

Does Duke Energy's Proposed Carbon Plan Make the Grade?

A REPORT CARD

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Coalition

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Report Card

Student Name : Duke Energy

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INCOMPLETE

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F

MAXIMIZE NEAR-TERM DEPLOYMENT OF RENEWABLE RESOURCES AND STORAGE

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SET AN AMBITIOUS TIMELINE FOR CLOSING COAL

F

ALLOW NO NEW GAS

F

CAPTURE MAXIMUM BENEFITS OF CUSTOMER-OWNED RESOURCES

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LEAD TO FAIR AND AFFORDABLE RATES

F

ADDRESS HISTORIC HARM FROM FOSSIL FUELS AND DIRTY ENERGY

F

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F

IDENTIFY AND DRIVE CHANGES IN STATE AND LOCAL POLICIES NECESSARY FOR PLAN EXECUTION

INCOMPLETE

Introduction

The NC Utilities Commission (NCUC) was directed by law ([HB 951](#)) in 2021 to develop a carbon plan by the end of 2022 that will reduce carbon dioxide (CO₂) emissions from electricity generation to 70% below 2005 levels by 2030 and attain net zero CO₂ emissions by 2050.

The NCUC [instructed Duke Energy](#) to hold three major stakeholder meetings and other conversations to gather input, and then to submit a proposed plan. Duke filed that [proposal](#) with NCUC on May 16, 2022.

In January 2022, the People Power NC Coalition published [12 Principles for a Carbon Plan in the Public Interest](#) to show what was needed in order for the forthcoming North Carolina Carbon Plan to produce significant progress in decarbonizing the state's electricity supply. This report card grades Duke's proposal on how well it satisfies the principles.

Things to know about the carbon plan:

- It is being developed after three years of intensive work and study by Governor Cooper, legislators, and many other North Carolina stakeholders as a result of the urgent threat of climate change. Scientists say the window of opportunity for averting catastrophic climate change is rapidly closing and we must stop burning fossil fuels as soon as possible. Indeed, we are already seeing tragic impacts of climate change in the form of wildfires, floods, hurricanes, and more that directly impact residents across North Carolina.
- Duke Energy's proposed plan offers four different scenarios, all of which Duke wants the NCUC to approve, to provide the company with flexibility in reaching the carbon reduction goals.
- Duke's plan repeatedly claims that the proposed measures are "reasonable and prudent," a standard required by law. Yet only one of its four scenarios meets the law's 2030 target, which was set in order to minimize damage from climate change. Playing chicken with climate tipping points is neither reasonable nor prudent.

Duke Energy could have proposed a carbon plan that acted in all haste to maximize carbon-free energy, eliminate all greenhouse gas emissions as quickly as possible, and compensate marginalized communities for damage done by fossil fuel operations. Instead, the plan signals that the company's imperative is to maximize profits and to burn fossil fuels as long as the letter of the law permits.

We find Duke's proposed carbon plan woefully inadequate to meet the demands before us. We need an ambitious, equitable, anti-racist, clean, and affordable carbon plan that will serve the people of North Carolina.

For the reasons detailed below, Duke Energy’s proposed carbon plan for North Carolina fails to meet the 12 principles of a carbon plan in the public interest and therefore earns an overall grade of F.

A North Carolina Carbon Plan in the Public Interest Should...

1. Be the Responsibility of the North Carolina Utilities Commission (NCUC)



HB 951 unambiguously granted the NCUC the authority to create and enact the NC Carbon Plan. The NCUC tasked Duke Energy with the plan’s initial development. Duke held three “stakeholder” sessions and two technical sessions and then issued its draft carbon plan. The opportunity for additional input is now open to advocates and communities, followed by a final decision from the NCUC.

Duke Energy has produced not a draft plan as requested – the word “draft” does not appear in its submittal – but “two pathways consisting of four discrete portfolios...” The company then requests approval of “steps needed in the near term to further the energy transition, and also...further actions needed over the intermediate term and key signposts to be monitored over the longer term.” Duke Energy indicates that, without approval now, “these long lead-time resources...will not be available on the timelines contemplated by the portfolios.” Duke Energy acknowledges that the “Commission will be able to more fully consider the potential selection of these resources in future regulatory proceedings (such as the 2024 biennial Carbon Plan update) in which the Commission can consider in more detail the specific resource proposal and all related issues (e.g., necessary cost recovery mechanisms).”

In other words, Duke Energy has not provided enough detail to indicate what options are best for attaining North Carolina’s clean energy goals. Notwithstanding, the “Companies request that the Commission approve the Companies’ entire Carbon Plan in its entirety.”

The NCUC is a policy-making body, not a rubber stamp. It has an opportunity to take an independent look at the data from all parties involved, request outside support if needed, and offer its own plan.

We encourage the Utilities Commission to seek every avenue possible to issue a Carbon Plan that is for the people of North Carolina – one that is equitable, affordable, and ensures that

North Carolina hits the necessary emission reduction targets to mitigate the worst effects of climate change while growing a sustainable clean energy economy. Kicking decisions to 2024 and beyond belies the reality of a climate emergency.

The NCUC has the opportunity to take the reins on this process and point Duke Energy on a more sustainable, more affordable path forward that meets the requirements of HB 951.

Grade: Incomplete

2. Center Stakeholder Feedback



Duke was instructed by the NCUC to provide ample opportunity for stakeholder input into the plan before the company submitted its proposed plan. Vigorous responses to Duke’s presentations at the three online stakeholder meetings do not seem to have been incorporated into its plan. Many stakeholder concerns are mentioned in Duke’s proposed plan, only to be deferred into other processes (transmission planning, low-income programs, etc.). Stakeholders repeatedly asked Duke for transparency around modeling assumptions and felt Duke might be overestimating the cost of renewables to provide an overly rosy picture of gas.

