# STATE OF NORTH CAROLINA UTILITIES COMMISSION RALEIGH

DOCKET NO. E-2, SUB 1320

# BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

Application of Duke Energy Progress, LLC ) for Approval of Renewable Energy and ) Energy Efficiency Portfolio Standard (REPS) ) Compliance Report and Cost Recovery Rider ) Pursuant to N.C. Gen. Stat. 62-133.8 and ) Commission Rule R8-67	DIRECT TESTIMONY OF KIMBERLY A. PRESSON

1 <b>O. PI</b>	LEASE	<b>STATE</b>	<b>YOUR</b>	. NAME AN	ND BUSINESS	<b>ADDRESS</b>
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- 2 A. My name is Kimberly A. Presson, and my business address is 525 South
- 3 Tryon Street, Charlotte, North Carolina.
- 4 Q. PLEASE STATE YOUR POSITION WITH DUKE ENERGY AND
- 5 DESCRIBE YOUR CURRENT RESPONSIBILITIES.
- 6 A. In my capacity as Renewable Compliance Manager, I am responsible for the
- development and implementation of renewable energy compliance strategies
- 8 for Duke Energy Carolinas, LLC ("Duke Energy Carolinas," or "DEC"),
- 9 Duke Energy Progress, LLC ("Duke Energy Progress," "DEP" or "the
- 10 Company") and Duke Energy Ohio, LLC. My responsibilities include
- 11 compliance with North Carolina's Renewable Energy and Energy
- 12 Efficiency Portfolio Standard ("REPS"), compliance with Ohio's
- Renewable Portfolio Standard and evaluation of renewable generation
- initiatives and customer programs that relate to renewable compliance.
- 15 Q. PLEASE BRIEFLY SUMMARIZE YOUR EDUCATIONAL
- 16 **BACKGROUND.**
- 17 A. I received a Bachelor of Arts in Business Administration from Furman
- 18 University.
- 19 Q. PLEASE DESCRIBE YOUR BUSINESS BACKGROUND AND
- 20 **EXPERIENCE.**
- 21 A. I began my career with Duke Power Company (now known as Duke Energy
- Carolinas) in 1990, where I held various positions in the customer service
- and the finance organizations. I joined the Rates Department in 2019 and

1	moved to my current position as Renewable Compliance Manager in the
2.	Business Development and Compliance Department in 2021.

#### 3 Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE NORTH

#### 4 CAROLINA UTILITIES COMMISSION?

- 5 A. Yes, I most recently provided testimony in Docket No. E-7, Sub 1283 on
- 6 DEC's 2022 REPS compliance report and application for approval of its
- 7 REPS cost recovery rider.

#### 8 Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

- A. The purpose of my testimony is to describe Duke Energy Progress'
  activities and the costs it has incurred, or expects it will incur, in support of
  compliance with North Carolina's Renewable Energy and Energy
  Efficiency Portfolio Standard under N.C. Gen. Stat. ("G.S.") § 62-133.8
  during the twelve months beginning on April 1, 2022 and ending on March
  31, 2023 ("Test Period"), as well as during the twelve months beginning on
  December 1, 2023 and ending on November 30, 2024 ("Billing Period").
- 16 Q. PLEASE DESCRIBE THE EXHIBITS TO YOUR TESTIMONY.
- 17 A. My testimony includes seventeen exhibits. Presson Confidential Exhibit
  18 No. 1 is the Company's 2022 REPS Compliance Report, and Presson
  19 Confidential Exhibit No. 2 provides actual and forecasted REPS compliance
  20 costs, by resource, that the Company has incurred during the Test Period
  21 and expects to incur during the Billing Period in support of compliance with
  22 REPS. Presson Confidential Exhibit No. 3 is a worksheet detailing the other
  23 incremental costs included in the DEP REPS filing, listing the labor costs

1		by activity, as directed by the North Carolina Utilities Commission
2		("Commission") in its January 17, 2017 Order in Docket No. E-2, Sub 1109.
3		Presson Exhibit Nos. 4-17 are the results of research studies the costs of
4		which the Company is proposing to recover via the REPS Rider.
5	Q.	WERE THESE EXHIBITS PREPARED BY YOU OR AT YOUR
6		DIRECTION AND UNDER YOUR SUPERVISION?
7	A.	Presson Confidential Exhibit Nos. 1, 2 and 3 were prepared by me or under
8		my supervision. Presson Exhibit Nos. 4-17 include the results of research
9		studies not prepared under my supervision; however, in my role at Duke
10		Energy I am familiar with the studies.
11		
12		COMPLIANCE WITH REPS REQUIREMENTS
13	Q.	WHAT ARE DUKE ENERGY PROGRESS' REPS
14		REQUIREMENTS UNDER G.S. § 62-133.8?
15	A.	Pursuant to G.S. § 62-133.8, <sup>1</sup> as an electric power supplier, Duke Energy
16		Progress is required to comply with the overall REPS requirement ("Total
17		Requirement") by submitting for retirement a total quantity of renewable
18		energy certificates ("RECs") equivalent to the following percentages of its
19		North Carolina retail sales in the prior year:
20		■ Beginning in 2012, three percent (3%);
21		■ In 2015, six percent (6%);

<sup>&</sup>lt;sup>1</sup> In its *Order Clarifying Electric Power Suppliers' Annual REPS Requirements*, Docket No. E-100, Sub 113 (November 26, 2008), the Commission clarified that the calculation of these requirements for each year shall be based upon the electric utility's North Carolina retail sales for the prior year.

