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December 20, 2022

VIA ELECTRONIC FILING

Ms. A. Shonta Dunston
Chief Clerk
North Carolina Utilities Commission
430 North Salisbury Street
Raleigh, North Carolina 27603

**RE: Duke Energy Progress, LLC's Motion for Leave to (1) File the Direct Testimony of Kendal C. Bowman Adopting the Direct Testimony of Stephen G. De May; (2) File the Direct Testimony and Exhibits of Graham C. Thompson Adopting the Direct Testimony of Laurel Meeks; and, (3) Amend the Direct Testimony of the Battery Energy Storage Panel
Docket No. E-2, Sub 1300**

Dear Ms. Dunston:

Enclosed for filing in the above-referenced proceeding is Duke Energy Progress, LLC's Motion for Leave to (1) File the Direct Testimony of Kendal C. Bowman Adopting the Direct Testimony of Stephen G. De May; (2) File the Direct Testimony and Exhibits of Graham C. Thompson Adopting the Direct Testimony of Laurel Meeks; and, (3) Amend the Direct Testimony of the Battery Energy Storage Panel.

If you have any questions, please do not hesitate to contact me. Thank you for your attention to this matter.

Sincerely,

Enclosures

**STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH**

DOCKET NO. E-2, SUB 1300

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of:	)	MOTION FOR LEAVE TO (1)
	)	FILE THE DIRECT TESTIMONY
Application of Duke Energy Progress,	)	OF KENDAL C. BOWMAN
LLC For Adjustment of Rates and	)	ADOPTING THE DIRECT
Charges Applicable to Electric Service	)	TESTIMONY OF STEPHEN G. DE
in North Carolina and Performance-	)	MAY; (2) FILE THE DIRECT
Based Regulation	)	TESTIMONY AND EXHIBITS OF
	)	GRAHAM C. TOMPSON
	)	ADOPTING THE DIRECT
	)	TESTIMONY OF LAUREL M.
	)	MEEKS; AND, (3) AMEND THE
	)	DIRECT TESTIMONY OF THE
	)	BATTERY ENERGY STORAGE
	)	PANEL
)	

NOW COMES Duke Energy Progress, LLC (“DEP” or the “Company”), pursuant to North Carolina Utilities Commission (“Commission”) Rules R1-5 and R1-7, and respectfully moves the Commission for leave to (1) file the direct testimony for Company witness Kendal C. Bowman, Vice President of Regulatory Affairs and Policy for North Carolina, in order to allow Ms. Bowman to adopt the pre-filed direct testimony of witness Stephen G. De May; (2) file the direct testimony and exhibits for Company witness Graham C. Thompson, Business Development Manager with Duke Energy Corporation, in order to allow Mr. Thompson to adopt the pre-filed direct testimony and exhibits of Company witness Laurel M. Meeks, who provided pre-filed direct testimony and exhibits as a panel witness with Evan W. Shearer (the “Battery Energy Storage Panel”); and, (3) amend the Battery Energy Storage Panel testimony and corresponding exhibits.

In support of this Motion, DEP respectfully shows the Commission the following:

1. On October 6, 2022, the Company filed its Application to Adjust Retail Base Rates and for Performance-Based Regulation, and Request for an Accounting Order, along with supporting direct testimony and exhibits, and Commission Form E-1, Rate Case Information Report - Electric Companies (“Application”). The pre-filed direct testimony included the testimony of Company witness Stephen G. De May and the Battery Energy Storage Panel.

2. Due to Mr. De May’s retirement at the end of this year and Ms. Bowman’s promotion to North Carolina State President, for DEP and DEC, effective January 1, 2023, the Company respectfully requests that Ms. Bowman be allowed to adopt the testimony of Mr. De May.

3. The Company proposes for Ms. Bowman to adopt Mr. De May’s testimony in full (with the exception of the addition of Ms. Bowman’s Introduction section as indicated on page 2, line 1 through page 4, line 11 of Mr. De May’s testimony). The proposed direct testimony of Ms. Bowman is attached to this Motion.

4. Ms. Meeks is scheduled to take a leave of absence in March 2022. As a result of this planned leave of absence and given Mr. Thompson’s role as Business Development Manager for the Energy Storage Development team, DEP respectfully requests that the Commission permit Mr. Thompson to adopt Ms. Meeks’ portion of the Battery Energy Storage Panel’s pre-filed direct testimony and the Battery Energy Storage Panel’s pre-filed exhibits.

5. DEP proposes that Mr. Thompson be permitted to adopt the Ms. Meeks’ portion of the Battery Energy Storage Panel’s testimony (with the exception of the addition

of Mr. Thompson's Introduction section as indicated on page 2, line 2 through page 3, line 9 of the Battery Energy Storage Panel testimony).

6. In addition, DEP requests permission to amend all testimony and exhibit references from "Meeks/Shearer" to the "Battery Energy Storage Panel." DEP has attached the proposed direct testimony and exhibits of the Battery Energy Storage Panel, as revised, to this Motion.

7. Given that Ms. Bowman and Mr. Thompson would adopt testimonies previously pre-filed with DEP's Application in this docket, and that the proposed amendment to the Battery Energy Storage Panel testimony and exhibits is merely a relabeling of the panel and exhibits' identification, the Company asserts that no party will be prejudiced by this Motion.

WHEREFORE, Duke Energy Progress, LLC respectfully requests leave to file the attached direct testimony of Kendal C. Bowman and attached direct testimony and exhibits of the Battery Energy Storage Panel in this proceeding.

Respectfully submitted this 20th day of December, 2022.

/s/ Jack E. Jirak
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**BEFORE
THE NORTH CAROLINA UTILITIES COMMISSION**

DOCKET NO. E-2, SUB 1300

In the Matter of:)	
	)	DIRECT TESTIMONY OF
Application of Duke Energy Progress, LLC	)	KENDAL C. BOWMAN
for Adjustment of Rates and Charges	)	FOR DUKE ENERGY
Applicable to Electric Service in North	)	PROGRESS, LLC
Carolina and Performance-Based Regulation)	

I. INTRODUCTION

1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A. My name is Kendal C. Bowman, and my business address is 410 South
3 Wilmington Street, Raleigh, North Carolina, 27601.

4 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

5 A. I am currently the Vice President of Regulatory Affairs and Policy for North
6 Carolina and effective January 1, 2023 will become North Carolina President
7 for Duke Energy Progress, LLC (“DEP” or the “Company”), which is a wholly
8 owned subsidiary of Duke Energy Corporation (“Duke Energy”), as well as
9 Duke Energy Carolinas (“DEC”) and Progress Energy, Inc., also wholly owned
10 subsidiaries of Duke Energy.

11 **Q. PLEASE BRIEFLY SUMMARIZE YOUR EDUCATIONAL**
12 **BACKGROUND AND PROFESSIONAL QUALIFICATIONS.**

13 A. I have a Bachelor of Science in Psychology from the University of Virginia and
14 a Juris Doctor from Stetson University College of Law.

15 **Q. PLEASE DESCRIBE YOUR BUSINESS BACKGROUND AND**
16 **EXPERIENCE.**

17 A. I began my professional work experience in 1997 as an attorney for Florida
18 Power & Light Company as an associate general counsel. In 1999, I joined
19 Carolina Power & Light Company as an associate general counsel. Shortly after
20 I joined Carolina Power & Light Company, it merged with Florida Power
21 Corporation and became Progress Energy. After the close of that merger, I was
22 Progress Energy’s attorney for Federal Energy Regulatory Commission 20

1 (“FERC”) matters for all regulated utilities and our unregulated merchant
2 generation operations. Upon Progress Energy’s exit from the unregulated
3 merchant generation business in the early 2000s, I led Progress Energy’s legal
4 federal regulatory affairs group and was responsible for FERC legal, policy, and
5 compliance matters for Progress Energy Carolinas and Progress Energy Florida.
6 In 2010, I transitioned from FERC work to state regulatory legal work for
7 Progress Energy Carolinas in both North Carolina and South Carolina.
8 Following the merger between Duke Energy and Progress Energy, I became
9 Deputy General Counsel supporting all legal state regulatory functions for
10 North Carolina. In February 2013, I was named to my current position as Vice
11 President of Regulatory Affairs and Policy. In 2021, I was appointed to the
12 Energy Policy Council of North Carolina.

13 **Q. WHAT ARE YOUR RESPONSIBILITIES IN YOUR CURRENT**
14 **POSITION?**

15 A. I currently am responsible for managing North Carolina regulatory matters and
16 directing North Carolina energy policy for DEC and DEP. In my role as
17 President starting January 1, 2023, I will lead Duke Energy’s regulated electric
18 utility businesses in North Carolina, which serve approximately 1.5 million
19 DEP electric customers. I will be responsible for the financial performance of
20 the Company’s electric utilities in North Carolina and managing regulatory
21 affairs, rates and regulatory filings, state and local government affairs, and
22 community relations.

1 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE COMMISSION?**

2 A. Yes. I testified before this Commission in DEP and DEC's 2014 and 2016
3 avoided cost proceedings (Docket Nos. E-100, Sub 140 and E-100, Sub 148,
4 respectively) and most recently in the DEP and DEC 2022 Biennial Integrated
5 Resource Plan and Carbon Plan proceeding in Docket No. E-100, Sub 179.
6 Additionally, in 2021, I testified before the Public Service Commission of
7 South Carolina in Cherokee County Cogeneration Partners, LLC v. Duke
8 Energy Progress, LLC and Duke Energy Carolina, LLC in Docket No. 2019-
9 263-E. I have also testified before FERC in 2016, in Docket No. AD16-16-000
10 regarding FERC's reassessment of its PURPA implementation regulations and
11 in Docket No. ER21-1579 in connection with interconnection queue reform.

12 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

13 A. The purpose of my testimony is to provide a brief overview of the Company's
14 general rate case and first-ever Performance-Based Regulation ("PBR")
15 Application under the new alternative regulatory framework established by
16 House Bill 951 (S.L. 2021-165) ("HB 951"), which was signed into law in
17 October 2021. In my testimony, I discuss the following core components of the
18 Company's filing: (1) a continued balanced transition away from coal to achieve
19 a cleaner energy future; (2) operational excellence, (3) enhancing the customer
20 experience; and (4) affordability and proposals to assist our customers most in
21 need. I also explain how the requested rate increase will allow the Company to
22 remain a financially strong utility that is well positioned in financial markets to
23 the benefit of our customers.

