



RECEIVED

OCT 09 2008

PUBLIC SERVICE  
COMMISSION

2008-00436

October 9, 2008

HAND DELIVERED

Ms. Stephanie L. Stumbo  
Executive Director  
Public Service Commission  
Post Office Box 615  
211 Sower Boulevard  
Frankfort, KY 40602

Dear Ms. Stumbo:

Please find enclosed for filing with the Commission, an original and ten copies of the Application of East Kentucky Power Cooperative, Inc., for an Order Approving Accounting Practices to Establish a Regulatory Asset Related to Certain Replacement Power Costs Resulting from Generation Forced Outages.

Very truly yours,



Charles A. Lile  
Corporate Counsel

Enclosures

Cc: Dennis G. Howard II, Esq.

**RECEIVED**

OCT 09 2008

PUBLIC SERVICE  
COMMISSION

**COMMONWEALTH OF KENTUCKY**

**BEFORE THE PUBLIC SERVICE COMMISSION**

**In the Matter of:**

**THE APPLICATION OF EAST KENTUCKY )  
POWER COOPERATIVE, INC. FOR AN ORDER )  
APPROVING ACCOUNTING PRACTICES )  
TO ESTABLISH A REGULATORY ASSET )  
RELATED TO CERTAIN REPLACEMENT )  
POWER COSTS RESULTING FROM )  
GENERATION FORCED OUTAGES )**

**CASE NO.  
2008- 00436**

**APPLICATION**

Applicant, East Kentucky Power Cooperative, Inc. ("EKPC") hereby requests that the Kentucky Public Service Commission (the "Commission") issue an Order permitting EKPC to establish a regulatory asset representing certain costs of replacement power, relating to EKPC generating unit forced outages during 2008, which do not qualify for recovery through the Fuel Adjustment Clause (807 KAR 5:056). In support thereof, Applicant states as follows:

1. Applicant is a generation and transmission electric cooperative, providing wholesale electric power and energy to sixteen (16) member distribution cooperatives in Kentucky, and its address is Post Office Box 707, 4775 Lexington Road, Winchester, Kentucky 40392-0707.

2. This Application is made pursuant to KRS 278.030, KRS 278.040 and KRS 278.220 and related statutes.

3. A copy of Applicant's restated Articles of Incorporation and all amendments thereto were filed with the Public Service Commission (the "Commission") in PSC Case No. 90-197, the

Application of EKPC for a Certificate of Public Convenience and Necessity to Construct Certain Steam Service Facilities in Mason County, Kentucky.

4. EKPC is seeking the approval of accounting practices for the establishment of a regulatory asset relating to costs of replacement power and energy purchases, and fuel costs of replacement generation, resulting from forced outages at each of EKPC's generating plants during 2008. EKPC seeks such treatment for all such 2008 costs which are not recoverable through the Fuel Adjustment Clause ("FAC"), to the extent that they do not result from "Acts of God, riot, insurrection, or acts of the public enemy,"<sup>1</sup> which are the only circumstances recognized in the Commission's FAC regulations, under which such replacement power costs which exceed the fuel costs of the unit experiencing a forced outage may be subject to recovery.

5. The characteristics of East Kentucky Power Cooperative's financial structure consist of minimal equity, high debt leverage, and a reliance on the all-requirements wholesale power contracts with its member system owners for its revenue. Given such characteristics, EKPC has no shareholders to absorb these forced outage costs, and any such costs which are not recovered in rates will adversely affect net margins and member system equity. EKPC seeks authority to create a regulatory asset in regard to these otherwise unrecoverable replacement power costs in accordance with the Commission's rate-making authority and Statement of Financial Accounting Standards No. 71. EKPC asserts that, due to the reasons stated in this application, these replacement power costs should be considered normal, reasonable, and allowable costs for rate recovery purposes for an electric utility organized as a cooperative. The immediacy of this need is emphasized, due to the concern that the high level of such expenses during calendar year 2008 could jeopardize EKPC's ability to earn net margins sufficient to meet its loan covenants under

its Rural Utilities Service (“RUS”) and National Rural Utilities Cooperative Finance Corporation (“CFC”) Mortgage, and/or its private Credit Facility financing.

