



Kendrick C. Fentress
Associate General Counsel

NCRH 20 / P.O. Box 1551
Raleigh, NC 27602

o: 919.546.6733
c: 919.546.2694

Kendrick.Fentress@duke-energy.com

August 2, 2019

VIA ELECTRONIC FILING

M. Lynn Jarvis, Chief Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, North Carolina 27699-4300

**RE: Duke Energy Progress, LLC's and Duke Energy Carolinas, LLC's
Late-Filed Exhibits
Docket No. E-100, Sub 158**

Dear Ms. Jarvis:

Pursuant to the requests of Commissioners Clodfelter and Brown-Bland during the evidentiary hearing that was held in this proceeding during the week of July 15, 2019, Duke Energy Progress, LLC and Duke Energy Carolinas, LLC (collectively, the "Companies") developed four late-filed exhibits. Late-Filed Exhibit No. 1, Avoided Cost Rates per Rate Design Stipulation, was admitted into evidence during the hearing on July 19, 2019. Subsequently the Companies found an error in the losses input for the rates shown on the previously filed exhibit. Revised Late-Filed Exhibit No. 1 is being re-filed today, to replace the exhibit submitted during the hearing. The Companies are also filing Late-Filed Exhibits Nos. 2, 3 and 4:

- Actual Historical Operating Reserves vs. Astrapé's Modeled Operating Reserves – Late-Filed Exhibit No. 2
- Estimated, Preliminary 20-Year CPRE Avoided Cost – Late-Filed Exhibit No. 3
- E-100, Sub 148 Estimated Solar Payment vs. E-100, Sub 158 Estimated Solar Payment – Late-Filed Exhibit No. 4

Late-Filed Exhibit Nos. 3 and 4 are being filed under seal, and the Companies respectfully request that this information be treated confidentially pursuant to N.C. Gen. Stat. § 132-1.2. These Late-Filed Exhibits contain commercially sensitive operational information and the Company's proprietary cost information. Public disclosure of this confidential information would allow competitors, vendors and other market participants to gain an undue advantage, which may ultimately result in harm to customers. The Companies will make the information available to other parties to this docket pursuant to an appropriate nondisclosure agreement.

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Please do not hesitate to contact me if you have any questions or need additional information.

Sincerely,

A handwritten signature in black ink that reads "Kendrick C. Fentress". The signature is written in a cursive style with a large initial 'K'.

Kendrick C. Fentress

Enclosures

cc: Parties of Record

Duke Energy Carolinas, LLC
Duke Energy Progress, LLC

REVISED Late Filed Exhibit No. 1
Avoided Cost Rates per Rate Design Stipulation

Duke Energy Carolinas, LLC

REVISED Late Filed Exhibit No. 1

Rate Design Stipulation Method in E-100 Sub 158

Purpose: To show the resulting 1)energy and 2)capacity rates calculated under the Rate Design Stipulation method in E-100 Sub 158 based on initial input data.

1.

ENERGY										
DEC-Stipulated Energy Rate Design E-100 Sub 158 using initial data										
Independent Energy Price Blocks		1.Summer Premium Peak (PM)	2.Summer On-Peak (PM)	3.Summer Off-Peak	4. Winter Premium Peak (AM)	5.Winter On-Peak (AM)	6.Winter On-Peak (PM)	7.Winter Off-Peak	8.Shoulder On-Peak	9.Shoulder Off-Peak
		(cents/KWH)	(cents/KWH)	(cents/KWH)	(cents/KWH)	(cents/KWH)	(cents/KWH)	(cents/KWH)	(cents/KWH)	(cents/KWH)
(a) Distribution	Variable	3.55	3.79	2.95	4.90	4.14	4.10	2.69	3.55	2.76
Distribution	10 Year	4.21	4.14	2.69	5.64	4.03	4.29	2.74	3.38	2.49
Transmission	Variable	3.42	3.67	2.89	4.75	4.03	4.00	2.64	3.48	2.72
Transmission	10 Year	4.05	4.00	2.63	5.46	3.93	4.18	2.68	3.32	2.46

(b) Changes reflected in the rates above as compared to Original Late Filed Exhibit 1

