuals and Businesses** — Perhaps the greatest source of funding will come from individuals and businesses investing in energy efficiency, electrification, and renewable energy. BHP should encourage and incentivize these private investments.

Conclusion

Buncombe County has committed to a community-wide goal of 100% renewable energy by 2042. This Strategic Plan identifies the essential technical pathways of (1) embracing energy efficiency, (2) electrification, and (3) greening the grid, as well as the essential action pathways of (1) initiatives and programs, (2) implementing and supporting policy changes, and (3) community engagement. If these overlapping pathways are integrated into every step and decision made within our community, we believe that Buncombe County can successfully achieve its goal of 100% renewable energy by 2042 in a manner that is just, equitable, and benefits all members of our local, national, and global communities. The time to act is now.

⁵³ Smith, T. J., & Russell, K. (2023, May 14). *The Greatest Wealth Transfer in history is here, with familiar (rich) winners*. The New York Times. <https://www.nytimes.com/2023/05/14/business/economy/wealth-generations.html>

The Appendices for the 100% Renewable Energy by 2042 Strategic Plan can be found in a separate document [available for viewing here](#).