6. EKPC states that the forced outages, to which the subject replacement power costs relate, were not the result of a lack of unit maintenance, failure to follow prudent utility operating practices, known defects in facilities or equipment, or any other events or conditions over which EKPC had reasonable control, or could have avoided or minimized by any prudent preventive actions. EKPC further states that its responses to the subject forced outages were prompt and reasonable, and the affected units were returned to operational status in as timely a manner as possible under the circumstances.

7. EKPC states that it used reasonable and prudent processes for the dispatch of replacement generating units, or the purchase of replacement power and energy, in response to the subject forced outages. These steps resulted in the lowest reasonable costs of replacement power and energy, consistent with EKPC practices for minimizing the cost of power production to its member systems.

8. As part of its rate-making authority, the Commission is authorized to “establish a system of accounts to be kept by utilities subject to its jurisdiction ... and may prescribe the manner in which accounts shall be kept.”<sup>2</sup>

9. The Commission has interpreted KRS 278.220 to require utilities to obtain Commission approval for accounting adjustments before establishing any expense as a new regulatory asset.<sup>3</sup>

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<sup>1</sup> 807 KAR 5:056 Section 1 (4)

<sup>2</sup> KRS 278.220.

10. EKPC proposes that the subject replacement power and energy costs incurred to date, and any additional non-FAC-recoverable replacement power and energy costs incurred due to similar forced outages during the remainder of calendar year 2008, be treated as regulatory assets, to be amortized over three years.

11. The subject replacement power and energy costs are reasonable expenses of providing utility service, for which EKPC plans to seek recovery in a future base rate case.

12. Attached to this Application, as EKPC Application Exhibit 1, is the Prepared Testimony of Ann F. Wood, EKPC Manager of Regulatory Services, dealing with the current EKPC financial circumstances, the subject replacement power and energy costs, and the proposed accounting treatment for those costs.

13. Attached to this Application, as EKPC Application Exhibit 2, is the Prepared Testimony of Craig Johnson, EKPC Vice-President of Production, dealing with the circumstances of the subject forced outages, EKPC's response to those forced outages, EKPC's programs and procedures for generating unit inspection, overhaul and maintenance, and its historical forced outage rates.

14. Due to EKPC's need to address its potential shortfall in net margins before the end of the calendar year 2008, EKPC requests expedited review of this Application, and commits to providing any necessary additional information on any appropriate procedural schedule established to support that timeline for this case.

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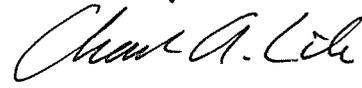
<sup>3</sup> Order, *In the Matter of the Adjustment of Rates of The Union, Light, Heat and Power Company*, Case No. 2001-00092 at 14 (January 31, 2002).

WHEREFORE, the Applicant, East Kentucky Power Cooperative, Inc., requests that the Commission issue an order granting the requested approval for accounting practices to establish a regulatory asset relating to the subject replacement power and energy costs relating to 2008 forced outages.

Respectfully submitted,



DAVID A. SMART



CHARLES A. LILE

ATTORNEYS FOR APPLICANT  
EAST KENTUCKY POWER  
COOPERATIVE, INC.

P.O. BOX 707  
WINCHESTER, KY 40392-0707

(859) 744-4812

## CERTIFICATE OF SERVICE

This is to certify that an original and 10 copies of the foregoing Application were delivered to the office of Stephanie L. Stumbo, Executive Director of the Public Service Commission, 211 Sower Boulevard, Frankfort, KY 40601, and copies were mailed to Dennis G. Howard II, Esq., Assistant Attorney General, Office of Rate Intervention, P.O. Box 2000, Frankfort, Kentucky 40602-2000, this 9<sup>th</sup> day of October, 2008.



