

# 1 Introduction and Background

For more than a century, Duke Energy Carolinas, LLC (“DEC”) and Duke Energy Progress, LLC (“DEP”) and, together with DEC, “Duke Energy” or the “Companies”) have delivered on their commitment to provide affordable, reliable electricity to customers and communities in the Carolinas. The Companies’ two dual-state electricity systems serving North Carolina and South Carolina (that is, North Carolina customers are served, in part, by South Carolina-sited generation and South Carolina customers are served, in part, by North Carolina-sited generation) provide electric service to 4.2 million customers over a 56,000-square-mile area, with more than 30,000 megawatts (“MW”) of electric generating capacity. Appendix C (System Overview) provides an overview of the dual-state systems.

Through constructive regulation, prudent investment, and efficient operation, the dual-state systems have delivered tremendous economies of scale, resiliency, and savings to customers and communities in both states. The dual-state systems have created competitive advantages for both states’ economies and have fueled job creation through the reliable and safe supply of electricity at rates consistently below the nation’s average. To continue to deliver these results, mitigate known risks posed by continued reliance on emissions-intensive resources, and meet the requirements of Session Law 2021-165 (“HB 951”), the Companies have prepared their proposed Carolinas Carbon Plan (the “Plan” or “Carbon Plan”).

Like the Companies’ Integrated Resource Plans (“IRP”) and associated IRP updates submitted to the North Carolina Utilities Commission (“Commission”) and the Public Service Commission of South Carolina (“PSCSC”) in 2020, the Plan presents multiple potential portfolios for the Companies to meet future energy and demand requirements and assesses the associated risks, benefits, and costs to customers of the portfolios. Like the IRPs, the Plan identifies multiple supply- and demand-side resource combinations needed to meet the Companies’ projected demand over time to ensure reliable service to customers.

Also like the 2020 IRPs, the Plan targets further reductions in carbon emissions. While directionally similar to Portfolio C in the 2020 IRPs, which accomplished a 66% reduction in CO<sub>2</sub> by 2030, the Plan represents a more updated resource analysis that would achieve 70% CO<sub>2</sub> emissions reductions by 2030, 2032 or 2034 with wind and nuclear. Importantly, the Plan is a product of a series of robust stakeholder engagement sessions conducted in early 2022 with a diverse group of hundreds of

stakeholders, as well as numerous other issue-specific collaboratives and task forces the Companies' subject matter experts have routinely attended, conducted, and/or hosted in the Carolinas.

Finally, the Companies continue to believe that supportive state policies in both North Carolina and South Carolina that allow for continuation of the Companies' dual-state systems are in the best interests of customers. The Companies also affirm that subsequent regulatory processes will be needed in South Carolina (as discussed in more detail below), along with continued engagement with South Carolina stakeholders, in order to ensure continued dual-state alignment. Continued alignment in both states will provide immense benefits to both North Carolina and South Carolina, and the alternative would necessitate a different model for serving customers, potentially increasing costs by inefficiently serving North Carolina and South Carolina customers separately. The Companies are hopeful that this outcome will be avoided and that the Plan will ultimately be accepted in both states.

## Orderly Energy Transition Began Two Decades Ago

The Companies' orderly transition away from continued reliance upon emissions-intensive resources began in the early 2000s. Since 2010, DEP and DEC, collectively, have retired approximately 4,400 MW of aging, inefficient coal-fired generation, consisting of 35 units, and converted approximately 3,150 MW of coal capacity, consisting of eight units, such that they can use natural gas as a fuel. The Companies' existing emissions-free resources are significant. The six nuclear plants, 26 hydro-electric facilities, and almost 1,000 solar facilities that are now online and serving customers are foundational to the Companies' orderly transition of its dual-state systems. With winter capacities of the Companies' nuclear and hydro fleet reaching over 11,000 MW and 3,400 MW, respectively, continued operation of these emissions-free resources is essential to meeting the interim 70% CO<sub>2</sub> emissions reductions target outlined in this Plan. Relicensing of the nuclear fleet, which began this year, provides the Companies the option to operate these plants for an additional 20 years. Relicensing of the Companies' hydro units began nearly two decades ago and has been largely successful. In 2022, DEC began the multi-year process of relicensing the Bad Creek Hydroelectric Project, one of the largest energy storage assets in the world, for another 40-50 years. If successful, the resource would continue to provide customers with 1,400 MW of storage capacity with the potential to approximately double the capacity through investment in expansion of the existing Bad Creek facility subsequent to relicensing. Furthermore, in the last decade, the Companies' solar resources have grown to approximately 4,350 MW of installed solar in the Carolinas, ranking Duke Energy among national leaders in solar energy.