1 **Q. WHO ARE THE OTHER WITNESSES PRESENTING TESTIMONY IN**
2 **SUPPORT OF THE COMPANY’S APPLICATION IN THIS**
3 **PROCEEDING?**

4 **A.** The Company’s other witnesses filing direct testimony in support of this case
5 are:

- 6 1. **Laura A. Bateman**, Vice President of Carolinas Rates and Regulatory
7 Strategy, who appears on a panel with **Phillip O. Stillman**, Managing
8 Director of Load Forecasting and Corporate Strategic Regulatory
9 Initiatives. Ms. Bateman provides an overview of the Company’s
10 proposed PBR Application, including the policy and public interest
11 reasons supporting approval of the Application. Mr. Stillman describes
12 DEP’s proposed Performance Incentive Mechanisms (“PIMs”) and
13 tracking metrics.
- 14 2. **Jonathan L. Byrd**, Managing Director of Rate Design and Regulatory
15 Solutions, who proposes several new customer-centric and innovative
16 rate designs and pricing changes to address emerging trends impacting
17 North Carolina today. He also proposes to simplify and modernize these
18 designs to assist in the harmonization between the Company and DEC.
- 19 3. **Brent C. Guyton**, Director of Asset Management in Customer Delivery,
20 who testifies as to the extent and performance of DEP’s distribution
21 system, including additions to that system since DEP’s last rate case
22 through normal system growth and through the operation of DEP’s Grid
23 Improvement Plan program. Mr. Guyton also testifies to the factors

1 influencing DEP's distribution system growth and investment and he
2 provides detailed testimony regarding the scope, nature,
3 description, justification for, and timing of the proposed distribution
4 system projects included in DEP's multiyear rate plan ("MYRP")
5 proposals.

6 4. **Janice Hager**, President of Hager Consulting, who supports the
7 allocation of Company electric operating revenues and expenses, and
8 original cost rate base assigned to the North Carolina retail jurisdiction
9 and to each customer class according to the cost of service studies
10 performed by the Company.

11 5. **Bradley G. Harris**, Rates and Regulatory Strategy Director, who
12 describes two customer program offerings that DEP proposes in this
13 case: the Customer Assistance Program ("CAP") and the Tariffed On-
14 Bill Program. The CAP proposal would provide eligible customers with
15 a flat monthly bill credit.

16 6. **Tim S. Hill**, Vice President, Coal Combustion Products Operations,
17 Maintenance, and Governance, who describes DEP's ash basin closure
18 and compliance costs and plans, and the activities underlying the costs
19 sought for recovery in this case.

20 7. **Retha Hunsicker**, Vice President, Customer Experience Design and
21 Solutions for Duke Energy Business Services, LLC. Witness Hunsicker
22 discusses the Company's Customer Information Systems
23 implementation and supports the reasonableness of the costs and

1 prudence of the Company's actions related to this capital investment for
2 inclusion in rate base.

3 8. **LaWanda M. Jiggetts**, Rates & Regulatory Strategy Manager, who
4 describes the results of DEP's operations under present rates on the basis
5 of an adjusted historical Test Period (twelve months ending
6 December 31, 2021). Witness Jiggetts details the calculation of the
7 additional revenue required as a result of the investments and general
8 cost increases since the last DEP Rate Case and discusses several pro
9 forma adjustments to the test year operating expenses and to the end of
10 year actual rate base. As such, her testimony supports the proposed
11 "traditional" base rate revenue requirement established in the manner
12 prescribed under N.C. Gen. Stat. § 62-133. Witness Jiggetts also
13 explains the various accounting requests the Company makes.

14 9. **Justin C. LaRoche**, Director of Renewable Development, who
15 addresses (i) two solar development projects – the 2026 Solar
16 Investment Project and the Asheville Solar Project – that DEP has
17 identified and included in the proposed MYRP; and (ii) DEP's request
18 for a 35-year depreciable life for the solar projects included in the
19 proposed MYRP and for future DEP solar facilities.

20 10. **Daniel J. Maley**, Director, Transmission Compliance Coordination,
21 who testifies as to the extent and performance of DEP's transmission
22 system, including additions to the transmission system since DEP's last
23 rate case through normal system growth and through the operation of

1 DEP's Grid Improvement Plan program. Mr. Maley also testifies as to
2 the factors driving investment in DEP's transmission system and he
3 provides comprehensive testimony regarding the scope, nature,
4 description, justification for, and timing of the proposed transmission
5 system projects included in DEP's MYRP proposal.

6 11. **Laurel M. Meeks**, Director of Renewable Business Development and
7 **Evan W. Shearer**, Principal Integrated Planning Coordinator, who
8 support the battery energy storage portfolio of discrete and identifiable
9 investments included in the proposed MYRP. Their testimony highlights
10 the critical importance of battery energy storage as DEP, and the entire
11 industry, transition to a cleaner energy future.

12 12. **Roger A. Morin**, Principal of Utility Research International, who
13 presents his independent analysis of the Company's cost of equity.
14 Witness Morin discusses the Company's requested capital structure and
15 makes a recommendation for an allowed return on equity ("ROE") that
16 is fair and that allows the Company to both attract capital on reasonable
17 terms and maintain financial strength.

18 13. **Karl W. Newlin**, Senior Vice President, Corporate Development and
19 Treasurer, who addresses the Company's financial objectives, capital
20 structure, and cost of capital. Witness Newlin also discusses the current
21 credit ratings and forecasted capital needs of the Company and the
22 importance of DEP's continued ability to meet its financial objectives.

1 14. **Lesley G. Quick**, Vice President of Customer Technology, Advocacy,
2 Regulatory and Business Support within Customer Services for Duke
3 Energy, who testifies to DEP's excellent service and how that translates
4 to customer satisfaction. Witness Quick's testimony also highlights the
5 Company's "Affordability Ecosystem," our multi-pronged approach to
6 addressing the affordability challenges faced by our low-income
7 customers.

8 15. **Tom Ray**, Senior Vice President of Nuclear Operations for Duke
9 Energy, who provides an update on capital additions made or planned to
10 be made to the nuclear fleet since the 2019 Rate Case, as well as key
11 drivers impacting nuclear O&M costs. Witness Ray also discusses the
12 operational performance of DEP's nuclear generation fleet during the
13 Test Period, and supports the nuclear capital investments included in the
14 Company's MYRP.

15 16. **Teresa Reed**, Director of Rates and Regulatory Planning, who
16 demonstrates that the rates DEP proposes reflect appropriate ratemaking
17 principles, and that they result in an equitable basis for recovery of the
18 Company's revenue requirement across and within its various rate
19 schedules. Witness Reed also describes proposed changes to the
20 Company's retail electric schedules and quantifies the effect of these
21 changes to retail customers.

1 17. **John J. Spanos**, President, Gannett Fleming Valuation and Rate
2 Consultants, LLC, who supports the 2021 Depreciation Study filed in
3 this case.

4 18. **Nicholas G. Speros**, Director of Accounting, who describes the
5 financial position of DEP at December 31, 2021, and the actual results
6 of the Company's operations for the Test Period. He also addresses
7 depreciation expense, nuclear decommissioning costs, and bad debt
8 expense relating to the COVID-19 pandemic. In addition, he provides
9 the certification that the Company's Application does not include costs
10 for lobbying, political or promotional advertising, political
11 contributions, or charitable contributions, and supports certain
12 accounting entries relating to the Company's decoupling mechanism.

13 19. **Jacob J. Stewart**, Director, Health and Wellness, who demonstrates in
14 his testimony that Duke Energy's compensation (including incentive
15 compensation) and benefit programs are necessary to attract, retain and
16 engage the skilled and experienced workforce the Company needs to
17 efficiently and effectively provide electric service to its customers.

18 20. **Kathryn S. Taylor**, Rates & Regulatory Strategy Manager, who
19 supports the calculation of the proposed revenue requirement for each
20 year of the Company's MYRP. She also describes the Company's
21 methodology for calculating the decoupling mechanism and earnings
22 sharing mechanism ("ESM"), as well as the riders associated with each

1 mechanism. She also supports the proposed rider relating to the PIMs
2 the Company is proposing in this case.

3 21. **Julie K. Turner**, Vice President of Carolinas Coal Generation, who
4 provides an update on the Company's traditional (fossil), hydroelectric
5 and solar (collectively, "Traditional/Hydro/Solar") facilities included
6 for recovery in this case. Witness Turner describes capital additions
7 made and planned to be made since the 2019 Rate Case, key drivers
8 impacting O&M costs, and the operational performance of the
9 Company's Fossil/Hydro/Solar fleet during the Test Period. Witness
10 Turner also supports the Traditional and Hydro capital investments
11 included in the MYRP.

II. OVERVIEW AND CONTEXT OF THE COMPANY'S APPLICATION

12 **Q. PLEASE PROVIDE AN OVERVIEW OF THE PBR FRAMEWORK**
13 **ESTABLISHED BY HB 951.**

14 A. On October 13, 2021, Governor Roy Cooper signed into law HB 951, which,
15 enacted N.C. Gen. Stat. § 62-133.16, titled "Performance-based regulation
16 authorized." PBR is defined by HB 951 as "an alternative ratemaking approach
17 that includes decoupling, one or more performance incentive mechanisms, and a
18 multiyear rate plan, including an ESM, or such other alternative regulatory
19 mechanisms as may be proposed by an electric public utility."¹ HB 951 calls for
20 a Carbon Plan to be developed that will target achievement of statewide carbon

¹ N.C. Gen. Stat. § 62-133.16(a)(7).

1 dioxide (“CO₂”) emission reductions while ensuring least-cost planning, system
2 reliability, and affordable rates for customers. More specifically, HB 951 directs
3 the Commission to take all reasonable steps to reduce CO₂ emissions of electric
4 generating facilities in the state by 70% along the specified timeline and attain
5 carbon neutrality by 2050. HB 951 recognizes that achievement of the targeted
6 CO₂ reductions requires the modernization of the ratemaking construct in North
7 Carolina, consistent with modernized ratemaking practices around the country.

8 HB 951 provides a framework for DEP to continue to transition away
9 from coal and shift to cleaner energy resources that include renewable
10 generation and battery storage, Energy Efficiency (“EE”) and Demand Side
11 Management (“DSM”), and may also include natural gas generation, and future
12 technologies like hydrogen, small modular reactors, and pumped hydro storage.
13 This transition is occurring across the electric utility industry and is also driving
14 significant investment in the grid to improve reliability and resiliency and to
15 support growth in distributed generation. In light of this transition, HB 951
16 introduces modern ratemaking practices that will better position the Company
17 to meet the State’s policy goals and customer expectations while keeping rates
18 affordable.

19 **Q. DESCRIBE THE CONDITIONS UNDER WHICH THE COMPANY**
20 **FILES THIS GENERAL RATE CASE AND PBR APPLICATION.**

21 A. The conditions (including customer expectations) under which we operate have
22 continued to evolve since 2019, the year of DEP’s last general rate case filing.
23 Consistent with the goals of North Carolina and rapidly changing energy and

1 climate priorities, the Company has made significant investments, and will
2 continue to make significant investments, designed to keep pace with evolving
3 customer needs and deliver increasingly clean energy. These investments are
4 capital-intensive and many of them are not otherwise reflected in current rates.
5 The traditional base rate case being proposed will adjust rates to reflect historic
6 investments that are serving customers today, and the proposed MYRP will
7 bring known and measurable future investments into rates as they are brought
8 into service to reliably serve our customers. The proposed MYRP is
9 substantially comprised of distribution and transmission projects aimed at
10 modernizing the grid, but also includes a balanced portfolio of storage, solar,
11 and other generation projects necessary to run the system reliably and continue
12 to transition to a cleaner future.

