

DOCKET 100304-EU

SUPPLEMENTAL DIRECT TESTIMONY OF

JACQUELYN NICOLE SULLIVAN

ON BEHALF OF CHOCTAWHATCHEE ELECTRIC COOPERATIVE, INC.

1 Q. PLEASE STATE YOUR NAME AND ADDRESS FOR THE RECORD.

2 A. Jacquelyn Nicole Sullivan. My work address is 850 Center Way, Norcross, GA
3 30071

4 Q. HAVE YOU PREFILED DIRECT TESTIMONY IN THIS DOCKET?

5 A. Yes.

6 Q. WHAT IS THE PURPOSE OF YOUR SUPPLEMENTAL DIRECT
7 TESTIMONY?

8 A. The purpose of this testimony is to revise portions of my direct testimony to
9 reflect the correct Auburn substation transformer capacity as 25 MVA rather
10 than 20 MVA.

11 Q. WHEN DID YOU LEARN ABOUT THIS?

12 A. March 28, I believe. Mr. Matthew Avery contacted me with the information.
13 He explains the circumstances surrounding this in his supplemental direct
14 testimony.

15 Q. DOES THIS REQUIRE A CHANGE TO YOUR TESTIMONY OR
16 EXHIBITS?

17 A. Yes. My testimony and Exhibit JNS-4 would need to be revised.

18 Q. HAVE YOU RUN YOUR STUDY USING THE 25 MVA RATING?

19 A. Yes and the results are attached as Exhibit JNS-4 (Revised).

COM 5
APA 1
ECR 1
GCL 8
RAD
SSC
ADM
OPC
CLK CF.RPR

1 Q. WAS THIS STUDY PERFORMED THE SAME WAY THE PRIOR
2 STUDIES WERE RUN?

3 A. Yes. The only change was to use 25 MVA.

4 Q. CAN YOU DESCRIBE THE CHANGES THAT WOULD BE NEEDED
5 TO YOUR TESTIMONY?

6 A. Pages 7-10 in my testimony would change and the changes would be:

7 a. Page 7, lines 9-18 should be replaced with the following:

8 Using 4,700 kW for Freedom Walk, in the year 2014, it is
9 projected that Auburn circuit 03 recloser (which would feed
10 Freedom Walk) and lowside buswork would approach their
11 maximum rating of 630A and 600A, respectively, in 2014. For
12 CHELCO to serve this 4,700 kW load in 2014, this would need to
13 be addressed. A couple of ways CHELCO could address this
14 would be to upgrade the lowside buswork & circuit recloser or
15 build a double circuit approximately 1.5 miles from Auburn Sub
16 south to the intersection of Hwy 85 & Houston Lane and switch
17 some of the load off of Auburn circuit 03 to the new circuit.

18 b. Page 8, lines 12-18 should be replaced with the following:

19 Using the 4,700 kW load, the answer is still NO. CHELCO
20 would need to address the loading on the lowside bus and circuit
21 recloser for Auburn circuit 03 as they would be very close to their
22 maximum rating. CHELCO could either upgrade the lowside bus
23 and circuit recloser for Auburn circuit 03 or add another line

1 running south of Auburn Sub and switch some load in order to
2 relieve the load on circuit 03. With such improvements,
3 CHELCO is fully capable of serving this new load without
4 reducing the quality of service to other customers.

5 c. Page 9, lines 1-8 should be removed. It is not necessary to switch any
6 load to Laurel Hill Substation as Auburn Sub can handle the additional load
7 because it's rated as a 25 MVA.

8 d. Page 9, lines 9-11 should be replaced with the following:
9 Using the 4,700 kW load; the answer is still YES. CHELCO
10 would just have to upgrade their system more to meet the needs.
11 Upgrades as mentioned in this supplemental direct testimony, in
12 lines 8-17 on page 2.

13 e. Page 9, lines 19-22 and Page 10, lines 1-4 should be removed. It is not
14 necessary to switch load to Laurel Hill Substation.

15 f. Page 10, lines 9-14 should be removed. It is not necessary to switch load
16 to Laurel Hill Substation and no additional capacity is needed at Auburn Sub to
17 handle an additional 4,700 kW of load.

18 g. Page 10, lines 15-17 should be replaced with the following:
19 The lowside bus and circuit recloser for Auburn circuit 03 will be
20 loaded close to their maximum ratings. To address this,
21 CHELCO could either upgrade the lowside buswork & circuit
22 recloser or build approximately 1.5 miles of double circuit from
23 Auburn Substation south to the intersection of Hwy 85 &

1 Houston Lane and transfer some of the load from Auburn circuit
2 03 to the new circuit.

3 **Q. WHAT CHANGES SHOULD BE MADE TO YOUR EXHIBITS?**

4 A. Exhibit JNS-4 (Revised) would replace Exhibit JNS-4.

5 Exhibit JNS-2 is an excerpt from CHELCO's 2010 CWP and though some of
6 the information regarding the percent loading on Auburn Substation has
7 changed, it's not necessary to include this change in the 2010 CWP as there
8 were no projects that would be affected by this change. The correct rating for
9 Auburn Substation will be noted in CHELCO's next CWP.

