



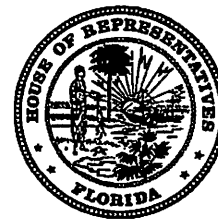
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**WILL WEATHERFORD**  
*Speaker of the House of Representatives*

November 7, 2013

Ann Cole, Director  
Office of Commission Clerk  
Florida Public Service Commission  
2540 Shumard Oak Blvd.  
Tallahassee, FL 32399-0850

Re: Docket No. 130140-EI; Public version of Prefiled Direct Testimony of Scott Norwood.

Dear Ms. Cole:

Enclosed for filing by the Office of Public Counsel (OPC) is the public version of the Prefiled Direct Testimony (with accompanying exhibits) of Scott Norwood. This testimony was originally filed on October 16, 2013 on a confidential basis pursuant to a notice of intent to claim confidentiality filed by Gulf Power Company (GPC) on that date.

On November 5, 2013 GPC filed redacted portions of the testimony and exhibits with the Commission, accompanied by a Request for Confidential Classification (Request).

The OPC has replaced the pages and exhibit documents subject to the Request with copies of the pages that Gulf redacted and is submitting this public version for filing in this case. By so filing the public version the OPC does not indicate a position on the merits of the Request; nor does the OPC waive any objections or challenges it may make in any dispute regarding the Request. Furthermore, the OPC will rely on the entire, unredacted testimony and accompanying exhibits filed on October 16, 2013 for the evidence it offers on the issues covered therein.

The public version of the Prefiled Direct Testimony of Scott Norwood has also been served on parties of record and Staff pursuant to the attached Certificate of Service.

November 7, 2013

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Should you have any questions, please do not hesitate to contact our office.

Sincerely,



Charles J. Rehwinkel  
Deputy Public Counsel

Enclosure

cc: Parties of record pursuant to attached Certificate of Service

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a copy of the foregoing PUBLIC VERSION of the Direct Testimony of Scott Norwood has been furnished by e-mail, U.S. Mail and/or hand delivery to the following parties on this 7<sup>th</sup> day of October, 2013, to the following:

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Charles J. Rehwinkel  
Deputy Public Counsel

**BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

In re: Petition for rate increase by Gulf Power Company

DOCKET NO. 130140-EI

In re: 2013 depreciation and dismantlement study by Gulf Power Company

DOCKET NO. 130151-EI

In re: Petition of Gulf Power Company to include the Plant Daniel Bromine and ACI Project, the Plant Crist Transmission Upgrades Project, and the Plant Smith Transmission Upgrades Project in the Company's program, and approve the costs associated with these compliance strategies for recovery through the ECRC.

DOCKET NO. 130092-EI

CONFIDENTIAL Testimony  
FILED: October 16, 2013

Public Version Testimony  
FILED: November 7, 2013

**PUBLIC VERSION**

**DIRECT TESTIMONY AND EXHIBITS**

**OF**

**SCOTT NORWOOD**

**ON BEHALF OF THE CITIZENS OF THE STATE OF FLORIDA**

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**DIRECT TESTIMONY**

**OF**

**SCOTT NORWOOD**

On Behalf of the Office of Public Counsel

Before the

Florida Public Service Commission

Docket Nos. 130140-EI, 130151-EI, & 130092-EI

**I. INTRODUCTION**

**Q. PLEASE STATE YOUR NAME, TITLE AND BUSINESS ADDRESS.**

A. My name is Scott Norwood. I am President of Norwood Energy Consulting, L.L.C.  
My business address is 9408 Bell Mountain Drive, Austin, Texas 78730.

**Q. WHAT IS YOUR OCCUPATION?**

A. I am an energy consultant specializing in the areas of electric utility regulation,  
resource planning and energy procurement.

**Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.**

A. I have over 30 years of experience in the electric utility industry. After graduating  
from the University of Texas in 1980 with a Bachelor of Science degree in electrical  
engineering, I began my career as a power plant engineer for the City of Austin's  
Electric Utility Department, where I was responsible for electrical maintenance and  
design projects for the City's three gas-fired power plants. In January 1984, I joined

1 the staff of the Public Utility Commission of Texas as Manager of Power Plant  
2 Engineering. In that capacity, I was responsible for addressing resource planning,  
3 fuel, and purchased power cost issues presented in regulatory filings before the Texas  
4 Commission. In 1986, I joined GDS Associates, Inc., a consulting firm that  
5 specializes in electric utility regulatory consulting and resource planning. I was  
6 elected a Principal of GDS in 1990 and directed the firm's Deregulation Services  
7 Department until January 2004, when I founded Norwood Energy Consulting, LLC.  
8 The focus of my current consulting practice is electric utility planning and regulatory  
9 analysis. Exhibit SN-1 provides a more detailed summary of my background and  
10 experience.

11  
12 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS CASE?**

13 A. I am testifying on behalf of the State of Florida's Office of Public Counsel ("OPC"),  
14 which represents the interests of consumers in utility rate proceedings before the  
15 Florida Public Service Commission ("FPSC" or "Commission").

16  
17 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE FPSC?**

18 A. No. This is my first time testifying before the FPSC. However, as outlined in Exhibit  
19 SN-1, I have testified in numerous regulatory proceedings involving power plant  
20 certification, ratemaking issues, resource planning, environmental compliance,  
21 transmission, fuel recovery and other related matters, including cases before state  
22 regulatory commissions in Arkansas, Georgia, Illinois, Iowa, Michigan, Missouri,  
23 New Jersey, Louisiana, Oklahoma, Texas, Virginia, Washington, and Wisconsin.

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

2 A. The purpose of my testimony is to address (1) whether costs of certain proposed  
3 transmission upgrades included in what Gulf Power Company's ("Gulf" or  
4 "Company") describes as its proposed environmental compliance plans are eligible  
5 for recovery through the Environmental Cost Recovery Clause ("ECRC") as  
6 requested by Gulf, and (2) whether the Commission should alternatively approve the  
7 recovery of the costs of those transmission facilities through base rates and authorize  
8 the subsequent step increase proposed by the Company.

9

10 **Q. HAVE YOU PREPARED ANY EXHIBITS TO SUPPORT YOUR**  
11 **TESTIMONY?**

12 A. Yes. I have prepared 6 exhibits, which are attached to my testimony.

13

14 **II. SUMMARY OF TESTIMONY**

15 **Q. PLEASE SUMMARIZE YOUR TESTIMONY AND RECOMMENDATIONS.**

16 A. My testimony addresses Gulf's request to recover the costs of certain transmission  
17 upgrades included in what the Company describes as its proposed environmental  
18 compliance plans for Plant Crist and Plant Smith. My major findings and  
19 recommendations are as follows:

20

21 • Gulf has neither performed an analysis to support its Must-Run unit  
22 designations and operating policies for Plant Crist and Plant Smith, nor  
23 documented instances in which these plants have been operated primarily for



1 Must-Run (rather than economic) purposes in the past. Due to Gulf's failure  
2 to provide support for the Company's Must-Run policies, there is no basis for  
3 concluding that the \$153 million that the Company proposes to invest for  
4 transmission upgrades is prudent and justified by projected fuel savings  
5 arising from the elimination of Must-Run operating constraints at these plants,  
6 as the Company claims;

7  
8 • Gulf's so-called environmental compliance analysis for Plant Smith failed to  
9 consider the alternative of retiring the plant, despite the fact that an October  
10 2012 Gulf study indicated that retirement of the Plant Smith coal units could  
11 be a lower cost and less risky alternative to retrofitting the plant with  
12 environmental controls and making transmission upgrades. By failing to  
13 consider retirement alternatives in the Plant Smith compliance analysis, Gulf's  
14 proposed "compliance" plan could result in significant unnecessary stranded  
15 investments if the cost of complying with future, additional regulations  
16 currently being considered by the Environmental Protection Agency ("EPA")  
17 ultimately leads to the early retirement of Plant Smith. This deficiency in  
18 Gulf's environmental compliance analysis for Plant Smith raises additional  
19 serious questions regarding the prudence of Gulf's proposed environmental  
20 compliance plan and transmission upgrade investments for Plant Smith;

21  
22 • The proposed transmission upgrades for Plant Crist and Plant Smith do not  
23 meet the criteria established by the Commission to be eligible for recovery

1 through the Commission's ECRC as requested by Gulf. The primary criteria  
2 for cost recovery through the ECRC are that costs be prudently incurred and  
3 legally required to comply with environmental regulations. The proposed  
4 transmission upgrades are not required for environmental compliance and do  
5 not control emissions. The purpose of these upgrades is to improve  
6 transmission reliability and voltage regulation under certain rare outage  
7 conditions in Gulf's Pensacola and Panama City service areas. Moreover,  
8 Gulf has not demonstrated the prudence of these proposed transmission  
9 upgrades due to the Company's failure to provide support for Must-Run  
10 assumptions at each plant, and the failure to consider the Plant Smith  
11 retirement alternative. For these reasons, I recommend that the Company's  
12 request to recover the costs of proposed transmission upgrades for Plant Crist  
13 and Plant Smith through the ECRC be denied; and

- 14
- 15 • Due to Gulf's failure to establish the prudence of proposed transmission  
16 upgrades for Plant Crist and Plant Smith in this case, and due to the significant  
17 uncertainty which exists in the forecasted level of such costs in 2016, I  
18 recommend that Gulf's alternative request to approve now the recovery of the  
19 Plant Crist and Plant Smith transmission upgrade costs through a July 2015  
20 step increase to base rates be denied. In addition, Gulf should not be allowed  
21 to recover the \$637,000 in base rates for projected transmission upgrade costs  
22 for the 2014 test year.
- 23

1 **III. OVERVIEW OF GULF'S PROPOSED "COMPLIANCE" PLANS**  
2 **FOR PLANT CRIST AND PLANT SMITH**

3 **Q. PLEASE SUMMARIZE GULF'S REQUEST REGARDING WHAT IT**  
4 **DESCRIBES AS ITS ENVIRONMENTAL COMPLIANCE PLANS FOR**  
5 **PLANT CRIST AND PLANT SMITH.**

6 A. Gulf is seeking approval of proposed revisions to what it describes as its  
7 environmental compliance plans for Plant Crist and Plant Smith. The proposed  
8 "compliance" plans are described in the Environmental Compliance Program Update  
9 Report ("Compliance Report"), which is attached as Exhibit JOV-1 to Gulf witness  
10 James O. Vick's direct testimony in Docket No. 130092-EI. In addition, Gulf  
11 requests that it be allowed to recover the projected costs of transmission upgrades  
12 associated with what the Company characterizes as its proposed environmental  
13 compliance plans for Plant Crist and Plant Smith through the Company's ECRC (See  
14 Gulf witness Susan D. Ritenour's testimony in Docket No. 130140-EI, page 35).