1	■ In 2018, ten percent (10%); and
2	■ In 2021 and thereafter, twelve point five percent (12.5%).
3	Furthermore, each electric power supplier must comply with the
4	requirements of G.S. § 62-133.8 (d), (e), and (f) (individually referred to as
5	the "Solar Set-Aside," "Swine Waste Set-Aside," and "Poultry Waste Set-
6	Aside," respectively). That is, within the Total Requirement described
7	above, each electric power supplier is to ensure that specific quantities of
8	qualifying solar RECs, swine waste RECs, and poultry waste RECs are also
9	submitted for retirement. The Company generally refers to its Total
10	Requirement net of the three set-asides as its "General Requirement."
11	Specifically, each electric power supplier is to comply with the Solar
12	Set-Aside by submitting for retirement qualifying solar RECs equivalent to
13	the following percentages of its North Carolina retail sales in the prior year:
14	■ Beginning in 2010, two-hundredths of one percent (0.02%);
15	■ In 2012, seven-hundredths of one percent (0.07%);
16	■ In 2015, fourteen-hundredths of one percent (0.14%); and
17	■ In 2018 and thereafter, two-tenths of one percent (0.20%).
18	Each electric power supplier is also to comply with the Swine Waste
19	Set-Aside by submitting for retirement qualifying swine waste RECs
20	equivalent to its pro-rata share of total retail electric power sold in North

Carolina multiplied by the statewide, aggregate Swine Waste Set-Aside

1	Requirement. <sup>2</sup> Duke Energy Progress' Swine Waste Set-Aside
2	Requirements, as modified by the Commission, <sup>3</sup> are as follows:
3	■ In 2018, its pro-rata share of two-hundredths of one percent (0.02%)
4	of the total retail electric power sold in North Carolina in the year
5	prior;
6	■ In 2019, its pro-rata share of four-hundredths of one percent (0.04%)
7	of the total retail electric power sold in North Carolina in the year
8	prior;
9	■ In 2020, its pro-rata share of seven-hundredths of one percent
10	(0.07%) of the total retail electric power sold in North Carolina in
11	the year prior;
12	■ In 2022, its pro-rata share of five-hundredths of one percent (0.05%)
13	of total retail electric power sold in North Carolina in the year prior;
14	■ In 2023, its pro-rata share of fourteen-hundredths of one percent
15	(0.14%) of total retail electric power sold in North Carolina in the
16	prior year; and
17	<ul> <li>In 2024 and thereafter, its pro-rata share of two-tenths of one percent</li> </ul>

<sup>&</sup>lt;sup>2</sup> In its Order on Pro Rata Allocation of Aggregate Swine and Poultry Waste Set-Aside Requirements and Motion for Clarification in Docket No. E-100, Sub 113 (March 31, 2010), the Commission approved the electric power suppliers' proposed pro-rata allocation of the statewide aggregate swine and poultry waste set-aside requirements, such that the aggregate requirements will be allocated among the electric power suppliers based on the ratio of each electric power supplier's prior year retail sales to the total statewide retail sales.

<sup>&</sup>lt;sup>3</sup>The Swine and Poultry Set-Aside Requirements were modified in the Commission's December 20, 2022, Order Ruling on Motion for Clarification and Request for Declaratory Ruling Regarding Cost Cap, Modifying Swine Waste and Poultry Waste Set-Aside Requirements, and Providing Other Relief.

22		BASED?
21		WHICH THE COMPLIANCE REQUIREMENTS FOR 2022 ARE
20		RETAIL SALES FOR CALENDAR YEAR 2021, THE YEAR ON
19	Q.	WHAT WERE THE COMPANY'S TOTAL NORTH CAROLINA
18		Progress' retail customers.
17		exhibits reflect the aggregation of the REPS requirements of Duke Energy
16		The requirements described in this testimony and accompanying
15		■ In 2023 and thereafter, its pro-rata share of 900,000 MWh.
14		■ In 2022, its pro-rata share of 700,000 MWh and
13		■ In 2021, its pro-rata share of 300,000 MWh
12		■ In 2020, its pro-rata share of 700,000 MWh;
11		■ In 2019, its pro-rata share of 500,000 MWh;
10		■ In 2018, its pro-rata share of 300,000 MWh;
9		("MWh");
8		■ Beginning in 2014, its pro-rata share of 170,000 megawatt-hours
7		Commission, <sup>4</sup> are as follows:
6		Progress' Poultry Waste Set-Aside Requirements, as modified by the
5		aggregate state-wide Poultry Waste Set-Aside requirement. Duke Energy
4		qualifying poultry waste RECs equivalent to its pro-rata share of the
3		Finally, each electric power supplier is also to submit for retirement
2		year prior.
I		(0.20%) of total retail electric power sold in North Carolina in the

<sup>4</sup> Id.

1	A.	The Company's total North Carolina retail sales for calendar year 2021 were
2		36,578,148 MWhs.
3	Q.	PLEASE SUMMARIZE DUKE ENERGY PROGRESS' REPS
4		REQUIREMENTS FOR THE TEST AND BILLING PERIODS.
5	A.	The Company submitted 4,572,269 RECs for retirement to meet its 2022
6		Total Requirement of 12.5% of its North Carolina retail sales in the prior
7		year. Within this total, the Company submitted 73,157 RECs to meet its
8		Solar Set-Aside requirement, 193,343 RECs to meet its Poultry Waste Set-
9		Aside requirements, and 18,290 RECs to meet its Swine Waste Set-Aside
10		requirement.
11		For the prospective Billing Period, which spans two calendar years,
12		with different requirements in each year, the Company's estimated
13		requirements are as follows <sup>5</sup> :
14		For compliance year 2023, the Company estimates that it will be
15		required to submit for retirement 4,839,224 RECs to meet its Total
16		Requirement. Within this total, the Company is also required to retire the
17		following: 77,428 solar RECs, 54,200 swine waste RECs and 248,585
18		poultry waste RECs.
19		For compliance year 2024, the Company estimates that it will be
20		required to submit for retirement 4,839,777 RECs to meet its Total
21		Requirement. Within this total, the Company estimates that it will be

<sup>&</sup>lt;sup>5</sup> The Company's projected requirements are based upon retail sales estimates and will be subject to change based upon actual prior-year North Carolina retail sales data.