13 The Company recognizes that the scale and complexity of a clean
14 energy transition imposes special obligations on the Company to deliver the
15 sought-after benefits to customers in a least-cost way, with flexibility to
16 accommodate customer preferences and without adversely impacting the
17 reliability they depend on. That is why we are proposing a set of PIMs designed
18 to align utility incentives with customer needs and state energy policy
19 objectives of decarbonization, reliability and affordability.

20 **Q. PLEASE DESCRIBE THE MAJOR DRIVERS BEHIND THE**
21 **COMPANY'S APPLICATION.**

22 A. The following are the major drivers of the Company's requests in this case:

23 A BALANCED TRANSITION TO CLEANER ENERGY

1 The Company's continued transition away from coal-fired generation
2 continues in earnest, and is made possible by a smart, balanced and cost-
3 effective transition to low- and no-carbon resources. Overall, our Carolinas
4 utilities have retired 35 coal units and lowered carbon emissions by over 46%
5 since 2005. The voices of our customers and our investors have become
6 increasingly clear on this topic—they expect us to invest in cleaner power and
7 we are making decisions and building long-term plans based on those
8 expectations. Through testimony in this case, we explain the investments we
9 have made in generation resources that include solar, nuclear, and highly-
10 efficient natural gas plants, and emerging technologies like energy storage and
11 vehicle electrification.

12 OPERATIONAL EXCELLENCE AND RELIABILITY

13 Technology is transforming North Carolina, and changing the way
14 customers use electricity and interact with their electric provider. Today, the
15 need for consistent, reliable service is not just the expectation of industry and
16 manufacturing, but extends into every home and business, especially given the
17 pandemic-related shift to hybrid work arrangements and online/home
18 schooling—even at a time when that reliability is challenged by the increasing
19 frequency of severe weather events and the threat of physical and cyber-attack.

20 Over the past ten years, we are seeing trends affecting our grid that
21 indicate more must be done to improve the energy infrastructure required to
22 meet the needs of our customers. Our grid improvement investments are
23 addressing these trends through Hardening and Resiliency, Targeted

1 Undergrounding and Self-Optimizing Grid programs, among others. These
2 programs seek to reduce customer outages and give the grid the ability to
3 automatically reroute power around trouble areas, to quickly restore power, and
4 rapidly dispatch crews. We are also investing in making our infrastructure
5 stronger, smarter, cleaner, more efficient, and less reliant on any single fuel
6 source, which leads to more reliable energy and a better experience for our
7 customers.

8 North Carolina has a history of experiencing severe storms that often
9 leave hundreds of thousands of people and businesses without power, and storm
10 responsiveness is a core capability of the Company. Our response to severe
11 storms involves the activation and deployment of storm response teams internal
12 to the Company, utilization of thousands of outside contractors, and often the
13 need to seek mutual aid from other electric utilities and allies in the industry. I
14 am very proud of the Company's commitment to timely restoration efforts and
15 a positive customer service experience.

16 ENHANCING THE CUSTOMER EXPERIENCE

17 Our customers desire an improved experience with more streamlined
18 options and versatility, driven by information about how they consume energy
19 and by tools that help them manage their consumption. Testimony in this case
20 will describe the high-quality customer service we provide and our efforts to
21 improve customers' experience when they interact with us. The foundation of
22 our customer service is our workforce and the Company is continuously
23 working to recruit, engage, and retain a talented and diverse workforce that

1 serve our customers at a high level, even in the face of an uncertain and
2 increasingly changing labor marketplace.

3 From a technology perspective, our deployment of smart meters will
4 continue to work well with our investments to modernize our grid and offer
5 customers options and tools to manage their energy usage and reduce their
6 energy costs, and the deployment of the Company's customer information
7 system—Customer Connect—has improved the way we interact and provide
8 information to our customers. Additionally, the introduction of new rate designs
9 and various proposed changes to the Company's service regulations will better
10 reflect current cost studies and serve the expectations and needs of our
11 customers.

12 CUSTOMER AFFORDABILITY

13 The Company remains committed to providing affordable electric
14 service and finding ways to help our customers with their energy bills. Since
15 DEP and DEC's last rate cases in 2019 and pursuant to the Commission's orders
16 in those cases,² the Company engaged a diverse group of Commission-
17 approved stakeholders to participate in a Low-Income Affordability
18 Collaborative. Through this robust, collaborative process that began in July
19 2021, the Company, Public Staff and stakeholders examined a broad spectrum
20 of regulatory programs and protections for low-income customers which
21 culminated in DEP, DEC, and the Public Staff filing a joint report on August

² *Order Accepting Stipulations, Granting Partial Rate Increase and Requiring Customer Notice* in Docket Nos. E-2 Subs 1219 and 1193 (April 16, 2021); *Order Accepting Stipulations, Granting Partial Rate Increase, and Requiring Customer Notice* in Docket Nos. E-7 Subs 1213, 1214, and 1187 (March 31, 2021).

1 12, 2022 outlining the feedback and recommendations received during the
2 collaborative process.³

3 DEP is committed to helping customers who struggle to pay for basic
4 needs with programs and options to assist them during times of financial
5 hardship. The assistance programs that we offer such as the Helping Home
6 Fund, the recently updated and renamed Share The Light fund, and our portfolio
7 of DSM and EE programs, including the Neighborhood Energy Saver Program,
8 have helped many of our customers reduce energy costs, pay home energy bills,
9 manage fluctuations in their monthly bill, and manage through the difficulty of
10 paying their entire bill by the due date. Through these programs and the
11 Company's rate mitigation efforts described below, the Company has identified
12 ways to help its customers absorb this rate request.

13 The Company is not requesting an increase in the Basic Customer
14 Charge for residential customers in this application, which is an intentional
15 gesture to lighten the cost pressures our customers are facing. Likewise, we
16 have made proactive decreases in our filing (such as reductions to executive
17 compensation) to give customers the benefit of reductions that the Company
18 has agreed to in previous rate cases. We are also proposing to expand our
19 program to eliminate direct credit card fees for our small and medium
20 nonresidential customers who pay their electric bills in that manner and
21 implement a Payment Navigator program at our call centers to better assist our
22 customers with their bills and ensure they are on the best rate based on their

³ Final Report and Recommendations of The North Carolina Low-Income Affordability Collaborative filed August 12, 2022 in Docket Nos. E-7, Subs 1213, 1214 and 1187 and E-2, Subs 1219 and 1193.

1 energy usage patterns. Finally, as I will more fully discuss below, the Company
2 is proposing other mechanisms to help our low-income customers, in particular
3 the CAP.

4 **Q. WHAT OTHER WAYS ARE YOU PROPOSING FOR THE COMPANY**
5 **TO HELP MITIGATE PRICE IMPACTS ON CUSTOMERS WHO ARE**
6 **MOST IN NEED?**

7 A. Based on the feedback and recommendations received from stakeholders during
8 the Low-Income Affordability Collaborative, the Company is proposing new
9 program offerings and options to help our customers who are most in need.
10 Testimony in this case will discuss the CAP, a low-income bill assistance
11 proposal that provides eligible customers with a flat monthly bill credit. Where
12 eligible, CAP customers may be referred to income-qualified weatherization
13 and EE services designed to lower a customer's electricity usage resulting in
14 lower average bills over time. Pursuant to HB 951, the Company recently filed
15 for approval of a Tariffed On-Bill Program which will allow customers to
16 finance certain EE investments and energy upgrades on their electric bill. As
17 part of its PBR Application, the Company is also proposing a Low-
18 Income/Affordability PIM. Under this PIM, the proposed shareholder
19 contributions to health and safety funds will help to complete the non-EE-
20 related work necessary to qualify otherwise ineligible homes for EE savings
21 and reduce low-income energy burdens.

1 **Q. IS THE COMPANY PURSUING OTHER POTENTIAL**
2 **OPPORTUNITIES TO OFFSET THE COST TO CUSTOMERS OF**
3 **MODERNIZING THE GRID AND TRANSITIONING TO CLEANER**
4 **ENERGY?**

5 A. Yes. The Infrastructure Investment and Jobs and Act (“IIJA”) signed into law
6 on November 15, 2021 and the Inflation Reduction Act of 2022 (“IRA”) signed
7 into law on August 16, 2022, both present opportunities for the Company to
8 pursue potential funding to mitigate the cost of the Company’s existing and
9 future planned investments. As noted in the Company’s comments filed in
10 Docket No. M-100, Sub 164, the IIJA represents a significant infrastructure
11 funding opportunity for electric public utilities and their customers, an
12 unprecedented commitment by the United States government to the country’s
13 physical systems, and a new era of government funding to support three sectors
14 of the nation’s economy: transportation, climate/energy/environment, and
15 broadband. The Company intends to pursue opportunities that will optimize
16 benefits for customers. The Company has developed a robust prioritization
17 process to ensure we can respond quickly as funding opportunities
18 announcements are released from federal and state agencies. DEP is actively
19 responding to Requests for Information (“RFIs”) from the federal government
20 and has been filing such RFIs with the Commission to keep it apprised of how
21 we are engaging with the federal government on how best to support our
22 customers and communities with these competitive funding opportunities.

1 The IRA provides for substantial incentives in climate and energy-
2 related provisions. IRA incentives will lower costs for solar, storage, wind, and
3 nuclear, with potential compounding benefits if such resources can be optimally
4 sited or meet other wage and domestic content requirements in the law. The
5 Company is continuing to evaluate tax implications and applicability of this
6 complex act and is confirming initial interpretations of the incentives for each
7 resource. Importantly these incentives offset the inflationary impacts to the cost
8 of resources such as solar, wind, storage, and nuclear. The Company will keep
9 the Commission informed as additional IRA guidance is issued and IRS rules
10 are published, which is anticipated to occur in 2023.

11 **IV. COALASH COMPLIANCE**

12 **Q. AT THE CLOSE OF DEP’S PREVIOUS RATE CASE THE**
13 **COMMISSION ASKED THE COMPANY TO SUBMIT A POST-**
14 **HEARING FILING DISCUSSING VARIOUS ALTERNATE COAL ASH**
15 **COST RECOVERY CONCEPTS, AND IN ITS ORDER THE**
16 **COMMISSION REQUIRES DEP TO CONSIDER**
17 **CONTEMPORANEOUS COST RECOVERY MECHANISMS FOR USE**
18 **IN CONJUNCTION WITH THE “SPEND-DEFER-RECOVERY”**
19 **METHOD THE COMPANY HAS TRADITIONALLY EMPLOYED. DID**
20 **DEP DO THIS?**

21 **A.** Yes. DEP did consider coupling contemporaneous recovery mechanisms (*i.e.*,
22 either a run rate or a rider) with the “spend-defer-recover” mechanism.
23 Specifically, DEP did so by updating its analysis of the impact of joining the

1 two recovery methodologies upon (1) customer rates, and (2) the Company's
2 principal credit metric, FFO/Debt.⁴ The results of this analysis are set out in the
3 testimony and exhibits of Witness Jiggetts in this case.

