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May 17, 2024

Ms. A. Shonta Dunston
Chief Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, North Carolina 27699-4300

Re: Comments of North Carolina Local Governments on Duke Energy's Biennial Carbon Plan Integrated Resource Plan (CPIRP); Docket No. E-100 Sub 190

Dear Chair Mitchell and Commission Members,

The [INSERT SIGNATORY LOCAL GOVERNMENT NAMES HERE] (subsequently referred to as "the undersigned") respectfully submit the following comments and recommendations regarding the proposed Carbon Plan Integrated Resource Plan (CPIRP) filed by Duke Energy (Duke) on August 17, 2023 to the North Carolina Utilities Commission (NCUC or the Commission). These comments are the product of ongoing discussions with dozens of local governments across the state, including but not limited to the signatories of this letter, as a collective effort to advance our governments' renewable energy and greenhouse gas (GHG) reduction targets and foster community resilience. We welcome the opportunity to collaborate and further discuss any of the issues described herein with the Commission.

Introduction

Local governments of all sizes around North Carolina have established long-term sustainability goals to reduce GHG emissions, scale up clean energy investment, create local jobs, reduce energy burden, and deliver immediate environmental and public health benefits to the communities they serve. These include GHG emission reduction goals, renewable energy targets, building energy efficiency measures, fleet electrification plans, and electric vehicle charging infrastructure deployment. Local governments have two main driving interests in ensuring the electricity grid is decarbonized in a thoughtful and cost-effective manner. The first is a desire to meet our own internal goals related to GHG emissions, renewable energy, and other sustainability matters. The second is grounded in our responsibility to the communities we serve, including to protect health, safety, and the environment; promote a green economy; and provide reliable and clean transportation options in ways that promote equity and improve the quality of life for all community members.

The undersigned are some of Duke Energy's largest customers and our local governments collectively serve more than [TOTAL NUMBER OF SIGNATORIES' POPULATIONS] North Carolina residents. Combined, our community-wide and government operations constitute more than 12,600 GWh of electricity use annually. Accelerating a transition to a clean energy economy is a shared priority of our communities, and as such the decisions made in the CPIRP process, including those regarding generation, transmission, and energy efficiency, will critically impact our ability to meet the objectives listed below. While our individual renewable energy goals and GHG reduction goals vary, the undersigned all share a vision of a sustainable, reliable, affordable, resilient, and equitable energy system.

The renewable energy and GHG reduction targets of the undersigned local governments include:

- The Town of Boone adopted a resolution establishing the goals of climate neutrality in municipal operations by 2030, 100% clean renewable energy used in municipal operations by 2040, and 100% clean renewable energy used in the entire Town of Boone by 2050. As of February 2022, the electricity that the Town of Boone consumes is from 100% renewable sources.
- The Town of Chapel Hill adopted a resolution in 2019 to create a Climate Action Plan and achieve 80% clean, renewable energy in the community by 2030, and 100% by 2050. The Town also has a goal of reducing community GHGs 26-28% by 2025, 50% by 2030, and reaching net-zero emissions by 2050.
- Chatham County adopted a resolution in 2017 to achieve 100% clean energy by 2050 and crafted a Comprehensive Plan focused on sustainable development, quality of life, and resiliency. The Comprehensive Plan's Resiliency section sets a goal to become a carbon negative county. Electrification of transportation, energy efficiency, and cleaning the power supply will play a huge role in achieving and maintaining this goal.
- The Town of Davidson has adopted a municipal operations goal of achieving carbon neutrality by 2037 and a community-wide carbon neutrality goal by 2050. The Town adopted a Climate Action Plan on April 9, 2024 which sets forth goals, strategies, and actions to reduce emission levels based on a 2019 greenhouse gas inventory to meet their carbon neutrality goals.
- Durham County adopted a greenhouse gas emissions reduction goal in 2007 of reducing government emissions by 50% and community emissions by 30% from 2005 levels by 2030. The County also adopted a goal of transitioning operations to 80% renewable energy by 2030 and 100% by 2050. In addition, the newly adopted Durham City-County Comprehensive Plan includes a goal for all of Durham to be carbon-neutral by 2050.
- The City of Greensboro adopted a resolution establishing the goals of: reducing GHGs in city operations by 40% from 2005 levels by 2025, reducing energy consumption in city-owned buildings by 40% from 2005 levels by 2025, and transitioning to 100% renewable energy in city operations by 2040. In addition, Greensboro's adopted comprehensive plan, GSO2040, contains high level goals for Prioritizing Sustainability through environmental stewardship, social equity, and economic resilience.
- The Town of Morrisville currently has a 5% reduction in electricity consumption as well as a 5% greenhouse gas emissions reduction for all internal fleet and facilities.