Independent Energy Price Blocks		(cents/KWH)	(cents/KWH)	(cents/KWH)	(cents/KWH)	(cents/KWH)	(cents/KWH)	(cents/KWH)	(cents/KWH)	(cents/KWH)
Distribution	Variable	-0.01	-0.02	0.00	-0.01	0.00	0.02	0.00	0.00	-0.01
Distribution	10 Year	-0.01	-0.02	0.00	0.00	0.00	0.03	0.00	0.00	-0.01
Transmission	Variable	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission	10 Year	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

DEC	Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Summer (Jun-Sep)		Off												On (pm)		Premium			On (pm)		Off				
Winter (Dec-Feb)		Off					On (am)	Premium		On (am)	Off						On (pm)			Off					
Shoulder (Remaining)		Off					On					Off					On					Off			

2.

CAPACITY																									
DEC-Stipulated Capacity Rate Design E-100 Sub 158 using initial data																									
Independent Price Blocks		1.Summer On						2.Winter On (am)						3.Winter On (pm)											
		(cents/KWH)						(cents/KWH)						(cents/KWH)											
Distribution	Variable	0.00						0.00						0.00											
Distribution	10 Year	0.21						0.97						0.31											
Transmission	Variable	0.00						0.00						0.00											
Transmission	10 Year	0.20						0.94						0.30											

DEC / DEP	Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Summer (Jul - Aug)																			On							
Winter (Dec - Mar)									On (am)										On (pm)							

An error was discovered in the losses input for the rates shown on the previously provided Late Filed Exhibit 1.
 Note (a) Values represent corrected rates for Late Filed Exhibit 1 in the Stipulated Energy Rate Design section.
 Note (b) Values in red represent the change from the previously provided Late Filed Exhibit 1 in the Stipulated Energy Rate Design section.

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Duke Energy Progress, LLC

REVISED Late Filed Exhibit No. 1

Rate Design Stipulation Method in E-100 Sub 158

Purpose: To show the resulting 1)energy and 2)capacity rates calculated under the Rate Design Stipulation method in E-100 Sub 158 based on initial input data.

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Aug 02 2019

1. **ENERGY**

DEP-Stipulated Energy Rate Design E-100 Sub 158 using initial data

Independent Energy Price Blocks		1.Summer Premium Peak (PM)	2.Summer On-Peak (PM)	3.Summer Off-Peak	4. Winter Premium Peak (AM)	5.Winter On-Peak (AM)	6.Winter On-Peak (PM)	7.Winter Off-Peak	8.Shoulder On-Peak	9.Shoulder Off-Peak
		(cents/KWH)	(cents/KWH)	(cents/KWH)	(cents/KWH)	(cents/KWH)	(cents/KWH)	(cents/KWH)	(cents/KWH)	(cents/KWH)
(a) Distribution	Variable	4.40	3.37	3.04	4.40	3.62	3.59	2.87	3.32	2.70
	10 Year	3.84	3.29	2.87	4.78	3.41	3.79	2.80	3.08	2.28
Transmission	Variable	4.28	3.28	3.00	4.30	3.56	3.52	2.83	3.28	2.68
	10 Year	3.74	3.21	2.83	4.66	3.35	3.72	2.77	3.04	2.26

Changes reflected in the rates above as compared to Original Late Filed Exhibit 1

Independent Energy Price Blocks		(cents/KWH)	(cents/KWH)	(cents/KWH)	(cents/KWH)	(cents/KWH)	(cents/KWH)	(cents/KWH)	(cents/KWH)	(cents/KWH)
(b) Distribution	Variable	-0.02	-0.09	-0.02	-0.03	-0.02	-0.02	-0.02	-0.01	-0.02
	10 Year	-0.03	-0.09	-0.02	-0.02	-0.01	-0.01	-0.03	-0.01	-0.01
Transmission	Variable	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10 Year	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00

DEP	Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Summer (Jun-Sep)		Off												On (pm)		Premium			On (pm)	Off					
Winter (Dec-Feb)		Off			On (am)		Premium		On (am)		Off						On (pm)			Off					
Shoulder (Remaining)		Off				On				Off						On				Off					

