

**BEFORE THE NORTH CAROLINA UTILITIES COMMISSION
DOCKET NO. E-100, SUB 179**

In the matter of:)	CITY OF ASHEVILLE AND
Duke Energy Progress, LLC and Duke Energy)	COUNTY OF BUNCOMBE
Carolinas, LLC 2022 Biennial Integrated)	INITIAL COMMENTS ON
Resource Plans and Carbon Plan)	CARBON PLAN

**CITY OF ASHEVILLE AND BUNCOMBE COUNTY INITIAL COMMENTS ON DUKE
ENERGY CAROLINAS, LLC AND DUKE ENERGY PROGRESS, LLC'S CARBON
PLAN**

Pursuant to the North Carolina Utilities Commission ("Commission") Rule R8-60(k), and the Commission's November 29, 2021 Order Granting Extension of Time, the City of Asheville and Buncombe County, through the undersigned attorneys, respectfully submit the following comments on the Duke Energy Carolinas and Duke Energy Progress 2022 Carbon Plan filed on May 16, 2022. These comments were crafted by City of Asheville Chief Sustainability Officer Bridget Herring and Buncombe County Sustainability Officer Jeremiah LeRoy, in partnership with other North Carolina local governments as a collective effort to advance our renewable energy and greenhouse gas (GHG) reduction goals.

I. INTRODUCTION

In 2017, a community-driven effort resulted in Buncombe County and the City of Asheville setting ambitious renewable energy goals (listed below). These goals are intended to transform the region's energy supply, reflect the community's dedication to environmental and social good, and demonstrate climate leadership within North Carolina. Through the County's and City's shared goals, we embarked on a Renewable Energy Roadmap outlining options to achieve 100% renewable energy for both community and government operations.

Local Government Renewable Energy and GHG Reduction Goals

- The City of Asheville adopted Resolution 18-279 on October 23, 2018 to transition municipal operations to 100% renewable energy by December 31, 2030.
- Buncombe County adopted resolution 17-12-06 on December 5, 2017 as a roadmap to transition County operations to 100% renewable energy by December 31, 2030 and transition all of Buncombe County to 100% renewable energy by December 31, 2042.
- The City of Asheville adopted Resolution 07-90 on April 24, 2007, to reduce municipal GHG emissions by 80% by 2050.
- The City of Asheville adopted Resolution 20-20 on January 28, 2020, declaring a climate emergency and committing to end citywide GHG emissions by 2030 and to phase out fossil fuel power generation and use within the City.

Key findings of the Renewable Energy Roadmap¹ concluded that state and utility-level actions to increase renewable energy in the utility power mix and support renewable energy market development will have the greatest impacts on progress towards the local government and community-wide goals.

The effective implementation of Session Law 2021-165/House Bill 951, including the development and implementation of North Carolina's Carbon Plan, will critically impact our ability to meet our renewable energy and GHG reduction goals; thus, we see the Carbon Plan as a pivotal opportunity to expand our partnership with Duke Energy to create a reliable, affordable, resilient, and equitable system.

In April 2016, Buncombe County and the City of Asheville adopted a joint resolution establishing the Energy Innovation Task Force with Duke Energy Progress. As a result of this partnership, Duke Energy Progress helped our community 1) delay construction of a peaker plant, 2) approve two microgrids — the first utility-scale microgrids in the state, 3) add 19 megawatts (MW) of battery storage — more than anywhere else in North Carolina, 4) create pilot programs for

¹ Renewable Energy Roadmap, available at: <https://drive.google.com/file/d/0BzZzONRPV-VAQTNxU2pVSEJPZTBpZ053Vk52dzk2S2tlWFNz/view>

Buncombe County including fee for service upgrades for low-income families and a cold climate heat pump pilot, 5) execute advanced metering infrastructure in Buncombe County ahead of schedule, 6) and launch the Blue Horizons Project which informs and empowers residents to invest in energy efficiency and renewable energy through existing Duke Energy and local community programs. These are examples of how we have successfully partnered with Duke Energy to advance renewable energy and GHG reduction goals in our region. We look forward to continuing this partnership and ask that the Commission consider the following in crafting the final Carbon Plan:

- The pathways in NCUC's final Carbon Plan should prioritize meeting the 2030 deadline of reducing carbon emissions by 70% compared to 2005 levels.
- Energy efficiency and demand-side management (DSM) programs should be improved to help local governments and other ratepayers address affordability and climate concerns.
- Duke should adopt commercially proven resource generation technologies, including low-cost renewables, and phase out fossil fuels as soon as possible using the following strategies:
 - Retire and replace coal power plants with clean energy portfolios to improve public health outcomes and reduce ratepayer costs.
 - Run an all-source, competitive solicitation to procure all new generation sources and determine the best replacement resources.
 - Increase the renewable energy procurement opportunities available to all customers.
 - Value and encourage the development of distributed energy resources (DERs) and build community resilience through the use of DERs.
 - Prioritize and maximize tested technologies that are commercially viable before banking on unproven technologies that carry high risks for ratepayer dollars.
- Load forecasts should be adjusted to proactively and accurately account for the impact of demand side management DSM programs and technological advances that reduce load as well as increased load that may result from transportation and building electrification.
- Transmission planning should be conducted in conjunction with capacity expansion and jointly with neighboring grids.
- NCUC and Duke should ensure that the Carbon Plan builds upon the years of work stakeholders have invested into processes that led to the creation and passage of S.L. 2021-165/HB951, and that there continues to be a robust and inclusive stakeholder engagement process throughout the implementation, evaluation, and future versions of the Carbon Plan.

II. COMMENTS AND RECOMMENDATIONS

1. THE PATHWAYS IN THE NCUC'S FINAL CARBON PLAN SHOULD PRIORITIZE MEETING THE 2030 DEADLINE OF REDUCING CARBON EMISSIONS BY 70% COMPARED TO 2005 LEVELS.

Based on Duke's proposed Carbon Plan, only one of four included pathways achieves the 2030 emission reduction target of 70% below 2005 levels as mandated in S.L 2021-165/HB951. Given that local governments are constrained by the available energy generation mix at the utility level, a Carbon Plan that allows Duke to push the compliance date by multiple years would seriously reduce the likelihood of Buncombe County and the City of Asheville in meeting our climate targets. Buncombe County and the City of Asheville are committed to utilize public dollars, responsibly and efficiently, to meet the climate goals set by our community and elected officials. In addition to increased emissions in the near term, delays in implementation will result in increased cost for both our municipalities and the utilities due to inflation and other factors. Meeting the statewide carbon emissions reduction 2030 goal will also have co-benefits for public health and air quality.

We appreciate that the Carbon Plan begins to address our long-term renewable energy goals and GHG emission reduction goals and hope to be engaged partners as the NCUC determines the best ways to achieve a 70% emissions reduction by 2030 and carbon neutrality by 2050. Due to the urgency of the climate crisis and the implications to the health and well-being of the constituents we serve, it is imperative that the 2030 target be met.

2. ENERGY EFFICIENCY AND DEMAND SIDE MANAGEMENT (DSM) PROGRAMS SHOULD BE IMPROVED TO HELP LOCAL GOVERNMENTS AND OTHER RATEPAYERS ADDRESS AFFORDABILITY AND CLIMATE CONCERNS.

Energy Efficiency (EE) and Demand-side Management (DSM) programs are not only highly effective and cost-competitive grid resources, but can also tangibly benefit North Carolinians by lowering customer energy bills and decreasing energy burden. Buncombe County and the City of Asheville have spent the last five years partnering with Duke Energy and local community partners to invest in EE and DSM programs throughout our community and have witnessed how these programs both reduce emissions and save customers money. We also know that our residents^{[1][2]} that spend 6% or more of their income on electricity bills are disproportionately low-income, Black and Hispanic households and higher costs are often due to factors like insufficient insulation, poor weatherization, older appliances, and an inability to access newer energy-efficient upgrades². Accordingly, the development of EE programs could—and should—have significant equity impacts. The Carbon Plan should enable increased access to EE for low-income residents through both qualification criteria and increased collaboration with local governments around the state, including leveraging relationships with existing community-based organizations.

Through this expanded collaboration, Buncombe County and the City of Asheville believe that Duke Energy can and should achieve energy savings above and beyond 1.0% of full annual retail load. Despite the relatively high per capita energy consumption of North Carolinians, the plan's target is significantly below the performance of many states and just barely meets the national average of states that have energy efficiency resource standards (EERS)³.