A. Inadequate Attention to Environmental Justice

Communities with higher percentages of people of color and low-to-moderate income households have been harmed most by an energy system run on fossil fuels. The transition to a clean energy system must be designed with those communities in mind.

The carbon plan should also be designed with significant input from the communities who have been harmed most by the energy system’s use of fossil fuels. Duke’s Environmental Justice stakeholder process consisted of one meeting with around 15 utility-selected stakeholders on May 3, less than two weeks before Duke submitted its plan. This is a failure to represent communities around the state potentially impacted by the utility’s draft carbon plan.

B. Failure to Meet 2030 Target or Incorporate Stakeholder Concerns

In submitting its proposed plan, Duke appears to be taking advantage of a loophole in the legislation that gives the NCUC discretion in exceeding the 2030 and 2050 deadlines if they need that extra time “due to technical, legal, logistical, or other factors beyond the control of the electric public utility, or in the event necessary to maintain the adequacy and reliability of the existing grid.” There is little to nothing in the carbon plan that lays out those technical, legal, or logistical issues or reliability concerns that would allow them to ignore the 2030 deadline by 4 years.

None of the proposed scenarios suggested by Duke represent the least-cost path to hit the mandated 70% reduction goal. In fact, three of the four scenarios don’t even comply with the law Duke played a large role in drafting. Early retirement of coal plants alongside significant investments in distributed energy resources like rooftop solar and energy efficiency are all tools that received significant support from stakeholders and offer low-cost ways to meet the law’s timeline.

All of Duke’s scenarios assume new gas construction and were “developed based on the key planning parameter of access to firm transportation for lower-cost natural gas from the Appalachian region.” The reliance on new gas infrastructure ignores stakeholder input that pointed out the 2050 deadline meant these plants would have short operating lives. The current plan could leave customers on the hook to pay for these plants long after they’ve stopped operating.

Many issues raised in the stakeholder process were not included in the plan. Some stakeholders suggested that resiliency should be considered parallel to reliability. Duke Energy staff agreed that resiliency was important, but saw it as a separate grid consideration that would not influence resource selection for decarbonization, characterizing it as one of the “Outcomes Addressed Through Other Workstreams.” Other stakeholder input that Duke did not include in the development or execution components of the plan includes concerns that upstream emissions were not included in the Carbon Baseline and Accounting, the exclusion of life-cycle assessment of all system resources, and affordability for low- and moderate-income customers and others who are at risk and already struggling to make monthly payments.

C. Hinders Carbon Reduction Goals of Cities, Businesses and Homeowners

The carbon plan needs to: 1) help cities meet their own carbon reduction goals; 2) help businesses meet their Environmental, Social, and Governance (ESG) goals; and 3) help households gain access to clean energy. Therefore, input from all of these constituencies is needed in designing the carbon plan, and the final plan should enable their goals to be reached. But neither the development nor the execution portion of Duke’s proposed plan ensures this. Instead, Duke says it will “Consider the carbon reduction targets and plans of cities and businesses in Duke Energy’s service territories” later, “[through other workstreams](#)” (Appendix B, p. 16).

Each of these topics and outcomes are intersectional, not separate processes. Duke’s failure to consider the carbon reduction targets of cities and businesses in its service territories along with its decision to allow other ongoing processes to continue in isolation goes against stakeholder feedback. While Duke held its required stakeholder meetings, the process was performative, and ultimately Duke did not adequately incorporate stakeholder feedback into the selection of portfolios. The NCUC needs to hold Duke accountable and ensure the creation of a carbon plan that reflects the voices, experiences, and needs of the people of North Carolina.

We appreciate the utility’s commitment to hosting these stakeholder meetings, and to Great Plains Institute for their deliberate facilitation. However, the plan as filed fails to adequately and thoughtfully incorporate much of the stakeholder feedback that was raised throughout the process.

Grade: D

3. Establish Comprehensive Metrics for Success



Though Duke Energy states several times throughout its proposed carbon plan that the clean energy transition in North Carolina is supported by a wide array of stakeholders, it fails to mention why a clean energy transition is necessary and why the goals of HB 951 are structured as they are: the urgency of emissions reduction.

As Duke Energy’s plan is narrated, strategies around the pace of emissions reduction and the technologies we use to reduce them between now and 2050 aren’t that different from one another. Emissions reduction is almost treated as an afterthought – something ratepayers should trust that Duke

Energy will achieve. In fact, only one of the four portfolios offered would allow the company to meet the 70% reduction goal by 2030, despite the fact that the most recent climate report from the Intergovernmental Panel on Climate Change says all greenhouse gas emissions must be urgently reduced.

In our 12 principles document, we suggested the following principles to guide an emissions accounting methodology that would be transparent and comprehensive. Here is a look at how Duke’s proposed carbon plan addressed them:

A. Measure All Six Primary Greenhouse Gas (GHG) Pollutants, Not Just Carbon Dioxide

One significant weakness of HB 951 was its focus on carbon dioxide at the expense of other greenhouse gases that are contributing to the climate crisis. While the legislation did not require Duke to measure and reduce other gases such as methane, it did not prohibit them from doing it either.

As Duke acknowledges in [Appendix A \(Carbon Baseline and Accounting\)](#), stakeholders consistently raised this concern during the public feedback process throughout the first quarter of 2022. In response, the company pointed stakeholders to separate, voluntary “sustainability commitments” reported elsewhere.

