

**BEFORE THE
CORPORATION COMMISSION OF THE STATE OF OKLAHOMA**

IN THE MATTER OF THE APPLICATION OF)
OKLAHOMA GAS AND ELECTRIC COMPANY)
FOR AN ORDER OF THE COMMISSION)
GRANTING PREAPPROVAL OF THE PURCHASE)
OF THE REDBUD GENERATING FACILITY)
AND AUTHORIZING A RECOVERY RIDER)

CAUSE NO. PUD 200800086

FILED

MAR 20 2008

COURT CLERK'S OFFICE — OKC
CORPORATION COMMISSION
OF OKLAHOMA

Direct Testimony

of

Phillip L. Crissup

on behalf of

Oklahoma Gas and Electric Company

March 20, 2008

Phillip L. Crissup
Direct Testimony

I. INTRODUCTION

1 Q. **Please state your name, your employer, and your business address.**

2 A. My name is Philip L. Crissup. I am employed by Oklahoma Gas and Electric Company
3 (“OG&E”) and my business address is 321 N. Harvey, P. O. Box 321, Oklahoma City,
4 Oklahoma 73101.

5
6 Q. **What is your position at OG&E?**

7 A. I hold the position of Director of Regional Transmission Affairs.

8
9 Q. **What is your educational background and business experience?**

10 A. I received a Bachelor of Science Degree in Electrical Engineering from the University of
11 Oklahoma in 1983. Upon graduation, I began my career at OG&E at the Northern
12 Region Engineering office in Enid, OK, as a Distribution Engineer in 1983. I was
13 promoted to Design Engineer in the Transmission Design section of Corporate
14 Engineering in 1987, and then to Senior Engineer in the same department in 1994. I
15 moved to the Engineering Planning section in 1997, and became Manager of the
16 Transmission Planning group in 2002. In 2007, I became Director of Regional
17 Transmission Affairs. I am a Licensed Professional Engineer in the states of Oklahoma
18 and Arkansas.

19
20 Q. **Have you previously testified before the Oklahoma Corporation Commission?**

21 A. Yes.

1 Q. **What is the purpose of this testimony and how is it organized?**

2 A. The purpose of my testimony is to explain and support certain transmission analyses that
3 OG&E performed in relation to the proposed acquisition of the Redbud generating
4 facility by OG&E, Grand River Dam Authority (“GRDA”), and Oklahoma Municipal
5 Gas Authority (“OMPA”). I refer to the sale and transfer of the Redbud facility as the
6 “Transaction.”

7 First, my testimony addresses the deliverability of the output of the Redbud generating
8 facility to the three purchasers after closing of the Transaction, and concludes that the
9 facility’s capacity will be fully deliverable at that time.

10 Second, I address a study we conducted to determine the transmission import capability
11 into both the GRDA and OG&E balancing authority areas, as well as into the first-tier
12 balancing authority areas surrounding OG&E and GRDA.¹ This study is part of the
13 market power analysis conducted by OG&E, as required by the Federal Energy
14 Regulatory Commission (“FERC”) and it identifies the amount of supply that can be
15 imported and thus, can be part of the competitive supply in the given balancing authority
16 area. My testimony describes how the transmission import capability study was
17 performed and sets out the results of such study.

18 Third, my testimony identifies and describes certain transmission projects OG&E could
19 place into service in the event that the FERC disagrees with OG&E’s analysis of the
20 impact of the Transaction on competition and requires such transmission projects as
21 mitigation.

¹ A balancing authority area is the collection of generation, transmission, and loads within the metered boundaries of the Balancing Authority, the entity charged with maintaining load resources within its area. This term replaces the “control area” for purposes of this testimony.

1 **II. BACKGROUND.**

2 **Q. Please describe Oklahoma Gas and Electric Company.**

3 A. OG&E is an Oklahoma corporation and is a utility operating company subsidiary of OGE
4 Energy Corp. OG&E is a member of the Southwest Power Pool, Inc. ("SPP") and owns
5 transmission facilities that are under the operational control of SPP. Requests for new
6 transmission service on OG&E's transmission facilities are made through and acted upon
7 by SPP in accordance with the terms and conditions of its open access transmission tariff
8 ("OATT"). OG&E serves more than 760,000 retail customers in Oklahoma and western
9 Arkansas and sells electric power at wholesale to other electric utility companies,
10 municipalities, rural electric cooperatives, and other market participants.

