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OFFICIAL COPY

Nov 01 2018

November 1, 2018

VIA ELECTRONIC FILING

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

**RE: Duke Energy Carolinas, LLC and Duke Energy Progress, LLC's
Avoided Cost Information Required by 18 C.F.R. 292.302(b)(1)-(3)
Docket No. E-100, Sub 158**

Dear Ms. Jarvis:

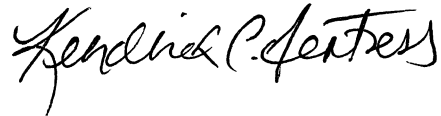
Duke Energy Carolinas, LLC and Duke Energy Progress, LLC (collectively, the "Companies") herein submit to the North Carolina Utilities Commission ("Commission") the information required by Federal Energy Regulatory Commission regulation 18 C.F.R. 292.302(b)(1)-(3), which requires electric utilities to file certain avoided cost information with their respective state commissions on a biennial basis.

The Companies have designated their respective cost data as confidential and trade secret information and respectfully request that the Commission protect it from public disclosure pursuant to N.C. Gen. Stat. § 132-1.2. The information reflects the Companies' costs to procure additional energy and/or capacity. The wholesale electricity market is extremely competitive and, in order for the Companies to obtain the most cost-effective energy and capacity to meet the needs of its customers, each must protect from public disclosure its projected and actual cost to procure such energy, capacity or both. In addition, if this information was publicly available, potential suppliers would know the price against which they must bid, and rather than bidding the lowest price possible, they would simply bid a price low enough to beat the Companies' projections.

The Companies will make the confidential information available to other parties pursuant to an appropriate confidentiality agreement.

Please do not hesitate to contact me if you have any questions.

Sincerely,

A handwritten signature in black ink, reading "Kendrick C. Fentress". The signature is written in a cursive, flowing style.

Kendrick C. Fentress

Enclosures

cc: Parties of Record

ESTIMATED AVOIDED ENERGY COSTS
18 C.F.R. § 292.302(b)(1)

The estimated avoided cost on the electric utility's system, solely with respect to the energy component, for various levels of purchases from qualifying facilities. Such levels of purchases shall be stated in blocks of not more than 100 megawatts for systems with peak demand of 1,000 megawatts or more, and in blocks equivalent to not more than 10 percent of the system peak demand for systems of less than 1,000 megawatts. The avoided costs shall be stated on a cents per kilowatt-hour basis, during daily and seasonal peak and off-peak periods, by year, for the current calendar year and each of the next five years.

RESPONSE:

NON-SUMMER AVERAGE AVOIDED ENERGY COST BY PERIOD (¢/kWh)

[BEGIN CONFIDENTIAL]

Year	Average Morning On-Peak Hours	Average Evening On-Peak Hours	Average Off-Peak Hours
2018			
2019			
2020			
2021			
2022			
2023			

[END CONFIDENTIAL]

SUMMER AVERAGE AVOIDED ENERGY COST BY PERIOD (¢/kWh)

[BEGIN CONFIDENTIAL]

Year	Average On-Peak Hours	Average Off-Peak Hours
2018		
2019		
2020		
2021		
2022		
2023		

[END CONFIDENTIAL]

Notes:

Energy costs are expressed in nominal dollars.

HOUR DEFINITIONS

Season	Period	Days	Months	Hours
Non-Summer	On-Peak Morning	Mon – Fri ¹	Oct – Apr	6:00 am – 10:00 am
Non-Summer	On-Peak Evening	Mon – Fri ¹	Oct – Apr	5:00 pm – 11:00 pm
Non-Summer	Off-Peak	Mon – Fri Sat – Sun	Oct – Apr Oct – Apr	Remaining Hours + Holidays All Hours ²
Summer	On-Peak	Mon – Fri ¹	May - Sept	12:00 pm – 11:00 pm
Summer	Off-Peak	Mon – Fri Sat - Sun	May – Sept May - Sept	Remaining Hours + Holidays All Hours ²

Notes:

- 1) Excludes holidays considered as off-peak (New Year's Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and the day after, and Christmas Day).
- 2) When one of the above holidays falls on a Saturday, the Friday before will be considered off-peak; when the holiday falls on a Sunday, the following Monday will be considered off-peak.

FUTURE RESOURCE ADDITIONS
18 C.F.R. § 292.302(b)(2)

The electric utility's plan for the addition of capacity by amount and type, for purchases of firm energy and capacity, and for capacity retirements for each year during the succeeding 10 years.

