



**NORTH CAROLINA  
PUBLIC STAFF  
UTILITIES COMMISSION**

January 17, 2020

Ms. Kimberley A. Campbell, Chief Clerk  
North Carolina Utilities Commission  
4325 Mail Service Center  
Raleigh, North Carolina 27699-4300

Re: Docket No. E-2, Sub 1204 – Application of Duke Energy Progress, LLC pursuant to G.S. 62-133.2 and Commission Rule R8-55 relating to Fuel and Fuel-related Charge Adjustments for Electric Utilities

Dear Ms. Campbell:

In connection with the above-referenced docket, I transmit herewith for filing on behalf of the Public Staff the Supplemental Testimony of Jay B. Lucas, Utilities Engineer, Electric Division.

By copy of this letter, I am forwarding a copy of the public version to all parties of record by electronic delivery. The confidential pages will be provided to those parties that have entered into a confidentiality agreement.

Sincerely,

/s/ Dianna W. Downey  
Staff Attorney  
[dianna.downey@psncuc.nc.gov](mailto:dianna.downey@psncuc.nc.gov)

DWD/cla

Attachment

|   |  |  |                                      |   |
|---|--|--|--------------------------------------|---|
| <b>Executive Director</b><br>(919) 733-2435 | <b>Communications</b><br>(919) 733-5610    | <b>Economic Research</b><br>(919) 733-2267 | <b>Legal</b><br>(919) 733-6110       | <b>Transportation</b><br>(919) 733-7766 |
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Jan 17 2020

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-2, SUB 1204

|  |   |   |
|--|---|---|
| In the Matter of   | ) |   |
| Application by Duke Energy Progress, LLC, Pursuant to G.S. 62-133.2 and Commission Rule R8-55 Regarding Fuel and Fuel-Related Costs Adjustments for Electric Utilities | ) | SUPPLEMENTAL TESTIMONY<br>OF JAY B. LUCAS<br>PUBLIC STAFF – NORTH<br>CAROLINA UTILITIES<br>COMMISSION |

**BEFORE THE NORTH CAROLINA UTILITIES COMMISSION**

**DOCKET NO. E-2, SUB 1204**

**Supplemental Testimony of Jay B. Lucas**

**On Behalf of the Public Staff**

**North Carolina Utilities Commission**

**January 17, 2020**

1 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND PRESENT**  
2 **POSITION.**

3 A. My name is Jay B. Lucas. My business address is 430 North Salisbury  
4 Street, Dobbs Building, Raleigh, North Carolina. I am an engineer with the  
5 Electric Division of the Public Staff – North Carolina Utilities Commission.

6 **Q. BRIEFLY STATE YOUR QUALIFICATIONS AND DUTIES.**

7 A. My qualifications and duties are included in Appendix A.

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

9 A. The purpose of my testimony is to present to the Commission the Public  
10 Staff's response to the Commission's order in this docket dated November  
11 25, 2019 (Order). In that order, the Commission determined that certain  
12 costs associated with the settlement of a lawsuit arising out of a gypsum  
13 supply agreement dispute with CertainTeed Gypsum NC, Inc.  
14 (CertainTeed) are recoverable through the fuel adjustment clause. The

1 Commission directed the Public Staff to conduct an analysis of the prudence  
2 and reasonableness of Duke Energy Progress, LLC's, (DEP or the  
3 Company) decisions and actions in connection with the Second Amended  
4 and Restated Supply Agreement (2012 Agreement), which was the subject  
5 of the lawsuit, including an analysis of the effects, if any, of the Joint  
6 Dispatch Agreement (JDA) between DEP and Duke Energy Carolinas, LLC  
7 (DEC), the consistent decline in natural gas prices, and the conversion to  
8 natural gas-fired generation, and to file testimony explaining its analysis and  
9 stating its opinion.

10 **Q. HAS THE PUBLIC STAFF PERFORMED RESEARCH AND ANALYSIS**  
11 **IN COMPLIANCE WITH THE ORDER?**

12 A. Yes. The Public Staff has performed research and analysis to determine  
13 what DEP knew or should have known when it executed the 2012  
14 Agreement on August 1, 2012. The Public Staff has gathered data from the  
15 following:

- 16 • 2010 Avoided Cost proceeding (Docket No. E-100, Sub 127).
- 17 • 2012 Avoided Cost proceeding (Docket No. E-100, Sub 136).
- 18 • 2012 DEC-PEC Merger proceeding (Docket Nos. E-2, Sub 998 and  
19 E-7, Sub 986).
- 20 • The Certificate of Public Convenience and Necessity (CPCN)  
21 dockets for the Buck Combined Cycle (CC) (Docket No. E-7, Sub  
22 791), Dan River CC (Docket No. E-7, Sub 832), H.F. Lee CC (Docket

1 No. E-2, Sub 960), and Sutton CC (Docket No. E-2, Sub 968) gas-  
2 fired generating facilities.

- 3 • DEP's response to data requests sent by the Public Staff and the  
4 Fayetteville Public Works Commission, which included exhibits and  
5 trial transcripts from the CertainTeed lawsuit.<sup>1</sup>

6 **Q. PLEASE PROVIDE SOME BACKGROUND INFORMATION REGARDING**  
7 **THE GYPSUM SUPPLY AGREEMENT BETWEEN CERTAINTEED AND**  
8 **DEP.**