4 **Q. WHAT CONCLUSIONS DO YOU DRAW FROM THIS ANALYSIS?**

5 A. The results of the analysis show that implementing a contemporaneous coal ash
6 cost recovery mechanism would both increase customer bills and negatively
7 impact the Company's credit metrics. That in and of itself would lead DEP *not*
8 to recommend implementation of a contemporaneous recovery mechanism.
9 Furthermore, implementing such a mechanism would constitute a departure
10 from the coal ash cost recovery settlement agreement ("CCR Settlement
11 Agreement") the Company, along with DEC, painstakingly negotiated with the
12 Public Staff, the Attorney General's Office, and the Sierra Club at the
13 conclusion of the prior rate case.

14 **Q. PLEASE EXPLAIN.**

15 A. The CCR Settlement Agreement represents a significant compromise among
16 the settling parties regarding recovery of coal ash costs. DEP and DEC forgo
17 the opportunity to recover significant portions of their costs, including through
18 application of a reduced cost of equity upon deferred coal ash cost balances.
19 The settling counterparties give up the ability to make certain arguments to the
20 Commission regarding future costs, including the Public Staff's "equitable
21 sharing" concept. The agreed recovery mechanism is premised upon
22 continuation of the "spend-defer-recover" model with the agreed reduction in

⁴ "FFO," of funds from operations, is a measure of operational cash flow.

1 cost of equity, and to introduce in this case a significant variation to that model
2 – a contemporaneous recovery feature – would represent a significant deviation
3 from the settling parties’ expectations regarding how future coal ash cost
4 recovery should be handled. All parties to the CCR Settlement Agreement had
5 to compromise to achieve the settlement, which the Commission approved.
6 DEP strongly believes that in order to honor the compromises made by its
7 counterparties to the CCR Settlement Agreement the recovery mechanism
8 traditionally sought by the Company and approved by the Commission – the
9 “spend-defer-recover” model – should continue to be implemented. That is the
10 cost recovery mechanism DEP requests in this case.

11 **V. IMPORTANCE OF A STRONG FINANCIAL POSITION**

12 **Q. WHY IS IT IMPORTANT TO DEP CUSTOMERS THAT THE**
13 **COMPANY MAINTAIN A STRONG FINANCIAL POSITION?**

14 **A.** DEP is investing and will continue to invest in our infrastructure to make it
15 more resilient, smarter, cleaner, and more efficient. It is our responsibility to
16 plan ahead and make these important investments efficiently and prudently. To
17 deliver on these promises, it is critical that we maintain a strong financial
18 position and thereby ensure that the Company has the financial strength and
19 flexibility to fund long-term capital requirements, as well as the ability to meet
20 short-term funding needs. The single-most determinative factor of a healthy
21 balance sheet and strong financial position is timely recovery of costs and the
22 ability to generate cash flows sufficient to meet obligations as they become due,
23 in all market conditions.

1 The Company is therefore requesting an ROE of 10.2% based upon a
2 proposed capital structure comprised of 53% equity and 47% debt. In support
3 of this request, Witness Dr. Roger A. Morin presents testimony supporting his
4 conclusion that cost of capital should be set at a ROE of 10.2%, which is both
5 the midpoint and the average of the mathematical results from the various cost
6 of capital studies performed by Dr. Morin. Witness Newlin presents testimony
7 supporting the Company's proposed capital structure and the cost of long-term
8 debt, and explaining how the Company is able to attract debt and equity
9 investors on reasonable terms. In fact, the Company's cost of long-term debt of
10 3.70% is lower than the 4.04% cost of long-term debt from the prior rate case.
11 The cost of long-term debt is directly supported by the Company's financial
12 strength, cash flows, market access, and attractive credit ratings.

13 **Q. PLEASE FURTHER DISCUSS THE BENEFITS TO CUSTOMERS OF**
14 **DEP MAINTAINING A STRONG FINANCIAL POSITION.**

15 A. Witness Newlin describes these benefits in greater detail, but I think it is
16 important to emphasize the benefits that result from our overall request in this
17 proceeding, particularly our requests on ROE, capital structure and timely
18 recovery of costs. Historically, due to the strength of its financial position, the
19 Company has enjoyed the flexibility to fund its long-term capital requirements,
20 as well as to meet short-term liquidity needs, at an economical cost to
21 customers. Ready access to capital on favorable terms is critical to serving our
22 customers, and such access is most assured for companies that have solid
23 financial positions, strong investment-grade credit ratings, and adequate cash

1 flow generation to meet obligations as they become due. The financial
2 flexibility that comes from the ability to access cost-effective capital in all
3 market conditions, in such a capital-intensive industry, serves the best interests
4 of our customers.

5 **VI. CONCLUSION**

6 **Q. WHAT IS THE KEY OBJECTIVE OF THE COMPANY'S REQUESTED**
7 **GENERAL RATE ADJUSTMENT?**

8 A. As I mentioned at the beginning of my testimony, the electricity sector has
9 entered a period of transformation and profound change driven by
10 technological, environmental and operational forces, as well as changing
11 customer expectations. Within this sea of change, the Company recognizes that
12 its most important objectives are to continue providing safe, reliable, affordable,
13 resilient, and increasingly clean electricity to our customers with high quality
14 customer service, both today and in the future. To achieve this, the Company
15 must continue to invest in improving our grid; pursue the energy transition our
16 customers expect; invest in ways to make the energy we produce more diverse,
17 more reliable, and cleaner for the benefit of our customers; and invest in new
18 technologies to enhance the customer experience. Our Application is therefore
19 made to support investments that benefit our customers while preserving the
20 Company's financial position all while keeping prices for our customers as low
21 as possible.

22 **Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?**

23 A. Yes.

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-2, SUB 1300

In the Matter of:

Application of Duke Energy Progress, LLC
For Adjustment of Rates and Charges Applicable
to Electric Service in North Carolina and
Performance-Based Regulation

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**DIRECT TESTIMONY OF
GRAHAM C. TOMPSON AND
EVAN W. SHEARER
FOR DUKE ENERGY
PROGRESS, LLC**

I. INTRODUCTION

1
2 **Q. MR. TOMPSON, PLEASE STATE YOUR NAME AND BUSINESS**
3 **ADDRESS.**

4 A. My name is Graham C. Tompson. My business address is 410 S. Wilmington
5 Street, Raleigh, North Carolina 27106.

6 **Q. BEFORE INTRODUCING YOURSELF FURTHER, PLEASE**
7 **INTRODUCE THE PANEL.**

8 A. I am appearing on behalf of Duke Energy Progress, LLC (“DEP” or “the
9 Company”) together with Evan W. Shearer on the “Battery Energy Storage
10 Panel.”

11 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

12 A. I am employed by DEP as a Business Development Manager at Duke Energy
13 Corporation. DEP is a subsidiary of Duke Energy Corporation (“Duke
14 Energy”).

15 **Q. PLEASE SUMMARIZE YOUR EDUCATION AND PROFESSIONAL**
16 **EXPERIENCE.**

17 A. I graduated from the United States Naval Academy with a bachelor’s degree in
18 2007 and from the Naval Nuclear Power Training Command in 2010. In 2019,
19 I attained qualification as a Certified Energy Manager from the Association of
20 Energy Engineers. In addition to my educational experience and qualifications,
21 I have been employed at Duke Energy for eight years in roles within Generation,
22 Large Account Management, and the Energy Storage Development (since
23 2020) departments of Duke Energy.

1 **Q. PLEASE BRIEFLY DESCRIBE YOUR DUTIES AS A BUSINESS**
2 **DEVELOPMENT MANAGER.**

3 A. In my current role, I initiate, sponsor, and justify projects involving battery
4 energy storage and microgrid systems which are owned and operated by the
5 regulated companies and located in the Carolinas.

6 **Q. HAVE YOU TESTIFIED BEFORE THE NORTH CAROLINA**
7 **UTILITIES COMMISSION (“COMMISSION”) IN ANY PRIOR**
8 **PROCEEDINGS?**

9 A. No. I have not.

10 **Q. MR. SHEARER, PLEASE STATE YOUR NAME AND BUSINESS**
11 **ADDRESS.**

12 A. My name is Evan W. Shearer. My business address is 526 South Church Street,
13 Charlotte, North Carolina 28202.

14 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

15 A. I am employed by Duke Energy Carolinas, LLC (“DEC”) as Principal
16 Integrated Planning Coordinator, providing planning guidance for both DEP
17 and DEC (collectively, the “Companies”), which are subsidiaries of Duke
18 Energy.

19 **Q. PLEASE SUMMARIZE YOUR EDUCATION AND PROFESSIONAL**
20 **EXPERIENCE.**

21 A. I graduated from Boston College in 2007 with a bachelor’s degree in history
22 and English and from the University of South Carolina in 2017 with a master’s
23 degree in Business Administration. I joined Duke Energy in 2013 and spent

1 eight years in various regulatory strategy roles for Duke Energy's Customer
2 Delivery and Grid Modernization organizations. I joined the Integrated
3 Systems and Operations Planning ("ISOP") team in 2021 as a Principal
4 Integrated Planning Coordinator. Prior to working at Duke Energy, I was a
5 Telecom Infrastructure Specialist with the Vermont Public Service Department,
6 which included responsibilities overseeing smart grid activities by utilities in
7 the state.

8 **Q. PLEASE BRIEFLY DESCRIBE YOUR DUTIES AS PRINCIPAL**
9 **INTEGRATED PLANNING COORDINATOR.**

10 A. My responsibilities on the ISOP team have included preparing the ISOP
11 Appendix to the 2022 Carolinas Carbon Plan ("Carbon Plan") and representing
12 ISOP on the Carolinas Transmission and Distribution Climate Risk and
13 Resilience Study.

14 **Q. HAVE YOU TESTIFIED BEFORE THIS COMMISSION IN ANY PRIOR**
15 **PROCEEDINGS?**

16 A. No. I have not.

17 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY [R1-17B(d)(2)j.]?**

18 A. Our testimony supports the battery energy storage portfolio of discrete and
19 identifiable investments that DEP has included in the proposed Multi-Year Rate
20 Plan ("MYRP") in this proceeding. Battery Energy Storage Panel Exhibit 1
21 provides details regarding projected cost, schedule, and scope for each MYRP
22 project, as well as the reasoning for each project as required by Commission
23 Rule R1-17B(d)(2)j.(i-iii). In our testimony we highlight key factors driving

1 these investments—these projects advance renewable development and
2 encourage carbon reductions and are a necessary part of the resource portfolio
3 as we transition to a cleaner energy future.

4 **Q. PLEASE DESCRIBE THE EXHIBITS TO YOUR TESTIMONY.**

5 A. Our testimony includes two exhibits. Battery Energy Storage Panel Exhibit 1
6 lists the battery energy storage projects included in the proposed MYRP and
7 details the projected cost, schedule, and scope for each MYRP project, as well
8 as the reasoning for each project as required by Commission Rule R1-
9 17B(d)(2)j. Battery Energy Storage Panel Exhibit 2 contains detailed
10 descriptions of each battery energy storage project included in DEP's proposed
11 MYRP and summarizes key components of each project.

