

INFORMATION SHEET

PRESIDING: Chair Mitchell, and Commissioners Brown-Bland, Clodfelter, Duffley, Hughes,
McKissick, and Kemeraït

PLACE: Dobbs Building, Raleigh, NC

DATE: Tuesday, September 20, 2022

TIME: 1:45 p.m. – 4:58 p.m.

DOCKET NO(s): E-100, Sub 179

COMPANY: Duke Energy Progress, LLC, and Duke Energy Carolinas, LLC

DESCRIPTION: 2022 Biennial Integrated Resource Plans and Carbon Plan

VOLUME NUMBER: 18

APPEARANCES

See Attached

WITNESSES

See Attached

EXHIBITS

See Attached

CONFIDENTIAL COPIES OF TRANSCRIPTS AND EXHIBITS ORDERED BY:

REPORTED BY: Joann Bunze

TRANSCRIBED BY: Joann Bunze

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BEFORE: Chair Charlotte A. Mitchell, Presiding

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Commissioner Daniel G. Clodfelter

Commissioner Kimberly W. Duffley

Commissioner Jeffrey A. Hughes

Commissioner Floyd B. McKissick, Jr.

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IN THE MATTER OF:

Duke Energy Progress, LLC, and

Duke Energy Carolinas, LLC,

2022 Biennial Integrated Resource Plans

and Carbon Plan

VOLUME: 18

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T A B L E O F C O N T E N T S

E X A M I N A T I O N S

LONG LEAD-TIME RESOURCES PANEL OF
 REGIS REPKO, STEVE IMMEL, CHRIS NOLAN AND
 CLIFT POMPEE

Continued Cross Examination By Ms. Cress.....	16
Cross Examination By Mr. Snowden.....	21
Cross Examination By Ms. Bonvecchio.....	38
Cross Examination By Ms. Jones.....	55
Cross Examination By Mr. Schauer.....	58
Cross Examination By Ms. Grundmann.....	67
Cross Examination By Mr. Freeman.....	76
Redirect Examination By Ms. Link.....	85
Examination By Commissioner Clodfelter.....	89
Examination By Commissioner Duffley.....	102
Examination By Commissioner Hughes.....	106
Examination By Commissioner Kemerait.....	108
Examination By Chair Mitchell.....	110
Examination By Ms. Cress.....	112
Examination By Ms. Grundmann.....	113
Examination By Mr. Freeman.....	120

TRANSMISSION PANEL OF
 SAMMY ROBERTS AND MAURA FARVER

Examination By Commissioner Clodfelter.....	124
Examination By Commissioner Hughes.....	143

Page 14

1	Examination By Commissioner Duffley.....	145
2	Examination By Commissioner Kemerait.....	146
3	Examination By Commissioner McKissick.....	151
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		

E X H I B I T S

IDENTIFIED/ADMITTED

CIGFUR II and III Long Lead-Time ...	-/122
Panel Direct Cross Examination	
Exhibit 1	
CIGFUR II and III Long Lead-Time ...	17/122
Panel Direct Cross Examination	
Exhibit Number 2	
CPSA Long Lead-Time Panel Direct ...	25/122
Cross Examination Exhibit 1	
Public Staff Long Lead-Time	78/123
Panel Direct Cross Examination	
Exhibit 1	

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CIGFUR II & III LONG LEAD TIME PANEL
DIRECT CROSS EXAMINATION EXHIBIT 1

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Sep 26 2022

PUBLIC VERSION

October 5, 2021

BY HAND DELIVERY

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*Petition of Virginia Electric and Power Company for approval of a rate adjustment clause
designated Rider SNA under § 56-585.1 A 6 of the Code of Virginia*
Case No. PUR-2021-00229

Dear Mr. Logan:

Enclosed for filing in the above-captioned proceeding, please find an original and one (1) copy of the Public Version of *Virginia Electric and Power Company's Petition and Request for Waiver*. A confidential and extraordinarily sensitive version is also being filed under seal under separate cover.

Please do not hesitate to contact me if you have any questions in regard to this filing.

Highest regards,

/s/ Lisa R. Crabtree

Lisa R. Crabtree

enc.

cc: William H. Chambliss, Esq.
C. Meade Browder, Jr., Esq.
Paul E Pfeffer., Esq.
David J. DePippo, Esq.
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**Dominion
Energy®**

EX-100-1111
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Sep 26 2022

**Petition, Direct Testimony,
and Schedules of Virginia
Electric and Power
Company**

**Before the State Corporation
Commission of Virginia**

**For approval of a rate adjustment
clause designated Rider SNA
under § 56-585.1 A 6 of the Code
of Virginia**

**Volume 1 of 2
PUBLIC VERSION**

Case No. PUR-2021-00229

Filed: October 5, 2021

**Petition of Virginia Electric and Power Company
For approval of rate adjustment clause designated Rider SNA,
under § 56-585.1 A 6 of the Code of Virginia**

TABLE OF CONTENTS

VOLUME 1 of 2 (PUBLIC)

Petition

Direct Testimony of Mark D. Sartain

Company Exhibit No. __, MDS, Schedule 1 – Surry and North Anna Joint Milestones
Company Exhibit No. __, MDS, Schedule 2 – Surry SLRA Milestones
Company Exhibit No. __, MDS, Schedule 3 – NRC Aging Management Audit Plan
Letter (North Anna)
Company Exhibit No. __, MDS, Schedule 4 – North Anna SLRA Milestones