9 A. According to the Opinion and Final Judgment in the lawsuit (FPWC  
10 Harrington Exhibit 3) (Judgment), CertainTeed and DEP first entered into a  
11 gypsum supply agreement in 2004. At that time, DEP was planning to install  
12 flue gas desulfurization systems (scrubbers) that would produce synthetic  
13 gypsum at its Roxboro and Mayo coal-fired plants, and CertainTeed was  
14 seeking to build its first wallboard-manufacturing plant in the Southeast  
15 United States.<sup>2</sup> The 2004 Agreement defined the monthly minimum  
16 quantity (MMQ) as 50,000 net dry tons of gypsum to be delivered and  
17 accepted monthly.<sup>3</sup> However, the parties never actually delivered and

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<sup>1</sup> *CertainTeed Gypsum NC, Inc., v. Duke Energy Progress, LLC*, Person County Superior Court No. 17 CVS 395. The Opinion and Final Judgment in the case was entered into evidence in this docket as FPWC Harrington Exhibit 3.

<sup>2</sup> Judgment ¶3. Further details regarding the beginning of the contractual relationship between CertainTeed and DEP are found in paragraphs 35 through 52 of the Judgment.

<sup>3</sup> Judgment ¶48.

1           accepted gypsum under this agreement before it was superseded by the  
2           agreement executed in 2008.<sup>4</sup>

3           In 2008, the parties executed an amended agreement (2008 Agreement)  
4           following CertainTeed's decision to delay construction of its plant because  
5           of the 2008 economic downturn.<sup>5</sup> The trial court found that under the 2008  
6           Agreement, CertainTeed was required to accept and DEP was required to  
7           deliver the MMQ of 50,000 net dry tons of gypsum.<sup>6</sup>

8           DEP witness Coppola testified during the CertainTeed trial that the  
9           scrubbers began coming on line in spring 2007 at Roxboro; every six  
10          months an additional scrubber came on line at each of the five units at  
11          Roxboro and Mayo, with the final scrubber coming on line in the spring of  
12          2009.

13       **Q.    PLEASE DESCRIBE THE NEGOTIATION AND EXECUTION OF THE**  
14       **2012 AGREEMENT.**

15       A.    CertainTeed witness Dave Englehardt testified during the CertainTeed trial  
16          that after 2008, CertainTeed changed the design of its plants, specifically  
17          the feeding system, and needed to update the agreement to account for  
18          those changes. Having observed the way CertainTeed and DEP operated  
19          over the previous couple of years, Englehardt had some thoughts on how

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<sup>4</sup> Judgment ¶¶53.

<sup>5</sup> Judgment ¶3.

<sup>6</sup> Judgment ¶¶ 87-88.

1 to try to make the agreement more usable and build in some flexibility to  
2 cover variations. He had observed that production volumes on DEP's side  
3 varied and CertainTeed's market varied. In response to data requests, DEP  
4 provided actual production volumes for Roxboro and Mayo for 2008-2012,  
5 as reflected in **Lucas Supplemental Exhibit 1**. The actual numbers  
6 produced by DEP confirm that production volumes did in fact vary. Mr.  
7 Englehardt suggested using the stockpile to absorb variations, and then  
8 adjust the annual volumes. Englehardt provided a list of proposed  
9 modifications to the 2008 Agreement to DEP witness Coppola, which is  
10 attached as **Confidential Lucas Supplemental Exhibit 2**.

11 CertainTeed witness Englehardt sent a draft to DEP on October 20, 2011,  
12 in which he proposed changing to an annual production philosophy with the  
13 stockpile as buffer, ranging between a low of 100,000 tons to a maximum  
14 of 600,000 tons. According to witness Englehardt, approximately a week  
15 later, he had a telephone conversation with DEP witness Coppola, and she  
16 told him that DEP preferred to stay with the MMQ as it was stated in the  
17 2008 Agreement. In an email to Englehardt dated October 24, 2011, witness  
18 Coppola stated, "In general, we would like to leave the volume obligation as  
19 is." That e-mail is attached as **Confidential Lucas Supplemental Exhibit 3**.

20 On February 20 2012, witness Coppola sent back DEP's changes to  
21 CertainTeed's draft. According to witness Englehardt, DEP basically  
22 rejected CertainTeed's flexibility proposals, expressing a preference to

1 maintain the supply quantity as it existed. The 2012 Agreement was  
2 executed with an effective date of August 1, 2012.<sup>7</sup>

3 The trial court in the Judgment found that on August 17, 2012, witness  
4 Coppola emailed her supervisors a summary of the major changes to the  
5 2012 Agreement. Coppola stated that there were “[n]o changes to the  
6 original intent of the document,” explaining that the “primary changes” made  
7 in the 2012 Agreement reflected the parties’ agreement that CertainTeed  
8 could install additional equipment in the storage area. The court noted that  
9 Coppola repeatedly stated that the volume obligations did not change,  
10 concluding that “[n]o changes to Article 3 – Gypsum Sales – this is important  
11 because there has been no change to the obligation to deliver material in  
12 the original volumes specified” and “[a]gain, the original terms around  
13 pricing and volumes remained untouched.”<sup>8</sup>

14 **Q. WHAT HAPPENED AFTER THE EXECUTION OF THE 2012**  
15 **AGREEMENT?**

16 A. Several events led to the reduced dispatch of the Roxboro and Mayo plants  
17 and, as a result, the decreased production of artificial gypsum below the  
18 amounts required in the 2012 Agreement by March 2017. The causes of  
19 reduced dispatch of the Roxboro and Mayo plants were: (1) DEP’s JDA with

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<sup>7</sup> See also Judgment ¶¶93-106.