## Orderly Energy Transition Is Reasonable and Prudent

The orderly transition away from reliance upon emissions-intensive resources is a reasonable action and the Plan's portfolios are reasonable, prudent, and consistent with risk mitigation practices throughout the electric power industry. Irrespective of the many attempts to regulate the electric power sector's carbon emissions at the federal level,<sup>1</sup> numerous electric utilities' integrated resource planning

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<sup>1</sup> Congressional Research Service, U.S. Climate Change Policy (Oct. 28, 2021), *available at* <https://crsreports.congress.gov/product/pdf/R/R46947>.

now includes a focus, preference or requirement that a utility's long-term plans incorporate CO<sub>2</sub> reduction goals, targets or compliance obligations,<sup>2</sup> driven by a range of factors including stringent environmental regulatory requirements. The latest research indicates that approximately 300 individual electric utilities are preparing to meet "100 percent" carbon reduction targets.<sup>3</sup> Stated simply, the orderly transition away from reliance on emissions-intensive resources is occurring even in the absence of direct mandates. The Companies, along with other peer utilities in the Southeast and across the country, have been and continue to reduce reliance on coal resources.

Continued planned reduction in reliance on emissions-intensive resources will not only deliver on environmental benefits of clean energy, but will also deliver the following tangible benefits to customers, communities and the Companies (as is described in further detail below):

- Reduced exposure to financial and operational risks associated with reliance on coal generation and coal suppliers;
- Enhanced economic development competitiveness of the Carolinas region, enabling the states to recruit, retain, and grow leading manufacturers, back-office operations, corporate headquarters, defense organizations, technology firms, etc.;
- Opportunities for substantial capital investment, including through growth of the states' renewable energy industries, resulting in job growth and economic stimulation of the states (including rural communities); and
- Continued access to financing to fund operations and growth at reasonable rates.

### **Transition Reduces Risk Exposure to Coal Generation and Fuel Supply**

Reductions in the use of carbon-intensive generation across the Companies' dual-state systems not only reflect the Companies' commitment to the economic development and prosperity of the Carolinas, but also reflect a risk-informed determination to ensure long-term reliability and resiliency, fuel supply assurance, and continued access to capital for utility infrastructure investments at competitive rates.

Coal is an increasingly risky fuel source. With more retirements planned for the nation's aging coal fleet, the businesses that supply coal are increasingly distressed, and coal market volatility has increased due to a number of factors, including deteriorated financial health of coal suppliers due to declining domestic demand for coal; uncertainty around proposed, imposed and stayed regulations for power plants; and increasing financing costs for coal producers. These issues are compounded by rail transportation providers' limited and diminishing operational flexibility. This lack of transportation flexibility results in increased difficulty in adapting to changes in scheduling demand needed due to changes in coal's generation burn. Although the Companies continue to manage coal supply

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<sup>2</sup> Nat'l Reg. Research Institute, State Clean Energy Policy Tracker, at 2, <https://www.naruc.org/nrri/nrri-activities/clean-energy-tracker/> (last visited May 3, 2022).

<sup>3</sup> Smart Elec. Power Ass'n, Utility Carbon-Reduction Tracker, <https://sepapower.org/utility-transformation-challenge/utility-carbon-reduction-tracker/> (last visited May 3, 2022).

assurance risks, the supply chain is expected to further deteriorate over time. These long-term declines in supply uncertainty and operational flexibility ultimately create long-term fuel supply assurance risks for customers.

## **Increases Economic Development Competitiveness**

The Plan supports the Companies' commitment to the prosperity of communities they serve. In 2021, the Companies were instrumental in helping attract more than \$2.4 billion in capital investment and 5,310 new jobs to North Carolina, and \$712 million in capital investment and 1,038 new jobs to South Carolina.<sup>4</sup> As active partners in economic development, the Companies are acutely aware of the fact that commercial and industrial businesses are increasingly citing the emissions-intensity of electricity generation as a selection criterion in the search for future sites for operations.<sup>5</sup> This Plan provides for enhanced economic development competitiveness of the Carolinas region, enabling the states to recruit, retain and grow leading manufacturers, back-office operations, corporate headquarters, defense, and technology firms, among others.