15  
16 In the alternative, the Company requests that it be allowed to recover such  
17 costs through base rates. (See Gulf witness Ritenour's testimony in Docket No.  
18 130140-EI, page 36).

19  
20 **A. PROPOSED PLANT CRIST "COMPLIANCE" PLAN**

21 **Q. PLEASE DESCRIBE THE PLANT CRIST COAL UNITS.**

22 A. Gulf's Plant Crist generating station, which is located just north of Pensacola, Florida,  
23 includes four coal-fired electric generating units. As summarized in Table 1 below,

1 the Plant Crist units have a combined summer generating capacity rating of 903 MW.  
 2 The Plant Crist units supply approximately one-third of the Company's total installed  
 3 generating capacity.

4 **Table 1**

Plant Crist Operating Information

	Capacity	In-Service	Plan Retire		2008-2012 Operating Statistics			
	<u>MW</u>	<u>Date</u>	<u>AGE</u>	<u>Date</u>	<u>AvgEAF</u>	<u>Avg CF</u>	<u>MWh/yr</u>	<u>Fuel\$/MWh</u>
Crist 4	75	1959	54	2024	91.0%	31.5%	211,780	\$54.35
Crist 5	75	1961	52	2026	88.7%	57.5%	385,621	\$51.72
Crist 6	288	1970	43	2035	79.2%	40.2%	1,041,787	\$52.13
Crist 7	<u>465</u>	1973	40	2038	81.3%	57.8%	<u>2,371,618</u>	\$49.29
	903						4,010,807	

5 Sources: GPC 2013 10-yr Site Plan and Gulf's response to OPC ROG 4-117.

6  
 7 The Crist units are capable of burning natural gas; however, existing pipeline  
 8 capacity to the plant limits the generation output from natural gas to approximately 75  
 9 MW. Gulf has designated the Plant Crist units as Must-Run units for the purpose of  
 10 maintaining reliability and voltage regulation in the Pensacola area during peak  
 11 demand periods. (Must-Run units are those that the utility operates under defined  
 12 conditions to provide voltage support and reliability, regardless of whether they  
 13 would be called upon under principles of economic dispatch.)

14  
 15 **Q. ARE THE PLANT CRIST UNITS EQUIPPED WITH ENVIRONMENTAL**  
 16 **CONTROLS NECESSARY FOR MERCURY AND AIR TOXICS**  
 17 **STANDARDS ("MATS") COMPLIANCE?**

1 A. Yes. Gulf installed a flue gas desulfurization system (“scrubber”) in 2009, which  
2 serves all four coal units at Plant Crist. Gulf has indicated that with this existing  
3 scrubber system the Plant Crist units are capable of meeting MATS requirements,  
4 except in instances when the scrubber is out of service. Gulf has also indicated that it  
5 would be required to shut down the plant (or add other controls) to meet MATS  
6 requirements during such scrubber outage periods.

7

8 **Q. WHICH MATS-RESPONSE OPTIONS DID GULF CONSIDER FOR PLANT**  
9 **CRIST IN ITS UPDATED COMPLIANCE PLAN ANALYSIS?**

10 A. Gulf evaluated four MATS-response options for Plant Crist. These options are  
11 described in Gulf’s Compliance Report (Vick Exhibit JOV-1, pages 17-18 of 34) as  
12 follows:

13

14 Option 1: Conversion of the Crist units along with the addition of a gas pipeline to  
15 allow Gulf to produce [REDACTED] MW while burning natural gas;

16

17 Option 2: Conversion to allow production of [REDACTED] MW while burning natural gas (no  
18 new gas pipeline), with the addition of activated carbon injection (“ACI”) plus dry  
19 sorbent injection (“DSI”) for partially converting to natural gas, along with adding  
20 ACI/DSI controls plus the use of ultra-low sulfur coal to achieve MATS compliance;

21

1        Option 3: Conversion to allow production of [REDACTED] MW while burning natural gas (no  
2        new gas pipeline), plus certain transmission additions to reduce the Must-Run  
3        requirements to [REDACTED] MW; and

4  
5        Option 4: Construct the transmission upgrades necessary to eliminate the Must-Run  
6        requirements that Gulf applies to the Crist units.

7

8        **Q.    WHICH OF THE FOUR RESPONSE ALTERNATIVES EVALUATED BY**  
9        **GULF WAS SELECTED AS THE PREFERRED MATS RESPONSE**  
10       **STRATEGY FOR PLANT CRIST?**

11       **A.**    Gulf's analysis indicates that Option 4, the "Transmission Only" plan, would achieve  
12       what it terms as "MATS compliance" at the lowest reasonable cost of the four options  
13       considered (See Revised September 24, 2013 Compliance Report, Table 3.3-1, page  
14       20 of 34).

15

16       **Q.    WHAT ARE THE TRANSMISSION UPGRADES WHICH GULF PLANS TO**  
17       **INSTALL UNDER WHAT IT DESCRIBES AS PLANT CRIST MATS**  
18       **COMPLIANCE OPTION 4?**

19       **A.**    The transmission upgrades evaluated in MATS-response Option 4 for Plant Crist  
20       include the installation of a new 60-mile, 230 kV transmission line from the  
21       Company's Alligator Swamp substation north to the Florida-Alabama state line near  
22       Brewton, Alabama, along with a Static Var Compensator ("SVC") and a Capacitor  
23       Bank for voltage regulation during contingencies in the Pensacola service area (See

1 Gulf witness P. Chris Caldwell's testimony in Docket No. 130140-EI, pages 18-19).  
 2 The estimated total capital cost of these transmission upgrades, which are scheduled  
 3 for completion by 2018, is approximately \$76 million (See Gulf witness Vick's April  
 4 1, 2013 testimony in Docket No. 130092-EI, page 8).

6 **B. PROPOSED PLANT SMITH COMPLIANCE PLAN**

7 **Q. PLEASE DESCRIBE THE PLANT SMITH COAL UNITS.**

8 A. Gulf's Plant Smith facility includes two coal-fired electric generating units (Units 1  
 9 and 2), which have a combined summer generating capacity of 357 MW. In addition,  
 10 two natural gas-fired generating units, including a 556 MW combined cycle unit  
 11 (Unit 3) and a 32 MW combustion turbine unit (Unit 4), are also located at the Plant  
 12 Smith site, which is located just north of Panama City, Florida. Operating statistics  
 13 for Plant Smith Units 1, 2 and 3 are summarized below in Table 2.

15 **Table 2**

Plant Smith Operating Information

	Capacity	In-Service	AGE	Plan Retire	2008-2012 Operating Statistics			
	MW	Date		Date	AvgEAF	Avg CF	MWh/yr	Fuel\$/MWh
Smith 1	162	1965	48	2030	89.7%	51.0%	724,372	\$52.01
Smith 2	195	1967	46	2032	91.2%	47.2%	807,192	\$51.79
Smith 3	<u>556</u>	2002	11	2042	89.9%	73.8%	<u>3,316,420</u>	\$42.76
	913						4,847,984	

16 Sources: GPC 2013 10-yr Site Plan and Gulf's response to OPC ROG 4-117.

17 The total 945 MW of generating capacity at Plant Smith represents  
 18 approximately 35% of Gulf's total installed generating capacity. Gulf has designated

1 the Smith units as Must-Run units for the purpose of maintaining reliability and  
2 voltage regulation in the Panama City service area during high demand periods.

3

4 **Q. ARE THE PLANT SMITH COAL UNITS CURRENTLY EQUIPPED WITH**  
5 **ENVIRONMENTAL CONTROLS NECESSARY FOR MATS COMPLIANCE?**

6 A. No. The Plant Smith coal units are equipped with low-NOx burners and use low-  
7 sulfur coals to control SO2 emissions. However, unlike Gulf's Plant Crist coal units,  
8 the Plant Smith coal units are not equipped with scrubbers and, therefore, will require  
9 significant investments for new emissions controls under any plan to comply with  
10 acid and mercury emissions limits of MATS when this new regulation becomes  
11 effective in April 2015.

12

13 **Q. WHAT OPTIONS DID GULF EVALUATE IN ITS UPDATED**  
14 **"COMPLIANCE" PLAN ANALYSIS FOR PLANT SMITH?**

15 A. Gulf evaluated only two MATS-response options for Plant Smith, as described on  
16 page 26 of 34 of the Revised Compliance Report:

17

18 Option 1: Add ACI/DSI controls for compliance with MATS and continue operations  
19 as Must-Run units (i.e., no transmission); and

20

21 Option 2: Add ACI/DSI controls for compliance with MATS and construct  
22 transmission upgrades necessary to eliminate Must-Run requirements that apply to  
23 the Smith units.