<sup>8</sup> Judgment ¶116. DEP took the position, and witness Coppola testified at trial, that DEP actually intended to change the MMQ to a variable quantity. The trial court found that this claim was not credible. Judgment ¶119.



1 Duke Energy Carolinas, LLC, (2) low natural gas prices, and (3) the large  
2 increase in natural gas-fired combined cycle capacity. I discuss my further  
3 research and analysis of these events in more detail later in my testimony.

4 Because of DEP's reduced supply of artificial gypsum, CertainTeed filed a  
5 lawsuit against DEP. The court sided with CertainTeed and required DEP  
6 to: (1) pay approximately \$1 million, together with interest (the Judgment  
7 Payment), (2) deliver approximately 120,000 tons of gypsum within 30 days  
8 of the Judgment, and (3) provide a gypsum replenishment plan within 90  
9 days of the Judgment. After the Judgment was entered, DEP and  
10 CertainTeed reached a settlement in which DEP agreed to pay liquidated  
11 damages. **[BEGIN CONFIDENTIAL]** [REDACTED]

12 [REDACTED]

13 [REDACTED] **[END CONFIDENTIAL]**

14 DEP seeks to recover the Judgment Payment and the related annual  
15 liquidated damages from ratepayers. DEP proposes to recover the costs as  
16 the amounts are paid to CertainTeed. DEP's request in this case, on a  
17 system-wide basis, is \$8.4 million for the billing period, or approximately  
18 \$5.2 million for its North Carolina retail jurisdiction.

19 **Q. DOES THE PUBLIC STAFF BELIEVE THAT DEP'S SETTLEMENT WITH**  
20 **CERTAINTEED WAS THE BEST FINANCIAL OPTION FOR**  
21 **CUSTOMERS AFTER THE TRIAL COURT'S RULING?**

1 A. Yes. The settlement was less expensive than for DEP to dispatch the  
2 Roxboro and Mayo plants ahead of less expensive operating plants in order  
3 to produce more artificial gypsum. The settlement was also less expensive  
4 than hauling artificial gypsum from other plants. The Mayo plant is 16 road  
5 miles from the Roxboro plant and was able to cost effectively move artificial  
6 gypsum to the Roxboro stockpile. However, the next closest power plant  
7 with flue gas desulfurization equipment is the Belews Creek plant at 72 road  
8 miles away. The increased distance reduced the cost effectiveness of  
9 moving artificial gypsum from the Belews Creek plant to the Roxboro  
10 stockpile. Also, DEC had committed to the transfer of artificial gypsum from  
11 the Belews Creek plant to other entities.

12 **Q. DOES THIS MEAN THAT DEP SHOULD BE ABLE TO RECOVER THE**  
13 **JUDGMENT PAYMENT AND LIQUIDATED DAMAGES FROM**  
14 **RATEPAYERS?**

15 A. No, that is not the end of the inquiry, and the Commission recognized this  
16 in its Order. The Public Staff believes that the Commission should look at  
17 what DEP knew, or should have known, at the time DEP entered into the  
18 2012 Agreement to determine whether it was reasonable and prudent for  
19 DEP to enter into an agreement that committed DEP to furnish 50,000 tons  
20 of gypsum a month to CertainTeed over the next 20 years.

1 Q. PLEASE DESCRIBE THE PUBLIC STAFF'S RESEARCH ON THE  
2 AVOIDED COST PROCEEDINGS IN MORE DETAIL AND HOW THAT  
3 RESEARCH IMPACTS THE PUBLIC STAFF'S ANALYSIS IN THIS  
4 CASE.

5 A. DEP provided responses to data requests in the 2010 and 2012 Avoided  
6 Cost proceedings, respectively. These responses, in part, provided DEP's  
7 planned dispatch of coal-fired units as a percent of total energy production  
8 in future years, as shown in Lucas Table 1 below:

| <b>Lucas Table 1 – Percent of Planned Coal Plant Dispatch in<br/>Avoided Cost Proceedings</b> |                        |                        |                 |
|---|------------------------|------------------------|-----------------|
| <b>Plan<br/>Year</b>  | <b>2010 Proceeding</b> | <b>2012 Proceeding</b> | <b>Decrease</b> |
| 2011  | 92                     |                        |                 |
| 2012  | 93                     |                        |                 |
| 2013  | 86                     | 68                     | 18              |
| 2014  | 80                     | 55                     | 25              |
| 2015  | 67                     | 56                     | 11              |
| 2016  | 65                     | 59                     | 6               |
| 2017  | 63                     | 59                     | 4               |

9 As shown in Lucas Table 1 above, DEP anticipated that coal dispatch would  
10 play less and less of a role in meeting energy requirements when it filed its  
11 2012 Avoided Cost proceeding data on June 25, 2012, more than two

1 months before signing the 2012 Agreement on August 1, 2012.<sup>9</sup> In other  
2 words, DEP knew that coal plants were going to be dispatched less,  
3 resulting in reduced gypsum production, and should have taken that  
4 information into account when negotiating and signing the 2012 Agreement.

5 **Q. PLEASE DESCRIBE THE PUBLIC STAFF'S RESEARCH AND**  
6 **ANALYSIS ON THE DEC-DEP (FORMERLY PEC) MERGER**  
7 **PROCEEDING IN MORE DETAIL.**

8 A. The Public Staff reviewed documents of the merger proceeding to  
9 determine what DEP should have known before signing the 2012  
10 Agreement.