Buncombe County and the City of Asheville commend Duke Energy's efforts to modify the cost-effectiveness test, develop an on-tariff financing pilot, and engage stakeholders to improve EE measures and programs through the EE/DSM Collaborative and the Low-Income Affordability Collaborative. However, Duke's Market Potential Study (MPS) underestimated cost-effective EE and DSM as it failed to consider rapidly changing technologies. Instead, Program Potential inputs are based on historical program participation data. As a result, the MPS does not find cost-effective savings available for heating, ventilation, and air conditioning (HVAC) measures, although research shows that heat pumps and heat pump water heaters (HPWH) are two of the highest potential efficiency opportunities in North Carolina⁴. We suggest that Duke consider new or enhanced customer engagement strategies, including increased collaboration with local

² Dreihobl, Ariel, Lauren Ross, and Roxana Ayala. 2020. How High Are Household Energy Burdens? Washington, D.C.: American Council for an Energy- Efficient Economy. <https://www.aceee.org/research-report/u2006>

³ According to the [2021 State Energy Efficiency Scorecard](#) from the American Council for an Energy-Efficient Economy (ACEEE), North Carolina's 2020 net incremental savings (MWh) is 0.55% of 2020 retail sales, ranking 29th among all states

⁴ Electricity EE supply curve for single-family detached housing stock in North Carolina. Source: Wilson et al. 2017

governments and community partners as we have been successful through the Blue Horizons Project[3][4] in Buncombe County. We recommend that Duke update its analysis methods to fully value the contribution of EE programs and factor in technology advancement, critical tools like on-bill financing, enhanced marketing, and program targeting to accurately evaluate program cost-effectiveness and potential based on suggestions included in the NC Energy Regulatory Process (NERP) report and the NC Energy Efficiency Roadmap.

We have witnessed the benefit of partnering with our utility and community partners in the design, development and implementation of EE and DSM programs to North Carolina businesses and residents in multiple ways, increasing the uptake and success of utility programs through local networks and targeted outreach and supporting low-income weatherization. Accordingly, we look forward to continued collaboration with and support of Duke Energy in the design and implementation of cost-effective EE and DSM measures, especially ones that target low- and moderate-income (LMI) communities.

3. DUKE ENERGY SHOULD ADOPT COMMERCIALLY PROVEN RESOURCE GENERATION TECHNOLOGIES, INCLUDING LOW-COST RENEWABLES, AND PHASE OUT FOSSIL FUELS AS SOON AS POSSIBLE USING THE FOLLOWING STRATEGIES:
 - a. RETIRE AND REPLACE COAL POWERED PLANTS WITH CLEAN ENERGY PORTFOLIOS TO IMPROVE PUBLIC HEALTH OUTCOMES AND REDUCE RATEPAYER COSTS.

In all of the proposed scenarios, more than 4 gigawatts (GW) of coal would remain online past 2030. In contrast, Energy Innovation has concluded that it would be cheaper to build new wind and solar plants than to continue operating the coal plants in Duke's fleet⁵. The longer these coal plants remain online past their economic life, the more costs customers incur and the more they negatively impact public health, the economy, and the climate.

Duke has also included more than 3 GW of new natural gas by 2035 in all four scenarios to replace retired coal and meet increasing electricity load. In addition to this being incompatible with North Carolina's decarbonization goals, it doesn't seem to be a prudent economic decision. A recent report found that clean energy portfolios—combinations of renewable energy, efficiency, demand response, and battery storage—are cheaper than more than 80 percent of gas plants proposed to enter service by 2030⁶.

⁵ Energy Innovation. Coal Cost Crossover 2.0 Dataset. May 2021, available at <https://energyinnovation.org/publication/the-coal-cost-crossover-2021/>

⁶ Dyson, Mark, Grant Glazer, and Charles Teplin. The Growing Market for Clean Energy Portfolios + Prospects for Gas Pipelines in the Era of Clean Energy. 2019. <https://rmi.org/insight/clean-energy-portfolios-pipelines-and-plants>

While fossil fuels like gas and coal are expensive and volatile (especially with the recent jump in natural gas prices⁷), costs of renewables and battery storage have consistently fallen faster than expected over the past few years. Even after accounting for the impacts of the circumvention investigation and inflation, the levelized cost of existing natural gas-fired generation is up 63% in the last year compared to 16% for new solar⁸. NextEra recently announced that its Florida Power & Light subsidiary will add 92 GW new solar and 50 GW new battery storage capacity and achieve zero carbon emissions by 2045 without increasing customer bills.