11
12 **Q. Please describe OG&E'S existing transmission system and its first-tier
13 interconnections.**

14 A. The OG&E transmission system was designed, constructed, and funded primarily to
15 deliver generation from OG&E generation facilities to OG&E loads, and consists of a
16 total of over 4,600 miles of transmission lines in Oklahoma and Western Arkansas. The
17 OG&E system is comprised of the following voltages and corresponding line-miles:
18 69kV – 1,535 miles, 138kV – 1,913 miles, 161kV – 192 miles, 345kV – 941 miles and
19 500kV – 47 miles. OG&E transferred operational control of its transmission system to
20 SPP on February 10, 2004, the same day that FERC recognized SPP as an RTO. OG&E
21 provides transmission service to a limited number of customers pursuant to agreements
22 entered into under the OG&E OATT before SPP began offering transmission service

1 under the SPP OATT. New requests for transmission service are provided in accordance
2 with the SPP OATT.

3 The OG&E balancing authority area is interconnected with seven neighboring first-tier
4 balancing authority areas: Public Service Company of Oklahoma (“PSO” or “AEPW”),²
5 Western Farmers Electric Cooperative (“WFEC”), Entergy Corp. (“Entergy” or “ENTR”),
6 Westar Energy (“Westar”), GRDA, Southwestern Power Administration (“SWPA”), and
7 Associated Electric Cooperative, Inc. (“AECI”).

8
9 **Q. Please describe GRDA’s existing transmission system and its first-tier**
10 **interconnections.**

11 A. GRDA owns and maintains approximately 1,200 miles of transmission lines and
12 substations to deliver power and energy to its customers. GRDA is a member of the SPP,
13 and has transferred functional control of its transmission system to the SPP. The GRDA
14 balancing authority area is interconnected with six neighboring first-tier balancing
15 authority areas: AECI, PSO, OG&E, SWPA, WFEC, and Empire District Electric
16 Company. GRDA transferred operational control of its transmission system to SPP on
17 February 10, 2004.

² While OG&E is directly interconnected to PSO, PSO and Southwestern Electric Power Company together operate a single balancing authority area (referred to as CSWS or AEP West).

1 Q. **Please describe the OMPA transmission system.**

2 A. OMPA does not have a separate balancing authority area and does not own transmission
3 facilities other than those related to the interconnection of its generation facilities to the
4 grid. The municipalities that OMPA serves are located within OG&E's balancing
5 authority area or other balancing authority areas within the SPP.

6

7 **III. DELIVERABILITY ANALYSIS.**

8 Q. **Please describe your deliverability analysis.**

9 A. I performed an analysis to determine the deliverability of the Redbud generating facility
10 output to GRDA, OMPA and OG&E, in proportion to their respective ownership shares
11 of the facility. Table 1 below summarizes the amount of MW that would be transferred
12 to the three parties pursuant to the Transaction:

13 **Table 1: Ownership Percentages and MW Output By Prospective Owner**

	Ownership	Winter, MW	Summer, MW
OG&E	51%	648	610
GRDA	36%	457	430
OMPA	13%	165	155
Total	100%	1270	1195

14

15 The base case for this deliverability analysis was the pre-Transaction status quo, which
16 included existing contracts that OG&E, OMPA and GRDA have with the current owner
17 of the Redbud facility for the purchase of capacity and associated energy, *i.e.*, 300 MW,
18 80 MW and 150 MW, respectively.

19 In conducting this deliverability analysis, we used versions of the 2008 series SPP 2008
20 Summer, Shoulder, and Winter Models. These models are developed by the SPP Model

1 Development Working Group and submitted to the FERC.³ These models were then
2 modified to reflect the preexisting contracts with OG&E, GRDA, and OMPA identified
3 above. The output from the Redbud generating facility was then transferred into the
4 OG&E and GRDA balancing authority areas and generation in the OG&E and GRDA
5 balancing authority areas was backed down to allow for the modeled increase in Redbud
6 generation.

7 The analysis was performed for OG&E's and GRDA's first-tier balancing authority areas.
8 Using the modified models and a MUST AC Contingency analysis function,⁴ a transfer
9 between the first-tier neighbors of OG&E and GRDA was applied and the resulting
10 scenarios were analyzed. Facilities rated in excess of 100kV were monitored, and
11 facilities with loadings in excess of 100% in the base-case were excluded from the
12 analyses.

13
14 **Q. What are the results of the deliverability analysis?**

15 **A.** This analysis demonstrates that the Redbud facility is fully deliverable to all three
16 prospective buyers for their respective shares for the seasons analyzed.