1 Q. WHICH OF THE TWO "COMPLIANCE" ALTERNATIVES EVALUATED  
2 BY GULF WAS SELECTED AS THE PREFERRED PLAN?

3 A. Gulf selected Option 2 (Controls Plus Transmission) as the preferred response plan  
4 because Gulf asserts it would eliminate the existing Must-Run operating restrictions  
5 at Plant Smith and, therefore, allow for economic dispatch and reduced fuel costs  
6 when compared to Option 1 (See Revised September 24, 2013 Compliance Report,  
7 Table 3.3-2, page 29 of 34).

8  
9 Q. WHAT ARE THE TRANSMISSION UPGRADES WHICH GULF PLANS TO  
10 INSTALL UNDER WHAT IT DESCRIBES AS PLANT SMITH  
11 COMPLIANCE OPTION 2?

12 A. The transmission upgrades evaluated in MATS-response Option 2 for Plant Smith  
13 include the installation of a new 70-mile, 230 kV transmission line from the Holmes  
14 Creek substation near the Alabama state line to the Highland City substation in  
15 Panama City, along with a 230/115 kV autotransformer and improvements to the  
16 Holmes Creek substation (See Gulf witness Caldwell's testimony in Docket No.  
17 130140-EI, page 20). The estimated total cost of these transmission upgrades is  
18 approximately \$77 million (See Gulf witness Vick's April 1, 2013 testimony in  
19 Docket No. 130092-EI, page 12). These upgrades are expected to be completed and  
20 placed in service in 2015.

1 IV. PROPOSED TRANSMISSION UPGRADE COSTS ARE NOT ELIGIBLE FOR  
2 RECOVERY THROUGH GULF'S ECRC

3 Q. WHAT ARE THE CRITERIA FOR DETERMINING WHETHER COSTS  
4 ARE ELIGIBLE FOR RECOVERY THROUGH THE ECRC?

5 A. In Order No. PSC-94-0044-FOF-EI, issued January 12, 1994, the Commission  
6 established the following three criteria for recovery of costs through the ECRC:

- 7
- 8 1) Such costs were prudently incurred after April 13, 1993;
  - 9
  - 10 2) The activity is legally required to comply with a governmentally imposed  
11 environmental regulation that was enacted, became effective, or whose effect was  
12 triggered after the company's last test year upon which rates are based; and
  - 13
  - 14 3) Such costs are not recovered through some other cost recovery mechanism or  
15 through base rates.
  - 16

17 Q. DO THE COSTS OF PROPOSED TRANSMISSION UPGRADES MEET THE  
18 ABOVE ELIGIBILITY CRITERIA FOR RECOVERY THROUGH THE  
19 ECRC?

20 A. No. The proposed transmission upgrades for Plant Crist and Plant Smith are not  
21 legally required to comply with any governmentally imposed environmental  
22 regulation and, therefore, fail to meet the second criterion established by the  
23 Commission for recovery through the ECRC.

1 **Q. WHAT IS THE PRIMARY PURPOSE OF THE TRANSMISSION UPGRADES**  
2 **AT PLANT CRIST AND PLANT SMITH?**

3 A. Gulf's Ten-Year Transmission Plan indicates that the primary purpose of each  
4 proposed transmission upgrade at Plant Crist and Plant Smith is to address potential  
5 transmission overload and voltage regulation concerns in the Pensacola and Panama  
6 City service areas, respectively, during extremely rare scenarios in which Gulf  
7 experiences forced outages of all generating units at one of these plants and a  
8 simultaneous outage of a critical transmission line at the time of Gulf's summer peak  
9 demand (See Confidential Exhibit SN-2, which includes Gulf's Responses to  
10 Citizens' Request for Production of Documents, Nos. 74 and 75).

11  
12 **Q. HAS GULF DEMONSTRATED THAT THE REQUESTED TRANSMISSION**  
13 **UPGRADE COSTS FOR PLANT SMITH WOULD BE PRUDENTLY**  
14 **INCURRED AS REQUIRED BY THE FIRST CRITERION FOR RECOVERY**  
15 **THROUGH THE ECRC?**

16 A. No. I will discuss how Gulf's so-called environmental compliance analyses are based  
17 on unsupported Must-Run operating criteria and do not consider retirement  
18 alternatives for Plant Smith. Due to these key flaws in Gulf's analyses, it is not  
19 possible to determine whether the proposed compliance plans and associated  
20 transmission upgrades are prudent.

1                   **A. GULF HAS FAILED TO SUPPORT ITS MUST-RUN**

2                                   **OPERATING CRITERIA**

3   **Q.    WHAT ARE THE MUST-RUN CRITERIA THAT GULF APPLIES TO**  
4           **OPERATIONS OF THE PLANT CRIST AND PLANT SMITH UNITS?**

5   **A.**    The Must-Run criteria for Plant Crist and Plant Smith are confidential and are  
6           summarized in the discovery response attached as Confidential Exhibit SN-3 to my  
7           testimony.

8  
9   **Q.    HAS GULF PROVIDED ANY SUPPORT FOR ITS MUST-RUN OPERATING**  
10           **POLICIES OR THE IMPACT OF THESE POLICIES ON THE**  
11           **PERFORMANCE OF THE PLANT CRIST AND PLANT SMITH UNITS?**

12   **A.**    No. Gulf admits that it has no analysis to support its Must-Run operating policies for  
13           Plant Crist and Plant Smith (See Exhibit SN-4). In its answer to Citizens'  
14           Interrogatory No. 123, the Company also admits that it has not recorded the historical  
15           levels of Must-Run generation at either plant (See Exhibit SN-5).

16  
17   **Q.    IF GULF HAS NEITHER AN ORIGINAL ANALYSIS SUPPORTING THE**  
18           **ESTABLISHMENT OF ITS MUST-RUN DESIGNATION NOR HISTORICAL**  
19           **DATA REGARDING PAST LEVELS OF MUST-RUN GENERATION, WHAT**  
20           **IS THE BASIS FOR THE COMPANY'S CLAIMS THAT THE BENEFITS OF**  
21           **ELIMINATING MUST-RUN CONSTRAINTS JUSTIFY THE COST OF**  
22           **ACCELERATING TRANSMISSION UPGRADES AT PLANT CRIST AND**  
23           **PLANT SMITH?**

1 A. In its answer to Citizens' Interrogatory No. 123, Gulf says that it employed certain  
2 "reasonable simplifying assumptions for prospective modeling" to develop a  
3 "forward looking economic analysis" of the benefits of eliminating Must-Run  
4 transmission constraints that alter the commitment and dispatch of the units at Smith  
5 and Crist (See Exhibit SN-5).

6  
7 **Q. IS THE PROSPECTIVE MODELING ANALYSIS TO WHICH GULF**  
8 **REFERS IN ITS ANSWER TO CITIZENS' INTERROGATORY NO. 123**  
9 **SUFFICIENT TO SUPPORT THE COMPANY'S CLAIMS REGARDING THE**  
10 **BENEFITS OF ELIMINATING MUST-RUN CONSTRAINTS AT PLANT**  
11 **CRIST AND PLANT SMITH?**

12 A. No. The simplifying assumptions Gulf used for its prospective modeling of the  
13 impact of its Must-Run policies at Plant Crist and Plant Smith are not described in the  
14 Company's Compliance Report. Moreover, it is not possible to judge the  
15 reasonableness of the Company's simplifying modeling assumptions, or Gulf's  
16 forecasted benefits of eliminating the Must-Run constraint, without knowing the  
17 actual impacts of those Must-Run constraints on Gulf's operations in the past.  
18 Because the forecasted fuel savings benefits of eliminating Must-Run operations  
19 constitute the primary economic justification for the transmission upgrades included  
20 in Gulf's proposed compliance plans for Plant Crist and Plant Smith, the Company  
21 must be held accountable to demonstrate the reasonableness of the Must-Run  
22 assumptions used to derive such benefit estimates.

1 Q. WHAT ARE YOUR CONCLUSIONS REGARDING GULF'S ANALYSIS OF  
2 THE BENEFITS OF ELIMINATING MUST-RUN OPERATING  
3 CONSTRAINTS AT PLANT CRIST AND PLANT SMITH?

4 A. Gulf has not provided an adequate basis to demonstrate that its Must-Run policies for  
5 Plant Crist and Plant Smith are reasonable or necessary, or to support the  
6 reasonableness of its forecasts of the benefits of eliminating Must-Run constraints as  
7 reflected in the Company's environmental compliance analyses.

8  
9 For these reasons, the Company has no basis for demonstrating that its Must-  
10 Run policies are reasonable or necessary, or that the forecasted Must-Run levels  
11 reflected in Gulf's environmental response analyses are reasonable.

12  
13 Q. WHY ARE THESE MUST-RUN CRITERIA RELEVANT IN DETERMINING  
14 THE PRUDENCE OF WHAT GULF DESCRIBES AS ITS PROPOSED  
15 ENVIRONMENTAL COMPLIANCE PLAN EXPENDITURES?

16 A. The primary reason why Gulf's analyses for Plant Crist and Plant Smith indicate that  
17 the proposed transmission upgrades are justified is that these upgrades would  
18 effectively eliminate the Must-Run operating constraints that apply to these units and,  
19 therefore, produce fuel savings by eliminating periods when the plants are operated  
20 for Must-Run purposes even though other lower cost resources are available. For  
21 example, Gulf's analyses for Plant Smith forecasts that the fuel cost savings benefit  
22 resulting from the elimination of the Must-Run requirement will range from [START  
23 CONFIDENTIAL] [REDACTED] [END CONFIDENTIAL]

1 depending on the option and scenario evaluated (See page 17 of Gulf's Compliance  
2 Report). Without these forecasted savings, which depend completely on the validity  
3 of the wholly unsupported Must-Run designation and policies, the increased cost of  
4 proposed transmission upgrades under Gulf's proposed MATS-response plans for  
5 Plant Crist and Plant Smith would not be justified.