12 **Q. WERE THESE EXHIBITS PREPARED BY YOU OR UNDER YOUR**
13 **DIRECTION AND SUPERVISION?**

14 A. Yes. These exhibits were prepared under our supervision and direction.

15 **Q. PLEASE SUMMARIZE YOUR TESTIMONY.**

16 A. Our testimony describes the battery energy storage portfolio that DEP has
17 included in DEP's proposed MYRP. We highlight the critical importance of
18 battery energy storage as DEP, and the entire industry, continue the transition to
19 a cleaner energy future: all paths forward include battery energy storage
20 solutions as a tool to facilitate the transition. The Company's proposed battery
21 energy storage portfolio consists of near-term, prudent investments that will
22 play an integral role in the next phases of the energy transition, given battery
23 storage's unique ability to serve multiple grid functions across generation,

1 transmission, and distribution systems. Furthermore, through these efforts,
2 DEP can also begin executing the volume of battery energy storage identified
3 in the Companies' near-term action plan of the Carbon Plan.¹ In addition, our
4 testimony requests cost recovery for the Hot Springs Microgrid Solar and
5 Battery Storage Facility: these costs and corresponding work are reasonable and
6 prudent, and customers will benefit from this important foundational work.

7 As our testimony highlights, battery storage provides unique benefits to
8 the bulk power system for the benefit of customers, and DEP's MYRP energy
9 storage portfolio is part of the 1,000 MW of standalone storage in the Carbon
10 Plan near-term action plan. These early pipeline projects are needed to provide
11 the integration and operational experience necessary to support the further
12 storage projects expected to be required under the Carbon Plan.

13 II. MYRP BATTERY ENERGY STORAGE PROJECTS

14 **Q. PLEASE IDENTIFY THE BATTERY ENERGY STORAGE PROJECTS**
15 **INCLUDED IN DEP'S PROPOSED MYRP [R1-17B(d)(2)j.].**

16 **A.** The MYRP includes the following battery storage projects: Riverside, Warsaw,
17 Lake Julian, Elm City, Knightdale, and Craggy. Battery Energy Storage Panel
18 Exhibit 1 includes details regarding projected cost, schedule, and scope for each
19 battery energy storage project included in the proposed MYRP, as well as the
20 reasoning for each proposed project. In addition to projected costs for the
21 proposed battery energy storage projects, Battery Energy Storage Panel Exhibit

¹ In addition, these projects have been included in the Companies' Integrated Resource Plans ("IRPs") since 2018 and were more recently included in the 2020 IRPs, which were approved by the Commission in Docket No. E-100, Sub 165. *See Order Accepting Integrated Resource Plans, REPS, and CPRE Program Plans with Conditions and Providing Further Direction for Future Planning* (Nov. 19, 2021).

1 2 also identifies (1) the reason for each project; (2) the project scope; and (3)
2 the anticipated timeline, including projected in-service month and year for each
3 battery energy storage project as required by Commission Rules R1-17B(d)(2)j.

4 This information is supplemented, where appropriate, by the Direct Testimony
5 of Company Witness Kathryn Taylor.

6 **Q. DO ANY OF THE PROJECTS OFFER PROJECTED OPERATING**
7 **BENEFITS?**

8 A. No quantified operating benefits were identified for the proposed projects. The
9 specific benefits of each project are detailed further in Battery Energy Storage
10 Panel Exhibit 1 and briefly described below.

11 **Q. WHAT BENEFITS ARE EXPECTED FROM THE SPECIFIC BATTERY**
12 **STORAGE PROJECTS IN THE DEP MYRP PORTFOLIO?**

13 A. As required by Commission Rule R1-17B(d)(2)j., Battery Energy Storage Panel
14 Exhibit 2 describes the reason for each project and summarizes key project
15 components.

16 The Craggy, Lake Julian, and Riverside projects each comport with
17 Western Carolinas Modernization Plan (“WCMP”)² goals and support the
18 Mountain Energy Act, which authorized the use of alternative energy solutions
19 to defer a transmission line running through North Carolina, where new
20 transmission lines would run through scenic Blue Ridge escarpment, and in

² *Order Granting Application in Part, With Conditions, and Denying Application in Part*, Docket No. E-2, Sub 1089 (March 28, 2016) (“WCMP Order”). Battery energy storage represented a key component of the WCMP and provided the basis for battery energy storage investments in the DEP-West region. The WCMP specifically included a commitment to deploy at least 5 MWs of battery energy storage for the western Carolinas region.

1 South Carolina, where most of the new transmission infrastructure and a new
2 substation were proposed. These projects were included as part of the battery
3 storage resources in the 2019 IRP Update.³ Craggy is a 30.5 MW, 2-hour
4 transmission-connected battery expected to provide bulk system services, but it
5 is also capable of supporting a grid contingency for two years if construction of
6 a new planned transmission line were delayed. Lake Julian is a 17 MW, 4-hour
7 battery at the retired Asheville coal plant, which will give the Company
8 experience with transitioning coal sites, reusing existing brownfield land, and
9 re-training personnel on clean energy technologies. Riverside is the smallest
10 battery in the DEP MYRP Energy Storage portfolio – a 4.6 MW, 1-hour battery
11 – and will serve as a standalone distribution-tied battery that provides bulk
12 services.

13 The battery projects at Elm City and Warsaw are both leveraging and
14 providing experience with surplus solar interconnection capacity. Elm City –
15 an 18 MW, 4-hour battery – and Warsaw – a 30 MW, 2-hour battery – will
16 provide capacity and ancillary services. Both projects utilize existing
17 interconnection infrastructure and rights to reduce development cost and
18 timeline.

19 Finally, the 100 MW, 2-hour bulk services battery project at Knightdale
20 will be the largest battery DEP has installed. This project is beneficial to the
21 system and is increasingly important to execute to achieve a cleaner energy
22 future. This project provides experience with a larger grid scale battery system

³ *Duke Energy Progress, LLC Integrated Resource Plan 2019 Update Report*, Docket No. E-100, Sub 157 (Oct. 29, 2019) (“2019 IRP Update”).

1 providing energy transfer (arbitrage) to peak periods and ancillary services,
2 which support system balancing at a scale shown valuable by utilities and grid
3 operators across the nation.

4 **Q. PLEASE DESCRIBE HOW BATTERY ENERGY STORAGE**
5 **CAPABILITIES ENABLE THE CLEAN ENERGY TRANSITION.**

6 A. When dispatched by the grid operator, a single energy storage project can
7 perform many different grid functions across generation, transmission, and
8 distribution systems. The grid operator is uniquely situated to optimally site
9 and dispatch storage to maximize value for customers by providing services
10 across these systems with one single asset. Regarding generation, the Company
11 can leverage energy storage to capture excess low-carbon energy production
12 and discharge it when customer demand is highest to maximize the use of
13 carbon-free energy and most efficiently use the system. From a transmission
14 perspective, operator-controlled storage could provide minute by minute
15 balancing between load and generation via ancillary services to maintain
16 adequate system reliability. Furthermore, battery energy storage technologies
17 can be a cost-effective alternative to a transmission or distribution investment
18 to increase capacity, reliability, or resiliency for customers. Through the battery
19 energy storage projects discussed in this testimony, the Company will be better
20 prepared to integrate and operate the clean energy technologies necessary to
21 effectuate the clean energy transition while maintaining safety and reliability of
22 the grid and minimizing impacts to customer rates.

1 **Q. DID THE COMPANY CONSIDER COST WHEN IDENTIFYING**
2 **BATTERY ENERGY STORAGE PROJECTS FOR THE PROPOSED**
3 **MYRP?**

4 A. Yes. However, it is important to highlight that each project included in the
5 MYRP portfolio is critical: prudent utility planning supports the Company
6 undertaking these investments to navigate the energy transition while
7 continuing to provide customers with affordable and reliable service.

8 Regarding project cost, DEP established required criteria that governed
9 the project selection process. First, DEP prioritized projects that could be
10 placed in-service prior to 2027 to support timing described in the 2018⁴, 2019⁵,
11 and 2020⁶ IRPs. The Companies have learned over the past decade of
12 development that grid-connected batteries frequently require a multi-year lead-
13 time. DEP’s proposed battery energy storage projects employ a variety of
14 strategies to achieve faster deployment, such as utilization of an existing
15 interconnection agreement or early development efforts from WCMP.

16 Second, DEP strategically selected project locations where existing
17 infrastructure and land can be leveraged—this approach reduces local
18 community impact. Third, DEP selected projects that ensure a variety of
19 business development, construction, and operational environments. This “All
20 of the Above” development approach ensures that DEP has an appropriate mix

⁴ See *Duke Energy Progress, LLC 2018 Integrated Resource Plan and 2018 REPS Compliance Plan*, Docket No. E-100, Sub 157, (June 5, 2018) (“2018 IRP”) at 78 (Table 14-A).

⁵ See 2019 IRP Update at 82 (Table 11-A).

⁶ See *Duke Energy Progress, LLC 2020 Integrated Resource Plan Corrections*, Docket No. E-100, Sub 165 (Nov. 6, 2020) at 120 (Table 14-B).

1 of configurations, sites, and use cases. Moreover, this project selection
2 approach will facilitate DEP's ability to expand energy storage generation,
3 transmission, and distribution systems in the years beyond the MYRP.

4 Finally, DEP focused on selecting projects that maximize customer and
5 grid values over the asset life through demonstration of "stacked values."
6 Battery Energy Storage Panel Exhibit 2 includes detailed summaries of each
7 project and further details the proposed portfolio and individual project benefits
8 to DEP customers.

9 **Q. DO THE PROPOSED MYRP BATTERY ENERGY STORAGE**
10 **PROJECTS SATISFY THE SELECTION CRITERIA DESCRIBED**
11 **ABOVE?**

12 A. Yes. As described in Battery Energy Storage Panel Exhibit 2, each MYRP
13 battery energy storage project satisfies selection criteria described above.

14 **Q. PLEASE EXPLAIN HOW THE COMPANY DEVELOPED COST**
15 **ESTIMATES FOR THE MYRP BATTERY ENERGY STORAGE**
16 **PROJECTS.**

17 A. DEP used internal cost projections in developing cost estimates for the proposed
18 battery energy storage projects. Specifically, DEP estimated costs based on
19 averages/ranges of: (1) construction labor and engineering costs from previous
20 projects; (2) averages/ranges of equipment costs from real-time 2022 market
21 supplier data; and (3) Q2 2022 interconnection study cost estimates. In
22 addition, DEP plans to competitively bid the major components and
23 construction of the projects for the benefit of customers.