There are serious problems with this approach. It does not provide an incentive for Duke Energy to reduce its dependence on fracked gas in the short term. And it leaves stakeholders out in the rain. In their current vision of carbon planning, stakeholders will only have access to data on carbon dioxide while investment decisions are being made. They will then be forced to wait until after capital is already in the ground to find out how the other greenhouse gases, like methane, were affected.

A majority of organizations are planning for comprehensive emissions reduction the right way and are measuring all greenhouse gases. How can they accurately chart their course using this process?

Section Grade: F

B. Use a Third-Party Verification Service

Just as Duke Energy is required to undergo financial audits to ensure the information they provide is an accurate representation of their finances, the Company’s emissions reports should undergo third-party verification – a standard best practice in sustainability reporting.

According to the [Greenhouse Gas Protocol](#), the standard guidance on emissions reporting produced by the World Resources Institute, the goals and benefits of verification include:

- “Increased credibility of publicly reported emissions information and progress towards GHG targets, leading to enhanced stakeholder trust
- Increased senior management confidence in reported information on which to base investment and target setting decisions
- Improvement of internal accounting and reporting practices (e.g., calculation, recording and internal reporting systems, and the application of GHG accounting and reporting principles), and facilitating learning and knowledge transfer within the company
- Preparation for mandatory verification requirements of GHG programs.”

Duke Energy did not suggest that its reports will undergo third-party verification. In fact, the company states in Appendix A that it believes reporting is not required under the legislation but is committed to updating stakeholders in the carbon plan reviews that will be conducted every two years. They provide no indication, however, of which data will be included in the update, how stakeholders will access it, or whether Duke will consider verification.

Section grade: F

C. Account for System-Wide Emissions

Duke Energy operates two systems in the Carolinas, Duke Energy Carolinas and Duke Energy Progress, and both systems cross the border between North Carolina and South Carolina. HB 951 is only law in North Carolina, however, and therefore only requires emissions reduction in North Carolina. In its draft plan, Duke Energy said it modeled the pathways assuming all new assets would be located in North Carolina, but admitted it was possible that fossil fuel assets could be added in South Carolina and those emissions would not be accounted for.

To ensure all emissions created through the process of generating electricity for North Carolina are accounted for, Duke Energy should be more explicit in its recommendations to the NCUC. Rather than staying neutral, they should include all generation-related emissions in South Carolina be included in the baseline and should voluntarily include emissions from auxiliary units in a transparent manner.

To Duke's credit, they have voluntarily committed to avoiding the use of carbon offsets, which the law did allow for. This will allow stakeholders and investors to monitor emissions reduction more closely, and to ensure that emissions are actually being reduced rather than traded.

Section grade: D

D. Clearly Identify Interim Milestones, Associated Schedules, and Responsible Parties

A carbon plan approved by the NCUC should represent a clear path forward toward the goals of HB 951. Instead, the draft plan that Duke Energy submitted contains four very different scenarios and the utility is seeking blanket approval from the Commission to pursue whichever options they would like as time goes on. This is not a transparent form of planning, and makes it difficult for stakeholders to understand what the utility intends to do.

In addition, three of the four scenarios proposed by Duke Energy miss the 2030 target set by HB 951 – an unacceptable starting position and a blatant disregard for the milestones we know we must hit to avoid the worst impacts of climate change.

A strong carbon plan that will guide North Carolina through this process in a transparent manner must acknowledge that some flexibility is necessary as technologies evolve, while ensuring that each carbon plan does its best to estimate schedules and meet its goals.

Section grade: F

Overall Grade: F

4. Reflect Work from the Previous Clean Energy Plan Process



Ever since Governor Roy Cooper issued [Executive Order 80](#) on climate change in 2018, hundreds of stakeholders from around the state have been developing ideas for transitioning North Carolina’s power sector to carbon-free energy. This process produced the [NC Clean Energy Plan](#) (2019), the [North Carolina Energy Regulatory Process](#) (NERP) report (2020), and the [Power Sector Carbon Reduction](#) report (2021).

When it ordered Duke to prepare a proposed carbon plan, the NCUC [specified](#) that Duke’s carbon plan stakeholder process take into account the "collaborative work and the outputs" of these efforts and "build off of the consensus achieved and resources expended."

Duke does indeed cite this work in its [Appendix B: Stakeholder Engagement](#) (pp. 17-19). However, regarding the 2021 report, Duke says that, while it is "valuable to continued conversations regarding decarbonization," the outcomes are "not directly applicable to the development of the Carbon Plan." Duke claims that HB 951 "established the policy framework" for the carbon plan, but nothing in the law precludes Duke from considering, advocating for and planning around policies identified by stakeholders as useful for reducing carbon emissions.

The “shadow cost of carbon” that Duke mentions in [Attachment E: Quantitative Analysis](#) (p. 94) is similar to the “carbon adder” in the 2021 report. Duke would add it to the actual cost of higher-carbon sources in deciding whether to run a coal plant or a gas plant at any given time. However, it is only presented as a theoretical possibility and there does not seem to be any discussion of using it to choose renewables or energy efficiency over gas, which is where real carbon reduction potential lies.

Some of the ideas in the 2020 report were included in HB 951. In addition to the NC Carbon Plan now being developed, the law provided for securitization to reduce the cost to ratepayers for coal plants that retire early and performance-based regulation (PBR) to shift utility incentives in a way that better supports current public policy goals.

The carbon plan, securitization and PBR are each being considered by the NCUC separately, which means without more transparency from Duke, stakeholders cannot be confident that Duke is utilizing coal plant securitization and PBR to maximize customer savings and deliver a

least-cost Carbon Plan that complies with the law. How can the NCUC determine the least-cost pathway for carbon reduction, as required by HB 951, without knowing how much coal securitization will occur? How do we determine what emissions reduction will be possible from "grid edge" customer programs, including rooftop solar, without knowing what performance incentives the PBR docket will establish to reward Duke for achievements in that area? In its Carbon Plan, Duke states that it took securitization into account in its coal plant retirement analysis, but the company fails to share any details on how the various retirement schedules could impact customers or how its preferred plan maximizes the savings that securitization can deliver.