6  
7 **B. GULF FAILED TO EVALUATE THE PLANT SMITH**

8 **RETIREMENT OPTION**

9 **Q. DID GULF EVALUATE THE ALTERNATIVE OF EARLY RETIREMENT**  
10 **OF THE PLANT SMITH COAL UNITS IN WHAT IT CALLS ITS UPDATED**  
11 **ENVIRONMENTAL COMPLIANCE ANALYSIS?**

12 A. No. While Gulf's updated Compliance Report indicates that the Company is still  
13 evaluating the retirement alternative for the Plant Smith units, the retirement option  
14 was not considered in what the Company describes as its updated environmental  
15 compliance analysis.

16  
17 **Q. IS THERE EVIDENCE WHICH INDICATES THAT THE PLANT SMITH**  
18 **COAL UNITS MIGHT BECOME UNECONOMICAL TO OPERATE, THUS**  
19 **RENDERING THE RETIREMENT OF THOSE UNITS NECESSARY?**

20 A. Yes. In October 2012, Gulf prepared an internal presentation reporting the results of  
21 an economic study which indicated that the retirement of Plant Smith appeared to be a  
22 lower cost and a less risky alternative than retrofitting the Smith coal units to comply  
23 with MATS and other pending future environmental regulations (See Confidential

1 Exhibit SN-6). [REDACTED]  
2 [REDACTED]  
3 [REDACTED] [START  
4 CONFIDENTIAL] [REDACTED]  
5 [REDACTED]  
6 [REDACTED] [END  
7 CONFIDENTIAL] For example, on page 9 of this presentation, Gulf notes that the  
8 cost of retrofitting Plant Smith in order to achieve compliance with MATS and other  
9 EPA regulations could require [START CONFIDENTIAL] [REDACTED]  
10 [REDACTED]  
11 [REDACTED]  
12 [REDACTED] [END  
13 CONFIDENTIAL]

14  
15 Q. YOU MENTIONED MATS AND "OTHER EPA REGULATIONS." PLEASE  
16 DESCRIBE THE "OTHER EPA REGULATIONS" TO WHICH YOU REFER.

17 A. The MATS rule, which addresses standards for mercury and other toxic air emissions,  
18 was finalized in early 2012. This is the regulation to which the transmission upgrades  
19 and retrofit options described by Gulf witnesses in these proceedings are directed.  
20 Utilities must comply with MATS beginning in April 2015.

21  
22 The two other significant pending EPA regulations considered by Gulf's  
23 October 2012 retirement analysis for Plant Smith are a pending rule to implement



1 Section 316(b) of the Clean Water Act ("CWA"), which would establish standards to  
2 minimize the impact of power plant cooling water intake structures on aquatic  
3 organisms, and EPA's pending Coal Combustion Residuals ("CCR") rule, which  
4 addresses regulation of coal ash and other wastes arising from coal combustion and  
5 air pollution control systems, such as scrubbers. The final CCR rule could require  
6 significant investments to improve the integrity of on-site storage areas for coal ash  
7 and other wastes. The pending rule to implement CWA Section 316(b) could  
8 ultimately require that plants add closed cycle cooling water systems, such as cooling  
9 towers, in instances where existing power plant cooling water intake structures are  
10 found to adversely impact aquatic organisms. Recent industry reports suggest that the  
11 pending rule to implement CWA Section 316(b) may be finalized by the end of 2013,  
12 while the EPA's CCR rule is expected to be finalized in 2014. Although Gulf's  
13 October 2012 retirement analysis indicates that the potential cost of compliance with  
14 these two pending environmental rules at Plant Smith could be [START  
15 CONFIDENTIAL] [REDACTED] [END  
16 CONFIDENTIAL], these pending regulations were not evaluated in the Company's  
17 environmental compliance analysis for Plant Smith.

18  
19 **Q. DOES GULF'S OCTOBER 2012 PRESENTATION ADDRESS THE**  
20 **POTENTIAL IMPACT ON THE ECONOMIC VIABILITY OF SMITH UNITS**  
21 **1 AND 2 IF THE FORECASTED COMPLIANCE COSTS FOR THE**  
22 **PENDING CCR RULE AND THE PENDING RULE TO IMPLEMENT CWA**

1 SECTION 316(B) ARE ADDED TO THE MATS COMPLIANCE COSTS FOR  
2 PLANT SMITH? IF SO, WHAT DOES THE ANALYSIS SHOW?

3 A. Yes. The October 2012 Gulf presentation indicates that, when forecasted compliance  
4 costs for the CCR rule and the pending rule to implement CWA Section 316(b) are  
5 added to MATS compliance costs for Plant Smith, along with the proposed  
6 transmission upgrade costs, the cost of continued operation of the Smith coal units is  
7 [START CONFIDENTIAL] [REDACTED]  
8 [REDACTED]  
9 [REDACTED] [END CONFIDENTIAL] (See Confidential  
10 Exhibit SN-6, pages 6 and 7).

11  
12 Moreover, on page 14 of the presentation, Gulf concludes that [START  
13 CONFIDENTIAL] [REDACTED]  
14 [REDACTED]  
15 [REDACTED]  
16 [REDACTED] [END CONFIDENTIAL] (See Confidential Exhibit SN-6,  
17 page 8).

18  
19 Q. IS THERE OTHER EVIDENCE SUGGESTING THAT THE PLANT SMITH  
20 RETIREMENT OPTION MAY BE A LOWER COST ALTERNATIVE TO  
21 GULF'S PROPOSED "COMPLIANCE" PLAN?

22 A. Yes. Gulf's Ten-Year Transmission Plan states that the proposed transmission  
23 upgrades for Plant Smith are intended to address [START CONFIDENTIAL]

1 [REDACTED]  
2 [END CONFIDENTIAL] (See Confidential Exhibit SN-2, Confidential Project  
3 Descriptions from Gulf's Current Ten-Year Transmission Plan, as provided in Gulf's  
4 response to Citizens' Request for Production of Documents No. 75): [START

5 CONFIDENTIAL] [REDACTED]

6 [REDACTED] [END  
7 CONFIDENTIAL]

8  
9 Q. DOES GULF'S FAILURE TO EVALUATE PLANT SMITH RETIREMENT  
10 OPTIONS RAISE SERIOUS QUESTIONS REGARDING THE PRUDENCE  
11 OF THE COMPANY'S PROPOSED TRANSMISSION PROJECT FOR  
12 PLANT SMITH?

13 A. Yes. If approved, the Company's proposed "compliance" plan would provide for  
14 Gulf to invest approximately [REDACTED] for emissions controls plus another \$76  
15 million for transmission upgrades for the Plant Smith coal units. Gulf's proposal to  
16 incur this level of investment without first evaluating Plant Smith retirement  
17 alternatives obviously raises serious prudence and potential stranded investment  
18 concerns. Consequently, Gulf has essentially asked the Commission to authorize it to  
19 place an expensive cart before the horse.

20  
21 Q. PLEASE SUMMARIZE YOUR CONCLUSIONS REGARDING GULF'S  
22 PROPOSAL TO RECOVER TRANSMISSION UPGRADE COSTS  
23 THROUGH THE ECRC.

1 A. The transmission upgrade costs that Gulf seeks to recover are not required for  
2 environmental compliance and have not been demonstrated to be prudent; therefore,  
3 these costs do not meet the Commission's criteria for recovery through the ECRC.  
4

5 V. **GULF HAS NOT DEMONSTRATED THAT THE PROPOSED**  
6 **TRANSMISSION UPGRADE COSTS SHOULD BE RECOVERED IN BASE**  
7 **RATES**

8 Q. **WHAT IS GULF'S ALTERNATIVE REQUEST TO RECOVER PLANT**  
9 **CRIST AND PLANT SMITH UPGRADE COSTS?**

10 A. Gulf's alternative request for recovery of transmission upgrade costs is to recover  
11 \$637,000 in base rates for projected transmission upgrade costs for the 2014 test year  
12 (See Gulf witness Ritenour's testimony in Docket No. 130140-EI, page 36). In  
13 addition, Gulf requests approval of a step increase to base rates of \$16.392 million,  
14 effective on July 1, 2015, to recover the projected costs of transmission upgrades for  
15 Plant Crist and Plant Smith for the 12-month period ending June 30, 2016 (See Gulf  
16 witness Ritenour's testimony in Docket No. 130140-EI, page 37).  
17

18 Q. **IS GULF'S ALTERNATIVE RECOVERY PROPOSAL FOR TRANSMISSION**  
19 **UPGRADE COSTS REASONABLE?**

20 A. No. As explained earlier in my testimony, Gulf has not demonstrated that its  
21 proposed transmission upgrades are prudent due to the Company's failure to provide  
22 support for its Must-Run operating assumptions and its failure to consider Plant Smith  
23 retirement alternatives. Moreover, there is significant uncertainty regarding the

1 forecasted step increase for these upgrades due to the fact that the forecasts extend  
2 approximately 18 months beyond the end of the 2014 test year. For these reasons, I  
3 recommend that Gulf's alternative request to recover proposed transmission upgrade  
4 costs associated with its proposed environmental "compliance" plan for Plant Crist  
5 and Plant Smith be denied.  
6

7 **Q. PLEASE SUMMARIZE YOUR CONCLUSIONS.**

8 A. I recommend that the Commission deny Gulf's request to recover proposed  
9 transmission upgrade costs through the Company's ECRC because these costs are not  
10 legally required to comply with environmental regulations and have not been  
11 demonstrated to be prudent. I further recommend that the Commission deny Gulf's  
12 alternative proposal to recover proposed transmission upgrade costs through a step  
13 increase to base rates because these costs have not been demonstrated to be prudent  
14 and are too uncertain to be included in base rates. I also recommend that the  
15 Commission deny Gulf's request to recover \$637,000 in base rates for projected  
16 transmission upgrade costs for the 2014 test year.  
17

18 **Q. DOES THAT CONCLUDE YOUR TESTIMONY?**

19 A. Yes, it does.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a copy of the foregoing PUBLIC VERSION of the Direct Testimony of Scott Norwood has been furnished by e-mail, U.S. Mail and/or hand delivery to the following parties on this 7<sup>th</sup> day of October, 2013, to the following:

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## **RESUME OF DON SCOTT NORWOOD**

### **Norwood Energy Consulting, L.L.C.**

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### **SUMMARY**

Scott Norwood is an energy consultant with over 30 years of experience in electric utility regulatory consulting, resource planning and energy procurement. His clients include government agencies, publicly-owned utilities, public service commissions, municipalities and various electric consumer interests. Mr. Norwood has presented expert testimony on electric restructuring, resource planning and ratemaking issues in regulatory proceedings in Arkansas, Georgia, Iowa, Illinois, Michigan, Missouri, New Jersey, Oklahoma, South Dakota, Texas, Virginia, Washington and Wisconsin.