An increasing number of utilities have been canceling proposed gas plants before construction - one study found that over 50% of proposed gas plants were canceled over the past two years⁹. For example, the New Mexico Public Regulation Commission approved a 100 percent renewable plus storage replacement for San Juan coal capacity as the solar-plus-storage option out-competed gas additions.

The cost-effectiveness of renewables can be further advanced if Duke is able to capture economies of scale with bulk transmission and upgraded integration of large-scale renewable developments (discussed again later in this comment). This is especially important to the development of offshore wind, a clean and abundant energy source for North Carolina.

Accordingly, Buncombe County and the City of Asheville urge Duke Energy to produce a more robust risk assessment of its maintenance of coal plants and proposed buildout of natural gas as well as explore clean energy portfolios, ideally through all-source procurement, to help ratepayers avoid the associated risk of stranded costs and help us meet our climate and equity goals. When retiring coal plants, we urge Duke to reinvest savings from switching coal to lower cost energy sources into transition assistance to help workers and communities prosper in a decarbonized economy as they face important near-term risks and costs in the transition.

Additionally, to ensure the most optimal portfolio, including minimizing stranded asset risk and ratepayer costs, we strongly encourage Duke to use all-source procurement for any additional capacity required. The benefits of all-source procurement are explained in detail below.

b. RUN AN ALL-SOURCE, COMPETITIVE SOLICITATION TO PROCURE ALL NEW GENERATION AND DETERMINE THE BEST REPLACEMENT RESOURCES.

⁷ NREL (National Renewable Energy Laboratory). 2022. "2022 Annual Technology Baseline." Golden, CO: National Renewable Energy Laboratory. <https://atb.nrel.gov/>

⁸ NextEra Investor Conference, June 2022, available at <https://www.investor.nexteraenergy.com/news-and-events/events-and-presentations>

⁹ Lauren Shwisberg, Alex Engel, Caitlin Odom, Mark Dyson, Headwinds for US Gas Power, 2021, available at <https://rmi.org/insight/headwinds-for-us-gas-power/>

Transparent and robust all-source competitive procurement processes are critical to achieving carbon-reduction goals at the lowest cost to ratepayers. Section 1(1) of S.L. 2021-165 requires that the Carbon Plan should achieve the least cost path to achieve compliance with the authorized carbon reduction goals.

As required by the S.L. 2021-165, 2,660 MW of new solar generation will be competitively procured, 55% of which would be owned by the utility and 45% of which would be supplied through power purchase agreements. Although we are glad to see the establishment of partial competitive procurement, we recommend that Duke utilize all-source solicitations for both power purchase agreements and any replacement resources owned by Duke.

By allowing a full range of potential resources to compete on equal footing, all-source procurement can create a pathway for renewable energy, energy efficiency, demand-side management, and storage to play a critical role in addressing future energy and capacity needs. Selecting for market-based portfolios of optimal utility-scale and distributed energy resources can capture the value of interaction between resources, drive prices down, and benefit consumers. Experiences in multiple states demonstrate that all-source competitive procurement is a proven way to reduce costs for ratepayers while increasing access to cleaner electricity. For example, Xcel Energy Colorado's record-low costs secured by its 2016-2017 all-source competitive solicitation highlights the economic benefits of this approach.¹⁰

c. INCREASE THE RENEWABLE ENERGY PROCUREMENT
OPPORTUNITIES AVAILABLE TO ALL CUSTOMERS.

In addition, Buncombe County and the City of Asheville ask Duke to improve current programs and develop new customer solutions to meet the growing demand for renewables. This is essential for us to reach our renewable energy, climate goals. Current customer programs do not permit Buncombe County or the City of Asheville to reach either the goals for our government operations or the community at large. Ideally, new programs would reflect the decreasing cost of renewables by ensuring long-term savings and allowing for increased flexibility, for example, by providing various contract length options. Furthermore, new customer program limits should be based on energy consumption rather than peak demand in order to be most effective and workable for local governments. Flexibility in subscription size also needs to be considered. Even when aggregating the City and County's demand, no responses were submitted to the request for proposals for the Green Source Advantage Program. Finally, generating resources should be located within Duke Energy's utility territories in North Carolina to ensure that

¹⁰ Xcel's ASCS returned a \$0.0107/kWh bid for wind, a \$0.023/kWh bid for solar, and a \$0.03/kWh bid for solar-plus-storage, according to a [February 2021 Xcel presentation](#) to Michigan regulators.

economic and environmental benefits of renewables flow to North Carolinians. This is of the utmost importance for local governments as we will utilize public dollars for these investments.