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Charles A. Lile

## **Exhibit 1**

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**COMMONWEALTH OF KENTUCKY**

**BEFORE THE PUBLIC SERVICE COMMISSION**

**In the Matter of:**

**THE APPLICATION OF EAST KENTUCKY POWER )  
COOPERATIVE, INC. FOR AN ORDER )  
APPROVING ACCOUNTING PRACTICES )  
TO ESTABLISH A REGULATORY ASSET )  
RELATED TO CERTAIN REPLACEMENT )  
POWER COSTS RESULTING FROM )  
GENERATION FORCED OUTAGES )**

**CASE NO.  
2008-**

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**DIRECT TESTIMONY OF ANN F. WOOD  
ON BEHALF OF EAST KENTUCKY POWER COOPERATIVE, INC.**

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**Q. Please state your name, business address and occupation.**

A. My name is Ann F. Wood, East Kentucky Power Cooperative (“EKPC”), 4775 Lexington Road, Winchester, Kentucky 40391. I am the Manager of Regulatory Services for EKPC.

**Q. Please state your education and professional experience.**

A. I received a B.S. Degree in Accounting from Georgetown College in 1987. After graduation I accepted an audit position with Coopers & Lybrand in the Lexington office. My responsibilities ranged from performing detailed audit testing to managing audits. In October 1995, I started working for Lexmark International, Inc. as an analyst. In May 1997, I joined EKPC and held various management positions in the accounting and internal auditing areas. In August 2008, I became Manager of Regulatory Services at EKPC. I am a certified public accountant in Kentucky.

1 **Q. Please provide a brief description of your duties at EKPC.**

2 A. As Manager of Regulatory Services, I am responsible for managing all filings  
3 with the Public Service Commission (“Commission.”) I report directly to the  
4 Senior Vice President of Power Supply.

5 **Q. Are you sponsoring any exhibits?**

6 A. Yes, I am sponsoring two exhibits. Exhibit AFW-1 details the 2008 forced  
7 outages on EKPC’s coal-fired generating units and the associated unrecovered  
8 replacement power costs. Exhibit AFW-2 reflects EKPC’s projected 2008 net  
9 margins and debt covenant calculations.

10 **Q. What is the purpose of your testimony?**

11 A. The purpose of my testimony is to provide details of the 2008 forced outage costs,  
12 to discuss EKPC’s overall financial position, and to describe the proposed  
13 accounting treatment for establishing a regulatory asset.

14 **Q. What is the total amount of unrecovered forced outage-related replacement  
15 power costs incurred in 2008?**

16 A. From January 2008 to August 2008, EKPC has incurred \$11.9 million in  
17 unrecovered forced outage replacement power costs. Exhibit AFW-1 details the  
18 2008 forced outages incurred. EKPC seeks to record these, as well as any future  
19 2008 forced outage costs, as a regulatory asset.

20 **Q. Are EKPC’s 2008 forced outage replacement power costs unusually high?**

21 A. No. As indicated in Mr. Johnson’s testimony, EKPC’s coal-fired generating unit  
22 performance is at or better than the industry average. In 2008, although coal  
23 prices are rising, market conditions have not been out of the ordinary. EKPC

1 expects to have at least this level of replacement power costs due to its reliance on  
2 the purchased power markets.

3 **Q. Why is EKPC asking for the accounting treatment to establish a regulatory**  
4 **asset for these forced outage replacement power costs?**

5 A. Based on the current fuel adjustment clause (“FAC”) regulation, recovery of  
6 forced outage replacement power costs is limited to the fuel costs associated with  
7 the lost generating unit, unless the outage was the result of “Acts of God, riot,  
8 insurrection, or acts of the public enemy” (807 KAR 5:056 Section 1 (12)). When  
9 that limitation in the FAC regulation was originally placed into effect, there were  
10 virtually no power markets. During the 1980’s, EKPC had excess capacity. If a  
11 forced outage occurred at that time, EKPC would cease making off-system sales,  
12 thus freeing up capacity for its members’ needs. During the early 1990’s, EKPC  
13 did not have as much excess capacity, but, in the event of a forced outage, EKPC  
14 could generally buy power from an interconnected utility at cost plus 10 percent.  
15 Since 2000, EKPC has been relying more heavily on the purchased power market  
16 due to the shortage of installed capacity. Consequently, any forced outage is very  
17 expensive, and an extended forced outage can be financially devastating. Using  
18 July 2008 as an example, EKPC’s average purchased power costs were  
19 \$93.68/MWh and EKPC’s average cost of natural gas generation was  
20 \$154.53/MWh, while its average fuel cost for its coal-fired generating units was  
21 only \$25.81/MWh.