Leading North Carolina and South Carolina employers have clear mandates or targets to reduce the carbon intensity of their operations. In the Companies' own recent experience, nearly every North Carolina and South Carolina economic development prospect has specifically requested information regarding the Companies' generation mix, plans for the future, and renewable investment, and nearly all ask whether they can be served exclusively with carbon-free resources. Carbon emissions are clearly top-of-mind for businesses choosing whether to locate in a particular state, and the Carolinas stand to become an even more prosperous, even more attractive destination for facility relocation and expansion. While industry leaders are looking for utility partners with increasingly emissions-free systems, investors who purchase utility stocks and lend to utilities are – at the same time – demanding that the companies they invest in hold themselves accountable for long-term, sustainable operations. Investing with an eye toward environmental, social, and governance (“ESG”) principles, or ESG-focused investing, has grown in recent years.<sup>6</sup>

## **Investment Opportunities in a Transitioning Energy Industry**

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. What will replace the substantial amount of firm, dispatchable capacity, and where those resources will be located, will be determined

<sup>4</sup> Duke Energy 2021 ESG Report at 44, [https://desitecoreprod-cd.azureedge.net/\\_/media/pdfs/our-company/esg/2021-esg-report-full.pdf?la=en&rev=39232657c7f74bf48fb0360adffd0bb7](https://desitecoreprod-cd.azureedge.net/_/media/pdfs/our-company/esg/2021-esg-report-full.pdf?la=en&rev=39232657c7f74bf48fb0360adffd0bb7).

<sup>5</sup> Publicly traded commercial and/or industrial customers are under increasing pressure to “decarbonize” their supply chains by reducing Scope 1, 2 and 3 emissions. As providers of an essential input, electricity, the Companies are considered “suppliers” and the Companies' Greenhouse Gas (“GHG”) emissions are accounted for in the firm's GHG inventory because they are a result of the organization's energy use. Enabling a customer to reach a Scope 2 emissions goal, increases the likelihood of expanding operations at that site.

<sup>6</sup> U.S. Securities and Exchange Commission, Environmental, Social and Governance (ESG) Funds – Investor Bulletin (February 26, 2021),

<https://www.investor.gov/introduction-investing/general-resources/news-alerts/alerts-bulletins/investor-bulletins-1>.

by informed decisions made within the respective regulatory constructs of North Carolina and South Carolina. Significant transmission development, new investment in pumped storage hydro, advanced nuclear projects, solar and battery storage investments, and other large projects and jobs investments will be at play as part of the implementation of resource planning outcomes in the Carolinas. These investments will mean substantial investment for the tax base and jobs in the Carolinas, not to mention opportunities for all energy industry participants. Decisions by the Commission and the PSCSC between now and when the Companies begin to site replacement resources will be critical in influencing the “what” and the “where” of resource development and the associated capital investment and long-term economic impact.

All Plan portfolios significantly reduce reliance upon coal resources and outline a path to replacing those resources, such as through new investment in pumped storage hydro, advanced nuclear projects, solar and battery storage. Undoubtedly, large project and jobs investments will be at play as an input to resource planning in the Carolinas. These investments could mean significant levels of investment for the Carolinas’ tax base and jobs in the state. The Plan will also result in continued strength of the renewable energy industry in the Carolinas through continued growth in solar generation and potentially wind generation throughout both North Carolina and South Carolina.

### **Enables Continued Access to Financing**

The transition away from reliance upon emissions-intensive resources is necessary to mitigate potential increases in costs of debt and equity due to growing preference of institutional investors in reducing their portfolios’ exposure to carbon and climate risks. This impacts access to, and the cost of, equity and debt securities, and has also become a material consideration among the credit rating agencies. An example of this is the Glasgow Financial Alliance for Net-Zero, which launched in April 2021. Within its first year, the membership to this consortium grew to 450 firms from 45 countries, representing approximately \$130 trillion in total investments<sup>7</sup> – 40% of all globally banked assets. The primary purpose of the alliance is to align lending and investment activities of large financial institutions with the net-zero targets of the Paris Agreement to limit global temperature increases to 1.5 degrees Celsius. Many of the largest equity and debt investors have joined this initiative and are taking a more proactive role in evaluating each utilities’ approach toward a clean energy future.