A more efficient and predictable interconnection process is also critical for North Carolina to unlock the potential of renewables and meet decarbonization goals. Currently, the substantial delays in interconnection requests and unpredictable interconnection study processes result in stalled projects and create challenges to meet our renewable energy and decarbonization goals. We urge Duke Energy to reduce interconnection timelines, accelerate interconnection studies, and improve the transparency of the queue.

Buncombe County and the City of Asheville would like to work with and support Duke Energy in the design and implementation of renewables programs for large energy customers to help us meet our demand. We are also interested in collaborating to shape new legislation that would extend the benefits of these programs to others in our communities to simultaneously support our GHG reduction and equity goals, such as community solar offerings with a carve-out for LMI customers. We welcome efforts to collaborate in the near future, including during future update cycles of the Carbon Plan and future dockets related to customer facing programs.

d. VALUE AND ENCOURAGE THE DEVELOPMENT OF DISTRIBUTED ENERGY RESOURCES (DERs) AND BUILD COMMUNITY RESILIENCE THROUGH THE USE OF DERs.

Distributed energy resources (DERs)—such as on-site solar, battery energy storage, and microgrids—are of significant interest to Buncombe County and the City of Asheville as methods for supporting energy resilience, improving grid reliability in the face of unexpected natural disasters, and reducing probabilities of outages. Microgrids powered by distributed renewables and storage that can island during grid disruption and provide emergency backup power are critical for local responses to outages, and can replace fossil fuel generators, which have historically been the default solution of backup power. We act as the first responders when climate disasters strike, and increased DER deployment would aid our efforts to bolster local resilience and enable us to better respond during emergency situations.

Although we commend Duke for its pursuit of customer-sited resources and efforts to create rates that support customer-sited clean resources, the NCUC's final Carbon Plan should fully value and capture the benefits of renewables plus storage and microgrids in the plan's modeling.

Nationwide, utilities are increasingly deploying microgrids to improve community resilience. For example, Pacific Gas and Electric (PG&E) commissioned its first hybrid renewable microgrid to

protect high fire-threat areas.¹¹ Green Mountain Power (GMP) plans to create new microgrids and community resilience zones as outlined in its latest Integrated Resource Plan (IRP).¹² ComEd and the U.S. Department of Energy completed the final tests on ComEd's Bronzeville Community Microgrid, a neighborhood-scale microgrid.

We recommend Duke incorporate the resilience and GHG reduction benefits of renewably powered microgrids and other cost-effective DERs into the Carbon Plan and create energy resiliency programs that help local governments and communities better prepare for unexpected events. One example of such partnership is the Pepco Resiliency Center in Washington, D.C. The project deployed community solar paired with storage, microgrid, and generator capabilities, and can provide up to three days of backup power to critical loads.¹³ Buncombe County and the City of Asheville would like to support the deployment of renewable energy plus storage, microgrids and other DER projects within our communities in order to support emergency services and operations, transit, and other resilience needs.

- e. PRIORITIZE AND MAXIMIZE TESTED TECHNOLOGIES THAT ARE COMMERCIALY VIABLE BEFORE BANKING ON UNPROVEN TECHNOLOGIES THAT CARRY HIGH RISK FOR RATEPAYER DOLLARS.

Duke Energy should prioritize proven, cost-effective technologies that are commercially viable and that Duke Energy is able to deploy in a timely manner before relying on energy sources that will require as yet uncertain technology advancement and thus put billions of ratepayer dollars at risk. The Plan assumes hydrogen will be widely available, be cost-effective and can be blended into gas networks at a high percentage to power units that currently run on natural gas. However, research suggests that only up to 20% hydrogen can be safely blended with natural gas in current pipelines and Duke Energy does not include the cost of necessary retrofits (which can be 10-15% of the cost of building a new plant) into resource planning.^{14/15} In addition, hydrogen-fired gas

¹¹ Pacific Gas and Electric Company (PG&E), More Communities Now Eligible to Pursue Microgrids as a Part of PG&E's Efforts to Build a Stronger, More Resilient Electric Grid, November 2021, available at: https://www.pge.com/en_US/about-pge/media-newsroom/news-details.page?pageID=bf70f039-7f80-4e31-957d-03a4d8e1283c&ts=1638294656832.