One recommendation left on the cutting room floor by HB 951 and Duke's proposed carbon plan is that the state conduct a study of options for North Carolina to join a wholesale market, similar to the study being conducted in South Carolina. A bill calling for such a study ([HB 611](#)) has been introduced in the 2022 legislative short session, and Duke has been [quoted](#) as opposing it. Even Duke's own plan for a Southeast Energy Exchange Market (SEEM) is not mentioned in the proposed carbon plan.

There is also no indication in Appendix B that the mechanisms identified in the Clean Energy Plan process were part of Duke's Carbon Plan stakeholder process, as instructed by the NCUC. This continues a long tradition of Duke Energy behaving as if it were the most important stakeholder in North Carolina and working to minimize other voices with which it does not agree.

Grade: F

5. Maximize Near-Term Deployment of Renewable Resources and Storage



A. Advance Wind Energy

Principle #5 states that a carbon plan in the public interest would achieve Governor Roy Cooper's goal for offshore wind development off the North Carolina coast as set out in his [Executive Order No. 218](#) (EO 218): 2.8 gigawatts (GW) by 2030 and 8 GW by 2040.

Duke's proposed plan calls for just 1.6 GW by 2035, and does not discuss additional wind thereafter. Duke's proposed plan also foresees 1.2 GW of onshore wind (largely imported from other states). These amounts are even less than what Duke proposed in its latest [Integrated Resource Plan](#) (IRP, the 15-year plan for new generation that Duke must submit to the NCUC every 2 years).

Principle 5 also recommends controlling costs by procuring wind energy from a third party versus Duke building facilities itself. Duke says that it “intend[s] to use a wide range of competitive procurement practices as part of its overall execution strategy” for the carbon plan (Appendix B, p. 19), which could facilitate this goal.

[Two auctions](#) have been held for leases to develop an estimated 4 GW of wind energy off the NC coast. Duke Energy Renewables Wind LLC (another subsidiary of the Duke utilities’ holding company) [won a lease in May](#) representing potential for around 1.6 GW. Do the Duke utilities intend to only buy North Carolina wind energy from their own sister company?

The NCUC should clarify terms for ownership of offshore wind, increase the offshore wind target in the carbon plan to match those of EO 218, and establish a mechanism for ensuring that wind energy development is as affordable as possible.

B. Couple Solar Energy with Battery Energy Storage Systems

Duke foresees as much as 11.9 GW of new solar and as much as 4.2 GW of battery storage by 2035. This is more than projected in the [last IRP](#), but still much less than what is possible.

It is dismaying to hear Duke repeatedly referring to the need for new gas plants to ensure “reliability as the system becomes increasingly dependent on intermittent renewable resources.” Although Duke recognizes that energy storage also addresses this need, the company glosses over that fact when arguing for new gas.

Given the extreme urgency of the climate crisis and the need to stop building fossil fuel infrastructure, Duke should present a detailed and transparent analysis showing why it believes that reliability needs cannot be met with storage.

Duke also plans 1.7 GW of new pumped storage at its Bad Creek site, where excess power is used to pump water from a lower to a higher reservoir that can later be released to generate hydropower at times of high demand.

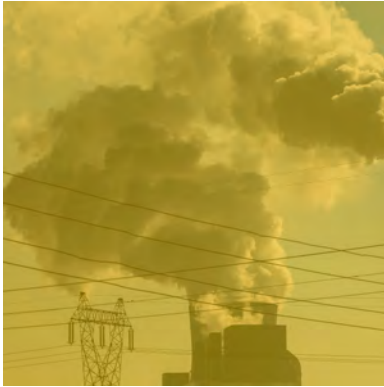
As explained in more detail under principle 7 below, other utilities are currently adding storage at a pace that would allow Duke to replace all its intended new gas with storage.

C. No Imaginary Technology

We know we can reduce carbon emissions with the technologies we have already or that are on the verge of being commercially available. Yet Duke’s proposed plan relies heavily on unproven technologies such as small modular nuclear reactors (SMRs) and hydrogen, the costs of which remain extremely uncertain.

Grade: D

6. Set an Ambitious Timeline for Closing Coal



It is a total failure that Duke's proposed carbon plan extends the life of multiple coal plants beyond the 2029 date that was included in Duke's last IRP. In fact in South Carolina, Duke is still actively pushing the South Carolina PSC to approve the earlier coal retirement plan as the most reasonable and prudent schedule. Duke Energy's coal plants have long been uneconomic, and they are the biggest source of carbon dioxide pollution in North Carolina's energy landscape. When Duke continues to run these plants, they make energy unnecessarily expensive, and pollute the air and water in North Carolina communities. The retirement of all coal plants should be accelerated; Duke should close at least half of its

coal fleet by 2025 and achieve coal-free energy by 2030.

In its proposed plan, Duke itself acknowledges, "***Coal is an increasingly risky fuel source...the Companies' remaining coal facilities are nearing the end of their technical and economic life and becoming riskier to operate; thus, retirement is increasingly inevitable.***" They know this, yet they are proposing North Carolinians bear this risk and wait as long as 14 years for retirement of some facilities. This is unacceptable. People who live next to coal plants **breathe in higher levels of air pollution and toxic substances.**

Coal-fired power plants **generate massive amounts of pollution**, including fine particulate matter (PM2.5), which is especially detrimental to human health because it can infiltrate deep into the lungs and **increase the risk of asthma, heart attacks, stroke, cancer, premature death**, and even **impaired cognitive function**. Air pollution from coal-fired power plants leads to **thousands of deaths each year** in the United States as well as a significant number of **doctor visits and hospitalizations**.