11 On April 4, 2011, DEC and DEP filed an application with the Commission to  
12 merge the two companies under single ownership. Pages 8 and 9 of the  
13 application state:

14 The centralized economic dispatch of [DEP's] and DEC's  
15 generation assets to serve their Carolinas customers is  
16 estimated to reduce the combined company's fuel costs by  
17 approximately \$364 million over the five-year period 2012-  
18 2016. These savings are the result of using the lower cost  
19 generation resources of each company to displace the  
20 higher cost resources of the other depending upon the  
21 marginal cost of production of each entity's available  
22 resources in a given hour. By transitioning to joint dispatch  
23 on a real time basis, each utility's available energy can be  
24 used to displace the other's higher cost energy whenever  
25 such a cost difference exists without regard to the size of  
26 the difference.

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<sup>9</sup> Presumably, DEP ran the models that produced these numbers well in advance of filing its 2012 Avoided Cost data.

1 On June 13, 2012, DEP filed the Further Supplemental Testimony of DEP  
2 witness Alexander J. Weintraub. On pages 3 and 4 of his testimony,  
3 Weintraub states, in part, "Roxboro and Mayo are coal plants and to the  
4 extent the operation of the JDA impacts the dispatch of Roxboro and Mayo,  
5 PEC has agreed to hold NCEMPA harmless from any negative impacts to  
6 the JDA." In the Public Staff's opinion, this statement is evidence that DEP  
7 believed that the merger could result in reduced dispatch of the Roxboro  
8 and Mayo plants when other plants such as the Belews Creek plant are  
9 dispatched. Below is Lucas Table 2 showing the relative capacity factors  
10 and heat rates of the baseload units<sup>10</sup> at the Belews Creek, Marshall,  
11 Roxboro, and Mayo plants in 2010, 2011 and 2012:

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<sup>10</sup> The units shown in Lucas Table 2 are coal-fired baseload units reported by DEC and DEP in the monthly baseload power plant performance reports required by NCUC Rule R8-53.

| Lucas Table 2 – Belews Creek, Marshall, Roxboro, and Mayo<br>Capacity Factors and Heat Rates in 2010, 2011, and 2012 |                                   |                                   |                                   |                                   |                                   |                                   |
|--|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| Plant  | 2010<br>Capacity<br>Factor<br>(%) | 2010<br>Heat<br>Rate<br>(BTU/KWH) | 2011<br>Capacity<br>Factor<br>(%) | 2011<br>Heat<br>Rate<br>(BTU/KWH) | 2012<br>Capacity<br>Factor<br>(%) | 2012<br>Heat<br>Rate<br>(BTU/KWH) |
| Belews<br>Creek  |                                   |                                   |                                   |                                   |                                   |                                   |
| Unit 1   | 85.9                              | 9,912                             | 82.0                              | 9,251                             | 83.2                              | 9,056                             |
| Unit 2   | 65.4                              | 9,367                             | 82.9                              | 9,186                             | 78.8                              | 9,211                             |
| Marshall   |                                   |                                   |                                   |                                   |                                   |                                   |
| Unit 3   | 74.4                              | 9,289                             | 68.9                              | 9,456                             | 74.7                              | 9,580                             |
| Unit 4   | 83.2                              | 9,212                             | 70.6                              | 9,336                             | 78.7                              | 9,432                             |
| Roxboro  |                                   |                                   |                                   |                                   |                                   |                                   |
| Unit 2   | 66.8                              | 8,934                             | 44.6                              | 10,024                            | 71.2                              | 10,158                            |
| Unit 3   | 80.1                              | 10,564                            | 58.9                              | 10,791                            | 60.2                              | 11,324                            |
| Unit 4   | 72.8                              | 11,666                            | 62.2                              | 10,979                            | 66.2                              | 10,269                            |
| Mayo   |                                   |                                   |                                   |                                   |                                   |                                   |
| Unit 1   | 76.6                              | 10,484                            | 55.1                              | 10,809                            | 55.1                              | 11,174                            |

1 Lucas Table 2 above demonstrates that DEC's coal units maintained a  
2 higher capacity factor and lower heat rate than DEP's coal units from 2010  
3 through 2012, which indicates they would be economically dispatched  
4 before DEP's Roxboro and Mayo units. The benefits of the DEC-DEP  
5 merger application, which was filed with the Commission in 2011, relied  
6 significantly on reduced fuel costs through joint dispatch of the joint  
7 generating fleets. Because DEP's baseload coal units had significantly

1 higher heat rates<sup>11</sup> than DEC's coal units (15% or more as shown in Lucas  
2 Table 2 above), DEP should have realized at the time of the negotiation and  
3 execution of the 2012 Agreement that the Roxboro and Mayo units were  
4 likely to be dispatched less due to the JDA.

5 Ordering Paragraph No. 3 in the Commission's order dated June 29, 2012,  
6 on the DEC-DEP merger approved the JDA. This order was issued more  
7 than two months before DEP signed the 2012 Agreement on August 1,  
8 2012.

9 **Q. PLEASE DESCRIBE THE RESULT OF PUBLIC STAFF'S REVIEW AND**  
10 **ANALYSIS OF THE CPCN DOCKETS REFERENCED ABOVE.**

11 A. When DEP and CertainTeed executed the 2012 Agreement, DEP had only  
12 two operational CC units, both at the Smith Energy Complex. However,  
13 DEC had placed its Buck CC in operation in 2011, and its Dan River CC  
14 became operational in late 2012. Both of these plants became available to  
15 supply DEP when appropriate under the terms of the JDA. Furthermore,  
16 DEP completed its H. F. Lee CC (Docket No. E-2, Sub 960) in late 2012  
17 and its Sutton CC (Docket No. E-2, Sub 968) in 2013.