For many investors, the evaluation of a company’s decarbonization plan is not just to meet the investors’ own climate targets and expectations, but it is part of the investors’ overall risk assessment of a company. For example, BlackRock, one of the largest investment firms in the world, and Duke Energy Corporation’s second-largest shareholder, notes that “[c]limate risk presents significant investment risk – it carries financial impacts that will reverberate across all industries and global markets, affecting long-term shareholder returns, as well as economic stability.”<sup>8</sup> As investors evaluate their portfolios and make decisions on where to allocate capital, the pace of companies’ decarbonization plans is becoming more critical. Investors have a variety of investment opportunities

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<sup>7</sup> Glasgow Financial Alliance for Net Zero, <https://www.gfanzero.com/about>.

<sup>8</sup> BlackRock, Climate Risk and the Global Energy Transition at 1, <https://www.blackrock.com/corporate/literature/publication/blk-commentary-climate-risk-and-energy-transition.pdf> (February 2022).

available to them, and they require a return commensurate with the risk they incur. If a utility's climate risk is deemed to be elevated, it can directly impact customers in several ways. First, investors will require a higher return, increasing the cost of capital and customer rates. Second, investors may allocate less capital to certain companies or ultimately choose not to invest. This further impairs a company's access to capital, which could limit its ability to execute capital projects for the benefit of its customers.

An assessment of DEC's and DEP's creditworthiness is performed by two major credit rating agencies, Standard & Poor's ("S&P") and Moody's Investors Service ("Moody's"), and results in their credit rating. The credit rating agencies consider both qualitative and quantitative factors, and they are increasingly focused on environmental issues. In ratings released by S&P in November 2021, DEC and DEP were both rated "negative" on environmental issues, indicating that environmental factors are having a materially negative impact on the creditworthiness of the Companies.<sup>9</sup> Included among the negative risk factors was "climate transition risks," with S&P stating that decarbonization will "rapidly modify the economics of [] projects and hence their future cash flows, cost of capital, and access to financing."<sup>10</sup> As risk increases, credit quality declines and ratings can come under pressure. As credit quality declines, investor requirements for higher returns increase, meaning customers will pay more for capital. To ensure reliable and cost-effective service for customers, access to capital at reasonable rates is critical. This requires utilities to consider how their decarbonization plans impact debt and equity investors' evaluation of them. Carbon reduction targets that address investor concerns over longer term risk increase a utility's ability to access capital through various market conditions. As investors and credit rating agencies have expanded their assessment criteria to include climate and environmental issues, the Securities and Exchange Commission has proposed rule changes that would require registrants to include certain climate-related disclosures in their registration statements and periodic reports, including information about climate-related risks that are reasonably likely to have a material impact on their business, results of operations, or financial condition, and certain climate-related financial statement metrics in a note to their audited financial statements. The required information about climate-related risks also would include disclosure of a registrant's greenhouse gas emissions, which have become a commonly used metric to assess a registrant's exposure to such risks.<sup>11</sup>

## Need for Continued State Alignment

Duke Energy has operated dual-state systems across North Carolina and South Carolina for over a century, and the Companies believe that this model is the most optimal and efficient way to provide reliable, efficient and increasingly clean energy to its customers at affordable rates. For example, North Carolina customers have received the benefits of (and paid rates that incorporate an allocated cost to

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<sup>9</sup> S&P Global, ESG Credit Indicator Report Card: Power Generators, [https://www.spglobal.com/\\_assets/documents/ratings/research/esg-rc-for-public-site-power-generators.pdf](https://www.spglobal.com/_assets/documents/ratings/research/esg-rc-for-public-site-power-generators.pdf) (November 19, 2021).

<sup>10</sup> *Id.* at 4.

<sup>11</sup> U.S. Securities and Exchange Commission, *SEC Proposes Rules to Enhance and Standardize Climate-Related Disclosures for Investors* (March 21, 2022), <https://www.sec.gov/news/press-release/2022-46>.

build and operate) significant carbon-free generation located in South Carolina. Six of the Companies' combined 11 carbon-free baseload nuclear units totaling over 5,600 MW are located in South Carolina. The 1,400 MW Bad Creek pumped storage hydroelectric station located in Oconee County, South Carolina, provides essential energy storage capabilities to the system allowing for more reliable and economic system operations.