Direct Testimony of Paul A. Phelps

Company Exhibit No. __, PAP, Schedule 1 – Project Summaries
Company Exhibit No. __, PAP, Schedule 2 – Capital Projects Costs – North Anna
(Confidential Information Redacted)
Company Exhibit No. __, PAP, Schedule 3 – Capital Projects Costs – Surry (Confidential
Information Redacted)
Company Exhibit No. __, PAP, Schedule 4 – Project Life Cycle Schedule (Entirely
Redacted)
Company Exhibit No. __, PAP, Schedule 5 – Project Life Cycle Phase Status

Direct Testimony of Glenn A. Kelly

Direct Testimony of M. Kyle Thomas

VOLUME 2 of 2 (PUBLIC)

Direct Testimony of C. Alan Givens

Company Exhibit No. __, CAG, Schedule 1 – Revenue Requirement

Direct Testimony of Timothy P. Stuller

Company Exhibit No. __, TPS, Schedule 1 – Allocation by Revenue Class for Rate Year Commencing September 1, 2022

Company Exhibit No. __, TPS, Schedule 2 – Rider SNA for the Rate Year Commencing September 1, 2022

Company Exhibit No. __, TPS, Schedule 3 – Typical Bills

Company Exhibit No. __, TPS, Schedule 4 – Cost Recovery Factors

Company Exhibit No. __, TPS, Schedule 5 – Residential Schedule 1 Typical Bill based on 1,000 kWh

Filing Schedules 3-5, 8 Sponsored by Company Witness C. Alan Givens

Filing Schedule 46

Schedule 46A Company Witness Paul A. Phelps

Statement 1 – Projected and Actual Capital Costs by Type of Cost and Year (Confidential Information Redacted)

Statement 2 – Project White Papers (Entirely Confidential/Redacted)

Statement 3 – Project Contracts (Entirely Extraordinarily Sensitive/Redacted)

Statement 4 – Senior Management Materials (Entirely Extraordinarily Sensitive/Redacted)

Schedule 46B Company Witness Glenn A. Kelly

Schedule 46C Company Witness C. Alan Givens

Statement 1 – Annual Revenue Requirement

Statement 2 – Annual Revenue Requirement for Duration of the Rate Adjustment Clause by Year

Statement 3 – Documentation Supporting Filing Schedule 46C, Statement 2 (Confidential Information Redacted)

Schedule 46D Company Witness Timothy P. Stuller

Statement 1 – Methodology for Allocating the Revenue Requirement Among Rate Classes

Statement 2 – Annual Revenue Requirement for Duration of the Rate Adjustment Clause by Class

VOLUME 1 of 2 (CONFIDENTIAL/EXTRAORDINARILY SENSITIVE)

Petition

Direct Testimony of Mark D. Sartain

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 Letter (North Anna)
 Company Exhibit No. __, MDS, Schedule 4 – North Anna SLRA Milestones

Direct Testimony of Paul A. Phelps

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 Company Exhibit No. __, PAP, Schedule 2 – Capital Projects Costs – North Anna
 (Contains Confidential Information)
 Company Exhibit No. __, PAP, Schedule 3 – Capital Projects Costs – Surry (Contains
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 Company Exhibit No. __, PAP, Schedule 4 – Project Life Cycle Schedule (Entirely
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 Company Exhibit No. __, PAP, Schedule 5 – Project Life Cycle Phase Status

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Direct Testimony of Timothy P. Stuller

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 Commencing September 1, 2022
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 Company Exhibit No. __, TPS, Schedule 4 – Cost Recovery Factors
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Statement 4 – Senior Management Materials (Entirely Extraordinarily Sensitive)

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EXTRAORDINARILY
SENSITIVE

Sep 26 2022

COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION

PETITION OF)
)
VIRGINIA ELECTRIC AND POWER COMPANY)
) Case No. PUR-2021-00229
For approval of a rate adjustment clause)
designated Rider SNA under § 56-585.1 A 6)
of the Code of Virginia)

**VIRGINIA ELECTRIC AND POWER COMPANY'S
PETITION AND REQUEST FOR WAIVER**

Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company"), petitions for approval of a rate adjustment clause ("RAC") for the costs associated with the preparation of the applications for Subsequent License Renewal ("SLR") to the Nuclear Regulatory Commission ("NRC") to extend the operating licenses of (the "SLR Component"), and the projects reasonably appropriate to upgrade or replace systems and equipment deemed to be necessary to operate safely and reliably, Dominion Energy Virginia's Surry Units 1 and 2 and North Anna Units 1 and 2 in the extended period of operation (the "Capital Upgrade Component") (collectively, the SLR Component and the Capital Upgrade Component comprise the "Nuclear Life Extension Program" or the "Program")¹ pursuant to § 56-585.1 A 6 of the Code of Virginia ("Va. Code" or "Code") and the Rules Governing Utility Rate Applications and Annual Informational Filings of Investor-Owned Electric Utilities (the "Rate Case Rules")² of the State Corporation Commission ("Commission"). Specifically, the Company seeks (i) a determination that it is reasonable and prudent for the Company to pursue the nuclear license

¹ Old Dominion Electric Cooperative ("ODEC") has an 11.6% ownership interest in North Anna Units 1 and 2. For purposes of this Application filing, all references to North Anna are for Dominion Energy's ownership portion only (such as costs and capacity), unless otherwise noted. The Company has met, and continues to meet regularly with ODEC to discuss the Program and associated cumulative cashflows, and ODEC is aware of this filing with the Commission.