18 Specifically with respect to the H.F. Lee CC, the CPCN application filed  
19 August 18, 2009 was filed under N.C. Gen. Stat. §62-110.1(h). That statute

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<sup>11</sup> The heat rate for a coal plant is indicative of the amount of coal that must be burned to generate a kWh of electricity. A unit with a relatively higher heat rate is required to burn more coal to generate the same amount of electricity as a unit with a relatively lower heat rate.

1 allowed an electric public utility to apply for an expedited CPCN if the utility  
2 was subject to the Clean Smokestacks Act, N.C. Gen. Stat. §62-143-  
3 215.107D(e); the application involves a request to construct a generating  
4 unit that uses natural gas as its primary fuel at a specific coal-fired  
5 generating site that the utility owns or operates on July 1, 2009; the coal  
6 fired-units at the site are not operated with flue gas desulfurization devices;  
7 the utility will permanently cease operations of all of the coal-fired  
8 generating units at the site on or before the completion of the generating  
9 unit that is the subject of the certificate application; and the installation of  
10 the generating unit that uses natural gas as the primary fuel allows the utility  
11 to meet the requirements of the Clean Smokestacks Act.<sup>12</sup> The  
12 Commission granted the certificate on October 22, 2009, subject to the  
13 condition that DEP cease operation of the three coal-fired generating units  
14 at the facility and that DEP submit a plan to retire additional un-scrubbed  
15 coal-fired generating capacity reasonably proportionate to the amount of  
16 incremental generating capacity authorized by the certificate above 400  
17 MW.<sup>13</sup> In its plan filed December 1, 2009, in the CPCN docket, DEP  
18 outlined a plan to retire all of its coal-fired generating facilities in North  
19 Carolina that did not have scrubbers (Sutton, Weatherspoon and Cape  
20 Fear) by December 31, 2017. As part of the plan, DEP anticipated filing for

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<sup>12</sup> N.C. Gen. Stat. §62-110.1(h) expired on its own terms effective January 1, 2011.

<sup>13</sup> DEP planned to retire approximately 400 MW of existing coal-fired generating capacity at the Lee site and to construct 950 MW of new natural gas-fired generation at the site.



1 a CPCN to construct 600 MW of natural gas-fired CC generation at Sutton.<sup>14</sup>

2 The plan was approved by order dated January 28, 2010.

3 In the CPCN application for the Sutton CC, DEP asserted that building the  
4 CC units was more cost effective when compared to the cost of continuing  
5 to operate the existing coal units, including the cost of potential  
6 environmental modifications. On June 10, 2010, the Commission granted  
7 the CPCN on the condition that DEP permanently cease operation of the  
8 coal-fired units upon completion of the construction and placement into  
9 service of the CC facility.

10 Thus, well before negotiating and executing the 2012 Agreement, DEP was  
11 aware that it was retiring coal-fired units and replacing them with natural  
12 gas-fired generation. See Lucas Table 3 below showing the capacity factors  
13 of the Sutton and H. F. Lee plants: in 2010, 2011 and 2012:

| <b>Lucas Table 3 – Sutton and H. F. Lee<br/>Capacity Factors in 2010, 2011, and 2012</b> |             |             |             |
|--|-------------|-------------|-------------|
| <b>Plant</b>   | <b>2010</b> | <b>2011</b> | <b>2012</b> |
| Sutton   | 48.1        | 31.0        | 24.7        |
| H. F. Lee  | 65.4        | 37.7        | 22.9        |

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<sup>14</sup> DEP did file for, and the Commission approved the CPCN for the Sutton CC in the Sub 968 docket.

1 Q. PLEASE DESCRIBE THE PUBLIC STAFF'S ANALYSIS OF DEP'S  
2 RESPONSES TO DATA REQUESTS IN MORE DETAIL.

3 A. In a response to a data request, DEP produced gypsum forecasts for  
4 Roxboro and Mayo. In a forecast performed on December 15, 2011, DEP  
5 was not forecasting more than 50,000 dry tons per month from Roxboro and  
6 Mayo for any month in 2012. That document is attached as **Lucas**  
7 **Supplemental Exhibit 4**.

8 DEP provided another gypsum forecast to CertainTeed on May 23, 2012  
9 (almost three months before DEP executed the 2012 Agreement). The  
10 forecast is attached as **Lucas Supplemental Exhibit 5**.<sup>15</sup> The document  
11 shows that as of May 2012, DEP was not forecasting 50,000 tons a month  
12 in gypsum production from Roxboro and Mayo through the end of 2013.

13 **Lucas Supplemental Exhibit 1** shows that for 2008, 2009, 2010, and 2011,  
14 the highest annual production at both plants combined averaged 37,748 wet  
15 tons per month (2010), which equates to about 35,280 dry tons per month.  
16 The 2012 Agreement required 50,000 dry tons per month. In 2012, the two  
17 plants averaged 51,023 wet tons per month, which equates to 47,686 dry  
18 tons per month at a 93.46% wet-to-dry reduction.

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<sup>15</sup> The data response indicated that the header on the document is incorrect.

1           These documents demonstrate that in 2012 DEP knew, or should have  
2           known, that it was not producing and was not expected to produce 50,000  
3           net dry tons of gypsum a month at Roxboro and Mayo.