1		required to retire approximately 77,437 solar RECs, 77,437 swine waste
2		RECs and 248,585 poultry waste RECs.
3	Q.	HAS THE COMPANY COMPLIED WITH ITS GENERAL
4		REQUIREMENT FOR 2022?
5	A.	Yes, the Company met its 2022 General requirement of 4,287,479 RECs.
6		Specifically, the RECs to be used for 2022 compliance have been
7		transferred from the NC-RETS Progress Energy Electric Power Supplier
8		account to the Progress Energy Compliance Sub-Account. Upon
9		completion of this regulatory proceeding, the Commission will finalize
10		retirement of the RECs.
11	Q.	WILL THE COMPANY COMPLY WITH ITS GENERAL
12		REQUIREMENT IN 2023?
13	A.	Yes, the Company is in a position to comply with its General requirement
14		in 2023.
15	Q.	WHAT ACTIONS HAS DUKE ENERGY PROGRESS TAKEN
16		DURING THE TEST PERIOD TO SATISFY ITS CURRENT AND
17		FUTURE REPS REQUIREMENTS?
18	A.	During the Test Period, Duke Energy Progress continued to produce and
19		procure RECs to satisfy its REPS requirements. Specifically, the Company
20		took the following actions: (1) continued negotiations for additional REC
21		purchase agreements with renewable facilities; (2) solicited renewable
22		energy proposals of various types; (3) continued operations of its solar

facilities; (4) enhanced and expanded energy efficiency programs

generating savings that can be counted towards the Company's REPS
requirement; (5) performed research studies, both directly and through
strategic partnerships, to enhance the Company's ability to comply with its
future REPS requirements; (6) monitored the development of projects
selected in the Competitive Procurement of Renewable Energy ("CPRE")
Program of North Carolina House Bill 589 (SL 2017-192) ("NC HB 589"),
the RECs from which will be used to meet the Company's future REPS
requirements; and (7) monitored the progress of the 2022 Solar Procurement
as directed by Session Law 2021-165, the RECs from which will also be
used to meet the Company's future REPS requirements.

# 11 Q. IS THE COMPANY ABLE TO USE RECS GENERATED FROM

#### NET METERING FACILITIES TO SATISFY ITS FUTURE REPS

### REQUIREMENTS?

A.

Yes. Under the current Net Metering for Renewable Energy Facilities Rider offered by DEP (Rider NM), a customer receiving electric service under a schedule other than a time-of-use schedule with demand rates ("NMNTD customer") shall provide any RECs to DEP at no cost. Per the Commission's June 5, 2018, *Order Approving Rider and Granting Waiver Request* ("NMNTD Order") in Docket Nos. E-2, Sub 1106 and E-7, Sub 1113, for NMNTD customers, DEP may use the PVWatts<sup>TM</sup> Solar Calculator developed by the National Renewable Energy Laboratory ("NREL") for estimating the generation from NMNTD customers' solar facilities, as permitted by Commission Rule R8-67(g)(2). Commission Rule R8-67(g)(2)

1		allows the use of a scalable conversion factor for estimating annual
2		generation from program participants. DEP shall then report the total
3		amount of electricity produced by facilities under the Rider directly into
4		NC-RETS in a separately identified generation project. DEP has complied
5		with these requirements and reported generation from NMNTD customers
6		to NC-RETS. The RECs from these facilities are currently in DEP's REC
7		inventory and available for use for future compliance requirements.
8	Q.	ARE THERE OTHER COMPLIANCE REQUIREMENTS IN THE
9		NMNTD ORDER WITH WHICH DEP MUST COMPLY?
10	A.	Yes. The NMNTD Order also requires that DEP shall provide NC-RETS
11		monthly with a list of participating customers, including location and the
12		kW capacity of their installations, to be made available on the NC-RETS
13		website. DEP has complied, and continues to comply, with this requirement.
14	Q.	WILL THE COMPANY'S REVISED NET ENERGY METERING
15		(NEM) TARIFFS CONTRIBUTE RECS ELIGIBLE TO BE USED
16		FOR REPS COMPLIANCE?
17	A.	No. Generation for customers served under the Company's revised NEM
18		tariffs will not contribute RECs to the Company's REPS portfolio. Under
19		the Company's revised net metering tariffs filed in Docket No. E-100, Sub
20		180 and approved by the Commission's March 23, 2023, Order Approving
21		Revised Net Metering Tariffs ("Revised Net Metering Order"), NEM
22		customers served under the new Residential Solar Choice Rider, as well as
23		the Net Metering Bridge Rider, retain all RECs produced by their NEM

1		facility. As stipulated in the Revised Net Metering Order, the Company will
2		continue retaining only the RECs produced by NMNTD customers on Rider
3		NM until that tariff expires for residential customers after December 31,
4		2026.
5	Q.	HOW DOES THE CPRE PROGRAM OF NC HB 589 (SL 2017-192)
6		IMPACT DEP'S COMPLIANCE WITH ITS GENERAL
7		REQUIREMENT?
8	A.	Under G.S. § 62-110.8(a), DEC and DEP ("the Companies") are responsible
9		for procuring renewable energy and capacity through a competitive
10		procurement program with the purpose of adding 2,660 MW of renewable
11		energy to the state's generation portfolio in a manner that allows DEC and
12		DEP to continue to serve their customers' future energy needs reliably and
13		cost-effectively. To meet the CPRE Program requirements, the Companies
14		issued requests for proposals to procure energy and capacity beginning on
15		February 21, 2018. The Companies solicited bids in three procurement
16		windows, the last of which closed on February 3, 2022. After the CPRE
17		Tranche 3 bid window closed, the CPRE Program was ultimately left with
18		a 441 MW shortfall. The Companies filed a petition in both the CPRE
19		Program dockets and the 2022 Solar Procurement Proceeding and received
20		the Commission's approval to procure the remaining MWs through the
21		2022 Solar Procurement process.
22		Renewable energy facilities eligible to participate in the CPRE
23		solicitation(s) include those facilities that use renewable energy resources

13		REQUIREMENT FOR 2022?
12	Q.	HAS THE COMPANY COMPLIED WITH ITS SOLAR SET-ASIDE
11		E-2, Sub 1323.
10		filed concurrently with this REPS filing and may be reviewed in Docket No.
9		DEP's CPRE compliance activities for the current Test Period are being
8		periods can be found in Presson Exhibit No. 2. Additional details regarding
7		estimated REC production from these projects during the Test and Billing
6		associated with the power. The NC retail allocated portion of the actual and
5		Companies the environmental and renewable attributes, or RECs,
4		CPRE Program and in the 2022 Solar Procurement, must also deliver to the
3		procured from a third party through a power purchase agreement under the
2		facilities developed or acquired by the Companies, or the renewable energy
1		identified in G. S. § 62-133.8(a)(8), the REPS statute. The renewable energy

- 14 A. Yes, the Company met its 2022 Solar Set-Aside requirement of 73,157
- RECs. Specifically, the RECs to be used for 2022 compliance have been
- transferred from the NC-RETS Progress Energy Electric Power Supplier
- 17 account to the Progress Energy Compliance Sub-Account. Upon
- completion of this regulatory proceeding, the Commission will finalize
- retirement of the RECs.
- 20 Q. WILL THE COMPANY COMPLY WITH ITS SOLAR SET-ASIDE
- 21 **REQUIREMENT IN 2023?**
- 22 A. Yes, the Company will be in compliance with its Solar Set-Aside
- requirement in 2023.