² 20 VAC 5-204-10 *et seq.*

extensions and related projects, with a current cost projection of up to \$3.9 billion; and (ii) approval of cost recovery through Rider SNA for Phase I of the Program, which includes those investments to date and for the following three calendar years 2022-2024, totaling approximately \$1.2 billion. In support of this Petition, the Company respectfully shows as follows:

I. GENERAL INFORMATION

1. The Company is a public service corporation organized under the laws of the Commonwealth of Virginia furnishing electric service to the public within its certificated service territory. The Company also supplies electric service to non-jurisdictional customers in Virginia and to the public in portions of North Carolina. The Company is engaged in the business of generating, transmitting, distributing, and selling electric power and energy to the public for compensation. The Company is also a public utility under the Federal Power Act, and certain of its operations are subject to the jurisdiction of the FERC. The Company is an operating subsidiary of Dominion Energy, Inc. The Company's name and address is:

Virginia Electric and Power Company
120 Tredegar Street
Richmond, Virginia 23219

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II. BACKGROUND

3. Nuclear energy is the largest source of clean carbon-free electricity in the country. For almost 50 years, the Company's four nuclear units—Surry Units 1 and 2 and North Anna Units 1 and 2—have demonstrated a proven track record of providing affordable and clean electricity when needed by our Virginia and North Carolina customers in a safe, reliable manner that also protects the environment.

4. Currently, the Company's nuclear fleet provides about a third of its customers' electricity needs—enough to power almost 900,000 homes. Indeed, over the last several decades, the Company's nuclear facilities have been a critical component of its generation portfolio, representing about 33% of the Company's overall generation requirements and 90% of the Company's carbon-free generation.

5. Surry Unit 1 (838 MW) (nameplate) and Surry Unit 2 (838 MW) (nameplate), located in Surry, Virginia, received initial operating licenses in May 1972 and January 1973, respectively. Unit 1 was licensed for its initial 40-year period through 2012. The NRC renewed this unit's license in 2003, extending the Surry Unit 1 license for 20 years through 2032. Unit 2 was licensed for its initial 40-year period through 2013. The NRC renewed this unit's license in 2003, extending the Surry Unit 2 license for 20 years through 2033.

6. North Anna Unit 1 (838 MW) (nameplate) and North Anna Unit 2 (834 MW) (nameplate), located in Louisa County, Virginia, received initial operating licenses in April 1978 and August 1980, respectively. Unit 1 was licensed for its initial 40-year period through 2018. The NRC renewed this unit's license in 2003, extending the North Anna Unit 1 license for 20 years through 2038. Unit 2 was licensed for its initial 40-year period through 2020. The NRC renewed this unit's license in 2003, extending the North Anna Unit 2 license for 20 year through 2040.

III. NUCLEAR LIFE EXTENSION PROGRAM

A. SLR COMPONENT

7. A nuclear plant is eligible to apply for an SLR when it enters its first period of extended operation—*i.e.*, between the 40-60 range of a nuclear plant's service life. Surry Units 1 and 2 became eligible in 2012 and 2013, respectively; North Anna Units 1 and 2 became eligible in 2018 and 2020, respectively. The Company submitted its SLR Application ("SLRA") for Surry Units 1 and 2 to the NRC on October 15, 2018. The NRC Director of Nuclear Reactor Regulation issued a decision for renewed licenses for Surry Units 1 and 2 on May 4, 2021. On August 24, 2020, the Company submitted the North Anna SLRA. The Company expects the outcome on its North Anna SLRA will be similar to Surry. Company Witness Mark D. Sartain provides additional details regarding the SLRA process.

B. CAPITAL UPGRADE COMPONENT

8. In order to maintain the safety, reliability, and efficiency of the Surry and North Anna units up to 80 years of operation, the Company has identified 33 Capital Upgrade Component projects that must be undertaken, in addition to the SLRAs. The Company created

an extensive screening process in determining whether a project was necessary and eligible for the Capital Upgrade Component of the SLR.

9. Of the total 33 projects, the Company identified 18 projects at Surry, and 15 projects at North Anna (with 12 projects common to both plants). The projects identified are essential to reduce risk and ensure the units are operated in a safe and reliable manner during the extended period from 60 to 80 years. Company Witness Paul A. Phelps provides additional details concerning the Company's screening process and results.

10. A majority of the projects will be implemented at the Surry units first and learnings will be applied to improve the efficiency of the implementation of the projects for the North Anna units. Since Surry and North Anna are of similar design and construction, the design, procurement, and installation for the Program will be performed ideally by the same vendor or group of vendors, providing additional efficiencies.