4   **Q.   WHAT DOES THE PUBLIC STAFF CONCLUDE REGARDING WHAT**  
5   **DEP KNEW OR SHOULD HAVE KNOWN AT THE TIME IT ENTERED**  
6   **INTO THE 2012 AGREEMENT?**

7   A.   The events and documents described above should have alerted DEP to  
8   the risk of reduced dispatch of the Roxboro and Mayo plants and the  
9   resulting decrease in the production of artificial gypsum. Combining the  
10  projections of decreased coal unit dispatch and the replacement of coal  
11  units with CCs with the DEP gypsum projections, DEP knew or should have  
12  known before it entered into the 2012 Agreement that there was a clear risk  
13  that it could not meet the 50,000 ton MMQ that it committed to provide. The  
14  Public Staff concludes that it was unreasonable and imprudent for DEP to  
15  enter into the 2012 Agreement as it was written, especially when, as was  
16  concluded in the lawsuit, DEP was offered the opportunity to enter into a  
17  more flexible arrangement. Therefore, at least some of the costs arising out  
18  of the lawsuit with CertainTeed should be excluded from recovery.

19  **Q.   WHAT IS THE PUBLIC STAFF'S RECOMMENDATION?**

20  A.   First, the Public Staff recommends excluding the Judgment Payment of  
21  \$1,084,216 from recovery. The trial court ordered the Judgment Payment  
22  because DEP breached the 2012 Agreement by not delivering the

1 contractual amount of gypsum, and CertainTeed had to purchase gypsum  
2 at a higher cost. Ratepayers should not be asked to pay the cost of DEP's  
3 failure to provide gypsum that DEP knew or should have known it could not  
4 provide, as described above.

5 With respect to the liquidated damages, the Public Staff recognizes that  
6 DEP would have had to dispose of gypsum it did not sell to CertainTeed.

7 In 1988, DEP converted the Roxboro plant to dry ash handling and began  
8 disposing of coal ash in an on-site landfill. In 2008, DEP determined that  
9 placing artificial gypsum in the Roxboro on-site landfill would cost [BEGIN  
10 CONFIDENTIAL] [REDACTED]  
11 [END CONFIDENTIAL] as shown in Confidential Lucas Supplemental  
12 Exhibit 6.

13 Public Staff sent DEP a data request asking for analyses undertaken by  
14 DEP related to the CertainTeed contract, and specifically the analysis that  
15 DEP contended that showed customers benefitted as a result of DEP's  
16 payment of liquidated damages. DEP's response produced the calculations  
17 that allegedly showed the settlement provided a net benefit to customers.<sup>16</sup>  
18 Public Staff has a number of concerns about the assumptions used in DEP's  
19 analysis. First, [BEGIN CONFIDENTIAL] [REDACTED]

20 [REDACTED]

---

<sup>16</sup> These calculations were allowed into evidence at the hearing in this docket as Confidential Lucas Exhibit 1.

1 [REDACTED]  
2 [REDACTED]  
3 [REDACTED]  
4 [REDACTED]  
5 [REDACTED]  
6 [REDACTED] [END CONFIDENTIAL]

7 Subtracting this total detrimental cost from the liquidated damages yields  
8 an amount of [BEGIN CONFIDENTIAL] [REDACTED] [END  
9 CONFIDENTIAL] The Public Staff recommends that the Commission allow  
10 DEP to recover only the amount in the preceding sentence as partial  
11 recovery of liquidated damages.

12 Q. DOES THIS CONCLUDE YOUR TESTIMONY?

13 A. Yes, it does.

**QUALIFICATIONS AND EXPERIENCE**

JAY B. LUCAS

I graduated from the Virginia Military Institute in 1985, earning a Bachelor of Science Degree in Civil Engineering. Afterwards, I served for four years as an engineer in the U. S. Air Force performing many civil and environmental engineering tasks. I left the Air Force in 1989 and attended the Virginia Polytechnic Institute and State University (Virginia Tech), earning a Master of Science degree in Environmental Engineering. After completing my graduate degree, I worked for an engineering consulting firm and worked for the North Carolina Department of Environmental Quality in its water quality programs. Since joining the Public Staff in January 2000, I have worked on utility cost recovery, renewable energy program management, customer complaints, and other aspects of utility regulation. I am a licensed Professional Engineer in North Carolina.