1 Based on the 2008 forced outages and their impact on EKPC's financial position,  
2 EKPC concluded that establishing a regulatory asset for these unrecovered forced  
3 outage fuel costs was a reasonable and necessary step.

4 **Q. Did EKPC utilize reasonable processes in purchasing replacement power for**  
5 **the 2008 forced outages?**

6 A. Yes. EKPC performs a detailed analysis to determine the most economic means  
7 of replacing power. EKPC determines if the generation can be replaced from our  
8 other generating units. If not, EKPC requests assistance from the Contingency  
9 Reserve Sharing Group, a group of control areas that share reserves in order to  
10 comply with NERC disturbance control standards and NERC control performance  
11 standards, until such time EKPC can replace the power through either self-  
12 generation or purchased power. EKPC reviews the projected costs for the hourly  
13 and, if appropriate, the day-ahead purchased power markets, compares these costs  
14 to EKPC's generation, and makes the decision based on the most economic  
15 option. If an outage extends longer than two days, EKPC reviews the week-ahead  
16 and month-ahead purchased power markets, as appropriate, compares these costs  
17 to EKPC's generation, and makes the decision based on the most economic  
18 option.

19 **Q. Has the Commission allowed recovery of forced outage replacement power**  
20 **costs in any recent rate proceedings?**

21 A. Yes. In the Order dated December 5, 2007, in PSC Case No. 2006-00472, the  
22 Commission found it reasonable to provide for EKPC's recovery of the 2004

1 Spurlock 1 forced outage replacement power costs through base rates. The  
2 Commission allowed a 3-year amortization period for that recovery.

3 **Q. The Commission granted EKPC a Times Interest Earned Ratio (“TIER”)**  
4 **level of 1.35 in PSC Case No. 2006-00472. Is EKPC currently achieving this**  
5 **TIER level?**

6 A. No. EKPC’s TIER level for the 8-month period ending August 31, 2008 is 1.12.  
7 This is significantly below the TIER level that the Commission approved in Case  
8 No. 2006-00472, and in Case No. 2008-00115, involving the amendment of  
9 EKPC’s environmental surcharge.

10 **Q. Is EKPC achieving its Debt Service Coverage Ratio (“DSC”) under its Credit**  
11 **Facility Agreement?**

12 A. No. For the 8-month period ending August 31, 2008, EKPC’s DSC is .95. Under  
13 both the Credit Facility Agreement, which was described in detail in PSC Case  
14 No. 2006-00472, and the Rural Utilities Service (“RUS”) Mortgage, EKPC must  
15 attain an average DSC of at least 1.0 for the highest two of the three most recent  
16 years. The DSC requirement has become more difficult to achieve as a result of  
17 the lowering of the depreciation rates, based on EKPC’s 2005 depreciation study,  
18 and increasing principal and interest payments.

19 **Q. What level of net margins is EKPC projecting for 2008?**

20 A. Exhibit AFW-2, page 1 of 2, reflects the projected net margin for 2008. This net  
21 margin projection was determined by adding the September 2008 through  
22 December 2008 budgeted net margin, as adjusted, to year-to-date August 2008  
23 actual results.

1 **Q. Is this level of net margins adequate for meeting its debt covenant**  
2 **requirements?**

3 A. No. As indicated on Exhibit AFW-2, page 2 of 2, at that projected level of net  
4 margins, EKPC will fail its DSC covenant requirement under its Credit Facility  
5 agreement. In order to meet the DSC requirements under the Credit Facility  
6 agreement, EKPC will need to earn a net margin of at least \$22 million for 2008.