IV. APPLICABLE LAW

11. Section 56-585.1 A 6 of the Code ("Subsection A 6") provides in relevant part:

To ensure the generation and delivery of a reliable and adequate supply of electricity, to meet the utility's projected native load obligations and to promote economic development, a utility may at any time, after the expiration or termination of capped rates, petition the Commission for approval of a rate adjustment clause for recovery on a timely and current basis from customers of the costs of ... (iii) one or more major unit modifications of generation facilities, *including the costs of any system or equipment upgrade, system or equipment replacement, or other cost reasonably appropriate to extend the combined operating license for or the operating life of one or more generation facilities utilizing nuclear power,...* (emphasis added)

12. Additionally, Subsection A 6 states that any such utility:

... shall have the right to recover the costs of the facility, as accrued against income, through its rates, including projected construction work in progress, and any associated allowance for funds used during construction, planning, development and construction or

acquisition costs, life-cycle costs, costs related to assessing the feasibility of potential sites for new underground facilities, and costs of infrastructure associated therewith

V. NEED FOR AND BENEFITS OF THE PROGRAM

13. The Program will provide clean, carbon-free baseload nuclear power, with a proven track record of low operating costs and around the clock availability to customers and the Commonwealth for another 20 years. In addition, since the Program is already permitted and operating, it is a low-risk option.

14. Over the last several decades, the Company's nuclear facilities have been a critical component of its generation portfolio, representing about 33% of the Company's overall generation requirements. The nuclear units provide reliable energy and capacity without any reliance on the wind or sun. The nuclear base load generation becomes even more important as more and more fossil generating units retire especially if other PJM members follow a similar low carbon path. Without the nuclear units the system will rely more heavily on market purchases and sales for both reliability and to lower overall fuel costs. As the quantity of renewables increases the more amounts of energy storage and or additional renewable curtailments may be required.

15. As discussed by Company Witness Glenn A. Kelly, the Program is projected to save customers approximately \$7.6 billion. These savings result from avoiding (i) the need to build additional renewable resources, (ii) market energy and capacity purchases, (iii) renewable energy credit purchases, and (iv) some Renewable Portfolio Standard deficiency payments. In addition, the net present value includes the societal benefit of reducing carbon. Company Witness Kelly provides a detailed discussion of the modeling used to calculate the Program's

NPV to customers over the 20-year operating extension under a cost of service methodology. Company Witness Kyle Thomas addresses reliability benefits to the transmission system.

VI. PROPOSED PHASE I

16. The total costs associated with the Nuclear Life Extension Program over the full lifespan of the Program are projected to be \$3.9 billion, excluding financing costs. Those projected costs are based upon a combination of historical cost data for similar projects on the Company's units and in the industry; budgetary estimates from vendors; station input; and existing vendor contracts, which have been and will continue to be validated using third-party estimates. To date, more than 300 contracts are in place directly supporting the projects in the Capital Upgrade Component, with negotiated terms and conditions that maximize value and minimize risk to both the Company and its customers. In some cases, based on the complexity of the scope of work, additional contractual terms, such as limited notices to proceed, increased warranty obligations, retainage, letters of credit, parent company guarantees and liquidated damages, are included. In addition, the Company has a rigorous vendor surveillance program that provides supplier oversight.

17. In this Petition, the Company seeks approval of cost recovery through Rider SNA for "Phase I" of the Program, which includes those investments to date and for the following three calendar years, 2022-2024, totaling approximately \$1.2 billion.

18. While the Company has conducted significant due diligence for the overall Nuclear Life Extension Program costs, it recognizes that the Program includes long-lived projects that will be conducted over approximately 15 years. A phased approach to cost recovery allows the Commission the ability to review and approve the projected costs for a more immediate time frame, and for the Company to continue to provide updates and any refinements

to those cost projections to the Commission and other stakeholders on an ongoing basis. The Company has confidence in its total Program cost estimates and has allowed for potential contingencies in developing these projections, there will naturally be an even higher level of precision to the cost projections on a shorter term—here three year—basis.

19. In connection with the cost recovery of Phase I of Rider SNA, Company seeks a determination that it is reasonable and prudent for the Company to move forward with the Program. In addition to the legal authority under Subsection A 6, § 56-585.1 D. of the Code authorizes the Commission to determine the reasonableness or prudence of any cost projected to be incurred in connection with this proceeding.

20. Subject to Commission approval, the Company would plan to present a “Phase II” cost recovery proposal prior to the conclusion of the Phase I period. At this time, a three-year period appears to be a reasonable interval for cost recovery approval given the nature and status of this Project. Should the Company determine that it believes a shorter or longer term phase duration is more reasonable, the Company will of course bear the burden of demonstrating the reasonableness and prudence of such a proposal, and the costs sought for recovery thereunder.

VII. RIDER SNA

A. RATE OF RETURN ON COMMON EQUITY

21. The Company has used a return on equity (“ROE”) of 9.2% for purposes of calculating the Rider SNA revenue requirement over the rate year in this case. The ROE of 9.2% was approved in No. PUR-2019-00050. The Company acknowledges that the Commission will set a new ROE in the Company’s Triennial Review, Case No. PUR-2021-00058, and the Commission-approved ROE will be applicable for use in the Projected Cost Recovery Factor component of the revenue requirement ultimately approved as part of this proceeding.

B. REVENUE REQUIREMENT

22. The proposed rate year for this proceeding is September 1, 2022 through August 31, 2023 ("Rate Year").

23. The three key components of the revenue requirement are the Projected Cost Recovery Factor, the Allowance for Funds Used During Construction ("AFUDC") Cost Recovery Factor, and the Actual Cost True-Up Factor.