- Orange County adopted a resolution in 2017 to transition to 100% renewable energy by 2050 and a resolution to proportionally uphold the Paris Climate Agreement to reduce greenhouse gas emissions between 26 and 28 percent by 2025 from 2005 levels. Orange County's Climate Action Plan, adopted in November 2023, further committed to reducing greenhouse gas emissions by 50% by 2030 and 100% by 2050.
- The City of Raleigh adopted a goal in 2019 of reducing community GHG emissions by 80% by 2050. In addition, the City's Comprehensive Plan and Strategic Plan include policies and goals that focus on GHG reductions, utilizing alternative and renewable energy, improving energy efficiency, improving equity and resilience, and improving energy security.

Despite robust efforts at the community level, local governments are often constrained in achieving our goals and reducing our total GHG emissions footprints by our minimal direct ability to choose and optimize the sources of electricity that power our communities. Cities and counties are interested in finding ways to improve the overall emissions performance of the electricity system as a result. In addition, local governments understand firsthand how energy decisions affect the overall affordability and livability of their communities. High energy costs are a major contributor to economic insecurity, and many low-income energy-burdened North Carolinians suffer disproportionately from the impacts of climate change and power plant pollution. Moreover, as some of the utilities' largest customers and good stewards of taxpayer money, local governments are acutely aware of the role that clean energy investments can play in keeping costs reasonable and predictable over the long-term, hedging against volatile fuel prices, and delivering significant economic benefits in terms of ratepayer costs as well as public and environmental health, resilience, and other non-energy benefits.

For all of these reasons, the effective implementation of Session Law 2021-165/House Bill 951, including the development and implementation of the CPIRP, is a significant priority of North Carolina's local governments. Duke Energy and the NCUC have both been essential partners for implementing our climate and clean energy plans and related priorities and the undersigned see the CPIRP as a pivotal opportunity to increase collaboration and achieve more together.

The undersigned ask that the Commission consider the following recommendations in crafting the 2024 CPIRP:

1. All pathways in NCUC's 2024 CPIRP should prioritize meeting the 2030 deadline of reducing carbon emissions by 70% compared to 2005 levels.
2. The 2024 CPIRP should fully account for available incentives included in the Infrastructure Investment and Jobs Act (IIJA) and the Inflation Reduction Act (IRA), particularly the Energy Infrastructure Reinvestment (EIR) program, that have significant potential to promote the deployment of carbon free resources in a cost effective manner.
3. 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. In the context of increased load forecasts, the 2024 CPIRP should

account for the potential impact of improved energy efficiency programs and modern building codes on the ability of Duke to more effectively manage system load.

4. Energy efficiency and demand-side management (DSM) programs should be improved to help local governments and other ratepayers address affordability and climate concerns.
5. 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:
    5.1. Retire and replace coal power plants with clean energy portfolios to improve public health outcomes and reduce ratepayer costs.
    5.2. Run an all-source, competitive solicitation to procure all new generation sources and determine the best replacement resources.
    5.3. Increase the renewable energy procurement opportunities available to all customers, including a more efficient and predictable interconnection process.
    5.4. Value and encourage the development of distributed energy resources (DERs) and build community resilience through the use of DERs.
    5.5. Prioritize and maximize tested technologies that are commercially viable before relying on unproven technologies that carry high risks for ratepayer dollars.
6. Transmission planning should be conducted proactively and in conjunction with capacity expansion and jointly with neighboring grids.
7. 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 and evaluation of this and future versions of the Carbon Plan.