RESPONSE:

PROPOSED RESOURCE CAPACITY ADDITIONS

Year	Winter Capacity (MW)	Description (Date Installed)
2019		
2020	22 4	Combined Heat and Power (December 2019) Energy Storage (December 2019)
2021	22 16	Combined Heat and Power (December 2020) Energy Storage (December 2020)
2022	20	Energy Storage (December 2021)
2023	20	Energy Storage (December 2022)
2024	20	Energy Storage (December 2023)
2025	402 20	Lincoln Project (December 2024) Energy Storage (December 2024)
2026	20	Energy Storage (December 2025)
2027		
2028	460	Combustion Turbine (December 2027)

PROPOSED RESOURCE CAPACITY RETIREMENTS

Year	Winter Capacity (MW)	Description (Date Retired)
2025	167 167 270	Allen 1 (December 2024) Allen 2 (December 2024) Allen 3 (December 2024)

PROPOSED PURCHASE CAPACITY ADDITIONS

DEC Base Renewables – Compliance + Non-Compliance Nameplate MW			
	Solar	Biomass/Hydro	Total
2019	815	119	934
2020	1,212	140	1,352
2021	1,580	118	1,698
2022	1,938	98	2,036
2023	2,273	83	2,356
2024	2,532	81	2,613
2025	2,773	69	2,842
2026	2,764	68	2,832
2027	2,750	62	2,812
2028	2,736	85	2,821

Notes:

- Data Source: 2018 Base Case used for Avoided Cost standard offer rates filed in NCUC Docket No. E-100, Sub 158.
- The year is the year in which the capacity impacts the winter peak.
- All retirements are for planning purposes only.
- The date retired is the month and year that the asset is taken out of service.
- Retirement dates based on depreciation study approved in the recent rate case.
- Solar includes 0.5% per year degradation.
- Renewables capacity listed excludes REC-Only contracts.

CAPITAL AND ENERGY COSTS OF PLANNED ADDITIONS
18 C.F.R. § 292.302(b)(3)

The estimated capacity costs at completion of the planned capacity additions and planned capacity firm purchases, on the basis of dollars per kilowatt, and the associated energy costs of each unit, expressed in cents per kilowatt-hour. These costs shall be expressed in terms of individual generating units and of individual planned firm purchases.

RESPONSE:

ESTIMATED CAPITAL AND ENERGY COSTS FOR PLANNED CAPACITY ADDITIONS

[BEGIN CONFIDENTIAL]

2019 (Dec)	22 MW Combined Heat and Power Capacity Cost: [REDACTED] Energy Cost: [REDACTED]
2019 (Dec)	4 MW Energy Storage Capacity Cost: [REDACTED] Energy Cost: [REDACTED]
2020 (Dec)	22 MW Combined Heat and Power Capacity Cost: [REDACTED] Energy Cost: [REDACTED]
2020 (Dec)	16 MW Energy Storage Capacity Cost: [REDACTED] Energy Cost: [REDACTED]
2021 (Dec)	20 MW Energy Storage Capacity Cost: [REDACTED] Energy Cost: [REDACTED]
2022 (Dec)	20 MW Energy Storage Capacity Cost: [REDACTED] Energy Cost: [REDACTED]
2023 (Dec)	20 MW Energy Storage Capacity Cost: [REDACTED] Energy Cost: [REDACTED]
2024 (Dec)	402 MW Lincoln Project Capacity Cost: [REDACTED] Energy Cost: [REDACTED]
2024 (Dec)	20 MW Energy Storage Capacity Cost: [REDACTED] Energy Cost: [REDACTED]
2025 (Dec)	20 MW Energy Storage Capacity Cost: [REDACTED] Energy Cost: [REDACTED]
2027 (Dec)	460 MW Combustion Turbine Capacity Cost: [REDACTED] Energy Cost: [REDACTED]

[END CONFIDENTIAL]

Duke Energy Carolinas, LLC - Avoided Cost Information
Docket No. E-100, Sub 158

Notes:

Capacity (MW) reflects winter rating.

Capacity cost based on generic unit assumptions and expressed in overnight in-service year dollars (excluding AFUDC) unless otherwise noted.

Energy cost represented in the first full year of operation of the asset.

Energy cost includes fuel and variable O&M.

CHP energy cost includes revenues from steam sales.

Energy Storage capital cost based on 5 MW Li-ion battery for 2019 and 20 MW Li-ion battery for all other years.

Energy Storage energy costs have no generation cost because the fuel is burned by other units to charge the battery. Additionally, no variable O&M cost is modeled, so the generation cost shows up as zero cost.

