

# SOUTHERN ENVIRONMENTAL LAW CENTER

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June 14, 2021

***Via Electronic Filing***

Ms. Kim Campbell, Chief Clerk  
North Carolina Utilities Commission  
430 North Salisbury Street  
Dobbs Building  
Raleigh, NC 27603-5918

Re: Docket No. E-7, Sub 1250  
Cross-examination Exhibits

Dear Ms. Campbell:

Pursuant to the Commission's March 18, 2021 *Order Scheduling Hearing, Requiring Filing of Testimony, Establishing Discovery Guidelines and Requiring Public Notice*, the Sierra Club is filing the following cross-examination exhibits that were identified during the June 1, 2020 hearing:

Sierra Club Cross Exhibit 1: DEC Response to Sierra Club DR1-8

Sierra Club Cross Exhibit 2: DEC Response to Sierra Club DR1-4

Sierra Club Cross Exhibit 3: DEC Response to Sierra Club DR1-9

Sierra Club Cross Exhibit 4: DEC Response to Sierra Club DR1-3

Sierra Club Cross Exhibit 5: DEC Response to Sierra Club DR1-11

Several of the exhibits have been marked as confidential; however, the Company's counsel has confirmed that the exhibits are not confidential in their current form. Please do not hesitate to contact me with any questions.

Sincerely,  
s/ Tirrill Moore

TM  
cc: Parties of Record

**CONFIDENTIAL**

**Duke Energy Carolinas, LLC**  
**Docket No. E-7, Sub 1250**  
**Fuel and Fuel-Related Cost Proceeding**  
**Test Year Ended December 31, 2020**  
**SIERRA CLUB Data Request No. 1-8**

**REQUEST:**

Regarding the development of the Company's hourly unit commitment and dispatch decisions):

- a. Indicate which production costs are considered variable on a short-term basis by the Company for the purposes of deciding generator commitment status at each coal unit (e.g., fuel costs, variable operations and maintenance costs, emission costs, effluent costs, etc.)
- b. Indicate which production costs are considered fixed on short-term basis by the Company for the purposes of deciding generator commitment status at each coal unit (e.g., fuel costs, variable operations and maintenance costs, emissions costs, effluent costs, etc.).
- c. Identify if there are any fuel costs for DEC's coal units that the Company considers fixed for the purposes of commitment, dispatch, or both. Provide a detailed explanation of how the fixed component is determined and provide a workpaper demonstrating the fixed and variable breakdown.
- d. Please explain how unit start-up and shut-down times and costs are incorporated into DEC's unit commitment and dispatch decision-making.

**CONFIDENTIAL RESPONSE:**

- a. The production costs considered variable, regardless of term, for the purpose of modeling the Company's unit commitment plan for each of the Company's coal units are: 1) fuel, which is the market price of fuel plus variable transportation costs; 2) reagents/byproduct costs, 3) emissions; and, 4) variable O&M.
- b. The production costs considered fixed, regardless of term, for each of the Company's coal units are fixed transportation costs. Fixed costs are not a factor in the Company's generator commitment decisions.
- c. Fixed costs are not a factor in the Company's generator commitment decisions.

d. Start up and shut down times are inputs to the unit commitment modeling software (GenTrader) and act as a constraint when minimizing total anticipated production cost over a 7 day study period. Only fast start (generally 30 minutes or less) units are a factor in dispatch decision making.

**Duke Energy Carolinas, LLC**  
**Docket No. E-7, Sub 1250**  
**Fuel and Fuel-Related Cost Proceeding**  
**Test Year Ended December 31, 2020**  
**SIERRA CLUB Data Request No. 1-4**

**REQUEST:**

Refer to the response to 1.3, above. For each hour in which DEC's coal units were committed, indicate if this commitment was for purposes of maintaining reliability. Provide this information hourly for both 2019 and the 2020 test year, for each of DEC's coal units.

- a. Produce any documentation or workpapers that supports the determination that the unit was necessary for purposes of reliability.