Prior to founding Norwood Energy Consulting in January of 2004, Mr. Norwood was employed for 18 years by GDS Associates, Inc., a Marietta, Georgia based energy consulting firm. Mr. Norwood was a Principal of GDS and directed the firm's Deregulated Services Department which provided a range of consulting services including merchant plant due diligence studies, deregulated market price forecasts, power supply planning and procurement projects, electric restructuring policy analyses, and studies of power plant dispatch and production costs.

Before joining GDS, Mr. Norwood was employed by the Public Utility Commission of Texas as Manager of Power Plant Engineering from 1984 through 1986. He began his career in 1980 as Staff Electrical Engineer with the City of Austin's Electric Utility Department where he was in charge of electrical maintenance and design projects at three gas-fired power plants.

Mr. Norwood is a graduate of the college of electrical engineering of the University of Texas.

### **EXPERIENCE**

#### **Energy Planning and Procurement Services**

*Dell Computer Corporation* – Negotiated retail power supply agreement for Dell's Round Rock, Texas facilities producing annual savings in excess of \$2 million.

*Texas Association of School Boards Electric Aggregation Program* – Serve as TASB's consultant in the development, marketing and administration of a retail electric aggregation program consisting of 2,500 Texas schools with a total load

of over 300 MW. Program produced annual savings of more than \$30 million in its first year.

*Oklahoma Industrial Energy Consumers* - Analyzed and drafted comments addressing integrated resource plan filings by Public Service Company of Oklahoma and Oklahoma Gas and Electric Company.

*S.C. Johnson* - Analyzed and presented testimony addressing Wisconsin Electric Power Company's \$4.1 billion CPCN application to construct three coal-fired generating units in southeast Wisconsin.

*Oklahoma Industrial Energy Consumers* - Analyzed wind energy project ownership proposals by Oklahoma Gas and Electric Company and presented testimony addressing project economics and operational impacts.

*City of Chicago, Illinois Attorney General, Illinois Citizens' Utility Board* - Analyzed Commonwealth Edison's proposed divestiture of the Kincaid and State Line power plants to SEI and Dominion Resources.

*Georgia Public Service Commission* - Analyzed and presented testimony on Georgia Power Company's integrated resource plan in a certification proceeding for an eight unit, 640 MW combustion turbine facility.

*South Dakota Public Service Commission* - Evaluated integrated resource plan and power plant certification filing of Black Hills Power & Light Company.

*Shell Leasing Co.* - Evaluated market value of 540 MW western coal-fired power plant.

*Community Energy Electric Aggregation Program* - Served as Community Energy's consultant in the development, marketing and start-up of a retail electric aggregation program consisting of major charitable organizations and their donors in Texas.

*Austin Energy* - Conducted competitive solicitation for peaking capacity. Developed request for proposal, administered solicitation and evaluated bids.

*Austin Energy* - Provided technical assistance in the evaluation of the economic viability of the City of Austin's ownership interest in the South Texas Project.

*Austin Energy* - Assisted with regional production cost modeling analysis to assess production cost savings associated with various public power merger and power pool alternatives.

*Sam Rayburn G&T Electric Cooperative* - Conducted competitive solicitation for peaking capacity. Developed request for proposal, administered solicitation and evaluated bids.



*Rio Grande Electric Cooperative, Inc.* - Directed preparation of power supply solicitation and conducted economic and technical analysis of offers.

### **Electric Restructuring Analyses**

*Electric Power Research Institute* - Evaluated regional resource planning and power market dispatch impacts on rail transportation and coal supply procurement strategies and costs.

*Arkansas House of Representatives* - Critiqued proposed electric restructuring legislation and identified suggested amendments to provide increased protections for small consumers.

*Virginia Legislative Committee on Electric Utility Restructuring* - Presented report on status of stranded cost recovery for Virginia's electric utilities.

*Georgia Public Service Commission* - Developed models and a modeling process for preparing initial estimates of stranded costs for major electric utilities serving the state of Georgia.

*City of Houston* - Evaluated and recommended adjustments to Reliant Energy's stranded cost proposal before the Public Utility Commission of Texas.

*Oklahoma Attorney General* - Evaluated and advised the Attorney General on technical, economic and regulatory policy issues arising from various electric restructuring proposals considered by the Oklahoma Electric Restructuring Advisory Committee.

*State of Hawaii Department of Business, Economics and Tourism* - Evaluated electric restructuring proposals and developed models to assess the potential savings from deregulation of the Oahu power market.

*Virginia Attorney General* - Served as the Attorney General's consultant and expert witness in the evaluation of electric restructuring legislation, restructuring rulemakings and utility proposals addressing retail pilot programs, stranded costs, rate unbundling, functional separation plans, and competitive metering.

*Western Public Power Producers, Inc.* - Evaluated operational, cost and regional competitive impacts of the proposed merger of Southwestern Public Service Company and Public Service Company of Colorado.

*Iowa Department of Justice, Consumer Advocate Division* - Analyzed stranded investment and fuel recover issues resulting from a market-based pricing proposal submitted by MidAmerican Energy Company.

*Cullen Weston Pines & Bach/Citizens' Utility Board* - Evaluated estimated costs

and benefits of the proposed merger of Wisconsin Energy Corporation and Northern States Power Company (Primergy).

*City of El Paso* - Evaluated merger synergies and plant valuation issues related to the proposed acquisition and merger of El Paso Electric Company and Central & Southwest Company.

*Rio Grande Electric Cooperative, Inc.* - Analyzed stranded generation investment issues for Central Power & Light Company.

### **Regulatory Consulting**

*Oklahoma Industrial Energy Consumers* - Assisted client with technical and economic analysis of proposed EPA regulations and compliance plans involving control of air emissions and potential conversion of coal-to-gas conversion options.

*New York Public Service Commission* - Conducted inter-company statistical benchmarking analysis of Consolidated Edison Company to provide the New York Public Service Commission with guidance in determining areas that should be reviewed in detailed management audit of the company.

*Oklahoma Industrial Energy Consumers* - Analyzed and presented testimony on affiliate energy trading transactions by AEP in ERCOT.

*Georgia Public Service Commission* - Presented testimony before the Georgia Public Service Commission in Docket 3840-U, providing recommendations on nuclear O&M levels for Hatch and Vogtle and recommending that a nuclear performance standard be implemented in the State of Georgia.

*Oklahoma Industrial Energy Consumers* - Analyzed and presented testimony addressing power production and coal plant dispatch issues in fuel prudence cases involving Oklahoma Gas and Electric Company.

*Georgia Public Service Commission* - Analyzed and provided recommendations regarding the reasonableness of nuclear O&M costs, fossil O&M costs and coal inventory levels reported in GPC's 1990 Surveillance Filing.

*New York Public Service Commission* - Conducted inter-company statistical benchmarking analysis of Rochester Gas & Electric Company to provide the New York Public Service Commission with guidance in determining areas which should be reviewed in detailed management audit of the company.

*Oklahoma Attorney General* - Analyzed and presented testimony regarding fuel and purchased power, depreciation and other expense items in Oklahoma Gas & Electric Company's 2001 rate case before the Oklahoma Corporation Commission.

*City of Houston* - Analyzed and presented testimony regarding fossil plant O&M expense levels in Houston Lighting & Power Company's rate case before the Public Utility Commission of Texas.

*City of El Paso* - Analyzed and presented testimony regarding regulatory and technical issues related to the Central & Southwest/El Paso Electric Company merger and rate proceedings before the PUCT, including analysis of merger synergy studies, fossil O&M and purchased power margins.

*Residential Ratepayer Consortium* - Analyzed Fermi 2 replacement power and operating performance issues in 1994 and 1995 fuel reconciliation proceedings for Detroit Edison Company before the Michigan Public Service Commission.

*Residential Ratepayer Consortium* - Analyzed and prepared testimony addressing coal plant outage rate projections in the Consumer's Power Company fuel proceeding before the Michigan Public Service Commission.

*City of El Paso* - Analyzed and developed testimony regarding Palo Verde operations and maintenance expenses in El Paso Electric Company's 1991 rate case before the Public Utility Commission of Texas.

*City of Houston* - Analyzed and developed testimony regarding the operations and maintenance expenses and performance standards for the South Texas Nuclear Project, and operations and maintenance expenses for the Limestone and Parish coal-fired power plants in HL&P's 1991 rate case before the PUCT.