The following letter provides further detail on each of our recommendations.

Recommendations

1. All pathways in NCUC's final CPIRP should prioritize meeting the 2030 deadline of reducing carbon emissions by 70% compared to 2005 levels.

Local governments remain concerned that only one of the three pathways proposed by Duke in their draft CPIRP achieves the 2030 emission reduction target of 70% below 2005 levels as legislatively mandated by the NC General Assembly (NCGA) in S.L. 2021-165/HB951. Given that local governments are constrained by the available energy generation mix at the utility level, a CPIRP that allows Duke to push the compliance date by 3-5 years (as proposed in Pathways 2 and 3, respectively) would drastically reduce the ability of local governments to meet their own climate targets, many of which include milestones similar to the state's 70% reduction by 2030 goal. Local governments are particularly concerned that Duke's preferred scenario (Pathway 3) delays compliance with S.L. 2021-165/HB951 by 5 years and includes the highest levels of proposed new natural gas buildout.

The undersigned local governments have a duty to responsibly and efficiently utilize taxpayer dollars to meet their sustainability, energy, and other community-driven goals. In addition to

increased emissions in the near term, delays in SL2021-165/HB951 implementation result in increased costs for both local governments and utilities due to fuel price volatility, supply chain delays, inflation, and other factors. In addition to statewide carbon emissions reductions, meeting the 2030 goal would also have near-term co-benefits for public health and air quality as mentioned above.

We appreciate that the 2024 CPIRP includes a pathway (Pathway 1) that would support the undersigned local governments' efforts to achieve our long-term renewable energy goals and GHG emission reduction goals, but are concerned that Duke considers Pathway 1 to be unattainable even before the full CPIRP process has been presided over by the NCUC.[1] Local governments are also concerned that Pathway 1 has not been appropriately valued due to the inclusion of an arbitrary cost adder on market tested resources like solar (without a similar analog in Pathway 2 or Pathway 3) that results in higher costs being attributed to Pathway 1. The undersigned local governments urge the Commission to adequately consider Pathway 1 without this cost increase, and hope to remain 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 in the timelines specified in S.L. 2021-165/HB951.

2. The biennial CPIRP should fully account for available incentives included in the Infrastructure Investment and Jobs Act (IIJA) and the Inflation Reduction Act (IRA) that have significant potential to promote the deployment of carbon free resources in a cost effective manner.

Federal programs created and expanded by the Inflation Reduction Act (IRA) and the Infrastructure Investment and Jobs Act (IIJA) present significant funding opportunities that have the potential to directly benefit communities and influence utility resource assumptions and timing estimates. Duke Energy should take advantage of these federal incentives and lower project costs, which will contribute to more affordable energy solutions for North Carolina's residents and businesses, and which will result in a more efficient and sustainable deployment of energy infrastructure.

The undersigned acknowledge that Duke Energy has integrated some of the IRA and the IIJA into their resource planning and the CPIRP. We recognize that Duke Energy's CPIRP modeling made strategic use of the tax incentives provided by the IRA, adapting the CPIRP to include IRA criteria for base and bonus production and investment tax credits by updating the cost assumptions it used. The inclusion of these tax credits in resource plan modeling is crucial for maximizing affordability for consumers and helping the utility meet its environmental, equity, and operational goals.

[1] Duke Energy proposed CPIRP Portfolios

However, while Duke's CPIRP acknowledges the significance of the IRA and IIJA with some updated cost assumptions, there is further opportunity for Duke Energy to integrate the potential IRA savings opportunities into its resource planning. The failure to integrate the Energy Infrastructure Reinvestment (EIR) program[2] is a significant omission that is worthy of scrutiny in the CPIRP.