2. **CAPACITY**

DEP-Stipulated Capacity Rate Design E-100 Sub 158 using initial data

Independent Price Blocks		1.Summer On	2.Winter On (am)	3.Winter On (pm)
		(cents/KWH)	(cents/KWH)	(cents/KWH)
Distribution	Variable	0.00	5.82	2.49
	10 Year	0.00	10.92	4.68
Transmission	Variable	0.00	5.71	2.45
	10 Year	0.00	10.72	4.59

DEC / DEP	Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Summer (Jul - Aug)																		On							
Winter (Dec - Mar)								On (am)									On (pm)								

An error was discovered in the losses input for the rates shown on the previously provided Late Filed Exhibit 1.

Note (a) Values represent corrected rates for Late Filed Exhibit 1 in the Stipulated Energy Rate Design section.

Note (b) Values in red represent the change from the previously provided Late Filed Exhibit 1 in the Stipulated Energy Rate Design section.

Duke Energy Carolinas, LLC
Duke Energy Progress, LLC

Late Filed Exhibit No. 2
Actual Historical Operating Reserves
VS
Astrapé's Modeled Operating Reserves

Duke Energy Carolinas, LLC and Duke Energy Progress, LLC Late-Filed Exhibit 2

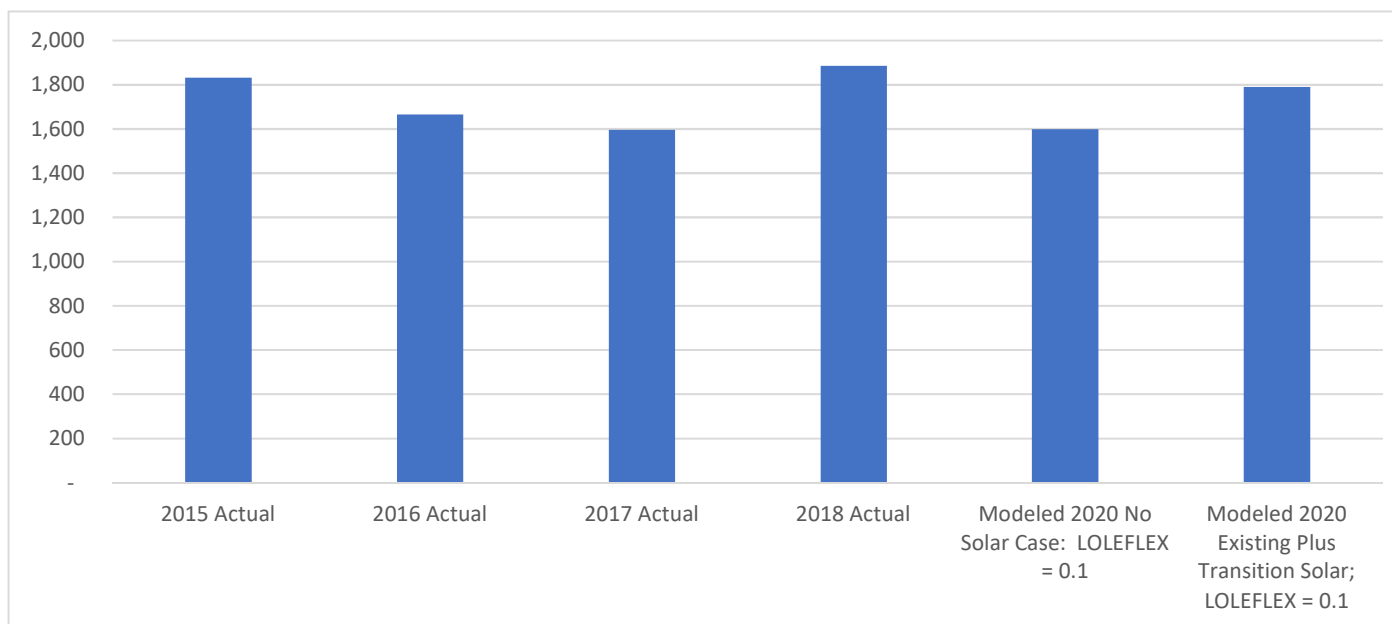
Astrapé used hourly historical output from all generators to calculate realized spinning reserves which were available in a 60-minute window. This calculation for historical data was consistent with the reserve calculations performed in SERVIM and reported in the Ancillary Service Study.