¹² Green Mountain Power (GMP), Green Mountain Power (GMP) 2021 Integrated Resource Plan, available at <https://greenmountainpower.com/wp-content/uploads/2021/12/2021-Integrated-Resource-Plan.pdf>

¹³ Matthew Popkin, Madeline Tyson, Introducing Community Solar+: the Next Generation of Community Solar, available at <https://rmi.org/introducing-community-solar-the-next-generation-of-community-solar/>

¹⁴ Multiple resources indicate that up to 20% can be blended into gas network safely. For example, an article by Dentons mentions "20/80 blend (hydrogen/methane, by volume) is currently considered the upper limit." A research by NREL (National Renewable Energy Laboratory) also concludes that "If the hydrogen level in natural gas increases beyond 20%, the overall risk in service lines can significantly increase".

¹⁵ Siemens Energy, 2020. Hydrogen infrastructure – the pillar of energy transition, available at <https://assets.siemens-energy.com/siemens/assets/api/uuid:3d4339dc-434e-4692-81a0-a55adbcaa92e/200915-whitepaper-h2-infrastructure-en.pdf>

turbines that accommodate hydrogen blends higher than 30% are not yet commercially available.¹⁶ If the proposed new natural gas power plants cannot eventually be transitioned to burn 100% green hydrogen, they may become obsolete and decommissioned years before ratepayers finish paying off the costs to build the plants.

Two of the four portfolios Duke proposes also rely on more than 500 MW of nuclear from small modular reactors (SMRs) by 2035. In addition to the fact that SMRs are not in line with our community's renewable energy commitments this technology has not yet been proven and research indicates there may be significant environmental risks. For example, the SMR project under development by Nuscale in Utah has not received its design certification from the Nuclear Regulatory Commission, although it has been under development for more than a decade.¹⁷ Given the uncertainty of whether SMRs will be commercially and economically viable, we encourage NCUC to prioritize and maximize proven, beneficial technologies (through all-source procurement as stated above) in the final Carbon Plan, and suggest performing pilot projects or allowing for technological advancement before investing large amounts of ratepayer dollars in unproven technologies. Due to our commitment to the health and safety of our communities, we also have safety and radioactive waste concerns related to SMR. The undersigned local governments recommend that Duke prove safe operations of any new technologies, including SMR, before investing in them at scale. In addition, to be a compelling decarbonization solution, SMRs should also demonstrate a history of reliably serving load and reliably ramping to meet peaks.

Duke Energy should prioritize and maximize investment in currently deployable solutions, such as energy efficiency, renewables, and storage, while other innovative strategies are under development and testing. Buncombe County and the City of Asheville encourage the NCUC to include at least one portfolio that doesn't rely on SMRs in the final Carbon Plan.

4. LOAD FORECASTS SHOULD BE ADJUSTED TO PROACTIVELY AND ACCURATELY ACCOUNT FOR THE IMPACT OF DEMAND SIDE MANAGEMENT (DSM) PROGRAMS AND TECHNOLOGICAL ADVANCES THAT REDUCE LOAD AS WELL AS INCREASE LOAD THAT MAY RESULT FROM TRANSPORTATION AND BUILDING ELECTRIFICATION.

The rapid electrification of transportation and buildings represents a significant tool to aid North Carolina in achieving the decarbonization goals set by S.L 2021-165/HB951. As the electric vehicle (EV) market grows and state building codes advance efficiency, traditional load shapes

¹⁶ In [Appendix O | Low-Carbon Fuels and Hydrogen](#), it is mentioned that "Turbine manufacturers, such as General Electric ("GE"), Mitsubishi and Siemens, have shown success with co-firing hydrogen and natural gas (up to 30% hydrogen by volume) without significant gas turbine revisions in many of the combined cycle and combustion turbine models currently in operation."