The EIR program, established by the Inflation Reduction Act, offers up to $250 billion in federal loans for projects aimed at lowering the cost of the energy transition. This program provides loans at favorable rates, slightly above the Treasury rate, for terms up to 30 years, offering a financially viable route for Duke Energy to finance its decarbonization efforts at even lower costs. The EIR can enable acceleration in the retirement of fossil infrastructure and investment in clean and low-emission resources, substantially easing the economic burden on ratepayers compared to traditional financing methods. Utilities are statutorily required to pass the savings from EIR to their customers and fossil communities impacted by the transition, making it a likely integral component for achieving North Carolina carbon reduction goals at least cost. This could take the form of community benefits plans that ensure job training and replacement with highly skilled, high paying job opportunities for workers and communities displaced by the shift away from fossil resources. Local governments have a vital role in ensuring that communities in North Carolina that have historically relied on fossil fuel-related industries benefit from the decarbonization of the power sector, but they will be stymied in those efforts if Duke Energy misses this financing opportunity.

Duke Energy's current omission of EIR from the resource planning scenarios raises concerns among the undersigned local governments. In addition to the economic impact concern, this oversight has potentially hidden a more aggressive and cost-effective portfolio that meets the states emission reduction targets in a timely manner. Integration of EIR is likely a crucial component in capacity expansion modeling given that not all investments would be eligible for EIR financing. As such, the supply curve for certain technology costs is likely altered by the potential for EIR applicability, offering a lower cost of clean generation and grid investments, vital for North Carolina's affordable decarbonization transition.

Moreover, the EIR loan authority is set to expire in September 2026, making the 2024 CPIRP the primary planning opportunity for the Commission to evaluate the potential savings this federal funding could offer the state. The incorporation of EIR into Duke Energy's carbon plan is not just beneficial but essential. It will capitalize on low-cost federal funding to foster a more cost-effective and efficient transition to cleaner energy infrastructure. We urge Duke Energy to reassess its carbon plan and include EIR as a central component of its capacity expansion modeling. This inclusion will align with Duke Energy's environmental goals and offer substantial economic benefits to its ratepayers, promoting a sustainable and community-centric approach to energy transition.

[2] Title 17 Clean Energy Financing – Energy Infrastructure Reinvestment, see https://www.energy.gov/lpo/energy-infrastructure-reinvestment

3. **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. In the context of increased load forecasts, the 2024 CPIRP should account for the potential impact of improved energy efficiency programs and up-to-date building codes on the ability of Duke to more effectively manage system load.**

Local governments are concerned that large load increases forecasted by Duke in its revised filings[3] from January 31, 2024 will result in an overreliance on new natural gas infrastructure, thus making it even harder to reduce carbon emissions. Duke's load forecasting should account for the reduced demand resulting from DSM programs as well as technological advances such as increased appliance and HVAC efficiencies. 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 building electrification and efficiency increases, traditional load shapes 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 energy efficient appliances (such as heat pumps) can act as flexible assets on the grid.

The CPIRP should revise the EV penetration rate proposed by Duke 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.[4,5] 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. 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.[6] Accordingly, the undersigned local governments recommend Duke 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

[3] NCUC Docket No. E-100 Sub 190, Duke Energy's Verified Amended Petition For Approval Of 2023-2024 Carbon Plan and Integrated Resource Plans

[4] 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.

[5] NC Volkswagen Settlement Program, NC Division of Air Quality. Available at https://deq.nc.gov/about/divisions/air-quality/motor-vehicles-and-air-quality/volkswagen-settlement

[6] 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

tap the synergies between EV charging and the operational needs of the grid in ways that maximize the benefits for all customers.

Similarly, the CPIRP should better forecast and incorporate the long-term load impacts of building code improvements and the growing trend toward beneficial electrification. Implementation of modernized building codes in North Carolina is a cost effective way to reduce overall energy consumption, and thus lower overall load on the grid. The North Carolina Building Code Council found that the commercial and residential provisions of the proposed 2024 NC Energy Conservation Code (NCECC) are expected to be cost effective.[7] Adoption of the 2024 NCECC has the potential to realize annual energy savings of $0.23 per square foot for commercial buildings, and save the average NC household roughly $400 a year in utility bill savings.[8] As widespread electrification adds loads, effective demand management will mitigate system costs and aid renewables integration within a power system that increasingly relies on variable renewable energy. Accordingly, the undersigned recommend that Duke proactively enable growth of building electrification, 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 CPIRP.