Changes from year to year in realized operating reserves are impacted by a number of factors, including, but not limited to, coal prices, natural gas prices, resource retirements/additions, generator outages/maintenance, and increases in installed solar. After normalizing for higher coal dispatch in 2015, recent history shows an increasing need for operating reserves due to increases in solar. In general, the analysis presented below shows that the 60-minute ramping capability in Astrapé's "no solar" scenario, which results in 0.1 LOLEflex, is in line with the Companies' actual historical, realized operating reserves. As exemplified below, the Companies' combined actual, average annual 60-minute operating reserves for the 2015-2018 time period ranged from approximately 1,600 MW to approximately 1,900 MW; the Astrapé modeled "no solar" scenario reflected 1,599 MW of operating reserves and the "Existing plus Transition" scenario reflected 1,791 MW of operating reserves. While modeled and historical operating reserves will not match exactly, this type of calibration supports the reasonableness of Astrapé's 0.1 LOLEflex metric, and should continue to be performed in future biennial studies to ensure the reliability threshold chosen is reasonable.

For comparison purposes, the installed solar nominal capacity in 2018 for DEP is approximately 1,600 MW compared to 2,950 MW in the modeled Existing plus Transition solar. The solar nominal capacity in 2018 for DEC is approximately 450 MW compared to 840 MW in the modeled Existing plus Transition solar.

Actual Historical	Average Annual Actual Realized 60 Minute Ramping Capability in MW
<i>Year</i>	
2015 Actual	1,833
2016 Actual	1,665
2017 Actual	1,595
2018 Actual	1,887

Modeled 2020 Future Study Year with Varying Solar Penetrations	
Modeled 2020 No Solar Case: LOLEFLEX = 0.1	1,599
Modeled 2020 Existing Plus Transition Solar; LOLEFLEX = 0.1	1,791



Additional Notes

2014 data was not readily available. In November 2015, Duke deployed a new Transmission Generation Information System ("TGIS") energy accounting database, which tracks and records system operating data, including the hourly output for each generator which was used by Astrape to calculate the realized 60-minute operating reserves in its 2015 benchmarking review. At that time, Duke conducted a significant effort to populate the new database with Energy Accounting data for all months in 2015. Thus, data for years preceding deployment of the TGIS energy accounting database (i.e. prior to 2015) is maintained in archived historical data formats for DEC and DEP and is not readily available. An additional 10 - 30 business days would be required to manually retrieve, process and validate archived 2014 data; therefore, the Companies are presenting the readily available 2015-2018 data sourced from the TGIS energy accounting database and will undertake the more significant effort to review 2014 data, if requested by the Commission.

2015 was recalculated to include conventional hydro reserves which were not in the original calculations. Additional minor unit corrections were made to be more accurate and were applied consistently from 2015 - 2018.

Because a full 2019 year was not available yet, and operating reserves display seasonality, a reasonable comparison could not be performed for 2019.

The relatively higher operating reserves in 2015 were primarily due to higher coal commitment associated with lower coal prices. Since coal units are unable to cycle, many low load periods in 2015 show significant online reserves due to coal operating near minimum load.

Duke Energy does not archive operating reserve data in the categories the Commission identified as of interest (i.e. on-line contingency reserves, regulating reserves, and on-line operating reserves). Duke Energy does archive total contingency reserves; however, this is off-line and on-line contingency reserves summed in total. DEP maintains most of its contingency reserves off-line, meaning that archived contingency reserve data would not be a good indicator for the amount of hourly on-line operating reserves.