7 **Q. What are the possible consequences to EKPC for failing to meet its debt**  
8 **covenant requirements?**

9 A. If EKPC does not meet the debt covenants, the parties in the Credit Facility can  
10 place EKPC in default and refuse to advance additional funds. They may also call  
11 the amount outstanding. If called, the loan balance would be due and payable  
12 immediately, and EKPC does not have available funds to make such a payment.  
13 EKPC could seek a waiver from the lenders; however, the cost of obtaining a  
14 waiver is approximately \$1.5-\$2 million. Additionally, failing to meet the debt  
15 covenant requirements, and the repeated need to request waivers, can adversely  
16 impact the availability of future private financing, which is increasingly important  
17 to EKPC as the availability of RUS funding becomes more uncertain, and EKPC  
18 is seeking to extend and increase its current Credit Facility.

19 **Q. If the Commission approves the establishment of a regulatory asset for the**  
20 **forced outage replacement power costs incurred so far in 2008, will EKPC's**  
21 **TIER level exceed the 1.35 approved in Case No. 2006-00472?**

1 A. No. Based on EKPC's projections, if the Commission approves the \$11.9 million  
2 in unrecovered forced outage replacement power costs through August 2008,  
3 EKPC would only achieve a 1.24 TIER.

4 **Q. How would this regulatory asset be accounted for?**

5 A. EKPC would adopt the provisions of Statement of Financial Accounting  
6 Standards No. 71 (SFAS 71). In accordance with SFAS 71 and the RUS Uniform  
7 System of Accounts, EKPC will record (debit) the regulatory asset in account  
8 182.3, Other Regulatory Assets. The corresponding credits will be to fuel and/or  
9 purchased power expense.

10 **Q. Is RUS approval needed to adopt the provisions of SFAS 71?**

11 A. No. RUS approval is not needed.

12 **Q. Over what period does EKPC propose to amortize the regulatory asset?**

13 A. EKPC proposes to amortize the regulatory asset over a 3-year period. This is  
14 consistent with the Order dated December 5, 2007 in Case No. 2006-00472.

15 **Q. Does EKPC plan to consider the amortization of the regulatory asset in its  
16 base rate application to be filed later this year?**

17 A. Subject to the Commission's approval of this application, EKPC plans to seek  
18 recovery of the regulatory asset in the course of the upcoming base rate case (PSC  
19 Case No. 2008-00409).

20 **Q. Does that conclude your testimony?**

21 A. Yes.

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

|                                    |   |          |
|------------------------------------|---|----------|
| APPLICATION OF EAST KENTUCKY POWER | ) |          |
| COOPERATIVE, INC. FOR AN ORDER     | ) |          |
| APPROVING ACCOUNTING PRACTICES     | ) |          |
| TO ESTABLISH A REGULATORY ASSET    | ) | CASE NO. |
| RELATED TO CERTAIN REPLACEMENT     | ) | 2008-    |
| POWER COSTS RESULTING FROM         | ) |          |
| GENERATION FORCED OUTAGES          | ) |          |

AFFIDAVIT

STATE OF KENTUCKY )  
 )  
 COUNTY OF CLARK )

Ann F. Wood, being duly sworn, states that she has read the foregoing prepared testimony and that she would respond in the same manner to the questions if so asked upon taking the stand, and that the matters and things set forth therein are true and correct to the best of her knowledge, information and belief.

Ann F. Wood  
 Ann F. Wood

Subscribed and sworn before me on this 8<sup>th</sup> day of October, 2008.