4. 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 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. Many of the undersigned local governments participated in Duke Energy's 2020 IRP docket proceedings and the 2022 Carbon Plan process, both as stakeholders in utility-led conversations and interveners and comments in the dockets themselves. Local governments want to reinforce and expand upon those earlier comments in the context of the 2024 CPIRP proposed by Duke.

The undersigned are concerned that Duke Energy is not appropriately valuing the potential benefits of deeper investments in EE, especially in light of the large increase in system-wide electricity load that the utility forecasted in January.[9] Implementation of EE and DSM measures are a key lever that local governments can utilize to make progress towards their emissions targets, and local governments and other non-residential customers have significant opportunities to reduce electrical consumption and peak demand. Doing so provides both environmental and economic benefits to communities, including residents and businesses, and reduces system-wide generation needs. Greater EE and DSM programming should be evaluated and implemented as appropriate, including utility performance incentives intended to help reduce overall consumption, peak demand, or both.

[7] Fiscal Note for 2024 Energy Conservation Code, NC Building Code Council. December 12, 2023. https://www.ncosfm.gov/b-21-2024-ncecc-fiscal-note/open

[8] Ibid.

[9] NCUC Docket No. E-100 Sub 190, Duke Energy's Verified Amended Petition For Approval Of 2023-2024 Carbon Plan and Integrated Resource Plans

Recognizing that efficiency not only reduces emissions but also saves customers money, we believe EE and DSM programs in North Carolina can provide a particularly significant benefit for low- and moderate-income (LMI) residents. High energy burdens are disproportionately shouldered by low-income, Black, and Hispanic households, and are often due to factors like insufficient insulation, poor weatherization, older appliances, and an inability to access newer energy-efficient upgrades.[10] Accordingly, the development of EE programs could—and should—have significant equity impacts. The CPIRP should enable increased access to EE for low-income residents through both qualification criteria and collaboration with local governments around the state, including leveraging relationships with existing community-based organizations.

Additionally, the undersigned believe that Duke Energy should achieve energy savings above and beyond 1.0% of the 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).[11]

The undersigned commend Duke Energy and the NCUC's efforts to modify the cost-effectiveness test for DSM programs, 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 strategies as it failed to consider rapidly changing technologies or modified program implementations. 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 heater (HPWH) are two of the highest potential efficiency opportunities in North Carolina.[12] For this reason, the undersigned local governments 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 suggest that Duke consider new or enhanced customer engagement strategies, including increased collaboration with local governments. The undersigned believe local governments can be important partners to design, develop, and deliver EE and DSM programs to North Carolina residents and businesses in multiple ways, such as improving local ordinances, increasing the uptake and success of utility programs through local networks and targeted outreach, and supporting low-income weatherization and urgent repair efforts. Accordingly, we look forward to our continued collaboration with and support for Duke Energy in the design and implementation

[10] Drehobl, 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.

[11] According to ACEEE, North Carolina's 2021 net incremental savings (MWh) is 0.64% of 2021 retail sales, compared to a national average of 0.68%.

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

of cost-effective EE and DSM program offerings, especially ones that target LMI communities, in an effort to ensure expanded program eligibility serves those most in need.

5. 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:

5.1. Retire and replace coal power plants with clean energy portfolios to improve public health outcomes and reduce ratepayer costs.

Duke's proposed CPIRP Pathways 2 and 3 see more than 7 gigawatts (GW) of coal remaining online past 2030, compared to just over 2 GW in Pathway 1 (and compared to only 4 GW of coal remaining online past 2030 in the 2022 Carbon Plan proposal). In contrast, Energy Innovation has concluded that it would be significantly cheaper to build new wind and solar plants than to continue operating the coal plants in Duke's fleet.[13] 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. The CPIRP approved by the Commission should seek to more aggressively retire coal assets consistent with the schedule proposed in Pathway 1. Additionally, Duke should better model regulatory risks, such as future carbon taxes or other potential emission regulations which would make the economic case for these coal plants even worse.