**RESPONSE:**

The Company objects to the request for data from 2019 as it is outside of the period dates for the Fuels Hearing. In addition, the Company objects to the request for data for 2020 as it seeks information that is confidential, competitive or proprietary information. Notwithstanding and without waiving that objection, see response to request 1.3c, which provides a spreadsheet showing designation of commitment status for DEC's coal units.

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**Duke Energy Carolinas, LLC**  
**Docket No. E-7, Sub 1250**  
**Fuel and Fuel-Related Cost Proceeding**  
**Test Year Ended December 31, 2020**  
**SIERRA CLUB Data Request No. 1-9**

**REQUEST:**

Regarding DEC's unit commitment decision process for its coal units during the test year 2020:

- a. Describe, in detail, the process used by DEC to determine commitment status of long-lead time units, including considerations, if any, of fuel cost, variable O&M cost, emissions cost, system lambda forward projections, startup / shutdown cost(s), and other considerations.
- b. Indicate whether the Company performs economic analysis to inform the unit commitment decision for its coal units (i.e., decision whether to operate and commit a unit or take it offline).
  - i. If not, explain why not.
  - ii. If so, provide all such analysis conducted during the test year 2020 in native, machine readable format.
- c. To the extent that the Company uses a spreadsheet or calculation to determine commitment status of long-lead time units, provide all spreadsheets for the test year 2020.
  - i. Identify all category of costs and revenues accounted for in such analysis.
  - ii. Identify whether such analyses are conducted differently for periods immediately preceding or following unit outages, and explain any differences.
  - iii. Indicate the timeframe over which the Company evaluates whether a unit's commitment decision maximizes a unit's economic value to customers.
- d. Please provide all internal documents and reports created for, or during, the time period January 1, 2020 – December 31, 2020 that discuss the Company's unit commitment and dispatch practices, strategies, and outcomes.
- e. If the Company does not use a spreadsheet mechanism, provide an example of the process used with as much granular detail as possible.
- f. To the extent that it differs from the answers above, also provide this information for the year 2019.

**CONFIDENTIAL SUPPLEMENTAL RESPONSE for 1-9b:**

See attached file "1-9b 2020 Unit Loading Report CONFIDENTIAL.zip". These are Unit Loading Forecasts. These are the result of our GenTrader unit commitment and dispatch planning studies.

**CONFIDENTIAL RESPONSE:**

a. The Company performs a detailed daily process to determine the unit commitment plan that economically and reliably meets its projected system needs. To do this, the Company utilizes a production cost model called GenTrader to determine an optimal unit commitment plan to economically and reliably meet system requirements. Inputs to the model include, but are not limited to, the following: 1) forecasted customer energy demand; 2) fuel commodity and emission allowance market prices; 3) contractual obligations including power market purchases and sales; 4) generating unit parameters such as, but not limited to, minimum load, maximum load, heat rate, ramp rate, variable O&M, start-up costs and shut-down costs, and 5) planned unit outages and unit de-rates. The production cost model output provides a unit commitment plan that is utilized to dispatch the generation fleet to minimize production costs while ensuring reliability over the 7-day forecast period. The unit commitment plan is prepared daily and adjusted, as needed, throughout any given day to respond to changing real time system conditions as outlined in Section 4.3 of the CONFIDENTIAL attachment referenced in 1-9d.

b. As described above in 1-9a, the Company performs a detailed daily process, that includes its coal units, to determine the unit commitment plan that economically and reliably meets its projected system needs.

i. N/A

ii. The Company objects to this request as it is vague, overly broad and unduly burdensome, and not reasonably calculated to lead to the discovery of relevant or admissible evidence.

c. As described above in 1-9a, the Company utilizes a proprietary third-party model called GenTrader which was purchased by Duke Energy for use in production cost modeling, including modeling its unit commitment plan to economically and reliably meet system requirements over the 7-day forecast period.

i. See 1-8a and 1-9a

ii. As described above in 1-9a the unit commitment model includes planned unit outages and unit de-rates as part of the daily model run.

iii. As described above in 1-9a the unit commitment plan is prepared daily for the next 7-day period and adjusted, as needed, throughout any given day to respond to changing real time system conditions.