1 **III. HOT SPRINGS MICROGRID**

2 **Q. PLEASE PROVIDE AN OVERVIEW OF THE HOT SPRINGS**
3 **MICROGRID PROJECT.**

4 A. The Hot Springs Microgrid Solar and Battery Storage Facility (“Hot Springs
5 Microgrid”) is an approximately 3 MW direct current/2 MW alternating current
6 solar photovoltaic electric generator and an approximately 4 MW lithium-based
7 battery energy storage system in Madison County, North Carolina, which was
8 placed in-service in December 2021. DEP pursued a Certificate of Public
9 Convenience and Necessity (“CPCN”) for the Hot Springs Microgrid consistent
10 with the WCMP Order, which was granted by the Commission on May 10,
11 2019, (the “CPCN Order”).⁷

12 **Q. DID THE NCUC INCLUDE CONDITIONS TO ITS APPROVAL IN THE**
13 **CPCN ORDER?**

14 A. Yes. Given the rapidly evolving technologies and difficulties quantifying and
15 analyzing costs and benefits, the Commission approved the CPCN subject to:
16 (1) reporting requirements; (2) a frequency regulation study; and (3) a cap on
17 above-the-line project capital costs.

18 **Q. PLEASE ELABORATE ON THE COST CAP THAT THE CPCN ORDER**
19 **INCLUDED.**

20 A. The Commission concluded that DEP’s initial project cost estimates were
21 reasonable. However, in balancing the uncertainties surrounding a first-of-a-
22 kind project with customer interests, the Commission determined that a cost cap

⁷ *Order Granting the Certificate of Public Convenience and Necessity with Conditions*, Docket No. E-2, Sub 1185 (May 10, 2019) (“CPCN Order”).

1 was appropriate. The cost cap implemented a rebuttable presumption that any
2 Hot Springs Microgrid construction costs exceeding the cap are unreasonably
3 or imprudently incurred and shall not be recoverable from customers.⁸

4 **Q. DID THE COMMISSION IDENTIFY AN EXCEPTION TO THE**
5 **REBUTTABLE PRESUMPTION REFERENCED ABOVE?**

6 A. Yes. Per the CPCN Order, DEP can overcome this presumption by
7 demonstrating that it reasonably and prudently incurred the costs exceeding the
8 cap as a result of an event, or events, directly impacting the timing or cost of
9 construction of the Hot Springs Microgrid that was, or were (1) not reasonably
10 foreseeable at the time the CPCN was approved; (2) unavoidable through the
11 exercise of commercially reasonable efforts and diligence consistent with
12 prudent industry practice, and (3) outside of the reasonable control of DEP
13 ("Force Majeure Events").⁹

14 **Q. DID THE HOT SPRINGS MICROGRID CONSTRUCTION COSTS**
15 **EXCEED THE CAP AMOUNT ADDRESSED IN THE CPCN ORDER?**

16 A. Yes. The actual construction costs have exceeded the cap amount identified in
17 the CPCN Order; however, these costs were due to Force Majeure Events
18 outside the Company's control, and are therefore reasonable and prudent, as
19 explained further below. Several factors have driven these cost variances,
20 including higher than expected interconnection study and interconnection

⁸ CPCN Order at 15.

⁹ The Commission defined "Force Majeure Events" as "(1) extreme weather events (including named storms, tornadoes, earthquakes, floods, and forest fires), war, acts of terrorism, epidemics, natural disasters, and other Acts of God, (2) discovery of latent and unknown site conditions, and (3) changes in State or federal law through judicial, legislative, or executive/administrative action or interpretation implemented, enacted, adopted or otherwise ordered after the date this CPCN is approved." CPCN Order at 16.

1 equipment costs, higher than expected costs driven by emergent lithium-ion fire
2 safety requirements, and higher than expected construction oversight and
3 advanced funds used during construction (“AFUDC”) costs due to total project
4 cost increases and schedule delays due to the COVID-19 pandemic.

5 **Q. PLEASE ELABORATE ON THE FACTORS IMPACTING THE HOT**
6 **SPRINGS MICROGRID COSTS.**

7 A. First, it is important to highlight, as the Commission did in the CPCN Order,
8 that the Hot Springs Microgrid is a first-of-a-kind microgrid both in size and
9 scope. The Commission acknowledged that one benefit of the project was that
10 DEP and stakeholders would “gain valuable experience and lessons from the
11 deployment of utility-scale battery storage and microgrids in North Carolina, as
12 this technology continues to develop.”¹⁰

13 To that end, the Hot Springs Microgrid consists of distinct operational
14 modes that impact grid safety in vastly different ways: Grid Parallel Mode and
15 Island Mode. Each of these operational modes requires technical due diligence
16 related to integration to the distribution system, generator system site design,
17 and safety considerations. These operational modes are further complicated
18 when considering that only inverter-based generation sources (solar and an AC
19 coupled battery) are included in the interconnection request.

20 Second, during the interconnection process for islanding mode, DEP
21 unearthed challenges in this first-of-a-kind operational profile study. This
22 caused delay in project deployment and the need for newly identified equipment

¹⁰ CPCN Order at 16.

1 to maintain grid safety.

2 Third, the project was simultaneously affected by emergent industry
3 learnings stemming from the Arizona Public Service (“APS”) battery fire in
4 2019. Battery energy storage is a nascent technology with evolving fire safety
5 standards, and DEP uses industry-leading fire safety equipment and protocol to
6 keep personnel and equipment safe. New and previously unknown fire protocol
7 and learnings were derived from the APS battery fire incident that required
8 design and equipment change in the Hot Springs Microgrid.

9 Both effects from the first-of-a-kind interconnection study and external
10 fire safety incidents caused project delays funneling into the COVID-19
11 pandemic. Subsequent delays due to newly identified and necessary equipment
12 caused increased timing for construction oversight as well as AFUDC.

13 **Q. DID THE COMPANY KEEP THE COMMISSION INFORMED ON THE**
14 **STATUS OF THE PROJECT AS REQUIRED BY THE CPCN ORDER?**

15 A. Yes. Consistent with the CPCN Order, the Company filed reports and updates
16 with the Commission regarding the Hot Springs Microgrid in Docket No. E-2,
17 Sub 1185. DEP’s February 2020 Revised Semi-Annual Hot Springs Report and
18 its October 2020 Interim Progress Report included updates to the Commission
19 on the expected project cost and timeline for commercial operation and reasons
20 for the ultimate delay in the commercial operation date. The Company also had
21 several witnesses participate in a live informational briefing for the
22 Commission on March 5, 2020. The Company anticipates filing its final report
23 on or before October 31, 2022.

1 **Q. REGARDING THE REBUTTABLE PRESUMPTION: DO THE HOT**
2 **SPRINGS MICROGRID COSTS EXCEEDING THE COST CAP**
3 **QUALIFY FOR THE EXCEPTION REFERENCED IN THE HOT**
4 **SPRINGS ORDER?**

5 A. Yes. The excess costs resulted from Force Majeure events, as defined in the
6 CPCN Order, such as the COVID-19 pandemic, and from unforeseeable first-
7 of-a-kind events that were outside of the control of the Company and were
8 unavoidable through the exercise of commercially reasonable efforts consistent
9 with prudent industry practice, including among other things, updates and
10 modifications made for the safety and reliability of the Hot Springs Microgrid
11 as a result of the previously discussed updated fire safety protocol. For these
12 reasons, along with the benefits that customers will receive from this project,
13 the Company's costs that exceed the cap were reasonable and prudent.