24. The Projected Cost Recovery Factor consists of projected net plant balances as of the month-end immediately preceding the Rate Year (i.e., as of August 31, 2022) in determination of the rate base and the calculation of financing costs on rate base.

25. The AFUDC Cost Recovery Factor consists of the amortization over the Rate Year beginning September 1, 2022, of the actual and projected AFUDC through August 31, 2022 – i.e., the day immediately prior to the date (September 1, 2022) when Rider SNA rates initially go into effect.

26. Finally, the Actual Cost True-Up Factor will credit to, or recover from, customers any over-/under-recovery of costs from the most recently completed calendar year. Since this filing represents the initial request for cost recovery under Subsection A 6, no true-up is included in this initial proceeding.

27. The Company is deferring depreciation expense, property taxes, and AFUDC calculated up to the beginning of the initial Rate Year, and is proposing to recover them over the Rate Year in this current filing consistent with how the Company is currently deferring and recovering deferred costs in various other Company riders filed pursuant to Va. Code § 56-585.1 A 5 and Subsection A 6. The Company is likewise requesting to recover these reasonable and prudently incurred costs (including financing costs) over the proposed Rate Year.

28. The total revenue requirement requested for recovery in this initial Rider SNA for the Rate Year beginning September 1, 2022, is \$108,852,000. Company Witness C. Alan Givens provides details regarding the revenue requirement.

C. COST ALLOCATION AND RATE DESIGN UPDATE

29. Sponsored by Company Witness Timothy P. Stuller, Rider SNA identifies the rates in cents per kWh or dollars per kW, that will apply to each Company rate schedule. The Company proposes for billing purposes, a rate effective date for usage on and after September 1, 2022, or the first day of the month which is at least 15 days following the date of any Commission order approving Rider SNA (whichever is later).

30. The Company has allocated costs to the Virginia Jurisdiction and customer classes using its 2020 Production Demand Allocation Factor (Factor 1/61), consistent with the way production plant costs for the Surry and North Anna facilities are allocated in the Cost of Service. Factor 1 is used to allocate the production plant costs for Surry, and Factor 61 is used to allocate production plant costs for North Anna. Factors 1 and 61 are the same.

31. The implementation of the proposed Rider SNA on September 1, 2022, will increase the residential customer's monthly bill, based on 1,000 kWh per month, by \$2.11. Typical monthly bill impacts for customers receiving service on Residential Schedule 1, General Service Schedules GS-1, GS-2, GS-3, and GS-4, and Church Schedule 5C are provided to present proposed Rider SNA at several representative levels of consumption or demand.

VIII. DIRECT TESTIMONY, FILING SCHEDULES AND REQUEST FOR WAIVER

32. In support of this Petition, the Company presents the following:

- Mark D. Sartain, Vice President, Nuclear Engineering & Fleet Support, provides an overview of the nuclear units, the license renewal process, and the need for the Program. Mr. Sartain also introduces the other witnesses.

- Paul A. Phelps, Director, Nuclear Project Technical Support (Subsequent License Renewal), discusses the planned system and equipment upgrades at Surry Units 1 and 2 and North Anna Units 1 and 2, including the need for those upgrades to extend the life of the units to 80 years and the planned timeline to complete the upgrades. In addition, Mr. Phelps discusses the reasonableness and prudence of the Program costs.
- Glenn A. Kelly, Director, Integrated Strategic Planning, discusses the Company's forecasted need for and benefits of the Program, presents the economic modeling and resource planning analysis supporting the Program, and discusses some of the additional benefits the Program is expected to provide the Company's customers.
- M. Kyle Thomas, Manager of Electric Transmission Planning & Strategic Initiatives, discusses the Company's transmission planning process and system reliability as they pertain to the Surry and North Anna units and the Nuclear Life Extension Program.
- C. Alan Givens, Regulatory Consultant, Regulatory Accounting Department, supports the Company's request for a Subsection A 6 RAC, designated Rider SNA, for timely and current recovery of the costs of the Program, and the development of the revenue requirement for Rider SNA.
- Timothy P. Stuller, Regulatory Specialist, discusses and sponsors Rider SNA and presents the impact that the Rider SNA rates will have on typical customer bills at representative levels of consumption.

33. Rule 60 of the Rate Case Rules require the Company to include Filing Schedules 3, 4, 5, and 8. These filing schedules are sponsored by Company Witness Givens. Filing Schedules 3 and 3A provide the capital structure and cost of capital statements applicable to Rider SNA. Filing Schedule 4 provides schedules of long-term debt, preferred stock, investment tax credits, and other components of ratemaking capital for the filing. Filing Schedule 5 provides the schedule of short-term debt, revolving credit agreements, and similar short-term financing arrangements. Filing Schedule 8 provides the proposed cost of capital statement for Rider SNA.