In addition to the continued health and environmental costs to North Carolinians, coal is the most expensive and uneconomic choice for energy generation. Getting rid of coal quickly is one of the most efficient ways to meet the carbon reduction goals established by HB 951.

HB 951 also allows Duke to securitize half of the remaining plant balances of the subcritical coal units. Securitization is essential to ensure coal is retired as quickly and cheaply as possible. Ratepayers will still be responsible for paying off the retired plants, but the cost will be less because it will be financed with low-interest bonds.

Duke relied on assumptions in its modeling that systematically skewed its results in favor of continued reliance on fossil resources and a continued delay in the transition to renewables.

Duke should not ask North Carolinians to pay the costs associated with continuing to operate dirty, expensive, coal plants, and should not further delay this inevitable transition. Duke Energy can achieve the carbon reduction requirements by 2030 by retiring its remaining coal fleet and can meet the 2030 goal using existing technology, so they should not plan for failure from the start.

Grade: F

7. Allow No New Gas



Duke says its portfolios include “[a limited number of hydrogen-capable efficient natural gas resources](#),” giving the impression that the company has minimized gas in its draft carbon plan.

Not so. Duke already has nearly 12,000 megawatts of gas capacity on its system, yet the company’s draft carbon plan calls for building another [3,600-4,000 MW through 2035](#). Duke proposes that 2,400 MW of this gas-fired capacity would be baseload combined cycle (CC) capacity, with the remainder being low-usage combustion turbines (CT) to provide peaking power.

Thus, the amount of new gas is far from “limited,” nor is its cost to ratepayers, nor is the amount of fracked gas to be burned. This is at a time when UN Secretary General António Guterres – [announcing](#) an April 2022 report from the Intergovernmental Panel on Climate Change – stated that “investing in new fossil fuels infrastructure is moral and economic madness.”

A. Gas Not Needed for Reliability

Duke’s existing gas capacity, along with an amount of energy storage that the company could reasonably deploy, would be adequate to fulfill the functions for which Duke claims its new gas is needed: “system flexibility and reliability services...as remaining coal units are retired and the system becomes increasingly dependent on intermittent renewable resources.”

In its recently approved time-of-use tariffs, Duke has set the period of on-peak demand as a 3-hour window: 6-9 pm in the summer and 6-9 am in the winter. Therefore, an adequate amount of 4-hour battery storage – the basic standard battery storage duration to substitute for a gas-fired CT – could ensure reliability during Duke’s period of highest demand without any new CTs.

None of Duke Energy’s existing coal plants operate anywhere near baseload. Most operate with capacity factors typical of peaking CT units (see [Duke Energy Carolina 2020 IRP](#), p. 79, Table

11-A). Some of Duke Energy's existing CTs have operated at higher capacity factors than the coal units. Duke Energy has provided no technical justification for proposing to build new baseload CCs. CTs are sufficient to provide the "flexibility and reliability" Duke says it needs to substitute for its coal units. Given this reality, there is no technical reason that 3,600-4,000 MW of new gas-fired CTs could not be substituted with battery storage.

Duke's [scenarios](#) already foresee 4,000-6,000 MW of new storage by 2035 (batteries plus pumped hydro storage). Increasing that amount would allow Duke to completely eliminate its new gas and still ensure reliability.

California's two biggest investor-owned utilities, PG&E and SCE, which are comparable in size to Duke in North Carolina, will each add about 3,000 MW of battery storage by 2024 under current procurement obligations. If Duke added storage at that pace (1,500 MW/year), it could build 10,500 MW of battery storage between now and 2030, more than replacing the new gas capacity in the company's proposed plan.

Furthermore, a [2021 analysis](#) (p. 14) showed that Duke had over 2,000 MW of existing gas capacity (mostly CTs) sitting idle on a 2018 day when demand on the system was at an extreme peak. At low gas prices, the analysis (pp. 6 and 28) found that these existing CTs are cheaper to operate than coal plants. Even at high gas prices, it would be significantly cheaper over time to increase the use of these CTs and then retire them in 10-15 years than to build a whole new 3,600-4,000 MW fleet of gas capacity that will be around for decades.

B. Methane

What utilities euphemistically refer to as "natural gas" is a mixture of gaseous hydrocarbons composed mostly of methane. These days, it is obtained primarily by hydraulic fracturing (fracking). Methane is a greenhouse gas 80 times more potent than carbon dioxide over its first 20 years in the atmosphere (a time period in which the bulk of our carbon goals must be met).

Methane that is burned emits carbon dioxide, although less than if coal were burned to generate the same amount of energy. But not all the methane is burned. Some percentage of it leaks into the atmosphere during drilling, storage, compression and transport. More is intentionally vented during pipeline maintenance operations. If [more than about 3%](#) of the methane is emitted unburned into the atmosphere, it has a worse climate impact than coal (see, also, [World Energy Outlook 2017](#), p. 417). A [study published in March](#) showed an alarming 9.4% of methane was being emitted unburned into the atmosphere from extraction and transportation activities in the Permian Basin of New Mexico.

As outlined above under Principle 3, it is essential to use meaningful metrics to measure greenhouse gas reductions. HB 951 unfortunately requires only CO₂ and only emissions within Duke's system to be counted. But given the methane leakage cited above, it is obvious that a carbon plan intending to avert catastrophic climate change is meaningless if it ignores upstream

emissions of methane and approves new gas infrastructure that will bake in massive future methane emissions.