Duke has also included almost 9 GW of new natural gas over the next 10 years to replace retired coal and meet large forecasted load increases, representing one of the largest gas build outs nationally. In addition to this being incompatible with North Carolina's decarbonization goals, it is not 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 proposed gas plant capacity.[14]

While fossil fuels like gas and coal are expensive and volatile, 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 solar.[15] 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.

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[13] Energy Innovation. Coal Cost Crossover 3.0 Dataset. January 2023, available at https://energyinnovation.org/publication/the-coal-cost-crossover-3-0/.

[14] 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.

[15] NextEra Investor Conference, June 2022, available at https://www.investor.nexteraenergy.com/news-and-events/events-and-presentations.

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 from 2019-2021.[16] 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 section 7 of this comment letter). This is especially important to the development of offshore wind, a clean and abundant energy source for North Carolina.

Accordingly, the undersigned local governments 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 local governments meet our stated climate and equity goals. When retiring coal plants, the undersigned local governments 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. We encourage Duke to incorporate equity and environmental justice concerns during the coal retirement process, including environmental remediation to protect these communities over the long term.

Additionally, to ensure the most optimal pathway, 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.

5.2. Run an all-source, competitive solicitation to procure all new generation sources and determine the best replacement resources.

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 CPIRP 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 partial competitive procurement is a step in the right direction, the undersigned local governments 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

[16] 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/

example, Xcel Energy Colorado's record-low costs secured by its 2016-2017 all-source competitive solicitation highlights the economic benefits of this approach.[17]

While we recognize that the CPIRP process is not the venue for amending S.L. 2021-165/HB951, the undersigned want to emphasize the importance of revisiting this law and the percentages allocated for utility ownership versus competitive procurement. This reassessment should be through the lens of ratepayer affordability, climate benefits outlined in the CPIRP, and grid reliability and resilience.

5.3. Increase the renewable energy procurement opportunities available to all customers, including a more efficient and predictable interconnection process.

In addition, the undersigned local governments ask Duke to improve current voluntary customer programs and develop new customer solutions to meet the growing demand for renewables in a manner that meets the intent of regulatory surplus. This is essential for local governments to reach our renewable energy, climate, and equity goals. 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. Additionally, new customer program limits should include those based on energy consumption rather than peak demand in order to be most effective and workable for local governments and other customers that have worked hard to reduce their demand, including commercial customers, so that they can be sized to cover actual use. In addition, generating resources should be located within Duke Energy's utility territories in North Carolina to ensure that economic and environmental benefits of renewables flow to North Carolinians.

It is critical that local governments and other customers have access to customer programs that are flexible, easy to use, and available in a timely, cost-effective manner. It is also critical to ensure that participation results in procurement of additional zero-carbon resources above and beyond the amount set by the Carbon Plan that would have been implemented otherwise (i.e., result in additionality or regulatory surplus). Local governments have expressed interest in such programs in relevant dockets at the Commission, and are eager to partner with the utility to develop such programs that are workable for customers of multiple kinds.[18]

The undersigned local governments would like to work with and support Duke in the design and implementation of renewables programs for large energy customers to help us meet local government 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 with Duke and the Commission, including during future update cycles of the CPIRP and future dockets related to customer facing programs.

[17] 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.

[18] NCUC Docket No.s E-2 Sub 1314, E-7 Sub 1289, E-2 Sub 1315, and E-7 Sub 1288; SSDN Local Government Comments on Customer Programs.

Additionally, 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 for local governments to meet our renewable energy and decarbonization goals. We urge Duke to reduce interconnection timelines, accelerate interconnection studies, and improve the transparency of the queue.