1	Q.	PLEASE PROVIDE AN UPDATE ON THE COMPANY'S EFFORTS
2		TO COMPLY WITH ITS SOLAR SET-ASIDE REQUIREMENT.
3	A.	The Company is in a position to comply with its Solar Set-Aside
4		requirement in 2023 through a diverse and balanced portfolio of solar
5		resources. The Company's efforts to comply with the Solar Set-Aside
6		Requirement include REC procurement from solar renewable energy
7		facilities and generation from DEP-owned solar photovoltaic ("PV")
8		systems. The Company has constructed the following four utility-scale solar
9		PV facilities in North Carolina:
10		• the 13 MW Camp Lejeune Solar Facility located in Onslow County
11		which was placed in service in November 2015;
12		• the 40 MW Elm City Solar Facility located in Wilson County which
13		was placed in service in March 2016;
14		• the 23 MW Fayetteville Solar Facility located in Bladen County
15		which was placed in service in December 2015; and
16		• the 65 MW Warsaw Solar Facility located in Duplin County which
17		was placed in service in December 2015.
18	Q.	HAS THE COMPANY COMPLIED WITH ITS POULTRY WASTE
19	•	SET-ASIDE REQUIREMENT FOR 2022?
20	A.	Yes, the Company met its 2022 Poultry Waste Set-Aside requirement of
21		193,343 RECs. Specifically, the RECs to be used for 2022 compliance have
22		been transferred from the NC-RETS Progress Energy Electric Power
		been dansiered from the two-tells frogress Energy Electric rower

Supplier account to the Progress Energy Compliance Sub-Account. Upon

- 1 completion of this regulatory proceeding, the Commission will finalize 2 retirement of the RECs.
- 3 Q. WILL THE COMPANY COMPLY WITH ITS POULTRY WASTE
- 4 SET-ASIDE REQUIREMENT IN 2023?
- 5 Yes, the Company expects to comply with its Poultry Waste Set-Aside A. 6 requirement in 2023. Longer-term compliance is dependent on the 7 performance of poultry waste-to-energy developers under current contracts, 8 particularly achievement of projected delivery requirements and 9 commercial operation milestones. The Company is expecting to add two 10 new poultry waste-to-energy projects to its portfolio in the next year with 11 one new project expected to come online in 2023 and another in 2024. The 12 Company is encouraged by the performance of current poultry waste-to-13 energy facilities and the projects that are currently being developed.
- 14 Q. WHAT ACTIONS HAS THE COMPANY TAKEN DURING THE
- 15 TEST PERIOD TO PROCURE OR DEVELOP POULTRY WASTE-
- 16 TO-ENERGY RESOURCES TO SATISFY ITS POULTRY WASTE
- 17 SET-ASIDE REQUIREMENTS?
- A. In the Test Period, the Company (1) continued direct negotiations for additional supplies of both in-state and out-of-state resources; (2) continued pursuit of poultry-derived directed biogas from facilities located in North Carolina and directing such biogas to combined cycle plants for combustion and electric generation; (3) worked diligently to understand the technological, permitting, and operational risks associated with various

methods of producing qualifying poultry RECs to aid developers in overcoming those risks; when those risks could not be overcome, the Company worked with developers via contract amendments to adjust for more realistic outcomes; (4) evaluated out-of-state poultry REC offers when available in the market; and (5) funded a North Carolina biogas utilization study through RTI International with hopes for future growth of poultry-derived directed biogas project development. Additional information on the Company's compliance with the Poultry Waste Set-Aside requirement can be found in the Company's Joint Semiannual Progress Report, filed on June 1, 2023, in Docket No. E-100, Sub 113A.

The Company remains committed to satisfying its statutory requirements for the Poultry Waste Set-Aside and will continue to pursue procurement of these resources reasonably and prudently.

# 14 Q. HAS THE COMPANY COMPLIED WITH ITS SWINE WASTE 15 SET-ASIDE REQUIREMENT FOR 2022?

Yes, the Company met its 2022 Swine Waste Set-Aside requirement of 18,290 RECs. Specifically, the RECs to be used for 2022 compliance have been transferred from the NC-RETS Progress Energy Electric Power Supplier account to the Progress Energy Compliance Sub-Account. Upon completion of this regulatory proceeding, the Commission will finalize retirement of the RECs.

# Q. WILL THE COMPANY COMPLY WITH ITS SWINE WASTE SET-

### 23 ASIDE REQUIREMENT IN 2023?

A.

DEP will not be able to meet compliance with the swine waste set-aside for
2023 at the 0.14% level. Compliance with the swine waste set-aside for
2024 and beyond is uncertain and will be difficult to meet as the swine waste
obligation increases. Swine waste-to-energy compliance challenges have
been numerous and varied. Existing contracts have not reached contracted
levels of production, and new contracts have failed to come online in the
timeframe originally planned and have taken longer than expected to ramp
up production. Additionally, two facilities previously online and producing
swine RECs for the Company's compliance were offline for a portion of the
Test Period. One facility experienced a tear in its cover in mid-2022; the
cover has been repaired, but the facility is now working through obtaining
new permits with the North Carolina Department of Environmental Quality
before it can begin operations again. The second facility had been unable to
maintain compliance with its air permit and shut down operations while
working with the North Carolina Division of Air Quality toward a solution.
While the second facility was able to resume operation in early June,
expected 2023 production from both facilities has been substantially
lowered, greatly impacting the Company's ability to comply with the 2023
swine waste set-aside. On the other hand, two new swine waste-to-energy
projects are under construction and scheduled to come online in mid-2023.
The ability of the facility that is currently offline to begin producing again,
new facilities to come online as expected, and for all facilities to produce

A.

their full contracted RECs will determine the levels of compliance that DEP is able to meet in the near term.