As explained in the Executive Summary, the benefits of these dual-state systems speak for themselves: reliable and safe electric service; rates below national averages; and a relatively low carbon intensity fleet – including nation-leading amounts of nuclear and solar generation located in North Carolina and South Carolina. Together, these features constitute a strong foundation upon which to continue providing increasingly clean energy to customers in the Carolinas and to attract new customers with clean energy targets, thereby maintaining the region's competitive advantage in economic development. There can be no doubt that the energy transition supported by the Companies and many of their customers will be more effectively and efficiently achieved through continued dual-state planning and coordination.

Therefore, because the DEC and DEP systems operate across state lines, Duke Energy necessarily must plan its systems for a single future under the joint oversight of the Commission and the PSCSC. As this Commission is aware, the Companies initially pursued a joint proceeding with the PSCSC as described in their petition in Docket Nos. E-2, Sub 1259 and E-7, Sub 1283. Although the requested joint proceeding was a unique and novel procedural path, the intended outcome was that both state commissions could hear the same evidence and make independent decisions regarding – dual-state planning for the Companies' customers in North Carolina and South Carolina – a path that would continue the dual-state system planning and operation that has benefited customers in the Carolinas for generations. However, because the procedural complexities presented by the potential joint proceeding, in some cases, prevented stakeholders from focusing on the important resource planning issues that the Companies sought to address through the joint proceeding, it became apparent to the Companies that the potential benefits of the joint proceeding were unlikely to be realized. Therefore, the Companies requested, and the Commission allowed for the withdrawal of the petition. In doing so, the Commission observed

“The DEP and DEC systems, each of which operates as a single integrated system across both North Carolina and South Carolina, for many generations have provided reliable, efficient, and affordable electricity to the residents of both states. As the electric industry continues its transition, if the benefits of the dual-state systems are to be maintained, then coordination in planning would seem to be an important step. For these reasons, engagement with the PSCSC to consider and examine the benefits of continued system-wide planning and operation for Duke's customers in both States, in a manner that is consistent with applicable South Carolina law and North Carolina law and respectful of the jurisdiction and sovereignty of each State could be worth exploring.”<sup>12</sup>

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<sup>12</sup> Order Accepting Withdrawal of Petition for Joint Proceeding, Docket Nos. E-2, Sub 1259 and E-7, Sub 1283, at 2.

The Companies agree with this perspective and are committed to continuing to work to achieve continued alignment through a future South Carolina IRP. More specifically, the Companies' comprehensive South Carolina IRPs are targeted for filing in 2023 and will reflect the Carbon Plan approved by this Commission on or before December 31, 2022 (see Chapter 4 (Execution Plan) for a summary of proposed future Carbon Plan and IRP proceedings).

As is also explained above, the energy transition that will occur in the context of HB 951 is a continuation of a transition already underway and approved by the PSCSC, and the Companies are hopeful that the PSCSC will ultimately similarly find the continued energy transition to be in the public interest under South Carolina law. If continued alignment cannot be achieved and the PSCSC ultimately determines that it desires a future resource mix that is fundamentally different than the future resource mix approved by the NCUC, it will raise questions about whether the states will need to separately plan to meet the respective customers' needs, which could result in the ultimate separation of the utilities. This approach could increase costs and will, in general, make the energy transition less efficient.

Nevertheless, in such an extreme scenario in which a transition to separate state planning is required, the Companies will continue to diligently pursue compliance with HB 951's targets and believe that such targets are achievable even in a scenario in which the Companies are prescribed to pursue compliance on a North Carolina-only basis. Importantly, the near-term procurement and development activities proposed in this Carbon Plan are "no-regrets" resources – meaning that such investments will be needed in both a scenario in which dual-state planning continues and one in which dual-state planning is modified. In summary, the continuation of the energy transition that will be facilitated through the Carbon Plan is prudent, reasonable and in the best interest of customers. Continuation of a dual-state system will deliver benefits for customers, including by providing the most efficient pathway for the continued energy transition, and the Companies will pursue all available avenues to ensure continued alignment.