ESTIMATED CAPACITY AND ENERGY COSTS FOR PLANNED FIRM PURCHASES

The undesignated renewable resource additions listed under the 292.302(b)(2) requirement involve additions of large numbers of small power producers that will be subject to capacity and energy rates that will be negotiated or in place at the time the agreements are signed.

ESTIMATED AVOIDED ENERGY COSTS
18 C.F.R. § 292.302(b)(1)

The estimated avoided cost on the electric utility's system, solely with respect to the energy component, for various levels of purchases from qualifying facilities. Such levels of purchases shall be stated in blocks of not more than 100 megawatts for systems with peak demand of 1,000 megawatts or more, and in blocks equivalent to not more than 10 percent of the system peak demand for systems of less than 1,000 megawatts. The avoided costs shall be stated on a cents per kilowatt-hour basis, during daily and seasonal peak and off-peak periods, by year, for the current calendar year and each of the next five years.

RESPONSE:

NON-SUMMER AVERAGE AVOIDED ENERGY COST BY PERIOD (¢/kWh)

[BEGIN CONFIDENTIAL]

Year	Average Morning On-Peak Hours	Average Evening On-Peak Hours	Average Off-Peak Hours
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2019			
2020			
2021			
2022			
2023			

[END CONFIDENTIAL]

SUMMER AVERAGE AVOIDED ENERGY COST BY PERIOD (¢/kWh)

[BEGIN CONFIDENTIAL]

Year	Average On-Peak Hours	Average Off-Peak Hours
2018		
2019		
2020		
2021		
2022		
2023		

[END CONFIDENTIAL]

Notes:

Energy costs are expressed in nominal dollars.

HOUR DEFINITIONS

Season	Period	Days	Months	Hours
Non-Summer	On-Peak Morning	Mon – Fri ¹	Oct – Apr	5:00 am – 9:00 am
Non-Summer	On-Peak Evening	Mon – Fri ¹	Oct – Apr	5:00 pm – 12:00 am
Non-Summer	Off-Peak	Mon – Fri Sat – Sun	Oct – Apr Oct – Apr	Remaining Hours + Holidays All Hours ²
Summer	On-Peak	Mon – Fri ¹	May - Sept	1:00 pm – 12:00 am
Summer	Off-Peak	Mon – Fri Sat – Sun	May – Sept May – Sept	Remaining Hours + Holidays All Hours ²

Notes:

- 1) Excludes holidays considered as off-peak (New Year's Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and the day after, and Christmas Day).
- 2) When one of the above holidays falls on a Saturday, the Friday before will be considered off-peak; when the holiday falls on a Sunday, the following Monday will be considered off-peak.

FUTURE RESOURCE ADDITIONS
18 C.F.R. § 292.302(b)(2)

The electric utility's plan for the addition of capacity by amount and type, for purchases of firm energy and capacity, and for capacity retirements for each year during the succeeding 10 years.

RESPONSE:

PROPOSED RESOURCE CAPACITY ADDITIONS

Year	Winter Capacity (MW)	Description (Date Installed)
2019	12	Energy Storage (December 2018)
2020	560 12	Asheville Combined Cycle (November 2019) Energy Storage (December 2019)
2021	22 14	Combined Heat and Power (December 2020) Energy Storage (December 2020)
2022	14	Energy Storage (December 2021)
2023	16	Energy Storage (December 2022)
2024	16	Energy Storage (December 2023)
2025	1,338 16	Combined Cycle (December 2024) Energy Storage (December 2024)
2026		
2027	1,338	Combined Cycle (December 2026)
2028		

PROPOSED RESOURCE CAPACITY RETIREMENTS

Year	Winter Capacity (MW)	Description (Date Retired)
2020	384	Asheville 1, 2 (November 2019)
2021	514	Darlington CTs 1-4, 6-8, 10 (December 2020)
2025	68	Blewett CTs 1-4 (December 2024)
2025	164	Weatherspoon CTs 1-4 (December 2024)

PROPOSED RENEWABLES PURCHASE CAPACITY ADDITIONS

DEP Base Renewables – Compliance + Non-Compliance Nameplate MW			
	Solar	Biomass/Hydro	Total
2019	2,607	266	2,873
2020	2,744	266	3,010
2021	3,051	120	3,171
2022	3,476	115	3,591
2023	3,570	103	3,673
2024	3,760	102	3,862
2025	3,940	73	4,013
2026	3,919	73	3,992
2027	3,899	67	3,966
2028	3,879	14	3,893

PROPOSED SHORT-TERM MARKET PURCHASES

Year	Winter Capacity (MW)	Description
2020	30	Short-term market purchase
2021	590	Short-term market purchase
2022	590	Short-term market purchase
2023	430	Short-term market purchase
2024	430	Short-term market purchase

Notes:

- Data Source: 2018 Base Case used for Avoided Cost standard offer rates filed in NCUC Docket No. E-100, Sub 158.
- The year is the year in which the capacity impacts the winter peak.
- All retirements are for planning purposes only.
- The date retired is the month and year that the asset is taken out of service.
- Retirement dates based on depreciation study approved in the recent rate case.
- Solar includes 0.5% per year degradation.
- Renewables capacity listed excludes REC-Only contracts.