Duke Energy Carolinas, LLC
Duke Energy Progress, LLC

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Late Filed Exhibit No. 3

Estimated, Preliminary 20-year CPRE Avoided Cost

Duke Energy Carolinas, LLC
Duke Energy Progress, LLC

CONFIDENTIAL

Late Filed Exhibit No. 4

E-100, Sub 148 Estimated Solar Payment

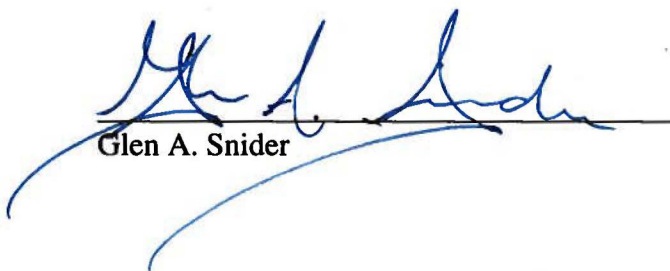
VS

E-100, Sub 158 Estimated Solar Payment

VERIFICATION

STATE OF NORTH CAROLINA)
)
 COUNTY OF MECKLENBURG) **DOCKET NO. E-100, SUB 158**

Glen A. Snider, being first duly sworn, deposes and says: That he is Director of Carolinas Resource Planning and Analytics for Duke Energy Corporation; that he has read the foregoing Late-Filed Exhibits being filed on behalf of Duke Energy Carolinas, LLC and Duke Energy Progress, LLC and knows the contents thereof and that the same are true of his own personal knowledge.



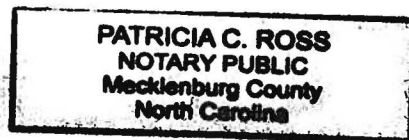
 Glen A. Snider

Sworn to and subscribed before me

This 2 day of August, 2019.



 Notary Public

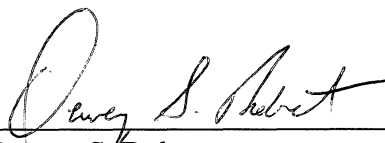


My Commission Expires: 10-17-2019

VERIFICATION


STATE OF NORTH CAROLINA)
)
COUNTY OF WAKE) DOCKET NO. E-100, SUB 158

Dewey S. Roberts, being first duly sworn, deposes and says: That he is Director of System Operations for Duke Energy Corporation's utility operating companies in the Carolinas; that he has read the foregoing Late-Filed Exhibits being filed on behalf of Duke Energy Carolinas, LLC and Duke Energy Progress, LLC and knows the contents thereof and that the same are true of his own personal knowledge.


Dewey S. Roberts

Sworn to and subscribed before me

This 1st day of August, 2019.


Notary Public


PAMELA P. HENSLEY
NOTARY PUBLIC
Johnston County
North Carolina
My Commission Expires 12/11/21

My Commission Expires: 12/11/21

VERIFICATION

STATE OF ALABAMA)
)
 COUNTY OF JEFFERSON) **DOCKET NO. E-100, SUB 158**

Nick Wintermantel, being first duly sworn, deposes and says: That he is Principal Consultant and Partner at Astrapé Consulting; that he has read the foregoing Late-Filed Exhibit pertaining to Operating Reserves that is being filed on behalf of Duke Energy Carolinas, LLC and Duke Energy Progress, LLC and knows the contents thereof and that the same are true of his own personal knowledge.



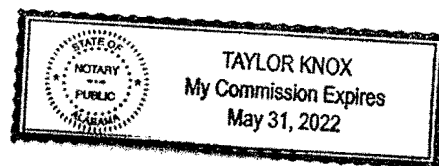
 Nick Wintermantel

Sworn to and subscribed before me

This 1 day of August, 2019.



 Notary Public

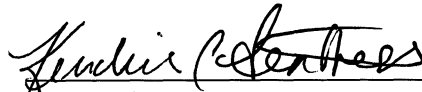


My Commission Expires: 5/31/22

CERTIFICATE OF SERVICE

I certify that a copy of Duke Energy Progress, LLC's and Duke Energy Carolinas, LLC's Late-Filed Exhibits, in Docket No. E-100, Sub 158 has been served by electronic mail, hand delivery, or by depositing a copy in the United States Mail, 1st Class Postage Prepaid, properly addressed to parties of record.

This the 2nd day of August, 2019.



Kendrick C. Fentress
Associate General Counsel
Duke Energy Corporation
P.O. Box 1551 / NCRH 20
Raleigh, NC 27602
Tel 919.546.6733
Fax 919.546.2694
Kendrick.Fentress@duke-energy.com