5.4. 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 local governments as methods for supporting energy resilience, improving grid reliability in the face of 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 for backup power. Local governments provide essential services and 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 the undersigned local governments commend Duke for its pursuit of customer-sited resources and efforts to create rates that support customer-sited clean resources, the 2024 CPIRP 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.[19] Green Mountain Power (GMP) plans to create new microgrids and community resilience zones as outlined in its latest Integrated Resource Plan (IRP).[20] ComEd and the U.S. Department of Energy completed the final tests on ComEd's Bronzeville Community Microgrid, a neighborhood-scale microgrid.

The undersigned local governments recommend Duke incorporate the resilience and GHG reduction benefits of renewably powered microgrids and other cost-effective DERs into the CPIRP 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.[21] The undersigned local governments would like to support the deployment of

[19] 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.

[20] 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

[21] 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/

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.

5.5. Prioritize and maximize tested technologies that are commercially viable before relying on unproven technologies that carry high risks for ratepayer dollars.

As it works to adopt a 2024 CPIRP, the Commission should prioritize proven, cost-effective technologies (such as solar and wind) that are already commercially viable and can be deployed 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. Duke's proposed CPIRP 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 does not include the cost of necessary retrofits (which can be 10-15% of the cost of building a new plant) into resource planning.[22,23] In addition, hydrogen-fired gas turbines that accommodate hydrogen blends higher than 30% are not yet commercially available.[24] 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.

All three pathways Duke proposes also rely on more than 600 MW of nuclear from small modular reactors (SMRs) by 2035, even though this technology has not yet been proven and research indicates there may be significant environmental risks. For example, the SMR project previously under development by Nuscale in Utah spent more than a decade under development before it received its design certification from the Nuclear Regulatory Commission.[25] NuScale and the Utah Associated Municipal Power Systems (UAMPS), which was slated to be an offtaker to the project, recently announced that they mutually agreed to terminate the project based on anticipated lack of project subscription.[26] Given the uncertainty of whether SMRs will be commercially and economically viable at scale, the undersigned local governments encourage NCUC to prioritize and maximize proven, beneficial technologies (through all-source procurement as stated above) in the CPIRP, and suggest performing pilot projects or allowing for technological advancement to prove cost effectiveness 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

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[22] Multiple resources indicate that up to 20% can be blended into the gas network safely. For example, an article by Dentons mentions "20/80 blend (hydrogen/methane, by volume) is currently considered the upper limit." 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".

[23] 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

[24] 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."

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

[26] NuScale, 2023. *Utah Associated Municipal Power Systems (UAMPS) and NuScale Power Agree to Terminate the Carbon Free Power Project (CFPP)* [press release]. https://www.nuscalepower.com/en/news/press-releases/2023/uamps-and-nuscale-power-agree-to-terminate-the-carbon-free-power-project

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 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. The undersigned local governments encourage NCUC to include at least one pathway that doesn't rely on SMRs in the 2024 CPIRP.

6. Transmission planning should be conducted proactively and in conjunction with capacity expansion and jointly with neighboring grids.

The undersigned commend Duke Energy for their expansion and enhancement of its transmission infrastructure to facilitate interconnection of solar, which reflects a forward-thinking approach to upgrading their transmission network. Their strategy to identify and develop transmission capabilities in these 'Red Zones' is a notable effort in facilitating the integration of renewable energy.

The undersigned applaud that Duke has recognized the need for and is considering introducing a multi-value transmission planning process. However, it's crucial that Duke fully integrate this approach into resource planning to harness its full potential. A multi-value approach to transmission planning is essential as it encompasses a broader range of benefits, including reliability, economic efficiency, and alignment with renewable energy policies. This approach would not only enhance the transparency and coordination of Duke's transmission planning but also ensures more informed decision-making for the Commission. By adopting this method, Duke can better anticipate and meet the evolving demands of the energy landscape, particularly in integrating renewable resources like offshore wind. This forward-looking planning is also in line with regulatory expectations and stakeholder interests, as it provides a holistic view of the transmission system's needs.