As UN Environment Programme executive director [Inger Andersen](#) stated in 2021: "Cutting methane is the strongest lever we have to slow climate change over the next 25 years." Duke should have operated that lever in its proposed plan.

C. Pipelines

Duke's carbon plan justifies the expansion of fracked gas as necessary to ensure reliability of the grid under peak conditions. Of course reliability is a justified concern, but Duke's assumptions about the reliability of fracked gas are misleading. In the [company's own words](#):

"Gas-fired generation relies on the availability of adequate real time pipeline deliverability or on-site diesel to ensure fuel availability..."

"Currently obtaining deliverable gas supply into the Carolinas from the marketplace during these periods of high demand is constrained. The constrained market also leads to gas supply that can be cost prohibitive if even available at volumes required."

Duke is relying on fracked gas as a cost-effective and reliable fuel while dismissing the additional cost associated with pipeline development. That cost impacts ratepayers, and communities living near these pipelines would experience negative impacts on water quality and property value, among others.

D. Market Volatility

Natural gas prices are [higher than they have been since 2008](#) and this cost is being passed on to ratepayers. As discussed above, Duke admits that the infrastructure for pipelines does not exist to the level required for this plan. Additionally, the company fully acknowledges that "new incremental firm transportation is needed" and "this increases exposure to price volatility and constrained supply." (see [Appendix Q](#), p. 5). All of the portfolios in Duke's draft plan pass costs on to ratepayers, but Duke's failure to fully calculate how fracked gas expansion would impact ratepayers also misrepresents the costs and benefits of a renewable energy transition. This will have lasting impacts on energy affordability in North Carolina.

E. Stranded Costs

If Duke builds new gas now, it likely will have to be closed before the end of its useful lifetime, leaving “stranded costs” that Duke will be allowed to recover from ratepayers for plants that are no longer running. A 2021 report by the Energy Transition Institute, [Carbon Stranding: Climate Risk and Stranded Assets in Duke’s Integrated Resource Plan](#), found that the new gas then being planned by Duke Energy could result in \$4.8 billion in stranded costs for customers.

If Duke’s plan for new gas infrastructure is accepted by the NCUC, ratepayers will be forced to invest in technology that even Duke acknowledges must be phased out to reach emission targets by 2050.

When Duke considers the risk of implementing new gas, aside from making misguided assumptions about pipeline expansion, Duke cites [two new possible regulatory challenges](#), both of which should be celebrated, that might further impede its plans to expand the use of fracked gas. The first is the possibility that the U.S. Environmental Protection Agency may propose stricter emission standards for gas-burning power plants as early as July 2022. This could increase the cost of Duke’s gas plants, making them even less competitive with other resources. The second is Section 6 of Governor Roy Cooper’s [Executive Order No. 246](#), which calls on state agencies to begin considering how to implement the Federal social cost of greenhouse gas emissions in their decisions.

F. Hydrogen

Duke says its [new gas plants will eventually burn hydrogen](#), first blended with fracked gas and eventually using 100% hydrogen in the gas plants that remain in 2050. However, Duke only plans to increase hydrogen blending to 15% by 2040 in existing plants. New plants built after 2040 would run on 100% hydrogen, and plants built between now and 2040 to replace retiring coal would be converted to 100% hydrogen by the late 2040s.

Duke acknowledges significant limitations to the development of hydrogen, including “the cost of production, storage costs, production reliability, generation asset technology limits (low emission combustion), limited operational experience with variable resource grids, and transportation limitations as a result of pipeline material and volume limits.” It is also not clear if Duke has included the cost of hydrogen pipelines in its analysis.

The [Natural Resources Defense Council](#) (NRDC) says policies are not yet in place to ensure hydrogen is produced using green energy. NRDC argues that the best uses of hydrogen are not for electricity generation but in the hardest to decarbonize sectors -- such as industry, aviation and long-distance trucking – and warns that utilities are using hydrogen as “a warm futuristic mirage to prolong the status-quo, promising to convert their expanding fossil infrastructure to hydrogen sometime in the future.”

[New York last year](#) refused to allow the construction of two new gas plants that were intended to eventually run on hydrogen. The state environmental regulator ruled that the projects had not established the feasibility of using the alternative fuels “from either a supply or GHG emission perspective,” nor demonstrated that the new plants were needed for reliability.

G. Circumventing Regulatory Process

Duke Energy’s plan [includes a request](#) to the NCUC that it direct Duke and the Public Staff of the NCUC to “develop and propose for comment by January 31, 2023, revisions to the Commission’s IRP Rule R8-60 and related rules for certificating new generating facilities to support execution of the Carbon Plan.” This refers to the certificate of public convenience and necessity (CPCN) that Duke must obtain from the NCUC before building a new generating facility. Duke does not specify what revisions it seeks, but the request is ominous and could signal that the company will seek to expedite the CPCN process, as it did when it constructed its latest [gas plant near Asheville](#), limiting opportunities for public input.

For the reasons detailed above, building new gas infrastructure and increasing the use of fracked gas should not be part of the carbon plan.

Grade: F

8. Capture Maximum Benefits of Customer-Owned Resources



Duke’s [Appendix G: Grid Edge and Customer Programs](#) outlines an array of existing and future so-called “grid-edge” or customer programs including energy efficiency (EE), demand-side management (DSM), demand response (DR), and various customer distributed energy (DER) programs.

The plan fails to compare demand-side programs to supply-side resources such as new gas or nuclear plants, making it impossible to determine the least-cost pathway to reduce carbon. Instead, the plan foresees a flat 1% of “eligible load” (or 1% of the load, excluding large industrial ratepayers who have opted out of the energy efficiency programs). This is not a “very ambitious target” as described in the plan. In fact this is a target Duke has repeatedly hit in the past. It is exactly business as usual.