10 The correct information would also affect JNS-3 but I did not revise that exhibit.

11 **Q. DOES THIS CONCLUDE YOUR SUPPLEMENTAL DIRECT**
12 **TESTIMONY?**

13 A. Yes.

Engineering Study for Freedom Walk Development
 Modeled Using 4,700 kW
 April 4, 2011
 Page 1 of 1

General Information

Description: New subdivision with an estimated load of 4,700 kW to be served in 2011
 Location: Near the intersection of Roberts Ave., & Old Bethel Road
 Substation/circuit: Auburn substation, circuit 03

Analysis Results ¹						
	2009 Peak Summer Model BSI ²	2014 Peak Summer Model BSI ²	2014 Peak Summer Model ASI ²	2009 Peak Winter Model BSI ²	2014 Peak Winter Model BSI ²	2014 Peak Winter Model ASI ²
Base System	Auburn Sub: 14,570 kW or 58% loaded Conductor: 741 AAAC loaded to 291 A or 37% and 394 AAAC loaded to 55% and small section of 750 MCM UG (along Phil Tyner Road) loaded to 122 A or 27%. Voltage drop: Auburn sub ckt 03 meets CHELCO's SDOC ² .	Auburn Sub: 16,717 kW or 67% loaded Conductor: 741 AAAC loaded to 335 A or 42%, 394 AAAC loaded to 63% and small section of 750 MCM UG (along Phil Tyner Road) loaded to 137 A or 30% Voltage drop on Auburn sub ckt 03 meets CHELCO's SDOC ²	Auburn Sub: 16,717 kW or 67% loaded Conductor: 741 AAAC loaded to 335 A or 42%, and small section of 750 MCM UG (along Phil Tyner Road) loaded to 137 A or 30% Voltage drop on Auburn sub ckt 03 meets CHELCO's SDOC ²	Auburn Sub: 18,240 kW or 73% loaded Conductor: 741 AAAC loaded to 327 A or 41% and 394 AAAC loaded to 61% and small section of 750 MCM UG (along Phil Tyner Road) loaded to 314 A or 69% Voltage drop on Auburn sub ckt 03 meets CHELCO's SDOC ²	Auburn Sub: 20,641 kW or 83% loaded Conductor: 741 AAAC loaded to 377 A or 48%, 394 AAAC loaded to 71% and small section of 750 MCM UG (along Phil Tyner Road) loaded to 155 A or 34% Voltage drop on Auburn sub ckt. 03 meets CHELCO's SDOC ²	Auburn Sub: 20,641 kW or 83% loaded Conductor: 741 AAAC loaded to 377 A or 48%, and small section of 750 MCM UG (along Phil Tyner Road) loaded to 155 A or 34% Voltage drop on Auburn sub ckt. 03 meets CHELCO's SDOC ²
2011-2014 CWP Recommendations	This is referred to as the Base model for the CWP. The base model is grown to a future 2014 load (per the 2009 Load Forecast) and CWP projects are recommended based on the grown loads. See next column for summer 2014 recommendations.	Follow the capacitor placement recommendations in the 2011-2014 CWP and complete project 300-RU10-01 from the 2011-2014 CWP in 2014. Project 300-RU10-01 was recommended because the load on the 394 AAAC exceeds the SDOC and because it makes engineering sense to carry the 741 AAAC down to where the load splits almost 50/50.	No additional recommendations. The purpose of this column is to show how the system looks as a result of completing the recommended projects in the previous column, 2014 Peak Summer Model BSI.	This is referred to as the Base model for the CWP. The base model is grown to a future 2014 load (per the 2009 Load Forecast) and CWP projects are recommended based on the grown loads. See next column for winter 2014 recommendations.	No additional recommendations due to 2014 winter peak loads. Only recommendation is to follow the recommendations for 2014 Peak Summer Model BSI.	No additional recommendations. The purpose of this column is to show how the system looks as a result of completing the recommended projects in the previous column, 2014 Peak Winter Model BSI.
Base System w/ New Load	Auburn Sub: 19,226 kW or 77% loaded Conductor: 741 AAAC loaded to 507 A or 64% and 394 AAAC loaded to 95% and 750 MCM UG loaded to 344 A or 75% Voltage drop: 114 V at the end of Auburn ckt 3, beyond new load. CWP project 300-RU10-01 will improve the voltage or add voltage regulators.	Auburn Sub: 21,225 kW or 85% loaded Conductor: 741 AAAC loaded to 549 A or 69%, 394 AAAC loaded to 103% and 750 MCM UG loaded to 361 A or 79% Voltage drop: 113 V at the end of Auburn ckt 3, beyond new load. CWP project 300-RU10-01 will improve the voltage.	Auburn Sub: 21,399 kW or 86% loaded Conductor: 741 AAAC loaded to 553 A or 70% and 750 MCM UG loaded to 358 A or 78% Voltage drop: Meets CHELCO's system design and operating criteria.	Auburn Sub: 22,926 kW or 92% loaded Conductor: 741 AAAC loaded to 545 A or 69% and 394 AAAC loaded to 102% and 750 MCM UG loaded to 359 A or 79% Voltage drop: 113 V at the new load and downstream from it. CWP project 300-RU10-01 will improve most of the low voltage, with voltage regulators needed downline from the new load. Also, the project is needed b/c the 394 will be overloaded with the development at full capacity.	Auburn Sub: 25,270 kW or 101% loaded Conductor: 741 AAAC loaded to 589 A or 75%, 394 AAAC loaded to 111% and 750 MCM UG loaded to 377 A or 82% Voltage drop: 113 V at the end of Auburn ckt 3, beyond new load. CWP project 300-RU10-01 will improve the voltage and also the capacitor placement recommendations in the CWP. May need to add additional capacitors.	Auburn Sub: 25,322 kW or 101% loaded Conductor: 741 AAAC loaded to 598 A or 76% and 750 MCM UG loaded to 378 A or 83% Voltage drop: On some single phase taps on Auburn ckt 03 is 114 V, beyond new load. Everything else meets SDOC.