34. Rules 60 and 90 of the Rate Case Rules require the Company to include Filing Schedule 46 with an application for approval of a Subsection A 6 RAC. Specifically, Schedule 46 requires the following information for initial RAC applications:

- i. A schedule of all projected and actual costs by type of cost and year, and by month to the extent available. The applicant shall provide such information by project if applicable for the specific rate adjustment clause.
- ii. Within five business days of the application filing date, the applicant shall provide transaction-level details to facilitate the sampling and audit of actual costs electronically to the Division to Utility Accounting and Finance in an electronic spreadsheet with all underlying formulas and assumptions. The applicant shall provide the information based on most current actual costs available to-date.
- iii. A detailed explanation of the justification for the proposed costs.
- iv. Key documents supporting the projected and actual costs that the applicant seeks to recover through the rate adjustment clause, such as economic analyses, contracts, studies, investigations, results from requests for proposals, cost benefit analyses, or other items supporting the costs.
- v. Key materials used by senior management in approving or recommending the proposed costs as determined by the applicant.
- vi. The annual revenue requirement over the duration of the proposed rate adjustment clause by year and by class on a total company and Virginia jurisdictional basis, including all supporting calculations and assumptions. The applicant shall provide such information by project if applicable for the specific rate adjustment clause.
- vii. Detailed information relative to the applicant's methodology for allocating the revenue requirement among rate classes and the design of class rates.

35. Company Witness Phelps sponsors information responsive to subparts (i), (iii)-(v). Company Witness Kelly sponsors information responsive to subpart (iii). Company Witness Givens sponsors information responsive to subpart (vi). Company Witness Stuller sponsors information responsive to subpart (vii). The Company will provide information responsive to subpart (ii) at the appropriate time.

36. The Company requests that the Commission waive, in part, the requirements under Rule 90 of the Rate Case Rules with respect to paper copies of certain Filing Schedule 46 materials. Specifically, the Rate Case Rules require the Company provide the key documents supporting the projected and actual costs that the applicant seeks to recover through the rate adjustment clause, such as economic analyses, contracts, studies, investigations, results from requests for proposals, cost benefit analyses, or other items supporting the costs. The supporting documentation responsive to this requirement is voluminous and, often, not easily reviewed in hard copy (paper) format. Accordingly, and consistent with previous waivers granted by this Commission, the Company seeks waiver of the requirement to file this information in hard copy. Instead, the Company proposes to provide this documentation to Commission Staff and any other future case participant in electronic format only. The Company will make these documents available via an e-room contemporaneously with this filing, with immediate access available to Commission Staff. Should the Commission deny this request, the Company asks for a reasonable allowance of time to print the requisite filing copies of this material and submit it the Commission prior to the Company's application being deemed incomplete. The requested waiver is substantially similar to the waivers granted by the Commission in the Company's recent 2021 rider updates.³

IX. REQUEST FOR CONFIDENTIAL AND EXTRAORDINARILY SENSITIVE TREATMENT

37. The Company's Petition and accompanying schedules contain confidential and extraordinarily sensitive information as designated therein. A non-public version of this filing is being made under seal. Because portions of the Company's filing contain such confidential

³ E.g., *Application of Virginia Electric and Power Company, For revision of a rate adjustment clause: Rider W, Warren County Power Station*, Case No. PUR-2021-00115, Order for Notice and Hearing, Ordering Paragraph (5) (July 2, 2021).

and/or redacted information, in compliance with Rule 10 F of the Rate Case Rules and Rule 170 of the Procedural Rules, 20 VAC 5-204-10 F and 5 VAC 5-20-170, this filing is accompanied by a separate Motion for Entry of a Protective Ruling, including a form of Proposed Protective Ruling, filed by the Company under separate cover but contemporaneously with this Petition.

X. COMPLIANCE WITH RULE 10 OF THE RATE CASE RULES

38. The Company's Petition for approval of Rider SNA complies with the requirements contained in Rule 10 of the Rate Case Rules. In accordance with Rule 10 A, Dominion Energy Virginia filed with the Commission on August 3, 2021, the Company's notice of intent to file this Petition under Va. Code § 56-585.1 A 6.

39. The Company has included all information required by Rule 10 B in this Petition, including a table of contents, direct testimonies with one-page summaries, and properly labeled exhibits and schedules.

40. In accordance with Rule 10 H, the Company will make a searchable PDF version of this Petition, direct testimonies, and Filing Schedules available via an eRoom contemporaneously with this filing, with immediate access available to (i) Commission Staff, including identified members of the Divisions of Utility Accounting and Finance and Public Utility Regulation; and (ii) identified members of the Office of the Attorney General's Division of Consumer Counsel ("Consumer Counsel").⁴

⁴ Rule 10 J 3 requires the Company to provide a copy of the complete public version of the filing to Consumer Counsel at the same time it is filed with the Commission. As noted, pursuant to Rule 10 H, the Company will make a searchable PDF of the public version of the Petition, direct testimonies, and Filing Schedules available via an eRoom contemporaneously with this filing, with immediate access available to Consumer Counsel. The Company can provide a hard copy of the Update to Consumer Counsel upon request to counsel.

WHEREFORE, Dominion Energy Virginia respectfully requests that the Commission enter an order in this proceeding that:

- (1) Determines that it is reasonable and prudent for the Company to pursue the nuclear license extensions and related projects, with a current cost projection of up to \$3.9 billion;
- (2) Approves cost recovery through Rider SNA for Phase I of the Program, which includes those investments to date and for the following three calendar years 2022-2024, totaling approximately \$1.2 billion;
- (3) Approves the revenue requirement, cost allocation, and rate design, as proposed by the Company;
- (4) Grants the Company's requested waiver; and
- (5) Grants any such other and further relief as it deems just and proper.