Successfully developing swine waste-to-energy projects in North Carolina has been a slow and tedious process over the last few years due to several factors. The Company understands swine waste-to-energy projects have encountered difficulties due to issues which include local opposition to siting the facilities, the inability to secure firm and reliable sources of swine waste feedstock from waste producers, difficulties securing project financing, technological challenges encountered when ramping up production and issues with lower-than-expected production due to revised industry expectations, farm waste management and biosecurity practices. Additionally, COVID-19, together with the war in Ukraine, created or exacerbated global supply chain disruptions, affecting prices and availability of equipment and building materials. Disruptions in work flows due to COVID led to depleted inventories, and market price volatility for certain materials (e.g., stainless steel, rebar) caused reluctance by suppliers to carry inventories, in turn creating shortages for those materials and goods. All these factors together caused shipment delays and thus increased wait times on completion of new facilities. Developers have also communicated potential delays as they work through the regulatory process, interconnections with local utilities for out-of-state projects, environmental regulations and other stakeholder concerns affecting their development plans.

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- Q. WHAT ACTIONS HAS DUKE ENERGY PROGRESS TAKEN
- 2 DURING THE TEST PERIOD TO PROCURE OR DEVELOP
- 3 SWINE WASTE-TO-ENERGY RESOURCES TO MEET ITS SWINE
- 4 WASTE SET-ASIDE REQUIREMENTS?

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In the Test Period, the Company (1) continued direct negotiations for additional supplies of both in-state and out-of-state resources; (2) continued pursuit of swine-derived directed biogas from North Carolina facilities, working with Piedmont Natural Gas Company, Inc. to locate favorable biogas injection sites; (3) worked diligently to understand the technological, permitting, and operational risks associated with various methods of producing qualifying swine RECs to aid developers in overcoming those risks; when those risks could not be overcome, the Company worked with developers via contract amendments to adjust for outcomes that the developers believe are achievable based on new experience; (4) explored leveraging current bioenergy contracts by working with developers to add swine waste to their fuel mix; (5) evaluated out-of-state swine REC offers when available in the market; and (6) continued support of research through North Carolina State University centered around drying swine lagoon solids, bagged lagoon sludge, and lagoon sludge mixed with agricultural waste at a farm-based level to create a higher MMBtu fuel that can be safely and easily transported, as well as funding a North Carolina biogas utilization study through RTI International with hopes for future growth of swinederived directed biogas project development. Additional information on the

	Company's compliance with the Swine Waste Set-Aside requirement can
	be found in the Company's Joint Semiannual Progress Report, filed on June
	1, 2023, in Docket No. E-100, Sub 113A.
	The Company remains committed to satisfying its statutory
	requirements for the Swine Waste Set-Aside and will continue to pursue
	procurement of these resources reasonably and prudently.
Q.	IS DUKE ENERGY PROGRESS CONTINUING TO EXECUTE
	ADDITIONAL REC PURCHASE AGREEMENTS?
A.	Yes. The Company continues to execute additional REC purchase
	agreements and maintains an open solicitation for proposals from
	developers of renewable energy resources.
Q.	DID THE COMPANY SELL ANY RECS DURING THE TEST
	PERIOD?
A.	No, the Company did not sell any RECs during the test period.
	COSTS OF REPS COMPLIANCE
Q.	WHAT ARE THE COMPANY'S COSTS ASSOCIATED WITH REPS
	COMPLIANCE DURING THIS TEST PERIOD AND THE
	UPCOMING BILLING PERIOD?
A.	Duke Energy Progress' costs associated with REPS compliance are
	reflected in Presson Confidential Exhibit No. 2 and are categorized by
	actual costs incurred during the Test Period and projected costs for the
	Billing Period.
	A. Q. Q.

1	Q.	IN ADDITION TO RENEWABLE ENERGY AND REC COSTS,
2		WHAT OTHER COSTS OF REPS COMPLIANCE DOES THE
3		COMPANY SEEK TO RECOVER IN THIS PROCEEDING?
4	A.	Presson Confidential Exhibit Nos. 2 and 3 identify "Other Incremental
5		Costs," "Solar Rebate Program Costs," "Solar + Storage Residential Pilot
6		Program Costs," and "Research Costs" the Company incurred, and
7		estimates it will incur, in association with REPS compliance.
8	Q.	PLEASE EXPLAIN THE OTHER INCREMENTAL COSTS
9		INCLUDED FOR RECOVERY IN THIS PROCEEDING.
10	A.	Other Incremental Costs include labor costs associated with REPS
11		compliance activities and non-labor costs associated with administration of
12		REPS compliance. Among the non-labor costs associated with REPS
13		compliance are the Company's subscription to NC-RETS, and accounting
14		and tracking tools related to RECs. This cost is reduced by agreed-upon
15		liquidated damages paid by sellers for failure to meet contractual milestones
16		and amounts paid for administrative contractual amendments requested by
17		sellers.
18	Q.	PLEASE EXPLAIN THE NC HB 589 (SL 2017-192) SOLAR REBATE
19		PROGRAM ("SOLAR REBATE PROGRAM").
20	A.	As required by G.S. § 62-155(f), DEP developed a Solar Rebate Program
21		offering incentives to residential, non-residential, and non-profit customers
22		in North Carolina for the installation of small customer owned or leased

solar energy facilities participating in the Company's net metering tariff.

The Solar Rebate Program provides an economic incentive for customers to
adopt solar power by reducing the upfront costs of installing solar
equipment. The incentive is limited to ten kilowatts alternating current
("kW-AC") for residential solar installations and 100 kW-AC for non-
residential solar installations. The program incentive is limited to 10,000
kW of installed capacity annually. The program began January 1, 2018, and
continued until December 31, 2022, with limits for each participating class.
At the end of 2022, 2,132 kW of unsubscribed capacity remained. This was
made available to any participant meeting the solar rebate rider
requirements when the 2023 rollover allocation process began on January
11, 2023. Solar Rebate Program participation caps for all customer types
and application periods were met following the close of the random
selection period on January 18, 2023. The waitlist established during the
January 2023 random selection process will remain until all customers with
rebate reservations are paid.
Additional information regarding the status of the solar rebate

Additional information regarding the status of the solar rebate program, including the Company's most recent Joint Biannual Solar Rebate Program Report, may be found in Docket Nos. E-2, Sub 1167 and E-7, Sub 1166.