CAPITAL AND ENERGY COSTS OF PLANNED ADDITIONS
18 C.F.R. § 292.302(b)(3)

The estimated capacity costs at completion of the planned capacity additions and planned capacity firm purchases, on the basis of dollars per kilowatt, and the associated energy costs of each unit, expressed in cents per kilowatt-hour. These costs shall be expressed in terms of individual generating units and of individual planned firm purchases.

RESPONSE:

ESTIMATED CAPITAL AND ENERGY COSTS FOR PLANNED CAPACITY ADDITIONS

[BEGIN CONFIDENTIAL]

2018 (Dec)	12 MW Energy Storage Capacity Cost: [REDACTED] Energy Cost: [REDACTED]
2019 (Nov)	560 MW Asheville CC Capacity Cost: [REDACTED] Energy Cost: [REDACTED]
2019 (Dec)	12 MW Energy Storage Capacity Cost: [REDACTED] Energy Cost: [REDACTED]
2020 (Dec)	22 MW Combined Heat and Power Capacity Cost: [REDACTED] Energy Cost: [REDACTED]
2020 (Dec)	14 MW Energy Storage Capacity Cost: [REDACTED] Energy Cost: [REDACTED]
2021 (Jan)	600 MW Short-term Market Purchase Capacity Cost: N/A Energy Cost: N/A
2021 (Dec)	14 MW Energy Storage Capacity Cost: [REDACTED] Energy Cost: [REDACTED]
2022 (Jan)	600 MW Short-term Market Purchase Capacity Cost: N/A Energy Cost: N/A
2022 (Dec)	16 MW Energy Storage Capacity Cost: [REDACTED] Energy Cost: [REDACTED]
2023 (Jan)	430 MW Short-term Market Purchase Capacity Cost: N/A Energy Cost: N/A

[CONFIDENTIAL CONTINUED]

2023 (Dec)	16 MW Energy Storage Capacity Cost: [REDACTED] Energy Cost: [REDACTED]
2024 (Jan)	430 MW Short-term Market Purchase Capacity Cost: N/A Energy Cost: N/A
2024 (Dec)	1,338 MW Combined Cycle Capacity Cost: [REDACTED] Energy Cost: [REDACTED]
2024 (Dec)	16 MW Energy Storage Capacity Cost: [REDACTED] Energy Cost: [REDACTED]
2026 (Dec)	1,338 MW Combined Cycle Capacity Cost: [REDACTED] Energy Cost: [REDACTED]

[END CONFIDENTIAL]

Notes:

- Capacity (MW) reflects winter rating.
- Capacity cost based on generic unit assumptions and expressed in overnight in-service year dollars (excluding AFUDC) unless otherwise noted.
- Energy cost represented in the first full year of operation of the asset.
- Energy cost includes fuel and variable O&M.
- CHP energy cost includes revenues from steam sales.
- Energy Storage cost based on 20 MW Li-ion Battery.
- Energy Storage energy costs have no generation cost because the fuel is burned by other units to charge the battery. Additionally, no variable O&M cost is modeled, so the generation cost shows up as zero cost.
- Asheville CC capital cost estimates are based on CPCN filing in NCUC Docket No. E-2, Sub 1089 (expressed in nominal dollars and exclude AFUDC).
- Short-term market purchases are placeholders. A Request for Proposals to meet this need was issued on August 27, 2018 and closed on September 24, 2018. Analysis is underway with expectations of contract completion by the first quarter of 2019.

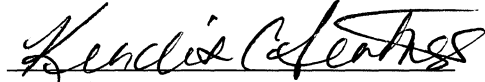
ESTIMATED CAPACITY AND ENERGY COSTS FOR PLANNED FIRM PURCHASES

The undesignated renewable resource additions listed under the 292.302(b)(2) requirement involve additions of large numbers of small power producers that will be subject to capacity and energy rates that will be negotiated or in place at the time the agreements are signed.

CERTIFICATE OF SERVICE

I certify that a copy of Duke Energy Carolinas, LLC and Duke Energy Progress, LLC's 18 CFR 292.302 Filing, 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 1st day of November 2018.



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