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d. See attached CONFIDENTIAL Carolinas Economic Dispatch Procedure.



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1-9d CONFIDENTIAL

e. DEC cannot provide the requested model due to the proprietary and commercially sensitive nature of the proprietary third-party model purchased by Duke Energy for use in production cost modeling. DEC therefore objects to this request as it seeks information that is confidential, competitive or proprietary information, is outside the scope of the proceeding and is not reasonably calculated to lead to the discovery of relevant or admissible evidence.

Notwithstanding and without waiving that objection, see the response to request 1.9a above.

f. N/A

**CONFIDENTIAL****Duke Energy Carolinas, LLC****Docket No. E-7, Sub 1250****Fuel and Fuel-Related Cost Proceeding****Test Year Ended December 31, 2020****SIERRA CLUB Data Request No. 1-3****REQUEST:**

For each of Duke Energy Carolina's coal-fired generating units at Allen, Marshall, Cliffside, and Belews Creek, please provide the following hourly information for the year 2019 and the test year 2020. If not available at an hourly scale, explain why not and provide at the most temporally granular scale available.

- a. Net generation (MWh)
- b. System lambda (\$/MWh)
- c. Designation of commitment status for each of DEC's thermal steam unit (i.e. economically committed, must run, testing, emergency, etc. or whatever designations are used by DEC)
- d. Marginal (variable) fuel costs (\$/MWh)
- e. Marginal variable costs of production (\$/MWh), including fuel, variable O&M, and any other variable operating costs used for the purposes of unit commitment and dispatch.
- f. Accounting fuel costs (\$/MWh)
- g. Accounting variable costs of production (\$/MWh), including fuel, variable O&M, and any other variable operating costs as used for the purposes of cost recovery.
- h. Heat rate (Btu/kWh)
- i. Economic minimum level (MW)
- j. Fuel Burned

**CONFIDENTIAL RESPONSE:**

The Company objects to the request for data from 2019 as it is outside of the period dates for the Fuels Hearing.

- a. Please see file CONFIDENTIAL 2021 SCDR 1.3a\_d\_e\_j DEC Coal Unit Fuel Detail



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b. Please see file CONFIDENTIAL 2021 SCDR 1.3b DEC INCDEC Prices



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c. Please see file CONFIDENTIAL 2021 SCDR 1.3c DEC Coal Unit Constraints Final



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d. Please see file CONFIDENTIAL 2021 SCDR 1.3a\_d\_e\_j DEC Coal Unit Fuel Detail

e. Please see file CONFIDENTIAL 2021 SCDR 1.3a\_d\_e\_j DEC Coal Unit Fuel Detail

f. The request seeks an analysis, calculation, or compilation which has not already been performed. Instead please see attached CONFIDENTIAL monthly average cost of generation (\$/MWh) of the Company's coal-fired generating units for the test period January 2020 through December 2020.



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g. Object as the request seeks an analysis, calculation, or compilation which has not already been performed and is not reasonably calculated to lead to the discovery of relevant or admissible evidence.

h. Please see file CONFIDENTIAL 2021 SCDR 1.3h DEC Coal Unit Heat Rates



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i. See answer to 1.6i



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j. Please see file CONFIDENTIAL 2021 SCDR 1.3a\_d\_e\_j DEC Coal Unit Fuel Detail

**Duke Energy Carolinas, LLC**  
**Docket No. E-7, Sub 1250**  
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**Test Year Ended December 31, 2020**  
**SIERRA CLUB Data Request No. 1-11**

**REQUEST:**

Regarding DEC's operation of its system under the Joint Dispatch Agreement with DEP.

- a. Provide the hourly production costs used for purposes of unit commitment and dispatch for each DEC and DEP unit dispatched under the Joint Dispatch Agreement for year 2019 and the 2020 test year.

**RESPONSE:**

DEC objects to this request as it is overly broad and unduly burdensome, and not reasonably calculated to lead to the discovery of relevant or admissible evidence. Additionally, the Company objects to the request for data from 2019 as it is outside of the period dates for the Fuels Hearing.