Duke Energy should evaluate and, to the greatest extent possible, quantify a wide range of pertinent benefits proposed in the Notice of Proposed Rulemaking (NOPR) that FERC issued in 2022 to select transmission projects. It is crucial that Duke's approach not only complies with the upcoming FERC rule but also considers this set of benefits as the minimum benchmark for its future multi-value transmission plan. This approach should entail assessing a broad spectrum of potential benefits, weighing both immediate and long-term effects, and aligning them with the project's specific objectives and requirements. Some potential benefits include reliability and resource adequacy benefits, generation capacity cost savings, and market benefits.

We also encourage the Commission to require Duke to extend their focus from local planning to regional and inter-regional transmission planning. We suggest adopting the proactive, multi-value transmission planning approach regionally and inter-regionally in addition to just locally within Duke's territories. Specifically, we urge Duke to increase connections between its service

territory and neighboring utilities, both within Duke's grid planning region SERTP and to neighboring transmission planning regions SERTP and PJM. Reports like "The Value of Transmission During Winter Storm Elliott" from ACORE underscore the importance of such connections for improving resilience and reliability, particularly during extreme weather events. Additionally, the joint GE and NRDC study on interregional transmission highlights the vast benefits of expanding interregional transmission throughout the Eastern Interconnection. This approach would not only diversify energy sources and enhance load management but also contribute significantly to the resilience and efficiency of the regional energy infrastructure, all while lowering costs for consumers. By broadening their transmission planning scope, Duke Energy can advance a more sustainable and cost-effective energy future for the Carolinas, and for the broader Southeast region.

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.[27,28,29] 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.[30] Accordingly, the undersigned local governments recommend that the Commission direct Duke Energy to 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

[27] 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.

[28] 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.

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

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

resources and information to take part in the decision-making process related to the development of transmission projects. We encourage Duke to incorporate equity and environmental justice concerns in the transmission planning process and ensure historically underrepresented communities are included in this process.

7. **NCUC and Duke should ensure that the 2024 CPIRP 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 and evaluation of this and future versions of the Carbon Plan**

Over the last several years, NC local governments have been actively involved in utility planning processes at the NC Utilities Commission. The City of Asheville, Buncombe County, and the City of Charlotte formally intervened in the 2020 Integrated Resource Plan proceeding (Docket No. E-100, Sub 165), a first for local governments in the state. Twelve other North Carolina local governments and elected officials submitted written comments in this same integrated resource planning docket, including many of the undersigned. Local governments were also deeply engaged in the 2022 Carbon Plan proceeding, both as stakeholders in Duke Energy's pre-filing stakeholder process, and as formal interveners and commenters - the City of Asheville, Buncombe County, and the City of Charlotte all formally intervened, and eight other local governments submitted written comments.

Local governments have also been active participants in numerous energy policy development processes at the state level. The City of Asheville, Town of Cary, City of Charlotte, City of Durham, Durham County, City of Greensboro, and City of Raleigh actively participated in the Clean Energy Plan stakeholder process in 2019, with several local governments also contributing to the carbon reduction policy design and NC Energy Regulatory Process (NERP) stakeholder processes that followed. Involvement in current state initiatives, including EO 246 and IIJA funding implementation, remain priorities of the undersigned local governments.

Despite this robust engagement and interest in collaborating with Duke, the undersigned are unclear how local government feedback is being received and are concerned that the comments we have provided to date have been underutilized in developing the CPIRP. The undersigned local governments 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. The undersigned request that there be better integration of existing feedback from stakeholders into the 2024 CPIRP, 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 on energy programs that benefit our residents, businesses, and local government operations. We look forward to and are committed to working with Duke 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.

Conclusion

The undersigned local governments appreciate the North Carolina Utilities Commission's consideration of our recommendations and we look forward to continued engagement in the development of the CPIRP. We are optimistic that with the incorporation of our recommendations, the effectiveness of this process will only improve and the 2024 CPIRP approved by the NCUC will reflect the input and interests of local governments and their constituents, while setting North Carolina on a path to meet its emission reduction goals.

Thank you for the opportunity to provide comments. If you need additional information, please contact [INSERT LOCAL GOV CONTACT HERE], who will direct your inquiry to the appropriate local government representative.