17
18 **Q. Is this deliverability analysis subject to further review?**

19 **A.** Yes. OG&E has conducted the analysis using SPP models, but the SPP must conduct its
20 own analysis in accordance with its aggregate study process to determine whether the

³ At the time my analysis was conducted, the 'first pass' of SPP models (as opposed to the final versions of the models) were the most up to date models available.

⁴ Siemens' Managing Utility System Transmission ("MUST") model is a widely-used industry model that evaluates transaction impacts on transmission areas, interfaces, monitored elements or flowgates.

1 facility is fully deliverable. I believe that OG&E has effectively replicated the SPP study
2 process given the information available at this time, but SPP will provide the final
3 analysis.

4
5 **Q. Please describe the SPP aggregate study process.**

6 A. SPP accumulates all transmission service requests made over a four-month open season,
7 and then studies these requests in aggregate. The three prospective buyers, OG&E,
8 OMPA, and GRDA, have submitted transmission service requests in the amount of their
9 pro-rata shares of the output of the Redbud facility to serve their respective loads. (They
10 already have secured transmission service from the SPP to deliver their pre-Transaction
11 contracted amounts.) These transmission service requests were each separately entered
12 into the SPP Aggregate Study open-season window that closed January 31, 2008. SPP
13 will analyze each transmission service request for impact on the SPP system, and assign
14 cost responsibility for any required system upgrades.

15
16 **IV. IMPORT CAPABILITY ANALYSIS.**

17 **Q. What other transmission analysis did OG&E perform related to the transaction?**

18 A. OG&E also performed an analysis of the transmission import capability into the OG&E
19 and GRDA balancing authority areas. This information was relied upon by Julie
20 Solomon with CRA International, Inc. in the market analysis she performed in support of
21 the application submitted to FERC for the necessary FERC approvals needed for the
22 Transaction.

1 Q. **How did you conduct your import capability analysis?**

2 A. First, I studied the first contingency incremental transfer capability (“FCITC”) values for
3 each of the first-tier balancing authority areas located adjacent to OG&E and GRDA to
4 calculate an estimate of the Available Simultaneous Transfer Capacity into the GRDA
5 and OG&E balancing authority areas before and after the Transaction. The FCITC
6 analysis for a targeted balancing authority area involved backing down resources in the
7 targeted balancing authority area and then scaling up generation in a balancing authority
8 area adjacent to the targeted balancing authority area to determine the FCITC. The
9 FCITC resulting from this analysis is essentially the amount of power capable of being
10 transferred between the targeted balancing authority area and the first-tier balancing
11 authority area before a constraint binds. This value is a conservative measure of transfer
12 capability because it examines only the incremental transfer capability between balancing
13 authority areas over and above base transfers.

14 The FCITC analysis also was performed for OG&E’s seven first-tier balancing
15 authority areas to determine the FCITC into those first-tier balancing authority areas and
16 then the FCITC from those first-tier balancing authority areas into the OG&E balancing
17 authority area. The seasons used in the analysis were 2008 Summer, 2008 Shoulder and
18 2008 Winter. Table 2 contains the results of FCITC from first-tier balancing authority
19 areas to the OG&E balancing authority area before and after the Transaction:

1

**Table 2: Comparison of the Pre- and Post-Transaction FCITC
from First-Tier Balancing authority Areas to OG&E**

	PRE-TRANSACTION			POST-TRANSACTION		
	Summer	Shoulder	Winter	Summer	Shoulder	Winter
GRDA to OG&E	331	127	355	600	276	580
PSO to OG&E	1393	1269	1800	1441	1315	1868
ENTR to OG&E	97	442	648	74	416	620
SWPA to OG&E	800	299	532	785	283	818
Westar to OG&E	326	165	280	312	158	281
WFEC to OG&E	409	570	468	409	571	468
AECI to OG&E	440	762	1150	404	715	1087

2

3

4

5

6

7

8

To determine FCITC into the GRDA balancing authority area, we looked at GRDA's five first-tier balancing authority areas to determine the FCITC into those first-tier balancing authority areas and then the FCITC from those first-tier balancing authority areas into the GRDA balancing authority area. Table 3 contains the results of FCITC from first-tier balancing authority areas to the GRDA balancing authority area before and after the Transaction:

1

Table 3: Post-Transaction FCITC from First-Tier Balancing authority Areas to GRDA

	PRE-TRANSACTION			POST-TRANSACTION		
	Summer	Shoulder	Winter	Summer	Shoulder	Winter
AECI to GRDA	258	577	457	160	409	299
EDE to GRDA	258	577	239	160	409	245
PSO to GRDA	258	577	457	160	409	299
WFEC to GRDA	258	570	457	160	409	299
SWPA to GRDA	258	285	322	160	271	299
OG&E to GRDA	258	577	422	160	409	299

2

3 **Q. What do these FCITC results indicate about transmission capability?**

4 A. The seasonal FCITC results discussed above essentially identify the capability of the
5 transmission system to move power from one balancing authority area to another, with
6 the source being the exporting balancing authority areas and the sinks being either OG&E
7 or GRDA. As one can see, there are some increases and some decreases in the FCITC
8 post-Transaction.