¹⁷ [Design Certification Application – NuScale, the U.S. Nuclear Regulatory Commission \(NRC\)](#)

will also change. Duke Energy should accurately analyze the impacts of electrification on the electric system, implement best practices for managing load growth and matching increased demand with clean, affordable, and reliable generation, so that EVs and appliances such as heat pumps can act as flexible assets on the grid.

The NCUC's Carbon Plan should revise the EV penetration rate proposed by Duke Energy in its draft Plan to better reflect changing market conditions and related federal and state policies, such as Governor Cooper's Executive Order 246, North Carolina's participation in the multistate Medium- and Heavy-Duty Zero Emission Vehicle Memorandum of Understanding, and the distribution of Volkswagen Settlement Funds.^{18/19} Accurate load forecasting can improve utility planning and load management.

EV loads can and should be well utilized to manage system peaks and integrate renewable energy. Matching EV charging demand with renewable energy supplies can offer greater grid and decarbonization benefits. Through the Charge Forward pilot program run by Pacific Gas & Electric and BMW, eligible EV drivers agree to delay charging to better align with available renewable energy in exchange for lower charging rates, creating an average of \$325 in estimated grid savings annually per vehicle.²⁰ Researchers also found that smart charging can reduce carbon emissions for EVs by 32% on average, and enable EVs to accept an additional 1,200 kWh of renewable energy per vehicle per year.²¹ Accordingly, Buncombe County and the City of Asheville recommend Duke Energy further work to optimize charging behaviors and thus manage load and integrate more renewable energy sources on the grid through rate design that incentivizes off-peak charging, and explore the potential of Vehicle-to-Grid (V2G) to tap the synergies between EV charging and the operational needs of the grid in ways that maximize the benefits for all customers.

Similarly, the Carbon Plan should attempt to more accurately forecast and incorporate the long-term load impacts of building code improvements and the growing trend toward beneficial electrification. As widespread electrification increases loads, effective demand management will mitigate system costs and aid renewables integration within a power system that increasingly relies on variable renewable energy. Accordingly, we recommend Duke plan for these increases in electricity consumption earlier in order to proactively enable growth of building electrification and support the integration of renewable energy, thus addressing grid and peak load impacts. Such consideration of beneficial electrification could have a positive impact on the cost of implementing the Carbon Plan.

¹⁸ On July 15, 2020, Gov. Cooper joined a bi-partisan group of 15 states and the District of Columbia in signing a Memorandum of Understanding (MOU) committing to the electrification of medium- and heavy-duty vehicles.

¹⁹ <https://deq.nc.gov/about/divisions/air-quality/motor-vehicles-and-air-quality/volkswagen-settlement>

²⁰ BMW ChargeForward. BMW USA. Retrieved June 28, 2022 from <https://www.bmwchargeforward.com/#/home>.

²¹ UC Berkeley Transportation Sustainability Research Center (TSRC), New TSRC Report Shows Benefits of Optimizing EV Charging, August 23, 2020, available at: <https://its.berkeley.edu/news/new-tsrc-report-shows-benefits-optimizing-ev-charging>

5. TRANSMISSION PLANNING SHOULD BE CONDUCTED IN CONJUNCTION WITH CAPACITY EXPANSION AND JOINTLY WITH NEIGHBORING GRIDS.

Proactive, large-scale, long-term transmission planning approaches driven by future generation needs can drive cost-effective power system transformation. For example, the estimated average costs of coordinated onshore wind upgrades for renewables, including up to 17 GW of offshore wind, is significantly lower than the average costs of total network upgrades for current interconnection requests totaling 15.5 GW offshore wind.^{22/23/24} This difference implies that proactive, integrated grid planning for larger volumes of capacity additions can offer economies of scale and scope.

Planning transmission and generation together can help unlock North Carolina's high offshore wind energy potential in a cost-effective manner. Unit transmission costs of offshore wind expansion could be reduced further by planning appropriately for high-capacity lines to enable access to large resource areas, which would be more efficient than an incremental, piecemeal expansion approach. This could capture economies of scale and reduce redundancies by building fewer lines to support more renewables. Inter-regional coordination and transmission expansion would further reduce cost. Researchers calculate that such approaches could reduce the system cost of electricity in a 100%-renewable US power system by 46% compared with a state-by-state approach.²⁵ Accordingly, Buncombe County and the City of Asheville recommend that Duke Energy integrate transmission planning into resource planning and procurement as well as plan jointly with neighboring grids.