# Q. ARE COSTS RELATING TO THE SOLAR REBATE PROGRAM INCLUDED FOR RECOVERY IN THIS FILING?

A. Yes. Pursuant to G.S. § 62-155(f), each public utility required to offer a solar rebate program "shall be authorized to recover all reasonable and

prudent costs of incentives provided to customers and program
administrative costs by amortizing the total program incentives distributed
during a calendar year and administrative costs over a 20-year period,
including a return component adjusted for income taxes at the utility's
overall weighted average cost of capital established in its most recent
general rate case, which shall be included in the costs recoverable by the
public utility pursuant to G.S. 62-133.8(h)." G.S. § 62-133.8(h) provides for
an electric power supplier's cost recovery and customer charges under the
REPS statute; NC HB 589 (SL 2017-192) amended it by adding a provision
to allow for the recovery of incremental costs incurred to "provide
incentives to customers, including program costs, incurred pursuant to G.S.
§ 62-155(f)." Therefore, DEP has included for recovery in this filing costs
incurred during the Test period and projected to be incurred in the Billing
Period related to the implementation of the Solar Rebate Program. As
detailed on Presson Confidential Exhibit No. 3, these costs include the
annual amortization of incentives paid to customers and program
administration costs including labor, information technology, and
marketing costs offset by early termination fees assessed to customers who
received a rebate check but failed to maintain participation in the Net
Metering Rider. Projected incentive costs for the Billing Period are based
on the currently approved rebate amounts: \$0.40 per watt for residential
installations, \$0.30 per watt for non-residential installations and \$0.75 per
watt for non-profit installations.

1	Q.	ARE COSTS RELATING TO THE SOLAR + STORAGE
2		RESIDENTIAL PILOT PROGRAM INCLUDED FOR RECOVERY
3		IN THIS FILING?
4	A.	Yes, Billing Period estimates for the Solar + Storage residential pilot
5		program are included in this filing pursuant to the Commission's March 23,
6		2023, Order Declining to Approve Proposed Smart \$aver Solar Program
7		and Requiring Development of Pilot Program ("Solar + Storage Order") in
8		Docket No. E-2, Sub 1287. The pilot program established by the
9		Commission provided that participants receive an incentive of \$0.36 per
10		watt toward the cost of installing a solar array and an additional monetary
11		incentive for the energy storage component. The Commission limited each
12		participant's incentives for the solar generation component to a maximum
13		installed capacity of ten kW-AC and instructed the Company to recommend
14		a similar maximum incentive for the battery component. The Commission
15		provided a cost recovery mechanism for all reasonable and prudent costs of
16		the Solar + Storage participant incentives and program administrative costs
17		by instructing the Company to amortize the total program incentives and
18		administrative costs over a 20-year period, including a return component
19		adjusted for income taxes at the DEP's overall weighted average cost of
20		capital as established in its most recent general rate case, to be included in
21		the costs recoverable by DEP through G.S. § 62-133.8(h).
22		Therefore, as provided in the Solar + Storage Order, DEP included
23		those costs projected to be incurred in the Billing Period related to the

1	implementation of the Solar + Storage residential pilot program. The
2	projected costs are detailed on Presson Confidential Exhibit No. 3 and
3	include the annual amortization of incentives projected to be paid to
4	customers as well as program administration costs including labor
5	information technology and marketing costs.

Q. PLEASE PROVIDE DETAIL ON THE INTERNAL LABOR COSTS
 ASSOCIATED WITH REPS COMPLIANCE, THE SOLAR REBATE
 PROGRAM, AND THE SOLAR + STORAGE PILOT PROGRAM
 WHICH HAVE BEEN INCLUDED IN DEP'S CURRENT

APPLICATION FOR REPS COST RECOVERY.

- DEP charges only the incremental cost of REPS compliance, the NC HB 589 (SL 2017-192) Solar Rebate Program, and the Solar + Storage residential pilot program to the REPS cost recovery rider. Consistent with that policy and DEP's practices in previous applications for cost recovery for REPS compliance, internal employees who work to comply with G.S. § 62-133.8 and G.S. § 62-155(f) charge only that portion of their labor to REPS or to the specific programs mentioned. Labor related to the Solar Rebate Program and Solar + Storage residential pilot program is isolated in the cost of those programs which is in turn amortized to REPS for cost recovery. The departments/functions that charged labor to REPS during the Test Period are detailed in Presson Confidential Exhibit No. 3.
- Q. HOW DO EMPLOYEES CHARGE THEIR REPS-RELATED, NC

  HB 589 (SL2017-192) SOLAR REBATE PROGRAM-RELATED,

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1		AND SOLAR + STORAGE RESIDENTIAL PILOT-RELATED
2		LABOR COSTS TO REPS?
3	A.	Employees positively report their time, which means that each employee is
4		required to submit a timesheet every two weeks in the Company's time
5		reporting system. Hours reported for the period are split according to the
6		accounting entered in the time reporting system for that specific employee,
7		and as the nature of an employee's work changes, the division of hours is
8		updated for the reporting period. Additionally, every year prior to filing for
9		approval of the DEP REPS Compliance Report and Cost Recovery Rider,
10		the labor hours charged to REPS are carefully reviewed and confirmed for
11		accuracy.
12	Q.	ARE REPS-RELATED RESEARCH COSTS INCLUDED FOR
13		RECOVERY IN THIS FILING?
14	A.	Yes, with respect to Research activities during the Test Period and projected
15		for the Billing Period, the Company has incurred or projects to incur costs
16		associated with the support of various pilot projects and studies which
17		encourage the development of renewable energy, energy efficiency or
18		improved air quality and is related to distributed energy technology and the
19		Company's REPS compliance.
20		
21		RESEARCH STUDY RESULTS
22	Q.	THE COMMISSION'S ORDER APPROVING REPS AND REPS EMP
23		RIDERS AND 2012 REPS COMPLIANCE REQUIRES DUKE