Respectfully submitted,

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Counsel for Virginia Electric and Power Company

October 5, 2021

Public Staff
Docket No. E-100, Sub 179
2022 Carbon Plan
Public Staff Data Request No. 7
Item No. 7-10
Page 1 of 2

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Sep 26 2022

DUKE ENERGY CAROLINAS, LLC and DUKE ENERGY PROGRESS, LLC

REQUEST:

On p. 29, the Companies request that the Commission approve three additional determinations for project development.

- a. Please describe in detail how these three additional determinations would be beneficial to ratepayers.
- b. Please describe how ratepayers will be protected from stranded asset costs given the potential risk with project implementation of some of the technologies listed by the Companies.
- c. Please define “long lead time,” including time duration.
- d. If a project is ultimately not needed for HB 951 compliance, please describe why the Companies are proposing that the costs be allowed for cost recovery in a future rate case.
- e. Please describe how the Companies will utilize multiyear rate plans with this proposal.

RESPONSE:

a. As explained in the Carbon Plan, the specified development work is needed if the Commission desires to preserve the potential for these resources to be utilized in achieving the 70% interim target on the targeted timelines. Therefore, the development work and the related requests will be beneficial to customers.

b. Customers will be protected from stranded asset costs through the Commission’s oversight and review of the Companies’ development activities in the manner deemed appropriate by the Commission.

c. In this context, longer lead time generally refers to resources that require 7-10 years from initiation to commercial operation.

d. If the Commission agrees the development activities are reasonable and prudent to pursue at this time and the Companies incur costs in connection with such development activities in a reasonable and prudent manner, then the Companies believe that it is reasonable for the Companies to recover such costs.

Public Staff
Docket No. E-100, Sub 179
2022 Carbon Plan
Public Staff Data Request No. 7
Item No. 7-10
Page 2 of 2

- e. The multiyear rate plan construct is not relevant to this request.

Responder: Jack Jirak, Deputy General Counsel

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From the Charlotte Business Journal:

<https://www.bizjournals.com/charlotte/news/2017/08/25/duke-energy-abandons-plans-to-build-the-lee.html>

Duke Energy abandons plans to build the Lee Nuclear Station

Aug 25 2017 10 37am EDT Updated: Aug 25, 2017, 11:22am EDT

Duke Energy Carolinas wants to cancel its planned Lee Nuclear Station and will ask regulators to allow it to recover at least \$368 million in planning and pre-construction costs from N.C. customers.

Duke notes its plan for Lee as part of its request for a 13.9% rate increase filed Friday with the N.C. Utilities Commission. And it filed a separate proposal specifically on canceling the project. Duke filed both with the commission shortly after 10 a.m. Friday.

The decision comes as the designer and principal contractor Duke chose for the project finds itself in bankruptcy court. And it follows a decision made just more than three weeks ago by neighboring utilities in South Carolina to abandon a similar nuclear project, even though they have spent \$9 billion already and the project is nearly two-thirds complete.



S.C. ELECTRIC & GAS

Duke N.C. President David Fountain says SCANA Corp.'s decision to abandon the \$18 billion V.C. Summer nuclear expansion was "informative, not determinative" Duke's decision to forego the Lee Nuclear Station.

But the Charlotte-based utility cannot unilaterally cancel the project, says its N.C. President, David Fountain. "We've got to seek the commission's approval to cancel the project."

To ease impact of Lee's cost on the rate hike, Duke wants to spread recovery of the \$368 million over 12 years.

Half a billion spent

The cost allocation would be North Carolina's share of the \$541 million Duke Carolinas spent to date on the plant it had proposed building in Gaffney, S.C. The remaining \$173 million would be attributable to the utility's South Carolina customers.

There could be some small additional costs for Lee going forward, even if the commission approves cancelation.

Duke Carolinas, a subsidiary of Duke Energy Corp. (NYSE:DUK), announced plans for a \$6 billion, two-reactor nuclear plant in 2005. It announced in 2006 that the plant would be built on 2,022 acres in Gaffney.

Duke had chosen that same site for a nuclear plant in the 1970s. Though construction of that plant began, it was abandoned in the early 1980s as nuclear power lost support nationally in the wake of the 1979 nuclear meltdown at the Three Mile Island Nuclear Generating Station in Harrisburg, Pa.

Troubled industry

Duke was to partner with Atlanta-based Southern Co. on the project, with Duke being the majority owner at 55%. But eventually Southern (NYSE:SO) pulled out. It now has the only new-generation nuclear reactor project under construction in the United States.

In 2008, Duke issued a new estimate for the costs of the plant, pegging it at \$11 billion.

The current Southern nuclear project is the often-delayed and over-budget 2,300-megawatt expansion at Plant Vogtle in Burke County, Ga. But Southern and its partners are reviewing whether it makes sense to continue construction there as well.

Though considered more likely to go ahead with the project, they face many of the same problems that South Carolina utilities S.C. Electric & Gas and Santee Cooper faced when they opted July 31 to abandon their two-reactor expansion at the V.C. Summer Nuclear Station in Jenkinsville, S.C.

Questions swirl

The Vogtle expansion, Summer and Lee all involve AP1000 reactors designed by Westinghouse Electric Co. Westinghouse was also the principal contractor on all the projects.

Delays and cost overruns at Vogtle and Summer had caused concerns about the Lee plant for several years. Duke delayed the project's start date repeatedly.