14 **Q. DOES THIS CONCLUDE YOUR TESTIMONY.**

15 A. Yes.

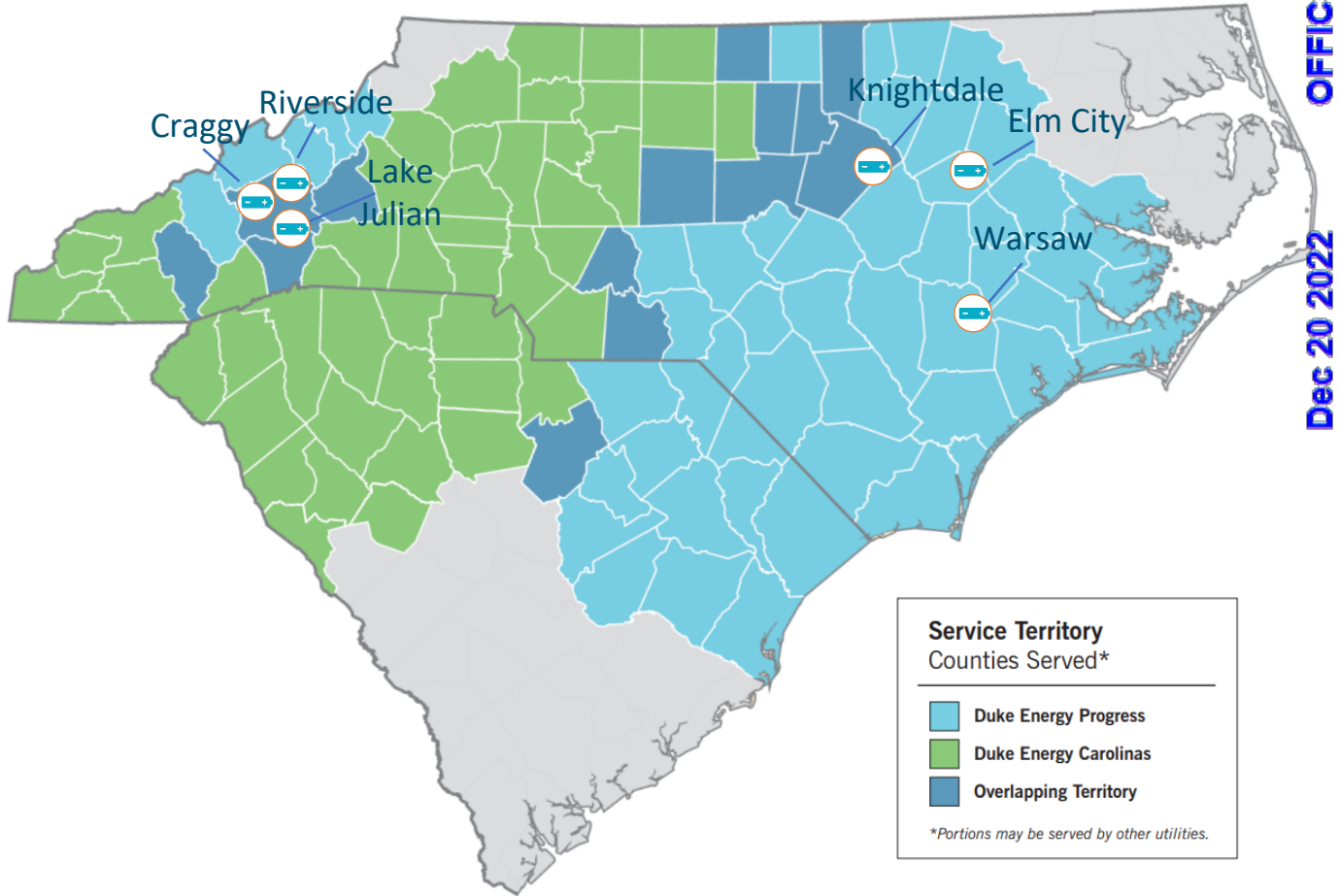
DUKE ENERGY PROGRESS
MYRP PROJECTS
DOCKET NO. E-2 Sub 1300

Line No.	MYRP Project Name	FERC Function	Project Forecasted In-Service Date	MYRP Project Description & Scope	Reason for the MYRP Project	Total Project Amount (System)			
						Projected In-Service Costs	Projected Annual Net O&M	Projected Installation O&M	Projected
1	Craggy	Other Production Plant in Service	Mar-26	This is a 30.5MW, 2 hour battery in DEP-W, supporting the Western Carolinas Modernization Plan	Constituent project of the Foundational Portfolio of Energy Storage resources which are required to enable the cleaner energy transition.	\$ 48,000,000	\$ 915,000	\$ -	-
2	Elm City	Other Production Plant in Service	Jun-25	This is a 18MW, 4 hour battery at an existing solar project owned/operated by DEP.	Constituent project of the Foundational Portfolio of Energy Storage resources which are required to enable the cleaner energy transition.	\$ 52,000,000	\$ 549,000	\$ -	-
3	Knightdale	Other Production Plant in Service	Mar-25	This is a 100MW, 2 hour battery at Wake county.	Constituent project of the Foundational Portfolio of Energy Storage resources which are required to enable the cleaner energy transition.	\$ 107,000,000	\$ 3,000,000	\$ -	-
4	Lake Julian	Other Production Plant in Service	Dec-24	This is a 17MW, 4 hour battery at the retired Asheville Coal plant, supporting the Western Carolinas Modernization Project.	Constituent project of the Foundational Portfolio of Energy Storage resources which are required to enable the cleaner energy transition.	\$ 50,000,000	\$ 517,500	\$ -	-
5	Riverside	Other Production Plant in Service	Feb-24	This is a 4.6MW, 1 hour battery in DEP-W, supporting the Western Carolinas Modernization Project.	Constituent project of the Foundational Portfolio of Energy Storage resources which are required to enable the cleaner energy transition.	\$ 11,000,000	\$ 138,000	\$ -	-
6	Warsaw	Other Production Plant in Service	Jul-24	This is a 30MW, 2 hour battery at an existing solar project owned/operated by DEP.	Constituent project of the Foundational Portfolio of Energy Storage resources which are required to enable the cleaner energy transition.	\$ 44,000,000	\$ 900,000	\$ -	-
TOTALS						\$ 312,000,000	\$ 6,019,500	\$ -	-

Battery Energy Storage Panel Exhibit 2: MYRP Project Summaries

Content	Page
Map of Projects	2
Riverside Project Summary	3
Warsaw Project Summary	4
Lake Julian Project Summary	5
Elm City Project Summary	6
Knightdale Project Summary	7
Craggy Project Summary	8

Map of Projects



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Dec 20 2022

Project	County	MW	MWh	CAPEX (\$MM)	Target COD	Point-of-Interconnection
Riverside	Buncombe	4.6	4.6	\$11	Feb '24	Distribution
Warsaw	Duplin	30	60	\$44.0	Jul '24	Transmission
Lake Julian	Buncombe	17.3	69	\$50.0	Dec '24	Transmission
Knightdale	Wake	100	200	\$107.0	Mar '25	Transmission
Elm City	Wilson	18.3	73.2	\$52.0	Jun '25	Transmission
Craggy	Buncombe	30.5	61	\$48.0	Mar '26	Transmission

Project: Riverside

County	Buncombe	Functions
Power	4.6 MW	Energy Arbitrage
Energy	4.6 MWh	Capacity
CAPEX (\$MM)	\$11.0	Ancillary Services
Estimated ISD	Feb'24	
Point of Interconnection	Distribution	
PMCOE Gate/Date	Initiate - Nov'21	
Associated Substation	Elk Mtn. 115kV	



Strategic Rationale:

- Supports Western North Carolinas Modernization: this community desires investment in clean energy technologies to defer investment in traditional technologies and accelerate the clean energy transition.
- Part of a local fleet of batteries testing and perfecting the ability to provide bulk system benefits with distribution interconnection points. This asset is unique to the other local systems in that it is not held in reserve for a local reliability function.
- Uses existing land and infrastructure to lower development and operations cost.

Location: Adjacent to Duke Energy Progress Elk Mountain 115 kV substation in Buncombe County NC on land owned by Duke Energy.

Design Power/Energy: Designed to provide bulk system services via the medium voltage bus of a retail substation, the project is to maintain a 4.6 MW, 4.6 MWh (1-hour) sizing through its life.

Expected Technology: Containerized, lithium-chemistry electrochemical battery storage; industry-proven, packaged DC-AC inverters; flexible battery control software/hardware; and best-in-class safety features.

Cost: A 2022 Class 4 estimate predicts the overnight capital investment for this project will be \$11 MM.

Estimated ISD: Based upon expected timelines for interconnection study and subsequent required work to construct network upgrades and point-of-interconnection, this project is expected to enter service in February 2024.

Point of Interconnection: This project is to connect to the DEP distribution system at the Elk Mountain 115kV substation.

Selection History: The project was successfully screened in February 2022 Initiate Gate Review.

Interconnection Study: An interconnection agreement has been executed for this project.

Functionality: It is expected that this project will test and validate the ability for distribution-connected resources not held in reserve for reliability functions to provide bulk system capacity, energy arbitrage and ancillary services.

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An aerial photograph showing a proposed development site. The site is outlined by a black decorative border. Inside, there are several rectangular areas: a large green area at the top, a central area with red dots connected by lines, and two blue rectangular areas at the bottom. Labels point to specific features: "PROPOSED IMPROVEMENTS TO EXISTING PARKWAY AND SIDEWALKS ALONG ROUTE 60", "EXISTING DRIVEWAY FROM EXISTING LOT 18", "PROPOSED DRIVEWAY FROM EXISTING LOT 18", "PROPOSED DRIVEWAY FROM EXISTING LOT 18", "PROPOSED DRIVEWAY FROM EXISTING LOT 18", "PROPOSED DRIVEWAY FROM EXISTING LOT 18", "PROPOSED DRIVEWAY FROM EXISTING LOT 18", "PROPOSED DRIVEWAY FROM EXISTING LOT 18", "PROPOSED DRIVEWAY FROM EXISTING LOT 18", "PROPOSED DRIVEWAY FROM EXISTING LOT 18". A scale bar indicates "0' 10' 20' 30' 40' 50' 60' 70' 80' 90' 100' 110' 120' 130' 140' 150' 160' 170' 180' 190' 200' 210' 220' 230' 240' 250' 260' 270' 280' 290' 300' 310' 320' 330' 340' 350' 360' 370' 380' 390' 400' 410' 420' 430' 440' 450' 460' 470' 480' 490' 500' 510' 520' 530' 540' 550' 560' 570' 580' 590' 600' 610' 620' 630' 640' 650' 660' 670' 680' 690' 700' 710' 720' 730' 740' 750' 760' 770' 780' 790' 800' 810' 820' 830' 840' 850' 860' 870' 880' 890' 900' 910' 920' 930' 940' 950' 960' 970' 980' 990' 1000' 1010' 1020' 1030' 1040' 1050' 1060' 1070' 1080' 1090' 1100' 1110' 1120' 1130' 1140' 1150' 1160' 1170' 1180' 1190' 1200' 1210' 1220' 1230' 1240' 1250' 1260' 1270' 1280' 1290' 1300' 1310' 1320' 1330' 1340' 1350' 1360' 1370' 1380' 1390' 1400' 1410' 1420' 1430' 1440' 1450' 1460' 1470' 1480' 1490' 1500' 1510' 1520' 1530' 1540' 1550' 1560' 1570' 1580' 1590' 1600' 1610' 1620' 1630' 1640' 1650' 1660' 1670' 1680' 1690' 1700' 1710' 1720' 1730' 1740' 1750' 1760' 1770' 1780' 1790' 1800' 1810' 1820' 1830' 1840' 1850' 1860' 1870' 1880' 1890' 1900' 1910' 1920' 1930' 1940' 1950' 1960' 1970' 1980' 1990' 2000' 2010' 2020' 2030' 2040' 2050' 2060' 2070' 2080' 2090' 2100' 2110' 2120' 2130' 2140' 2150' 2160' 2170' 2180' 2190' 2200' 2210' 2220' 2230' 2240' 2250' 2260' 2270' 2280' 2290' 2300' 2310' 2320' 2330' 2340' 2350' 2360' 2370' 2380' 2390' 2400' 2410' 2420' 2430' 2440' 2450' 2460' 2470' 2480' 2490' 2500' 2510' 2520' 2530' 2540' 2550' 2560' 2570' 2580' 2590' 2600' 2610' 2620' 2630' 2640' 2650' 2660' 2670' 2680' 2690' 2700' 2710' 2720' 2730' 2740' 2750' 2760' 2770' 2780' 2790' 2800' 2810' 2820' 2830' 2840' 2850' 2860' 2870' 2880' 2890' 2900' 2910' 2920' 2930' 2940' 2950' 2960' 2970' 2980' 2990' 3000' 3010' 3020' 3030' 3040' 3050' 3060' 3070' 3080' 3090' 3100' 3110' 3120' 3130' 3140' 3150' 3160' 3170' 3180' 3190' 3200' 3210' 3220' 3230' 3240' 3250' 3260' 3270' 3280' 3290' 3300' 3310' 3320' 3330' 3340' 3350' 3360' 3370' 3380' 3390' 3400' 3410' 3420' 3430' 3440' 3450' 3460' 3470' 3480' 3490' 3500' 3510' 3520' 3530' 3540' 3550' 3560' 3570' 3580' 3590' 3600' 3610' 3620' 3630' 3640' 3650' 3660' 3670' 3680' 3690' 3700' 3710' 3720' 3730' 3740' 3750' 3760' 3770' 3780' 3790' 3800' 3810' 3820' 3830' 3840' 3850' 3860' 3870' 3880' 3890' 3900' 3910' 3920' 3930' 3940' 3950' 3960' 3970' 3980' 3990' 4000' 4010' 4020' 4030' 4040' 4050' 4060' 4070' 4080' 4090' 4100' 4110' 4120' 4130' 4140' 4150' 4160' 4170' 4180' 4190' 4200' 4210' 4220' 4230' 4240' 4250' 4260' 4270' 4280' 4290' 4300' 4310' 4320' 4330' 4340' 4350' 4360' 4370' 4380' 4390' 4400' 4410' 4420' 4430' 4440' 4450' 4460' 4470' 4480' 4490' 4500' 4510' 4520' 4530' 4540' 4550' 4560' 4570' 4580' 4590' 4600' 4610' 4620' 4630' 4640' 4650' 4660' 4670' 4680' 4690' 4700' 4710' 4720' 4730' 4740' 4750' 4760' 4770' 4780' 4790' 4800' 4810' 4820' 4830' 4840' 4850' 4860' 4870' 4880' 4890' 4900' 4910' 4920' 4930' 4940' 4950' 4960' 4970' 4980' 4990' 5000' 5010' 5020' 5030' 5040' 5050' 5060' 5070' 5080' 5090' 5100' 5110' 5120' 5130' 5140' 5150' 5160' 5170' 5180' 5190' 5200' 5210' 5220' 5230' 5240' 5250' 5260' 5270' 5280' 5290' 5300' 5310' 5320' 5330' 5340' 5350' 5360' 5370' 5380' 5390' 5400' 5410' 5420' 5430' 5440' 5450' 5460' 5470' 5480' 5490' 5500' 5510' 5520' 5530' 5540' 5550' 5560' 5570' 5580' 5590' 5600' 5610' 5620' 5630' 5640' 5650' 5660' 5670' 5680' 5690' 5700' 5710' 5720' 5730' 5740' 5750' 5760' 5770' 5780' 5790' 5800' 5810' 5820' 5830' 5840' 5850' 5860' 5870' 5880' 5890' 5900' 5910' 5920' 5930' 5940' 5950' 5960' 5970' 5980' 5990' 6000' 6010' 6020' 6030' 6040' 6050' 6060' 6070' 6080' 6090' 6100' 6110' 6120' 6130' 6140' 6150' 6160' 6170' 6180' 6190' 6200' 6210' 6220' 6230' 6240' 6250' 6260' 6270' 6280' 6290' 6300' 6310' 6320' 6330' 6340' 6350' 6360' 6370' 6380' 6390' 6400' 6410' 6420' 6430' 6440' 6450' 6460' 6470' 6480' 6490' 6500' 6510' 6520' 6530' 6540' 6550' 6560' 6570' 6580' 6590' 660

Functionality: It is expected that this project will provide bulk system capacity, energy arbitrage and ancillary services.