1		ENERGY PROGRESS TO FILE THE RESULTS OF RESEARCH
2		STUDIES WHEN THE COSTS OF THOSE STUDIES WERE
3		RECOVERED VIA THE REPS RIDER. IS THE COMPANY
4		SUPPLYING STUDY RESULTS IN THE 2022 REPS COST
5		RECOVERY RIDER FILING?
6	A.	Yes. The Company's Research efforts are an integral part of its REPS
7		Compliance efforts. The following summary outlines efforts undertaken by
8		the Company in the test period and specifies the availability of applicable
9		study results.
10		Adopting DVAR to Mitigate PV Impacts on a Distribution System,
11		Phase 2 – In late 2021, the Company kicked off a second phase of
12		the project with North Carolina State University ("NC State
13		University" or "NCSU") to assess the effectiveness of the American

- Phase 2 In late 2021, the Company kicked off a second phase of the project with North Carolina State University ("NC State University" or "NCSU") to assess the effectiveness of the American Superconductor Corporation Dynamic Volt-Amp Reactive Compensation Solution ("mini-DVAR") in mitigating various power quality issues on distribution circuits due to increasing penetration of PV. Phase 2 of the study focused on the development of more dynamic dispatching schemes for the mini-DVAR such that the expected benefits are maximized. Study results for this second phase are included as Presson Exhibit No. 4; no charges were incurred in the Test Period for the study.
- American Clean Power Association The American Clean Power
   Association is the leading federation of renewable energy

companies working to advance clean energy as an affordable and reliable power source in America. The Company's 2022 membership provided access to leading lawmakers and other stakeholders for the purpose of advocating on issues related to the renewable energy supply chain, trade disagreements, tax credits and more. The trade association also provided safety, environmental education, conferences, and proprietary industry data.

Biogas Utilization in North Carolina - In 2022 the Company continued support of the RTI International ("RTI") project for the Energy Policy Council to determine the potential NC bioenergy/biogas resources available in NC, and to identify the most beneficial and optimum utilization of resources to maximize economic, environmental, and societal advantages. Phase 1 of the study is now complete and has been posted on the RTI website. The results of this study can also be found in Presson Exhibit No. 5. Phase 2 of the study is now underway, a portion of which extends the scope of Phase 1 to include other sources of organic waste, primarily landfills and wastewater treatment plants. An additional portion of Phase 2 will produce a state-based landscape analysis of decarbonization in the natural gas sector with a focus on renewable natural gas and the potential for hydrogen. The analysis will include review of current general statutes, rules, and policies as well as policy options to consider for adoption in North Carolina. The

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potential value of new legislations including the Inflation Reduction Act and the Infrastructure Investment and Jobs Act will be considered. These analyses will be carried out in conjunction with, and incorporate feedback from, engagement with stakeholders including environmental justice and frontline communities. These activities are estimated to be completed by the end of 2023.

- Bring Your Own Battery Study In 2022 the Company continued its Bring Your Own Battery study in partnership with Virtual Peaker, an aggregation technology vendor who can control and collect data from battery storage original equipment manufacturers. The study evaluated the use of residential customer- owned batteries as a demand response resource. The Company studied the aggregation technology, battery discharge, customer usage patterns and customer experiences that could inform a future pilot or program filing. The final report for this project can be found in Presson Exhibit No. 6.
- Coalition for Renewable Natural Gas The Company renewed its membership to the Coalition for Renewable Natural Gas in 2022 to add a valuable resource of knowledge and public policy advocation in this growing sector of potential animal waste supply. The Coalition for Renewable Natural Gas provides its members with exclusive whitepapers, support on model pipeline gas specifications and access to other members for discussions on current and future

projects. The Company also provided funding through the Coalition for Renewable Natural Gas for additional studies including an updated Economic Analysis of the US Renewable Natural Gas Industry, which is included as Presson Exhibit No. 7; and a study by Colorado State University of methane leakage from renewable natural gas processing facilities to promote improved practices, which is close to completion.

Developing Large Distributed Energy Resources ("DER") Protection Guidelines and Settings for Mitigating System-wide Impacts across T&D Systems – In late 2021, the Company started the project with the North Carolina State University, the University of North Carolina at Charlotte ("UNCC"), and Clemson University ("Clemson") through the Center for Advanced Power Engineering Research ("CAPER"). The project investigates the ability to develop a strategy for evaluating protection device, recloser settings and control algorithms for Inverter-based Resources with high penetration levels of DER at both the distribution and transmission levels with an integrated simulation model. There were no charges incurred in 2022 for this ongoing CAPER project. A status update on the project can be found in Presson Exhibit No. 8.

Effective Load Carrying Capability Study ("ELCC") – During 2021
 and 2022 the Company contracted Astrapé Consulting, LLC to
 analyze the capacity value of solar, battery storage, and wind within

each system. ELCC studies are considered an industry best practice across the country to best determine the capacity contributions of increasing renewables on electric systems. Average seasonal capacity values are used for reserve margin calculation purposes and seasonal marginal values can be used for expansion planning. Both DEC and DEP are winter planning due to winter peak loads and the amount of solar on the systems. Because of this, the study results provide the winter capacity value for solar, storage and wind which are used in both the Company's Carbon Plan and its Integrated Resource Plans. The results of this study can be found in Presson Exhibit No. 9.

Electric Power Research Institute ("EPRI") – In 2022 the Company subscribed to the following EPRI programs, the costs of which were recovered via the REPS rider: Program 174 – DER Integration, and Program 94 – Energy Storage and Distributed Generation. The Company continued its support of one supplemental project under Program 174 – "Model-Based Analysis of DER Functions and Settings." EPRI designates such study results as proprietary or as trade secrets and licenses such results to EPRI members, including Duke Energy Progress. As such, the Company may not disclose the information publicly. Non-members may access these studies for a fee. Information regarding access to this information can be found at <a href="http://www.epri.com/Pages/Default.aspx">http://www.epri.com/Pages/Default.aspx</a>.