Additional Recommendations or changes to 2011-2014 CWP recommendations, due to new load	This is referred to as the Base model for the CWP. The base model is grown to a future 2014 load (per the 2009 Load Forecast) and projects are recommended based on the grown loads. The system can handle the new load in 2009, by adding voltage regulators downline from the new load until project 300-RU10-01 can be completed. See next column for summer 2014 recommendations.	Follow the capacitor placement recommendations in the 2011-2014 CWP, but do the recommendations in 2011 and complete project 300-RU10-01 from the 2011-2014 CWP in 2011 instead of 2014. On Auburn ckt. 03, switch the single phase tap at Adams Rd & Hwy 85 to Auburn ckt. 02. This will drop the load on ckt. 03 from 553 A to 542 A. Additional regulators or capacitors may be needed on Auburn ckt. 03; however, it's recommended that CHELCO monitor the circuits before doing this.	No additional recommendations. The purpose of this column is to show how the system looks as a result of completing the recommended projects in the previous column, Peak Summer Model BSI.	This is referred to as the Base model for the CWP. The base model is grown to a future 2014 load (per the 2009 Load Forecast) and projects are recommended based on the grown loads. For the system to handle the new 4,700 kW load in 2009, project 300-RU10-01 must be completed first and a set of voltage regulators will be needed downline from the new load. See next column for winter 2014 recommendations.	Recommendations made for the 2014 Peak Summer model BSI satisfies the 2014 peak winter model BSI, so follow recommendations for Summer 2014 BSI. In addition, on Auburn ckt. 3, it may be necessary to add capacitor banks upstream from the new load and/or voltage regulators downstream from the load; however, it's recommended that CHELCO monitor the circuit before doing this.	No additional recommendations. The purpose of this column is to show how the system looks as a result of completing the recommended projects in the previous column, 2014 Peak Winter Model BSI.
Results of All Recommendations (CWP and recommendations as a result of new load)	Auburn Sub: 19,228 kW or 77% loaded Conductor: 741 AAAC loaded to 507 A or 64% and 750 MCM UG loaded to 344 A or 75% Voltage drop: Meets CHELCO's SDOC once voltage regulators are added downline from new load or project 300-RU10-01 is completed.	Auburn Sub: 21,226 kW or 85% loaded Conductor: 741 AAAC loaded to 542 A or 69% and 750 MCM UG loaded to 358 A or 78%. Voltage drop: Meets CHELCO's SDOC Additional Recommendations/Comments: See Note below.	see note above	Auburn Sub: 23,081 kW or 92% loaded Conductor: 741 AAAC loaded to 552 A or 70% and 750 MCM UG loaded to 366 A or 80%. Voltage drop: Meets CHELCO's SDOC once voltage regulators are added downline from new load and project 300-RU10-01 is completed.	Auburn Sub: 25,123 kW or 100% loaded Conductor: 741 AAAC loaded to 584 A or 74% and 750 MCM UG loaded to 378 A or 83% Voltage drop: Meets CHELCO's SDOC Additional Recommendations/Comments: See Note below.	see note above

¹ 2009 base, before CWP system improvements and 2014 grown models, both before and after CWP system improvements from CHELCO's 2011-2014 CWP completed in May 2010

² System Design and Operating Criteria (SDOC) that was approved by CHELCO staff on January 12, 2010.

³ Before System Improvements (BSI) and After System Improvements (ASI) are typical terms in CWPs. BSI is how the electric system is presently. ASI is how the electric system will be after the CWP projects are complete.

NOTE: For the summer 2014 ASI, the lowside buswork at Auburn Substation circuit 03 is carried to 90% of its maximum capacity of 600A. For the winter 2014 ASI, it's carried to 97%.

For the summer 2014 ASI, the circuit recloser at Auburn Substation circuit 03 is carried to 86% of its maximum capacity of 630A. For the winter 2014 ASI, it's carried to 93%.

It is recommended that CHELCO and their G&T provider, PowerSouth EC, evaluate ways to reduce the loading on the lowside bus and circuit recloser for Auburn ckt. 03 should Freedom Walk development be served by CHELCO and reach the estimated load of 4,700 kW.