Project: Lake Julian

County	Buncombe	Functions
Power	17.3 MW	Energy Arbitrage
Energy	69 MWh	Capacity
CAPEX (\$MM)	\$50.0	Ancillary Services
Estimated ISD	Dec '24	
Point of Interconnection	Transmission	
PMCOE Milestone/Date	Select – Oct'19	
Associated Substation	Asheville Plant Solar 115kV	



Strategic Rationale:

- Supports Western North Carolinas Modernization: this community desires investment in clean energy technologies to defer investment in traditional technologies and accelerate the clean energy transition.
- Part of a fleet of clean technologies replacing a retiring coal unit, providing direct learnings for how to reutilize brownfield sites, repurpose existing equipment, and retrain personnel for working on clean energy technologies of the future.
- Brownfield location may maximize investment tax credit available.
- Uses existing land and infrastructure to lower development and operations cost.

Location: Adjacent to Duke Energy Progress' Asheville Combined Cycle Plant and planned Asheville Solar facility in Buncombe County NC on land owned by Duke Energy.

Design Power/Energy: Designed to re-utilize equipment associated with the recently demolished Asheville Steam Station, the project is to maintain a 17.3 MW, 69 MWh (4-hour) sizing through its life. The battery system is co-located with the planned solar facility.

Expected Technology: Containerized, lithium-chemistry electrochemical battery storage; industry-proven, packaged DC-AC inverters; flexible battery control software/hardware; and best-in-class safety features.

Cost: A 2022 Class 5 estimate predicts the overnight capital investment for this project will be \$50.0 MM.

Estimated ISD: Based upon expected timelines for interconnection study and subsequent required work to construct network upgrades and point-of-interconnection facilities, this project is expected to enter service in December 2024.

Point of Interconnection: This project is to connect to the DEP transmission system at the planned Asheville Plant Solar 115kV substation.

Selection History: The project was successfully screened in an October 2019 Select Gate Review.

Interconnection Study: An interconnection agreement has been executed for this project.

Functionality: It is expected that this project will provide bulk system capacity, energy arbitrage and ancillary services.

Project: Elm City

County	Wilson	Functions
Power	18.3 MW	Energy Arbitrage
Energy	73.2 MWh	Capacity
CAPEX (\$MM)	\$52.0	Ancillary Services
Estimated ISD	June '25	
Point of Interconnection	Transmission	
PMCOE Milestone/Date	Select - Jun '22	
Associated Substation	Elm City Solar 115kV	



Strategic Rationale:

- Maximizes use of existing interconnection rights with surplus interconnection, lowering interconnection cost and accelerating deployment timeline compared to storage projects using net new interconnection.
- Uses existing land to lower development and operations cost.
- May provide access to investment tax credit as well as production tax credit due to co-location with solar.

Location: Adjacent to the Duke Energy Progress' Elm City Solar Generating Facility in Wilson County NC on land leased by Duke Energy.

Design Power/Energy: Designed to utilize the existing infrastructure and interconnection agreement of the Elm City Solar Facility, the project is to maintain an 18.3 MW, 73.2 MWh (4-hour) sizing through its life. The battery system is co-located with the existing solar facility.

Expected Technology: Containerized, lithium-chemistry electrochemical battery storage; industry-proven, packaged DC-AC inverters; flexible battery control software/hardware; and best-in-class safety features.

Cost: A 2022 Class 5 estimate predicts the overnight capital investment for this project will be \$52.0 MM.

Estimated ISD: Based upon expected timelines for interconnection study and subsequent required work to construct point-of-interconnection facilities, this project is expected to enter service in June 2025.

Point of Interconnection: This project is to connect to the DEP transmission system at the Elm City Solar Facility 115kV Switching Station.

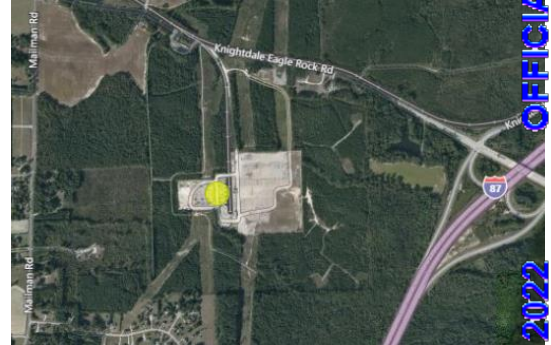
Selection History: The project was successfully screened in a June 2022 Select Gate Review.

Interconnection Study: This project will submit a surplus interconnection study request in Q4 2022.

Functionality: It is expected that this project will provide bulk system capacity, energy arbitrage and ancillary services.

Project: Knightdale

County	Wake	Functions
Power	100 MW	Energy Arbitrage Capacity Ancillary Services
Energy	200 MWh	
CAPEX (\$MM)	\$107.0	
Estimated ISD	Mar '25	
Point of Interconnection	Transmission	
PMCOE Milestone/Date	Select - Oct '21	
Associated Substation	Wake 500kV	



Strategic Rationale:

- This size project provides the next phase of operating experience. It will test most if not all grid functions.
- 15+ 100MW facilities are under construction or operational in US.
- DEP must incorporate new processes and procedures for design/implementation of large-scale battery systems using augmentation to address degradation.
- Partnership with the developer community. Knightdale represents Duke Energy's first 3rd party acquisition for regulated utility-scale energy project in the Carolinas. Duke Energy purchased real estate and an interconnection queue position from an independent developer in October 2021.
- Uses existing land and infrastructure to lower development and operations cost.

Location: Adjacent to the DEP Wake 500kV substation in Wake County NC on land owned by Duke Energy.

Design Power/Energy: Designed to make use of significant existing transmission infrastructure, the project is to be a 100 MW, 200 MWh (2-hour) system at end of life.

Expected Technology: Containerized, lithium-chemistry electrochemical battery storage; industry-proven, packaged DC-AC inverters; flexible battery control software/hardware; and best-in-class safety features.

Cost: A 2022 Class 5 estimate predicts the overnight capital investment for this project will be \$107.0 MM for the first project phase.

Estimated ISD: Based upon expected timelines for interconnection study and required work to construct network upgrades and point-of-interconnection, this project is expected to enter service in March 2025.

Point of Interconnection: This project is to connect to the DEP transmission system at the Wake 500kV substation.

Selection History: The project was successfully screened for acquisition in October 2021.

Interconnection Study: An interconnection request was submitted in 2019.

Functionality: It is expected that this project will provide bulk system capacity, energy arbitrage and ancillary services.

Additional Notes: In order to maximize equipment project economics, Knightdale project will be constructed in phases. Additional power and energy will be installed at the site over the course of several years to account for the degradation of battery cells, with the site reaching a rating of 100MW and 200MWh.

Project: Craggy

County	Buncombe	Functions
Power	30.5 MW	Energy Arbitrage
Energy	61 MWh	Capacity
CAPEX (\$MM)	\$48.0	Ancillary Services
Estimated ISD	Mar '26	
Point of Interconnection	Transmission	
PMCOE Milestone/Date	Select - Oct '20	
Associated Substation	Craggy 230kV	



Strategic Rationale:

- Supports Western North Carolinas Modernization: this community desires investment in clean energy technologies to defer investment in traditional technologies and accelerate the clean energy transition.
- This project was identified as a part of a first of a kind non-wires alternative study. It is sited and sized for a potential for transmission deferral: the battery will support a transmission contingency for two years if the planned in-service date for a new 230kV line is delayed. Meanwhile it will provide bulk system services on behalf of all DEP customers throughout asset life.
- Uses existing land and infrastructure to lower development and operations cost.

Location: Adjacent to Duke Energy Progress' Craggy 230kV substation in Buncombe County NC on land owned by Duke Energy.

Design Power/Energy: Originally designed to alleviate a future DEP-West balancing area transmission constraint, the project is to maintain a 30.5MW, 61MWh (two-hour) system sizing through its life.

Expected Technology: Containerized, lithium-chemistry electrochemical battery storage; industry-proven, packaged DC-AC inverters; flexible battery control software/hardware; and best-in-class safety features.

Cost: A 2022 Class 5 estimate predicts the overnight capital investment for this project will be \$48.0 MM.

Estimated ISD: Based upon expected timelines for interconnection study and subsequent required work to construct network upgrades and point-of-interconnection, this project is expected to enter service in March 2026.

Point of Interconnection: This project is to connect to the DEP transmission system at the Craggy 230kV substation.

Selection History: The project was successfully screened in an October 2020 Select Gate Review.

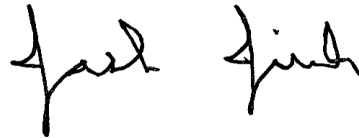
Interconnection Study: An interconnection request has been submitted for this project, and the study process is on-going.

Functionality: A potential dual-use transmission and generation asset. It is expected that this project will provide bulk system capacity, energy arbitrage and ancillary services. A possible secondary use case could be transmission contingency support if the planned construction of a new transmission system improvement is delayed.

CERTIFICATE OF SERVICE

I certify that a copy of Duke Energy Progress, LLC's Motion for Leave to (1) File the Direct Testimony of Kendal C. Bowman Adopting the Direct Testimony of Stephen G. De May; (2) File the Direct Testimony and Exhibits of Graham C. Thompson Adopting the Direct Testimony of Laurel Meeks; and, (3) Amend the Direct Testimony of the Battery Energy Storage Panel, as filed in Docket No. E-2, Sub 1300, has been served by electronic mail, hand delivery or by depositing a copy in the United States mail, postage prepaid, to parties of record.

This the 20th day of December, 2022.



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