- Grid Resiliency In 2022 the Company contracted with Open Energy Solutions, Inc ("OES") to develop a framework and related perspectives on the value of grid resiliency for Duke Energy. OES will test a range of analytical methods for valuing the resilience benefits of distributed energy resources. The project will also focus on example algorithms for grid resilience value levers using available public research and Duke Energy System data. The project's scope can be found in Presson Confidential Exhibit No. 10.
- Low Energy Drying of Swine Sludge for Fuel and Fertilizer Research Study In 2022 the Company continued support of the various projects being undertaken by the Animal and Poultry Waste Management Center at NCSU. This work is centered around drying swine lagoon solids, bagged lagoon sludge and lagoon sludge mixed with agricultural wastes at a farm-based level to create a higher MMBtu fuel that can be safely and easily transported to a central plant for combustion. An update on the project can be found in Presson Confidential Exhibit No. 11.
- Monitoring and Operational Assessment of DER Reactive Power

  Control EPRI In 2022 the Company contracted with EPRI to

  continue the evaluation of the software-based controls of advanced

  inverters according to the IEEE 1547-2018 standard. Projects in the

  Smart Inverter Pilot established in the "Joint Notice of

  Interconnection Settlement and Petition for Limited Waiver" filed

with the Commission in Docket No. E-100, Sub 101 on September
3, 2020, are being commissioned and operating on the Company's
distribution system. Monitoring and assessing each project's
performance is important. This study will collect operational data,
assess the delivery of the systems' active and reactive power
compared to the Standard, identify any undesirable impact to the
feeder system, examine adverse interaction with local or central
controls of traditional regulating devices (e.g., voltage regulator,
capacity bank), propose potential updates for better coordination
and further improve the operation's effectiveness. The study began
in the fourth quarter of 2022 and is currently in progress. A
description of the study can be found in Presson Confidential
Exhibit No. 12.

- NC State University's Future Renewable Electric Energy Delivery and Management ("FREEDM") Systems Center Duke Energy supports NC State University's FREEDM Center through annual membership dues. The FREEDM partnership provides Duke Energy with the ability to influence and focus research on materials, technology, and products that will enable the utility industry to transform the electric grid into a two-way power flow system supporting distributed generation.
- Power Flow Analysis to Improve Integrated Volt/Var ("IVVC") and
   Energy Efficiency Programs In late 2021 the Company contracted

with UNCC to address the issue of inaccurate power flow analysis
results in the current Distribution Management System when there
are DER on a distribution system. This research will directly benefit
IVVC programs and enable utilities to operate IVVC more
effectively on systems with high levels of DER. The project is
ongoing, and no costs were incurred during the Test Period.
Although the study is not yet complete, two papers were submitted
to the Institute of Electrical and Electronics Engineers Texas Power
and Energy Conference. The papers can be found in Presson Exhibit
Nos. 13 and 14.

Reliability Assessment for Utility PV Inverter System – In late 2021 the Company contracted with UNCC to conduct phase one of a research study on the Reliability Assessment for Utility PV Inverter Systems. The goal of this project was to develop a reliability assessment tool to support the development of safer and more reliable PV, quantitatively assess the PV system reliability based on field data provided by Duke Energy and provide recommendations for failure mechanism identification, predictive maintenance, and lifetime extension strategy. The study was completed in December 2022. Results can be found in Presson Exhibit No. 15.

In December 2022 the Company kicked off a second phase of the project which will support the development of safe and reliable utility PV and energy storage systems. The extended project

will conduct technology and standard reviews on PV and utility battery arc fault and fire prevention, evaluate the current arc fault detection and arc flash prevention methods, research real-time arc fault detection and battery fire detection technology and provide technical recommendations to reduce fire hazards, enhance electrical safety, and increase PV and utility energy storage system fire resilience. The project scope can be found in Presson Exhibit No. 16.

Resilient Community Microgrids with Dynamic Reconfiguration to Serve Critical Loads in the Aftermath of Severe Events – In 2021 the Company supported UNCC in the research project awarded by the Department of Energy's Office of Energy Efficiency and Renewable Energy under DE-FOA-0002243. Duke Energy supports this project with the expectation that it addresses all topics of interest: (1) the study will recommend a methodology which specifies relay-protection elements and settings for utilization in island mode of operation; (2) the study will recommend methodologies for island black start sequences; and (3) the study will provide a performance evaluation of the microgrid-control. This is a three-year project expected to be complete in April 2024, and no charges were incurred in the Test Period. The progress for this project can be found in Presson Confidential Exhibit No. 17.

- Smart Electric Power Alliance ("SEPA") The Company renewed its membership to the Smart Electric Power Alliance in 2022. SEPA provides its members with exclusive whitepapers and working group event opportunities on various topics including DER integration, DER management systems, energy efficiency and demand response, electric vehicle development, microgrid and grid resiliency. Please visit SEPA's website at <a href="https://sepapower.org">https://sepapower.org</a> for more information on SEPA.
  - Southeast Wind Coalition ("SEWC") The Company renewed its membership in the Southeast Wind Coalition in 2023. SEWC conducts research on land-based wind, offshore wind, and energy storage, which informs the Company of potential renewable generation opportunities that may enable the Company to comply with REPS in a cost-effective manner. In addition, SEWC's work is to advance wind policies across the southeast by holding conferences, addressing prohibitive state policies related to wind deployment, and ensuring workforce development and educational outreach. Please visit SEWC's website at <a href="https://www.sewind.org">https://www.sewind.org</a> for more information on SEWC.
- Q. ARE YOU SATISFIED THAT THE ACTUAL COSTS INCURRED IN THE TEST PERIOD HAVE BEEN, AND THAT THE PROJECTED COSTS OF THE BILLING PERIOD WILL BE, PRUDENTLY INCURRED?

Yes. Duke Energy Progress believes it has incurred and projects to incur all these costs associated with REPS compliance in a prudent manner. The Company continues to exercise thorough and rigorous technical and economic analysis to evaluate all options for compliance with its REPS requirements. Duke Energy Progress has developed strong foundational market knowledge related to renewable resources. The Company continues to enhance and develop expertise in this field through the Company's various solicitations for renewable energy and the operation of its unsolicited bid process, its operation of DEP-owned utility-scale solar facilities, its participation in industry research, and daily interaction with developers of renewable energy facilities. As a result of these efforts, the Company has been able to identify, procure, and develop a diverse portfolio of renewable resources to meet its REPS requirements in a prudent, reasonable, and cost-effective manner.

#### 15 Q. DOES THIS CONCLUDE YOUR TESTIMONY?

16 A. Yes.

A.