Communities of color and low-income communities often face the most health and environmental impacts from fossil fuel plants and energy infrastructure but often lack the resources and information to take part in the decision-making process related to the development of transmission projects. We encourage Duke Energy to incorporate equity and environmental justice concerns in the transmission planning process and ensure historically underrepresented communities are included in this process.

²² PJM's feasibility and system impacts studies for current interconnection requests totaling 15.5 GW of offshore wind estimate \$6.4 billion in total network upgrade costs, which is as high as \$400/kW. However, PJM's Offshore Wind Transmission Study published in 2021 estimated the cost of coordinated onshore upgrades for 75 GW of renewables, including up to 17 GW of offshore wind, at \$3.2 billion, an average cost of just \$40/kW. Such a significant difference implies that proactive, integrated grid planning for larger volumes of capacity additions can offer economies of scale and economies of scope.

²³ Based on costs from PJM's feasibility and system impact studies for individual generation interconnection requests as reported in Burke and Goggin, Offshore Wind Transmission Whitepaper, October 2020 at p. 40.

²⁴ PJM, Offshore Transmission Study Group Phase 1 Results, presented to Independent State Agencies Committee (ISAC), July 29, 2021.

²⁵ The Value of Inter-Regional Coordination and Transmission in Decarbonizing the US Electricity System.

6. NCUC AND DUKE SHOULD ENSURE THAT THE CARBON PLAN BUILDS UPON THE YEARS OF WORK THAT STAKEHOLDERS HAVE INVESTED INTO PROCESSES THAT LED TO THE CREATION AND PASSAGE OF S.L 2021-165/HB951, AND THAT THERE CONTINUES TO BE A ROBUST AND INCLUSIVE STAKEHOLDER ENGAGEMENT PROCESS THROUGHOUT THE IMPLEMENTATION AND EVALUATION OF THIS AND FUTURE VERSIONS OF THE CARBON PLAN.

Over the last several years, Buncombe County and the City of Asheville have been actively involved in utility planning processes at the NC Utilities Commission. Participation has ranged from formal intervention in the 2020 Integrated Resource Plan proceeding (Docket No. E-100, Sub 165) to participation in Duke Energy's stakeholder engagement around their electric transportation pilot programs.

Despite this robust engagement and ongoing collaboration with Duke Energy, it is unclear how our feedback is being received and we are concerned that the comments we have provided to date have been underutilized in developing the Carbon Plan. We urge the NCUC to adopt a Carbon Plan that builds upon these collaborative processes and includes recommendations that were the result of the above energy policy and utility planning processes. We request that there be better integration of existing feedback from stakeholders into the Carbon Plan, including a record of where and how Duke and the NCUC integrate that feedback. This is a common best practice of local governments facilitating complex stakeholder engagement and planning processes.

We have a history of partnering with Duke Energy on energy programs that benefit our residents, businesses, and local government operations. We look forward to and are committed to working with Duke Energy and the NCUC to enable the solutions outlined in this letter that we believe will accelerate a more affordable, clean, equitable, resilient, and reliable energy system. Through continued partnership, we can demonstrate to both North Carolinians and the nation what collaborative clean energy leadership looks like.

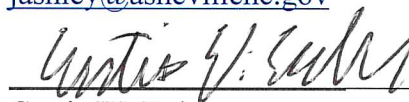
Buncombe County and the City of Asheville appreciate the North Carolina Utilities Commission's consideration of our recommendations and we look forward to continued engagement in the development of the Carbon Plan. We are optimistic that with the incorporation of our recommendations, the effectiveness of this process will only improve and the final Carbon Plan approved by the NCUC will reflect the input and interests of our community, while setting North Carolina on a path to meet its emission reduction goals.

Thank you for the opportunity to provide comments.

Respectfully submitted, this the 14th day of July, 2022.



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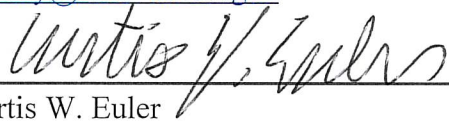
CERTIFICATE OF SERVICE

I hereby certify that all persons on the docket service list have been served true and accurate copies of the foregoing filing by hand delivery, first class mail deposited in the U.S. mail, postage pre-paid, or by email transmission with the party's consent.

This the 14th day of July, 2022.



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