Duke Energy Progress, LLC  
Docket No. E-2, Sub 1204  
PSDR 25-1

**ROXBORO & MAYO GYPSUM PRODUCTION, TONS (WET BASIS AS-PRODUCED)**

|                      | JAN                                 | FEB    | MAR    | APR    | MAY    | JUN    | JUL    | AUG    | SEP    | OCT    | NOV    | DEC    | TOTAL   | Average Monthly | % of 50,000 |     |
|----------------------|-------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|-----------------|-------------|-----|
| <b>2008</b>          |                                     |        |        |        |        |        |        |        |        |        |        |        |         |                 |             |     |
| ROXBORO              | <b>MONTHLY DETAIL NOT AVAILABLE</b> |        |        |        |        |        |        |        |        |        |        |        |         | 306,544         |             |     |
| MAYO                 |                                     |        |        |        |        |        |        |        |        |        |        |        |         | 0               |             |     |
| TOTAL ROXBORO & MAYO |                                     |        |        |        |        |        |        |        |        |        |        |        |         | 306,544         | 25,545      | 51% |
| <b>2009</b>          | JAN                                 | FEB    | MAR    | APR    | MAY    | JUN    | JUL    | AUG    | SEP    | OCT    | NOV    | DEC    | TOTAL   |                 |             |     |
| ROXBORO              | 41,154                              | 32,130 | 30,762 | 35,765 | 34,347 | 36,802 | 28,937 | 35,220 | 24,847 | 26,366 | 20,796 | 36,019 | 383,145 |                 |             |     |
| MAYO                 | 0                                   | 0      | 0      | 0      | 5,550  | 7,071  | 8,393  | 6,288  | 4,387  | 5,850  | 4,386  | 7,745  | 49,671  |                 |             |     |
| TOTAL ROXBORO & MAYO | 41,154                              | 32,130 | 30,762 | 35,765 | 39,897 | 43,873 | 37,330 | 41,508 | 29,234 | 32,216 | 25,182 | 43,764 | 432,816 | 36,068          | 72%         |     |
| <b>2010</b>          | JAN                                 | FEB    | MAR    | APR    | MAY    | JUN    | JUL    | AUG    | SEP    | OCT    | NOV    | DEC    | TOTAL   |                 |             |     |
| ROXBORO              | 35,584                              | 33,102 | 30,981 | 23,714 | 20,778 | 34,260 | 36,500 | 32,534 | 30,900 | 30,467 | 21,974 | 30,009 | 360,803 |                 |             |     |
| MAYO                 | 5,918                               | 11,739 | 8,679  | 4,355  | 8,287  | 9,022  | 13,513 | 6,624  | 4,486  | 7,362  | 4,914  | 7,275  | 92,173  |                 |             |     |
| TOTAL ROXBORO & MAYO | 41,502                              | 44,841 | 39,660 | 28,069 | 29,065 | 43,282 | 50,013 | 39,158 | 35,386 | 37,829 | 26,888 | 37,284 | 452,976 | 37,748          | 75%         |     |
| <b>2011</b>          | JAN                                 | FEB    | MAR    | APR    | MAY    | JUN    | JUL    | AUG    | SEP    | OCT    | NOV    | DEC    | TOTAL   |                 |             |     |
| ROXBORO              | 28,937                              | 19,048 | 18,787 | 19,862 | 18,803 | 25,456 | 34,891 | 31,963 | 29,090 | 19,863 | 19,184 | 26,265 | 292,149 |                 |             |     |
| MAYO                 | 7,383                               | 11,801 | 9,943  | 10,756 | 8,613  | 21,319 | 16,681 | 15,851 | 10,294 | 1,879  | 7,942  | 10,077 | 132,538 |                 |             |     |
| TOTAL ROXBORO & MAYO | 36,320                              | 30,849 | 28,730 | 30,618 | 27,416 | 46,775 | 51,572 | 47,814 | 39,384 | 21,742 | 27,126 | 36,342 | 424,687 | 35,391          | 71%         |     |
| <b>2012</b>          | JAN                                 | FEB    | MAR    | APR    | MAY    | JUN    | JUL    | AUG    | SEP    | OCT    | NOV    | DEC    | TOTAL   |                 |             |     |
| ROXBORO              | 31,731                              | 32,087 | 29,564 | 22,930 | 27,242 | 38,453 | 52,843 | 44,574 | 30,084 | 61,784 | 57,239 | 49,517 | 478,048 |                 |             |     |
| MAYO                 | 14,454                              | 16,955 | 9,842  | 0      | 8,512  | 16,660 | 19,664 | 17,446 | 13,750 | 6,412  | 4,513  | 6,025  | 134,233 |                 |             |     |
| TOTAL ROXBORO & MAYO | 46,185                              | 49,042 | 39,406 | 22,930 | 35,754 | 55,113 | 72,507 | 62,020 | 43,834 | 68,196 | 61,752 | 55,542 | 612,281 | 51,023          | 102%        |     |

51,023 average monthly wet tons in 2010  
93.46% wet-to-dry reduction  
47,686 average monthly dry tons in 2010