*City of El Paso* - Analyzed and developed testimony regarding Palo Verde operations and maintenance expenses in El Paso Electric Company's 1990 rate case before the Public Utility Commission of Texas. Recommendations were adopted.

### **Power Plant Management**

*City of Austin Electric Utility Department* - Analyzed the 1994 Operating Budget for the South Texas Nuclear Project (STNP) and assisted in the development of long-term performance and expense projections and divestiture strategies for Austin's ownership interest in the STNP.

*City of Austin Electric Utility Department* - Analyzed and provided recommendations regarding the 1991 capital and O&M budgets for the South Texas Nuclear Project.

*Sam Rayburn G&T Electric Cooperative* - Developed and conducted operational monitoring program relative to minority owner's interest in Nelson 6 Coal Station operated by Gulf States Utilities.

*KAMO Electric Cooperative, City of Brownsville and Oklahoma Municipal Power Agency* - Directed an operational audit of the Oklaunion coal-fired power plant.

*Sam Rayburn G&T Electric Cooperative* - Conducted a management/technical assessment of the Big Cajun II coal-fired power plant in conjunction with ownership feasibility studies for the project.

*Kamo Electric Power Cooperative* - Developed and conducted operational monitoring program for client's minority interest in GRDA Unit 2 Coal Fired Station.

*Northeast Texas Electric Cooperative* - Developed and conducted operational monitoring program concerning NTEC's interest in Pirkey Coal Station operated by Southwestern Electric Power Company and Dolet Hills Station operated by Central Louisiana Electric Company.

*Corn Belt Electric Cooperative/Central Iowa Power Cooperative* - Perform operational monitoring and budget analysis on behalf of co-owners of the Duane Arnold Energy Center.

## **PRESENTATIONS**

*Quantifying Impacts of Electric Restructuring: Dynamic Analysis of Power Markets*, 1997 NARUC Winter Meetings, Committee on Finance and Technology.

*Quantifying Costs and Benefits of Electric Utility Deregulation: Dynamic Analysis of Regional Power Markets*, International Association for Energy Economics, 1996 Annual North American Conference.

*Railroad Rates and Utility Dispatch Case Studies*, 1996 EPRI Fuel Supply Seminar.

*Quantifying Potentially Stranded Costs: Modeling and Policy Issues*, 1996 NASUCA Annual Meeting.

**TESTIMONY OF DON SCOTT NORWOOD  
SINCE 2003**

<u>NO.</u>	<u>FILING DATE</u>	<u>REGULATORY AGENCY/COURT</u>	<u>DOCKET/CASE</u>	<u>UTILITY APPLICANT</u>	<u>ISSUES</u>
1	01/27/03	Texas Public Utility Commission	26186	Southwestern Public Service Company (Direct)	Reasonableness of Reconcilable Fuel and Purchased Power Expenses for 24 month Reconciliation Period
2	02/10/03	Texas Public Utility Commission	27320	Reliant Energy Retail Services, LLC (Direct)	Reasonableness of Proposed Increase to PTB Fuel Factor and the Reasonableness of Rate Case Expenses
3	04/09/03	Texas Public Utility Commission	27035	Central Power and Light Company (Direct)	Reasonableness of CPL's Request to Reconcile Fuel Costs
4	04/10/03	Texas Public Utility Commission	26194	EI Paso Electric Company (Direct)	Reasonableness of EPE's Request to Reconcile Fuel Costs
5	06/26/03	Texas Public Utility Commission	27956	Reliant Energy, and Retail Services, LCC (Direct)	Reasonableness of Reliant's Proposal to Increase PTB Fuel Factors
6	07/07/03	Public Service Commission of Wisconsin	05-CE-130	Wisconsin Electric Power Company (Direct)	Reasonableness of Input Assumptions and Results of Economic Analysis of ERGS
7	07/18/03	Texas Public Utility Commission	27576	Texas-New Mexico Power Company (Direct)*	Reasonableness of TNMP's Application for Final Reconciliation of Fuel Costs
8	08/19/03	Texas Public Utility Commission	26000	West Texas Utilities Company (Remand Direct)	Reasonableness of WTU's Application to Reconcile Eligible Fuel Expenses and Fuel Factor Revenues
9	08/26/03	Public Service Commission of Wisconsin	05-CE-130	Wisconsin Electric Power Company (Rebuttal)	Reasonableness of FEIS Economic Analysis of ERGS
10	08/26/03	Public Service Commission of Wisconsin	05-CE-130	Wisconsin Electric Power Company (Surrebuttal)	Reasonableness of Input Assumptions and Results of Economic Analysis of ERGS
11	09/05/03	State Corporation Commission of Virginia	PUE-2003-00285	Virginia Electric and Power Company (Direct)	Reasonableness of VEPCO's natural gas, coal, and purchased energy price forecasts underlying the Company's Fuel Factor Proposal
12	10/28/03	Texas Public Utility Commission	26195	Texas Genco and CenterPoint Energy (Refilled Direct)	Reasonableness of Estimated Costs and Benefits under a Joint Operating Agreement
13	11/05/03	Texas Public Utility Commission	28045	Southwestern Public Service Company (Direct)	Reasonableness of SWEPCO's Application for Reconciliation of Fuel Costs
14	12/12/03	Michigan Public Service Commission	U-13808	The Detroit Edison Company (Direct)	Analysis and Recommendations regarding DECO's proposed 2004 PSCR Plan applications and PSCR factor
15	02/27/04	Oklahoma Corporation Commission	PUD 200400004	Oklahoma Gas and Electric (Direct)	Request for Approval of McClain PPA
16	03/26/04	Michigan Public Service Commission	U-13808	The Detroit Edison Company (Direct)	Rebuttal Testimony Addressing DECO's proposed 2004 PSCR Plan applications and PSCR factor
17	03/29/04	Texas Public Utility Commission	29206	Texas New Mexico Power Company	Reasonableness of TNMP's Application for Final True-up of Stranded Costs
18	06/01/04	Texas Public Utility Commission	29526	CenterPoint, TGN, Reliant	Reasonableness of Applicants' Application for Final True-up of Stranded Costs
19	07/19/04	State of Wisconsin Division of Hearings and Appeals	3-SE-01-41-0005-0019	Wisconsin Electric Power Company	Authority for construction of ERGS facilities in Lake Michigan lakebed.
20	07/24/04	State of Wisconsin Division of Hearings and Appeals	IH-04-03	Wisconsin Electric Power Company	Comparison of environmental, social, capital and operating costs of proposed ERGS SCPC units to IGCC alternatives
21	8/9/04	State of Wisconsin Division of Hearings and Appeals	3-SE-01-41-0005-0019	Wisconsin Electric Power Company	WEPCO's failure to conduct a practicable alternatives analysis for wetlands impact of the ERGS.
22	8/18/04	Texas Public Utility Commission	29526	CenterPoint, TGN, Reliant	Reasonableness of Applicants' request for interest on claimed stranded costs; contribution of capacity auction true-up to return on stranded costs;
23	09/02/04	Texas Public Utility Commission	29526	CenterPoint, TGN, Reliant	Reasonableness of Applicants' request for interest on claimed stranded costs; contribution of capacity auction true-up to return on stranded costs.
24	9/10/04	Texas Public Utility Commission	27035	AEP TCC	Level and cost of capacity included in TCC's summer on-peak block energy purchases
25	09/27/04	State of Wisconsin Division of Hearings and Appeals	3-SE-01-41-0005-0019	Wisconsin Electric Power Company	Authority for construction of ERGS facilities in Lake Michigan lakebed
26	10/26/04	Texas Public Utility Commission	29801	Southwestern Public Service Company (Direct)	Reasonableness of SWEPCO's Application for Reconciliation of Fuel Costs
27	11/22/04	Texas Public Utility Commission	29206	Texas New Mexico Power Company (Remand Direct)	Reasonableness of TNMP's Claim for Interest on Final True-up Costs
28	1/18/05	Texas Public Utility Commission	29703	AEP Texas North Company (Direct)	Reasonableness of TNC's Final True-up Costs

Docket Nos. 130140-EI, 130151-EI, 130092-EI  
 Exhibit SN-1  
 Background and Experience of Scott Norwood  
 Page 7 of 11