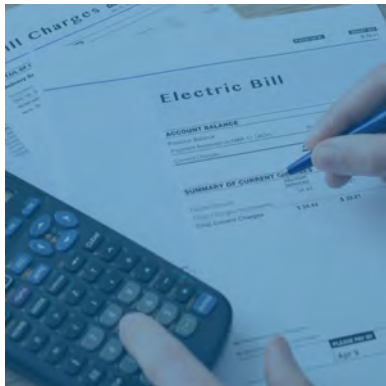
While these customer programs are embedded in the modeling assumptions for the quantity and the shape of load Duke will have to meet, there are no specific targets or MW or MWh goals

or minimums in this section. Duke references a 1% energy savings from cumulative existing EE program targets, but does not specifically state that any programs in this section will be expected to outperform. The company leaves open the prospect that the customer programs described in this section could exceed the 1% energy savings goal, but does not put forward a plan for achieving the full potential of customer engagement in reaching the overarching carbon plan targets.

The carbon plan gets an F for this section addressing customer-sited DER and customer programs, simply because it is incomplete and fails to articulate the full potential of these customer-side programs to reduce carbon intensity. With that said, the company has outlined some future programs that, despite the limited information or details, hold the promise to bring about fundamental changes in how customers consume energy and interact with the grid.

Grade: F

9. Lead to Fair and Affordable Rates



Today, rates are already unaffordable for the thousands of people struggling to pay their bills and even being disconnected for the inability to pay. While there are concurrent conversations about affordability dynamics in the [Low-Income Affordability Collaborative](#) and elsewhere, there is nothing specific in the carbon plan to address affordability. Simply saying we will work with stakeholders on a plan is not a plan.

The NCUC should not finalize a carbon plan until it includes specific and effective programs to ensure no low-income person is disconnected for the inability to pay.

Grade: F

10. Address Historic Harm from Fossil Fuels and Dirty Energy



Communities living in the shadow of dirty power plants have already paid dearly for our reliance on energy sources that are not clean – suffering more health impacts and adverse impacts to local economies than other communities. To ensure a just transition, a carbon plan must acknowledge the role these facilities continue to play in communities across North Carolina and ensure their voices are heard in visioning a clean energy future.

[A. Use Best Practices Identified through the EO 246 Deliverables](#)

[Executive Order No. 246](#) requires that “each Cabinet agency, supported by the Governor’s Office, shall develop an agency public participation plan informed by stakeholder input. The plan shall include best practices for community engagement, meaningful dialogue, and efficient mechanisms to receive and incorporate public input into agency decision-making.”

The carbon plan should be designed with significant input from the communities who have been harmed most by an energy system run on fossil fuels: communities with higher percentages of people of color and low- to moderate-income households. The transition to a clean energy system should be designed with those populations in mind.

Duke’s Environmental Justice stakeholder process consisted of one meeting of a handful of utility-selected stakeholders on May 3. This is a failure to represent communities around the state potentially impacted by the utility’s carbon plan. Incorporating environmental justice concerns into the plan requires an equitable process that could and should have begun with the initial stakeholder meeting. Failing to meet with stakeholders until the draft plan was almost submitted does not leave adequate time to incorporate their concerns.

[B. Incorporate the Social Cost of Greenhouse Gas Emissions](#)

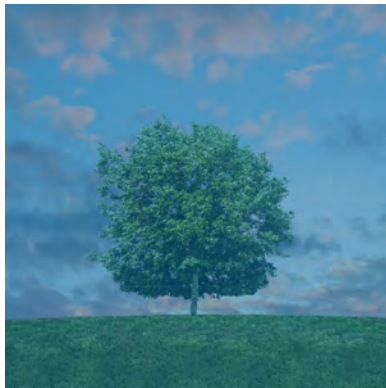
EO 246 states: “the federal Interagency Working Group on the Social Cost of Greenhouse Gases (IWG) plans to publish an update of its social cost of greenhouse gas emissions (SC-GHG) estimates by January 2022. Wherever feasible, agencies are encouraged to incorporate the IWG’s SC-GHG estimates into agency decision-making processes that impact GHG emissions, even if guidance has not yet been issued for that decision-making context.” We agree with the Governor and encourage the NCUC to consider incorporating the social cost of greenhouse gas emissions, or to explain existing obstacles to doing so. This would allow for a more complete accounting of cumulative impacts, and the effects of energy generation on communities.

C. Reliance on Fracked Gas

Duke’s carbon plan relies on the continued buildout of gas infrastructure, a decision which is not only expensive for ratepayers, but harmful for communities. Additionally, the plan fails to transparently state where that infrastructure would be sited or what communities would be directly impacted by those decisions. It is impossible to say we are addressing historic harms of fossil fuels and dirty energy if we are continuing to increase our reliance on gas when communities stand to benefit from clean, renewable technologies like solar energy and battery storage.

Grade: F

11. Build Climate Resilience



As stated in our principles document, mitigation and adaptation are two sides of the same coin. While we must quickly mitigate emissions to ensure the impacts do not become even more severe, communities are already facing disruptions that are requiring them to adapt to climate change. A carbon plan that encourages customers to incorporate clean energy redundancy systems that will provide power to a home or business in emergency times, but also supply the grid in normal times, is a win-win for customers and the utility.

Unfortunately, Duke’s proposal does not connect carbon planning to climate resilience planning, making it difficult to understand how exactly those two processes will work in tandem and save ratepayer dollars by leveraging the power of clean energy.