Mayo total = 408,615  
Roxboro total = 1,820,689  
Grand total = 2,229,305

Lucas Supplemental Exhibit 1





Docket No. E-2, Sub 1204

Confidential Lucas Supplemental Exhibit 2



Docket No. E-2, Sub 1204

Confidential Lucas Supplemental Exhibit 3



**Roxboro / Mayo Summary**  
**2012 DSG Forecast (wet tons)**

|                                | January        | February       | March          | April          | May            | June           | July           | August         | September      | October        | November       | December       | YTD Total      |
|--------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| <b>ROXBORO</b>                 |                |                |                |                |                |                |                |                |                |                |                |                |                |
| Opening Inventory              | 576,057        | 560,458        | 573,674        | 598,307        | 598,109        | 597,817        | 590,651        | 595,249        | 594,235        | 593,649        | 591,071        | 577,194        |                |
| DSG Production - Roxboro (Dry) | 29,325         | 26,380         | 24,079         | 20,929         | 23,565         | 25,898         | 28,831         | 28,704         | 24,503         | 21,796         | 18,717         | 27,431         |                |
|                                | <b>31,378</b>  | <b>28,227</b>  | <b>25,765</b>  | <b>22,394</b>  | <b>25,215</b>  | <b>27,711</b>  | <b>30,849</b>  | <b>30,713</b>  | <b>26,218</b>  | <b>23,322</b>  | <b>20,027</b>  | <b>29,351</b>  | <b>321,169</b> |
| Mayo (Dry)                     | 15,910         | 13,074         | 12,026         | 8,793          | 9,807          | 9,461          | 13,784         | 15,208         | 12,332         | 10,374         | 7,567          | 9,466          |                |
|                                | <b>17,024</b>  | <b>13,989</b>  | <b>12,868</b>  | <b>9,409</b>   | <b>10,493</b>  | <b>10,123</b>  | <b>14,749</b>  | <b>16,273</b>  | <b>13,195</b>  | <b>11,100</b>  | <b>8,097</b>   | <b>10,129</b>  | <b>147,448</b> |
|                                | 48,401         | 42,216         | 38,632         | 31,803         | 35,708         | 37,834         | 45,598         | 46,986         | 39,413         | 34,422         | 28,124         | 39,480         |                |
| Less CTG Acceptance:           |                |                |                |                |                |                |                |                |                |                |                |                |                |
| Consumption                    |                |                |                | (18,000)       | (22,000)       | (31,000)       | (27,000)       | (34,000)       | (26,000)       | (23,000)       | (28,000)       | (23,000)       | (232,000)      |
| Hazelhurst (rail)              | (9,000)        | (9,000)        | (9,000)        | (9,000)        | (9,000)        | (9,000)        | (9,000)        | (9,000)        | (9,000)        | (9,000)        | (9,000)        | (9,000)        | (108,000)      |
| Sales - 3rd party              | (5,000)        | (5,000)        | (5,000)        | (5,000)        | (5,000)        | (5,000)        | (5,000)        | (5,000)        | (5,000)        | (5,000)        | (5,000)        | (5,000)        | (60,000)       |
| Landfill                       | (50,000)       | (15,000)       | -              | -              | -              | -              | -              | -              | -              | -              | -              | -              | (65,000)       |
| Shipments                      | (64,000)       | (29,000)       | (14,000)       | (32,000)       | (36,000)       | (45,000)       | (41,000)       | (48,000)       | (40,000)       | (37,000)       | (42,000)       | (37,000)       |                |
| Closing Inventory              | <b>560,458</b> | <b>573,674</b> | <b>598,307</b> | <b>598,109</b> | <b>597,817</b> | <b>590,651</b> | <b>595,249</b> | <b>594,235</b> | <b>593,649</b> | <b>591,071</b> | <b>577,194</b> | <b>579,674</b> |                |

Lucas Supplemental Exhibit 4



**Emissions Summary**  
**February 2010 FOF- Carolinas**  
**Tons of Gypsum Production**

| <b>MONTHLY</b>  |   | <b>May-12</b> | <b>Jun-12</b> | <b>Jul-12</b> | <b>Aug-12</b> | <b>Sep-12</b> | <b>Oct-12</b> | <b>Nov-12</b> | <b>Dec-12</b> | <b>Jan-13</b> | <b>Feb-13</b> | <b>Mar-13</b> | <b>Apr-13</b> | <b>May-13</b> | <b>Jun-13</b> | <b>Jul-13</b> | <b>Aug-13</b> | <b>Sep-13</b> | <b>Oct-13</b> | <b>Nov-13</b> | <b>Dec-13</b> |
|-----------------|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Mayo            | 1 | 6,951         | 14,122        | 16,150        | 16,443        | 12,350        | 13,155        | 12,982        | 14,541        | 13,941        | 11,277        | 4,738         | 620           | 4,463         | 12,760        | 14,692        | 13,963        | 7,363         | 14,041        | 10,430        | 14,217        |
| Roxboro         | 1 | 241           | 3,725         | 4,033         | 4,115         | 3,816         | 414           | 2,785         | 4,764         | 4,025         | 3,405         | 4,698         | 2,941         | 2,067         | 2,513         | 2,403         | 2,444         | 1,525         | 1,202         | 1,924         | 3,182         |
| Roxboro         | 2 | 6,901         | 6,709         | 7,239         | 7,538         | 6,859         | 7,057         | 6,888         | 8,043         | 9,209         | 7,898         | 8,461         | 6,247         | 3,838         | 7,467         | 7,995         | 8,018         | 6,887         | 6,403         | 6,195         | 6,650         |
| Roxboro         | 3 | 5,384         | 5,351         | 5,931         | 6,396         | 4,756         | 4,209         | 3,768         | 6,022         | 6,242         | 4,763         | 84            | 575           | 4,754         | 5,966         | 6,332         | 6,033         | 2,346         | 3,249         | 2,500         | 3,074         |
| Roxboro         | 4 | 7,210         | 6,784         | 7,465         | 7,704         | 6,099         | 5,561         | 5,555         | 7,742         | 8,258         | 6,783         | 7,293         | 4,871         | 3,829         | 7,566         | 7,960         | 7,965         | 6,577         | 2,430         | 3,576         | 4,462         |
| <b>Dry Tons</b> |   | <b>26,688</b> | <b>36,691</b> | <b>40,819</b> | <b>42,195</b> | <b>33,879</b> | <b>30,396</b> | <b>31,978</b> | <b>41,111</b> | <b>41,675</b> | <b>34,126</b> | <b>25,274</b> | <b>15,254</b> | <b>18,951</b> | <b>36,272</b> | <b>39,383</b> | <b>38,423</b> | <b>24,698</b> | <b>27,325</b> | <b>24,625</b> | <b>31,584</b> |

Lucas Supplemental Exhibit 5





Docket No. E-2, Sub 1204

Confidential Lucas Supplemental Exhibit 6



Docket No. E-2, Sub 1204

Confidential Lucas Supplemental Exhibit 7



Docket No. E-2, Sub 1204

Confidential Lucas Supplemental Exhibit 8