9

10 **Q. What is the second part of your import capability analysis?**

11 A. Using FCITC values and other inputs, OG&E then performed an analysis that, consistent
12 with FERC’s instructions, aggregates all the first-tier balancing authority areas and treats
13 them as a single exporting entity for purposes of identifying a single simultaneous import
14 limit (“SIL”) value into each of the OG&E and GRDA balancing authority areas (as well

1 as into first-tier balancing authority areas).⁵ Table 4 below contains the pre- and post-
2 Transaction SILs resulting from treating the first-tier balancing authority areas as a single
3 exporting entity:

4 **Table 4: Comparison of Pre-Transaction and Post-Transaction SIL**

	PRE-TRANSACTION			POST-TRANSACTION		
	Summer	Shoulder	Winter	Summer	Shoulder	Winter
SIL to OG&E	137	594	930	106	564	889
SIL to GRDA	258	577	457	160	409	299

5
6 **Q. Do these SIL values accurately reflect the amount of supply that may be imported**
7 **into the OG&E balancing authority market and that would be available to potential**
8 **wholesale purchasers in this market?**

9 **A.** In this instance, strict adherence to FERC's standard SIL methodology produces SIL
10 values that are quite low, and do not reflect the ability to import from any one balancing
11 authority area. Although the individual balancing authority area-to-balancing authority
12 area FCITCs into OG&E are relatively high (see Table 2 above), when one groups all the
13 first-tier balancing authority areas together and considers them as a single exporting
14 entity, the SIL values into the OG&E balancing authority areas hit their limits in the
15 FCITC analysis more quickly and the results are very low SIL values.

16 The comparison between the FCITC values and the SIL values highlight this effect. For
17 example, the FCITC value from the PSO balancing authority area to the OG&E balancing

⁵ In Appendix E to *AEP Power Marketing, Inc.*, 107 FERC ¶ 61,018 (2004), the Commission described its preferred methodology for calculating SILs. This methodology specifies that the individual first-tier markets should be treated as a single aggregated area and that "the import capability of the study area is the simultaneous transfer limit from the aggregated first-tier market area into the study area."

1 authority area shown in Table 2 above for the summer period is 1,441 MW post-
2 Transaction. However, when you group the entire set of first-tier balancing authority
3 areas together and treat them collectively as a single exporting entity, the SIL value into
4 the OG&E balancing authority area during the same period is only 106 MW post-
5 Transaction.⁶ Essentially, when you treat all the first-tier balancing authority areas as a
6 single exporting entity, you will not be able to go very far past the most limiting
7 constraint (*i.e.*, in this case the Entergy FCITC) in arriving at an overall SIL into the
8 OG&E balancing authority area. The SIL determination stops, even though it is possible
9 that substantially more power could be imported into the OG&E balancing authority area
10 from one or more other sources, such as from the PSO balancing authority area. The
11 result is a SIL that substantially understates import capability into a market from any
12 particular direction.

13
14 **Q. What is the meaning of this import capability analysis?**

15 **A.** The purpose of this analysis is to determine how much generation supply can be imported
16 into the OG&E and GRDA balancing authority areas after the Transaction. From what I
17 understand, these import capability study results are used in evaluating whether the
18 Transaction will have a potential adverse competitive impact on electricity markets.
19 Essentially, in order to determine whether the Transaction has an effect on the
20 competitiveness of a given market, one must conduct an analysis that examines the
21 competitive supply in a given geographic area. Transmission import capability helps

⁶ A similar result applies to the FCITC from AECI to OG&E, that is, FCITC is higher than the SIL.

1 define the market because it determines how much competing supply can be brought into
2 a given market.

3
4 **Q. What do the results of the study indicate?**

5 **A.** The study results indicate that the Transaction has an effect on import limits into the
6 OG&E and GRDA balancing authority areas. However, the effect on import levels vary
7 depending on whether FERC focuses exclusively on the SIL values cited above or agrees
8 that a more realistic focus on the FCITC values is more appropriate. If FERC focuses on
9 the SIL values, the competitive analysis may require certain mitigation projects to
10 increase import capability to cure any competitive concerns.