**TESTIMONY OF DON SCOTT NORWOOD  
SINCE 2003**

<u>NO.</u>	<u>FILING DATE</u>	<u>REGULATORY AGENCY/COURT</u>	<u>DOCKET/CASE</u>	<u>UTILITY APPLICANT</u>	<u>ISSUES</u>
29	1/20/05	Michigan Public Service Commission	U-14274	Consumers Energy Company (Direct)	Reasonableness of CECCO's proposed 2005 PSCR Plan
30	2/23/05	Texas Public Utility Commission	30143	El Paso Electric Company (Direct)	Reasonableness of EPE's Request to Reconcile Fuel Costs
31	5/26/05	State Corporation Commission of Virginia	PUE2005-0012	Craig-Botetourt ECI (Direct)	General Rate Case, Power Supply Procurement Process
32	7/25/05	Oklahoma Corporation Commission	PUD 2002-00754	Public Service Company of Oklahoma (Direct)	Energy Trading Margins Allocation
33	09/02/05	Texas Public Utility Commission	31056	AEP TCC (Direct)	Reasonableness of TCC's Final True-up Costs
34	9/12/05	Oklahoma Corporation Commission	PUD 2005-00151	Oklahoma Gas and Electric (Direct)	Revenue Requirements, planning prudence, cost allocation
35	11/28/05	Louisiana Public Service Commission	U-27469	tergy Gulf States, Inc. and Entergy Louisiana, Inc. (Direct)	Reasonableness of Settlement on Avoided Energy Costs
36	11/29/05	State Corporation Commission of Virginia	PUE2005-00056	Appalachian Power Company (Direct)	General Rate Case, Environmental and Reliability Costs
37	4/17/06	Texas Public Utility Commission	32475	AEP TCC (Direct)	Reasonableness of TCC's Securitization Proposal
38	4/25/06	State Corporation Commission of Virginia	PUE2006-00032	Delmarva Power & Light Company (Direct)	General Rate Case, Purchased Power Costs
39	5/15/06	Texas Public Utility Commission	31994	Texas New Mexico Power Company (Direct)	Reasonableness of TNP's CTC Proposal
40	8/24/06	Texas Public Utility Commission	32758	AEP TCC (Direct)	Reasonableness of TCC's CTC Proposal
41	10/04/06	State Corporation Commission of Virginia	PUE2006-00065	Appalachian Power Company (Direct)	General Rate Case, Off-System Sales and Jurisdictional Allocation
42	8/24/06	Texas Public Utility Commission	32758	AEP TCC (Direct)	Reasonableness of TCC's CTC Proposal
43	12/15/06	Texas Public Utility Commission	32766	Southwestern Public Service Company (Direct)	General Rate Case, Purchased Power Costs, Market-Based Sales
44	1/25/07	Texas Public Utility Commission	33106	Texas New Mexico Power Company (Direct)	Reasonableness of TNMP's CTC Carrying Charge Proposal
45	1/30/07	Texas Public Utility Commission	32898	Southwestern Electric Power Company (Direct)	Reasonableness of Fuel and Purchased Power Costs
46	2/15/07	Texas Public Utility Commission	31461	AEP TNC (Direct)	Reasonableness of TNC's CTC Proposal
47	3/13/07	Texas Public Utility Commission	33309	AEP TCC (Direct)	Reasonableness of Proposed Cost Allocation, Rate Design and Tariffs
48	3/13/07	Texas Public Utility Commission	33310	AEP TNC (Direct)	Reasonableness of Proposed Cost Allocation, Rate Design and Tariffs
49	3/20/07	Oklahoma Corporation Commission	PUD 2006-00285	Public Service Company of Oklahoma (Direct)	Non-fuel O&M, fuel costs, energy trading margins, purchased capacity costs
50	4/9/07	Oklahoma Corporation Commission	PUD 2006-00285	Public Service Company of Oklahoma (Rebuttal)	Non-fuel O&M, fuel costs, energy trading margins, purchased capacity costs
51	4/27/07	Texas Public Utility Commission	33687	Entergy Gulf States, Inc.	Transition to Competition Plan
52	5/21/07	Oklahoma Corporation Commission	PUD 2006-00030	Public Service Company of Oklahoma (Direct)	Prudence of Red Rock Generating Plant
53	5/21/07	Oklahoma Corporation Commission	PUD 2007-00012	Oklahoma Gas & Electric Company (Direct)	Prudence of Red Rock Generating Plant
54	6/8/07	Texas Public Utility Commission	33734	AEP/ETT	Formation of ETT Transmission Utility
55	6/18/07	Oklahoma Corporation Commission	PUD 2006-00030	Public Service Company of Oklahoma (Rebuttal)	Prudence of Red Rock Generating Plant
56	6/18/07	Oklahoma Corporation Commission	PUD 2007-00012	Oklahoma Gas & Electric Company (Rebuttal)	Prudence of Red Rock Generating Plant

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57	6/19/07	Arkansas Public Service Commission	04-113-U	Entergy Arkansas Inc. (Direct)	Calculation of Avoided Energy Costs
58	7/24/07	Arkansas Public Service Commission	04-113-U	Entergy Arkansas Inc. (Surrebuttal)	Calculation of Avoided Energy Costs
59	9/26/07	Texas Public Utility Commission	34470	Southwestern Public Service Company (Direct)	System Loss Evaluation
60	10/01/07	State Corporation Commission of Virginia	PUE-2007-00067	Appalachian Power Company (Direct)	Fuel Factor Evaluation
61	10/03/07	State Corporation Commission of Virginia	PUE-2007-00069	Appalachian Power Company (Direct)	Environmental and Reliability Surcharge
62	11/02/07	State Corporation Commission of Virginia	PUE-2007-00066	Dominion Virginia Power (Direct)	Wise County Coal Plant Application
63	12/10/07	State Corporation Commission of Virginia	PUE-2007-00068	Appalachian Power Company (Direct)	WV IGCC Power Plant Proposal
64	1/18/08	Texas Public Utility Commission	34410	AEP TCC (Direct)	Oklahoma Sale True-up
65	4/4/08	Oklahoma Corporation Commission	PUE 2007-00365	Public Service Company of Oklahoma (Direct)	Fuel Prudence Review
66	4/11/08	Texas Public Utility Commission	34800	Entergy Gulf States, Inc. (Direct)	Fuel Reconciliation Case
67	5/15/08	Oklahoma Corporation Commission	PUD 2007-00364	Oklahoma Gas & Electric Company (Direct)	Fuel Prudence Review
68	5/23/08	Texas Public Utility Commission	33672	ERCOT (Direct)	Competitive Renewable Energy Zones for Wind Generation
69	6/3/08	Texas Public Utility Commission	33672	ERCOT (Rebuttal)	Competitive Renewable Energy Zones for Wind Generation
70	6/12/07	State Corporation Commission of Virginia	PUE-2008-00039	Dominion Virginia Power (Direct)	Fuel Factor Application
71	7/11/08	Oklahoma Corporation Commission	PUD 2008-00148	Oklahoma Gas & Electric Company (Direct)	Proposed Transmission for Wind Generation
72	7/17/08	Oklahoma Corporation Commission	PUD 2007-00364	Oklahoma Gas & Electric Company (Rebuttal)	Fuel Prudence Review
73	8/13/08	State Corporation Commission of Virginia	PUE-2008-00045	Appalachian Power Company (Direct)	Environmental and Reliability Surcharge
74	9/26/08	State Corporation Commission of Virginia	PUE-2008-00046	Appalachian Power Company (Direct)	Capacity Equalization, capital additions, production O&M
75	10/3/08	State Corporation Commission of Virginia	PUE-2008-00033	Polomac Edison Company (Direct)	Purchased Power Cost Recovery
76	10/13/08	Texas Public Utility Commission	35763	Southwestern Public Service Company (Direct)	Incremental Cost of Wholesale Sales, OSS and Commodity Trading Margins
77	10/29/08	Oklahoma Corporation Commission	PUE 2008-00144	Public Service Company of Oklahoma (Direct)	Capital additions, affiliate charges, corporate strategy
78	11/5/08	Oklahoma Corporation Commission	PUE 2008-00144	Public Service Company of Oklahoma (Direct)	Base rate fuel costs, reactive power charges
79	1/7/09	Texas Public Utility Commission	36324	Southwestern Electric Power Company (Direct)	Interim Fuel Factor Proposal
80	6/23/09	State Corporation Commission of Virginia	PUE-2009-00038	Appalachian Power Company (Direct)	Fuel Factor Evaluation
81	6/24/09	Oklahoma Corporation Commission	PUD 2008-00398	Oklahoma Gas & Electric Company (Direct)	General Rate Case, Rate Design Issues
82	6/25/09	State Corporation Commission of Virginia	PUE-2009-00016	Dominion Virginia Power (Direct)	Fuel Factor Application
83	8/27/09	State Corporation Commission of Virginia	PUE-2009-00039	Appalachian Power Company (Direct)	Environmental and Reliability Surcharge
84	9/29/09	Oklahoma Corporation Commission	PUD 2009-00167	Oklahoma Gas & Electric Company (Direct)	Certification of OU Spirit Wind Generation Project
85	11/2/09	State Corporation Commission of Virginia	PUE-2009-00019	Dominion Virginia Power (Direct)	General Rate Case