Then the troubles for the AP1000 came to a head in March, when Westinghouse, a subsidiary of Toshiba Corp., filed for bankruptcy in March. The company had lost almost \$6.3 billion on construction at Vogtle and Summer.

With so many questions swirling around nuclear projects like Lee, N.C. regulators in May demanded answers about Duke's plan for the project. They wanted to know what Duke now expected the project to cost, whether the Westinghouse problems would delay plans for Lee and whether Duke was considering giving up on it.

'Combination of circumstances'

Now Duke says it is giving up, if the commission will let it. Fountain says Duke will hold on to the Construction and Operating License the Nuclear Regulatory Commission issued for the project in December, in case Duke decides in some future year that it wants to build another nuclear plant.

But it will not be the Lee plant, he says. Westinghouse says it is getting out of nuclear construction. And Fountain says Duke will need to get the license amended if it chooses to go ahead with a different nuclear project in the future.

"This was an important project and one that has been in development now for over a decade and we continue to believe

that nuclear is an essential part of the cleaner energy future," he says.

Fountain says recent events played only a part in the decision.

"I wouldn't say it was any one factor," he says. "The Westinghouse bankruptcy and the cancellation of Summer were both informative, but not determinative. It really was a combination of all of the circumstances."

Extending licenses

Those circumstances included changes to the economic and regulatory landscape. In recent years, low and stable natural gas prices resulting from the tapping of previously inaccessible shale gas fields have made combined-cycle natural gas plants a better economic play than nuclear plants. Also, the court-imposed delay on the Clean Power Plan adopted by the Obama Administration reduced pressure for additional power that does not produce carbon.

Fountain says Duke Carolinas will seek to extend the licensing for its three existing plants so that nuclear will continue to play an important role in the utility's energy mix.

Duke Carolinas currently operates two reactors totaling 2,316 megawatts at the McGuire Nuclear Station north of Charlotte, two reactors totaling 2,290 megawatts at The Catawba Nuclear Station in York County and three reactors totaling 2,554 megawatts at the Oconee Nuclear Station near Seneca, S.C.

Recovery limits?

Duke may have a problem recovering the full amount it is asking the commission to authorize. The commission noted in May that it had issued a 2011 order that allowed Duke to incur pre-construction costs "up to a maximum of the North Carolina allocable portion of \$120 million."

"If DEC's expenditures for such costs have exceeded the \$120 million, explain how this occurred without the Commission's approval," the commission said.

It is not clear that Duke's explanation will be sufficient to get the commission to approve anything above that \$120 million authorization. However, Duke has not hidden the mounting costs from the commission. It made formal filings twice a year documenting its costs, and the commission did not object when they passed the \$120 million mark for North Carolina's share.

John Downey
Senior Staff Writer
Charlotte Business Journal





Office of
NUCLEAR ENERGY

Office of Nuclear Energy

Centrus Becomes First U.S. Licensed HALEU Production Facility

JUNE 23, 2021



Office of Nuclear Energy » Centrus Becomes First U.S. Licensed HALEU Production Facility



MILESTONE

Public Staff - Long Lead Time Resources Panel -
Direct - Cross Examination Exhibit No. 1



AC-100M Centrifuge

Centrus Energy

The U.S. Nuclear Regulatory Commission (NRC) **recently approved** Centrus Energy's request to make high-assay low-enriched uranium fuel (HALEU) at its enrichment facility in Piketon, Ohio. The plant is now the only licensed HALEU production facility in the United States.

The U.S. Department of Energy (DOE) is currently supporting a three-year, \$170 million dollar cost-shared **demonstration project** with Centrus. The company has already built 16 advanced centrifuge machines for uranium enrichment and expects to begin HALEU production by early next year.

The amended license allows the facility to produce HALEU by enriching uranium up to 20% with uranium-235—the main fissile isotope that produces energy during a nuclear reaction. Current reactors are typically enriched up to 5%. Under the DOE demo project, the company will provide up to 600 kilograms of HALEU by next June. The material will be used to support the testing and demonstration of new reactor designs.

"This demo project has consistently hit all of its milestones and is on track to make a huge impact for our nation," said Andrew Griffith, the deputy assistant secretary

for nuclear fuel cycle and supply chain in DOE's Office of Nuclear Energy. "It is helping us reestablish our domestic nuclear fuel supply chain, it has supported more than 200 U.S. jobs, and is a positive step toward fueling a new portfolio of reactors that can help us achieve our climate goals."

Fueling the Future

DOE's recent **Fiscal Year 2022 Budget Request** includes a record \$1.8 billion for the Office of Nuclear Energy. It's the **highest ask ever for the office** and places a HUGE emphasis on scaling up the commercial deployment of smaller and more flexible advanced reactor designs.

The FY22 request includes more than \$500 million to help demonstrate and mature a **variety of U.S. advanced reactor designs**. Many of them require HALEU fuel to optimize their systems for longer life cores, increased efficiencies and better fuel utilization.

HALEU-based fuel is not commercially available in the United States and DOE is pursuing **three different options** to support the testing and demonstration of advanced reactors, including this project. The NRC amended license covers the length of the DOE contract and expires in 2022. If sufficient funding is available to continue operation, the license can be amended again to extend the term.

Centrus has met all required HALEU demo project milestones to date and is on track to complete the program no later than June 2022.

Office of

Nuclear Energy

1300 Independence Ave. SW

Washington, DC 20585

202-586-1000



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