11
12 **V. POTENTIAL MITIGATION PROJECTS.**

13 **Q. Please explain the analysis you have performed regarding potential mitigation**
14 **projects.**

15 **A.** As discussed above, it is possible that FERC will require OG&E to construct new
16 transmission facilities that will bring about additional post-Transaction import capability
17 for the OG&E and GRDA balancing authority markets. We have identified specific
18 mitigation projects that are designed to return SIL values to pre-transaction levels.

19
20 **Q. What are the potential mitigation projects?**

21 **A.** OG&E has identified three potential upgrades that would increase SILs into both the
22 OG&E and GRDA balancing authority areas relative to pre-Transaction levels.

1 First, OG&E would re-conductor a 161 kV transmission line that runs between Entergy's
2 Russellville North and ANO substations. This upgrade will increase the transfer
3 capability of the existing line, and therefore, the SIL into the OG&E and GRDA
4 balancing authority areas.

5 Second, OG&E would upgrade terminal equipment in the Entergy Russellville South and
6 Russellville East substations. These upgrades would increase the transfer capability into
7 the OG&E balancing authority area and thereby increase the SIL into the OG&E and
8 GRDA balancing authority areas in the same manner as the re-conductor project.

9 Third, OG&E would upgrade the limiting terminal equipment located in the Ozark
10 substation in the Van Buren, Arkansas area of the SWPA transmission system.
11 Upgrading such terminal equipment (*e.g.*, by installing or upgrading a switch, breaker,
12 transformer or wave trap) will increase the capability of a 161 kV transmission line
13 between the Ozark substation located in Ozark, Arkansas and the Van Buren substation
14 located in Van Buren, Arkansas, and further increase SIL into OG&E and GRDA.

15
16 **Q. Has OG&E identified the approximate costs of such upgrades?**

17 **A.** Yes. OG&E approximates that the costs of the projects identified above would be
18 approximately \$17,000,000. The re-conductor would cost approximately \$10,000,000,
19 the Russellville upgrades would cost approximately \$6,400,000, and the terminal
20 equipment upgrades on the SWPA transmission system would cost approximately
21 \$500,000.

1 Q. **You stated that the specific mitigation projects are located on the SWPA and**
2 **Entergy transmission systems. What is OG&E's cost responsibility for such**
3 **projects and what is the process for having these projects constructed?**

4 A. Given the purpose of the mitigation projects and the fact that both Entergy and SWPA are
5 not Transmission Owners in the SPP, the upgrade costs would not be subject to the cost-
6 allocations of the SPP. It is proposed that OG&E would approach both Entergy and
7 SWPA and propose that OG&E pay for the upgrades. The cost of the upgrades would be
8 considered a portion of the expense incurred by OG&E to mitigate market power screen
9 failures associated with OG&E's purchase of the facility.

10

11 Q. **What are the estimated SILs into the OG&E AND GRDA balancing authority areas**
12 **after the upgrades?**

13 A. The resulting SILs are shown in Table 5. As shown, the upgrades required to raise the
14 SILs back to at least pre-Transaction levels actually result in significantly more SIL
15 capability into each market. As a result, in targeting a return to pre-Transaction levels in
16 all seasons, the actual SILs resulting from the transmission upgrades were in excess of
17 the pre-Transaction SILs. In addition, in her testimony before FERC, Ms. Solomon's
18 competitive analysis indicates that the aforementioned mitigation projects also cure any
19 competitive concerns that arise because of the Transaction when employing the more
20 conservative SIL values.

1

Table 5: Comparison of Pre-Transaction and Post-Transaction with Transmission Upgrades SILs

	PRE-TRANSACTION			POST-TRANSACTION		
	Summer	Shoulder	Winter	Summer	Shoulder	Winter
SIL to OG&E	137	594	930	711	1127	1255
SIL to GRDA	258	577	457	1108	1078	922

2 Q. In addition to the specific mitigation projects identified above, would OG&E be
 3 required to perform any additional upgrades to return import capability to pre-
 4 Transaction levels?

5 A. In my opinion, the aforementioned projects would be more than enough to return SIL
 6 values to pre-Transaction levels. Also, according to Ms. Solomon and her analysis, these
 7 projects are also enough to cure any competitive concerns under the most conservative of
 8 assumptions.

9

10 Q. Does this complete your testimony?

11 A. Yes.