A. Microgrids

While Duke’s draft carbon plan does include increases in clean energy like solar and wind, it is unclear how many of those resources will be used in a distributed, intentional way to build community resilience through the use of technologies like microgrids.

Microgrids reduce community reliance on centralized infrastructure during extreme weather events such as hurricanes and heatwaves. At the same time, they decrease community dependence on fossil fuels, decrease overall demand, and help to reduce emissions when paired with clean energy. A carbon plan in the public interest should maximize the use of these technologies and clearly advocate for pilot programs and transparent reporting to ensure stakeholders have the data they need to implement programs in their own communities.

B. Vehicle-to-home Storage Applications

Duke Energy claims in its draft plan that it is prioritizing reducing demand and increasing efficiency. Reducing demand with vehicle-to-home storage applications would allow the utility to meet its emissions reduction demand quickly while also reducing community vulnerability to outages during extreme weather events – but the draft plan fails to fully quantify the benefits of these applications and the cost of hardening the grid without incorporating distributed energy resources.

C. Climate-related Vulnerabilities of Centralized Infrastructure

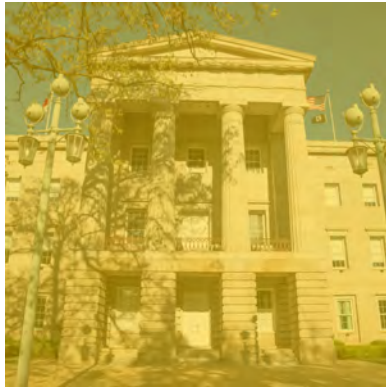
We know the impacts of climate change will make the grid more expensive to operate, from the increasing costs of more frequent storm damage to the cost of hardening infrastructure to withstand new climate extremes. Further leveraging the use of distributed energy resources and clean energy allows the utility to simultaneously reduce climate-related vulnerabilities to its transmission and distribution systems and reduce emissions at the same time. This reduces costs over time for ratepayers when compared to expanding centralized and often fossil fuel-based infrastructure, as well as increasing the reliability of service during storms.

Also, large fossil fuel power plants are dependent on being regularly supplied with fuel, unlike renewable energy resources like wind and solar. This leaves them vulnerable to supply chain disruptions and volatile commodity prices, both of which are made more likely by the effects of climate change, and for which ratepayers will ultimately be asked to pay. Increased use of distributed energy resources can help to mitigate these risks.

Duke’s insistence on keeping carbon planning and climate resilience planning separate is a disservice to ratepayers and is not a reasonable or prudent means of preparing the service area for what its own climate data is telling them.

Grade: F

12. Identify & Drive Changes in State/Local Policies Necessary for Plan Execution



While most energy decisions are made at the state level by the NCUC, other organizations such as cities, counties and other state agencies have an important role to play as well. In the carbon plan, the NCUC should ask Duke Energy to identify important partners, obstacles, and policy needs that would help them decarbonize but that fall outside of the authority of the NCUC.

At the local level, for example, municipal planners and engineers could benefit from ongoing training programs and regular education on carbon plan implementation. Zoning ordinances, building codes, and other local laws that govern how towns are built and maintained can be altered to maximize customer participation in carbon plan programs, but many municipalities lack the resources to stay updated in this field. A carbon plan in the public interest would detail a specific plan to link local and state organizations and ensure new information and research is being shared between them.

At the state level, supplemental legislation to support the goals of HB 951 could help the state meet its goals more quickly. Allowing third-party sales of electricity could jump start the small-scale renewables markets and rapidly reduce demand on fossil fuels. Legislation that stops homeowners associations from prohibiting rooftop solar or electric vehicle chargers and provides a tax credit would also go a long way in ensuring customer investments in renewables are secure and enticing. Happily, some [helpful legislation](#) of this sort has been introduced in the current legislative short session. Duke and the Commission should actively support it.

Many organizations at the local and state level do not have the expertise or resources necessary to do this alone. Duke Energy must be required to identify opportunities for collaboration and ensure that local and state officials have the information they need to be proactive and helpful in this space.

Duke has not attempted to identify additional state and local policies that could boost decarbonization efforts. In its final version of the plan, the NCUC should identify and lay out next steps for putting such policies in place.

Grade: Incomplete

Conclusion

HB 951, the law that instructed the NC Utilities Commission (NCUC) to develop a carbon plan, did not mention climate change once, though it is the primary reason we need to reduce carbon emissions. The executive summary of Duke Energy's proposed carbon plan mentions climate change only in a footnote, and only because the term is part of the URL for the state's Clean Energy Plan.

We must hold Duke and the NCUC accountable for actually addressing the problem that the carbon plan is intended to solve. We agree with UN chief António Guterres that building new fossil-fueled power plants now is “moral and economic madness.”

It is time for the NCUC to stand up to Duke Energy's business practice of constructing convoluted arguments for why projects that would just happen to make the most money for the corporation are magically the least cost and most reasonable and prudent. Without more transparency in Duke's modeling or more pushback from the NCUC, we will continue to see utility projects that unnecessarily raise rates and further delay urgently needed climate solutions in favor of costly, unproven technologies.

There are cheaper alternatives that would reduce emissions faster, but Duke ignored them.

For all the reasons outlined above, we give Duke's proposed carbon plan an overall grade of F.

The next step is for the NCUC to hear from the rest of us. Official intervenors will submit comments and alternative plans on July 15 and [five public hearings](#) have been scheduled beginning July 11 at which all North Carolinians can be heard.

The People Power NC coalition will host a series of training sessions for members of the public interested in testifying before the NCUC. The first training is on [June 22](#).

Ultimately, it is the NCUC, not Duke Energy, who will write the carbon plan. Public input to the NCUC can still move the needle significantly.