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86	11/17/09	Washington Utilities and Trade Commission	UE-090704	Puget Sound Energy (Direct)	General Rate Case
87	12/28/09	State Corporation Commission of Virginia	PUE-2009-00030	Appalachian Power Company (Direct)	Base rate case, capacity equalization charges
88	1/13/10	State Corporation Commission of Virginia	PUE-2009-00081	Dominion Virginia Power (Direct)	DSM Cost Recovery, Voltage Reduction Program
89	1/28/10	Washington Utilities and Trade Commission	UE-070725	Puget Sound Energy (Direct)	Ratemaking Treatment of REC Sale Proceeds
90	3/17/10	Oklahoma Corporation Commission	PUE 2009-00158	Public Service Company of Oklahoma (Direct)	Affiliate Energy Trading Costs
91	5/6/10	Texas Public Utility Commission	37162	Southwestern Electric Power Company (Direct)	Energy Trading Margin Refund
92	6/11/10	Oklahoma Corporation Commission	PUD 2010-00037	Oklahoma Gas & Electric Company (Direct)	Crossroads Wind Generation Project
93	7/6/10	Texas Public Utility Commission	38361	El Paso Electric Company (Direct)	Mine Reclamation Costs
94	7/12/10	Texas Public Utility Commission	37162	Southwestern Electric Power Company (Direct)	Affiliate Energy Trading Costs
95	7/20/10	Oklahoma Corporation Commission	PUE 2009-00158	Public Service Company of Oklahoma (Surrebuttal)	Affiliate Energy Trading Costs
96	9/10/10	Texas Public Utility Commission	38339	CenterPoint Energy Houston Electric, LLC (Direct)	Storm Hardening and Distribution O&M Expenses
97	10/05/10	Oklahoma Corporation Commission	PUE 2010-00092	Public Service Company of Oklahoma (Direct)	Wind Energy PPA, REC Treatment
98	10/26/10	Oklahoma Corporation Commission	PUE 2010-00050	Public Service Company of Oklahoma (Direct)	Base Rate Case
97	1/7/11	State Corporation Commission of Virginia	PUE-2010-00126	Northern Virginia Electric Cooperative (Direct)	Biomass Power Plant CPCN
98	1/14/11	Oklahoma Corporation Commission	PUD 2010-00146	Oklahoma Gas & Electric Company (Direct)	SPP Cost Tracker
99	3/11/11	Oklahoma Corporation Commission	PUD 2010-00175	Oklahoma Gas & Electric Company (Direct)	2009 Fuel Prudence Review
100	3/15/11	Arkansas Public Service Commission	10-067-U	Oklahoma Gas & Electric Company (Direct)	Coal Inventory, Production O&M, ECR Revisions
99	4/1/11	Oklahoma Corporation Commission	PUD 2010-00172	Public Service Company of Oklahoma (Direct)	Fuel Prudence Review
100	7/20/11	State Corporation Commission of Virginia	PUE-2011-00037	Appalachian Power Company (Direct)	Base rate case, capacity equalization charges
101	7/21/11	State Corporation Commission of Virginia	PUE-2011-00027	Dominion Virginia Power (Direct)	Performance Incentive Program
102	7/29/11	State Corporation Commission of Virginia	PUE-2011-00035	Appalachian Power Company (Direct)	Environmental Compliance Rate Adjustment Clause
103	8/23/11	State Corporation Commission of Virginia	PUE-2011-00034	Appalachian Power Company (Direct)	RPS Rate Adjustment Clause
104	9/12/11	Texas Public Utility Commission	39504	CenterPoint Energy Houston Electric, LLC (Direct)	Stranded Cost Remand
105	9/16/11	Oklahoma Corporation Commission	PUD 2011-00106	Public Service Company of Oklahoma (Direct)	SPP Transmission Cost Recovery Rider
106	11/22/11	State Corporation Commission of Virginia	PUE-2011-00073	Dominion Virginia Power (Direct)	Biomass Conversion Project
107	12/7/11	Washington Utilities and Trade Commission	UE-111048	Puget Sound Energy (Direct)	Lower Snake River Wind Generation Project
108	1/17/12	State Corporation Commission of Virginia	PUE-2011-00093	Dominion Virginia Power (Direct)	DSM Program Evaluation and Cost Recovery
109	2/8/12	Oklahoma Corporation Commission	PUD 2011-00186	Oklahoma Gas & Electric Company (Direct)	OSU Special Contract



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110	4/6/12	Oklahoma Corporation Commission	PUD 2011-00132	Oklahoma Gas & Electric Company (Direct)	2010 Fuel Prudence Review
111	4/30/12	Oklahoma Corporation Commission	PUD 2011-00129	Public Service Company of Oklahoma (Direct)	2010 Fuel Prudence Review
112	6/21/12	Texas Public Utility Commission	40020	Lone Star Transmission, LLC (Direct)	Transmission O&M Expenses
113	9/14/12	Oklahoma Corporation Commission	PUD 2011-00186	Oklahoma Gas & Electric Company (Direct)	SPP Cost Rider
114	12/10/12	Texas Public Utility Commission	40443	Southwestern Electric Power Company (Direct)	Turk Settlement Costs, Welsh 2 Retirement, Production O&M
115	1/8/13	Oklahoma Corporation Commission	PUD 2012-00054	Public Service Company of Oklahoma (Direct)	Environmental Compliance Plan
116	2/11/13	Oklahoma Corporation Commission	PUD 2012-00054	Public Service Company of Oklahoma (Rebuttal)	Environmental Compliance Plan
117	3/1/13	State Corporation Commission of Virginia	PUE-2012-00128	Dominion Virginia Power (Direct)	Brunswick CCCT CCN
118	3/22/13	Oklahoma Corporation Commission	PUD 2012-00054	Public Service Company of Oklahoma (Surrebuttal)	Environmental Compliance Plan
119	1/8/13	Oklahoma Corporation Commission	PUD 2012-00054	Public Service Company of Oklahoma (Direct)	Environmental Compliance Plan
120	4/23/13	State Corporation Commission of Virginia	PUE-2012-00141	Appalachian Power Company (Direct)	Coal-fired Generating Asset Transfers
121	7/31/13	State Corporation Commission of Virginia	PUE-2013-00020	Dominion Virginia Power (Direct)	Performance Incentive Program, Nuclear Outage Costs, Storm Expense

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Confidential Exhibit SN-2  
Transmission Upgrade Project Descriptions

**Gulf Power Company**  
**Ten Year Transmission Plans**  
**2012 Assessments for Planning Horizon 2013-2022**

**Confidential in its entirety**

Citizens' Fourth Request to Produce  
Documents  
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76. Transmission. Please provide copies of all operating policies that specify the criteria and conditions governing must-run generation for the Plant Crist and Plant Smith generating units as described in the Company's response to OPC Interrogatory No. 118.

ANSWER:

Responsive electronic documents that include confidential information are located in the folder named OPC POD\_076 CONF on the DVD labeled Docket No. 130140-EI Citizens' Fourth Request to Produce Documents (Nos. 74-89) Disk 2-Confidential. Hard copy documents that have been saved in electronic (PDF) format are saved in this folder and are page numbered 130140-OPC-POD-76-1 through 130140-OPC-POD-76-2.

**SYSTEM CONTROL POLICY ON GENERATOR UNIT MUST-RUN REQUIREMENTS**

**SUBJECT**

**GENERATOR MUST-RUN REQUIREMENTS**

**PURPOSE:**

The purpose of this policy is to ensure that adequate generation is available to maintain system reliability, taking into account both high and low load situations and corresponding contingencies. This policy also provides a process to ensure that proper notification is made to the PCC for communicating with the trading floor for appropriate gas nominations.

**Must-Run Rules**

Crist Plant:

██████████ at all times - one of which must be ██████████  
 \*Special arrangements must be made in advance when ██████████ have to be off at the same time.

Smith Plant:

System Load Level	L. Smith unit dispatch		
	LS1	LS2	LS3
85-100	██████████		
70-85	██████████		
60-70	██████████		
50-60	██████████		
<50	██████████		

\*System Load Levels are percentages of Summer Gross Weather Normal Loads. Based on Gulf Summer Gross of ██████████ (YR-2013)

\*Special arrangements must be made in advance when ██████████ Smith units have to be off at the same time.

### **Instructions**

#### **Crist Plant:**

1. Night Shift PSC to check the Unit Commitment Report for any Crist unit coming offline.
2. Ensure the Must-Run Application matches the current Unit Commitment Report.

#### **Smith Plant:**

1. Night Shift PSC to check the Unit Commitment Report for any Smith unit coming offline.
2. Ensure the Must-Run Application matches the current Unit Commitment Report.

### **Responsibility**

It is the responsibility of the System Operations Manager and the Transmission Control Center Supervisor to ensure that this procedure is followed.

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Documents  
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78. Transmission. Please provide all studies or analyses documenting the basis for the decisions to implement must-run operations at the Plant Smith and Plant Crist units as identified in the Company's response to OPC Interrogatory No. 140.

ANSWER:

There are no studies or analyses documenting the initial determination of Plant Crist and Plant Smith as must-run facilities.

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123. Transmission. Please provide the number of hours in each month over the last five calendar years that each of the Company's Plant Crist and Plant Smith generating units were operated primarily to meet must-run conditions rather than for economic dispatch purposes.

ANSWER:

The information as requested is not available. The Company does not have the granularity in its historical operating data to determine which hours a specific unit was committed solely for transmission reliability must run requirements. Typically, units are committed and dispatched based upon a combination of operational factors which influence the dispatch economics for any particular hour of operation. For example, because steam units require many hours to start-up, a unit which will be needed and would have been in economic dispatch to serve a daily peak must be committed (or kept on line) during the off-peak hours as well, even though its relative economics during those off-peak hours may be less attractive.

Many other factors influence unit commitment and dispatch economics as well. Examples include testing plant equipment, meeting environmental limits, storm considerations, short-term fuel pricing volatility, maintenance outages, unplanned outages, area voltage support, and transmission reliability must run.

Due to the high number of constraints, we use a complex set of optimization models that concurrently meet the system constraints in the most cost effective manner for Gulf Power's customers. The number of constraints being managed and the significant overlap between these constraints makes it impractical to differentiate between individual drivers in a historical assessment. Therefore, while Gulf can employ reasonable, simplifying assumptions for prospective modeling, historical data regarding unit operation does not allow Gulf to identify when the seven individual generating units at Plant Smith and Plant Crist were used "primarily to meet must-run conditions rather than for economic dispatch purposes" over the 43,800 hour, five-year period.

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From a transmission planning perspective, reliability must run analysis assesses whether a specific unit is needed to meet transmission reliability criteria under any expected system conditions. The analysis used in the Gulf Power Company Environmental Compliance Program Update to quantify the transmission reliability "must-run" costs/benefits was a forward looking economic analysis that considered the impact of increased cost due to the MATS rule, the Company's strategies to comply with the MATS rule and the resulting impact on Gulf's customer costs. In this forward looking model, it is possible to isolate a single constraint, while holding the other constraints constant, and assess the cost impact over a time period. This approach was utilized to determine the cost impact to Gulf customers associated with transmission constraints that effectively alter the commitment and dispatch of the units at Smith and Crist.



Docket Nos. 130140-EI, 130151-EI, 130092-EI  
Confidential Exhibit SN-6  
October 2012 Plant Smith Retirement Analysis

**Gulf Crist and Smith Update**  
**October 1, 2012**

**Confidential in its entirety**