Regan S. Duffin  
 Notary Public

My Commission expires:

December 8, 2009

**EAST KENTUCKY POWER COOPERATIVE, INC.  
2008 FORCED OUTAGE DETAIL**

| Plant    | Unit    | Dates of Outage | Duration of Outage | MWH Lost | Cause of Outage               | Cost of Power Lost | Cost of Replacement Power | Net Unrecovered    |
|----------|---------|-----------------|--------------------|----------|-------------------------------|--------------------|---------------------------|--------------------|
| Spurlock | Gilbert | 3/13/08-3/14/08 | 31 Hrs 50 Mins     | 4,555    | Feed Pump Vibration           | \$ 75,071          | \$ 305,059                | \$ (229,988)       |
|          |         | 6/24/08-6/30/08 | 145 Hrs 23 Mins    | 38,719   | Heat Exchange Leak            | 783,481            | 2,800,320                 | (2,016,839)        |
|          |         | 7/1/08-7/10/08  | 227 Hrs 43 Mins    | 60,646   | Heat Exchange Leak            | 1,274,092          | 4,205,375                 | (2,931,283)        |
|          |         |                 |                    |          |                               |                    |                           | <u>(5,178,110)</u> |
| Spurlock | 2       | 3/4/08-3/7/08   | 75 Hrs 51 Mins     | 32,112   | Tube Leak                     | 849,243            | 2,584,250                 | (1,735,007)        |
|          | 2       | 3/13/08-3/14/08 | 12 Hrs 32 Mins     | 4,041    | Loss of T-12                  | 106,869            | 267,066                   | (160,197)          |
|          | 2       | 6/7/08-6/8/08   | 11 Hrs 3 Mins      | 4,988    | Electrical Problem            | 134,659            | 422,029                   | (287,370)          |
|          | 1       | 7/1/08-7/1/08   | 7 Hrs 23 Mins      | 2,045    | Tripped on low instrument air | 48,446             | 160,481                   | (112,035)          |
|          | 1       | 7/9/08-7/12/08  | 80 Hrs 58 Mins     | 22,548   | Tube Leak                     | 534,162            | 2,050,252                 | (1,516,090)        |
|          |         |                 |                    |          |                               |                    |                           | <u>(3,810,699)</u> |
| Cooper   | 1       | 1/23/08-1/25/08 | 69 Hrs 30 Mins     | 7,182    | Tube Leak                     | 161,545            | 629,864                   | (468,319)          |
|          | 2       | 1/29/08-1/29/08 | 7 Hrs 12 Mins      | 1,444    | EX200 Problem                 | 32,310             | 96,435                    | (64,125)           |
|          | 2       | 4/1/08-4/1/08   | 11 Hrs 45 Mins     | 887      | Loss of unit elect svc        | 21,132             | 82,967                    | (61,835)           |
|          | 2       | 4/5/08-4/5/08   | 8 Hrs 56 Mins      | 1,535    | Bad card in Bailey System     | 36,570             | 87,233                    | (50,663)           |
|          | 2       | 5/15/08-5/15/08 | 17 Hrs 28 Mins     | 3,528    | Repair EX2000                 | 86,746             | 210,087                   | (123,341)          |
|          | 2       | 6/7/08-6/7/08   | 9 Hrs 5 Mins       | 1,789    | Computers,etc,shut down       | 49,784             | 255,120                   | (205,336)          |
|          | 2       | 6/9/08-6/11/08  | 31 Hrs 19 Mins     | 5,401    | Condenser                     | 150,300            | 390,230                   | (239,930)          |
|          | 2       | 6/13/08-6/15/08 | 49 Hrs 34 Mins     | 9,761    | Condenser                     | 271,631            | 725,675                   | (454,044)          |
|          |         |                 |                    |          |                               |                    |                           | <u>(1,667,593)</u> |
| Dale     | 4       | 1/8/08-1/11/08  | 58 Hrs 26 Mins     | 3,152    | Repair Feed Water Heater      | 92,334             | 173,989                   | (81,655)           |
|          | 4       | 1/16/08-1/18/08 | 37 Hrs 55 Mins     | 2,171    | Tube Leak                     | 63,597             | 148,316                   | (84,719)           |
|          | 1       | 2/9/08-2/11/08  | 35 Hrs 5 Mins      | 592      | Tube Leak                     | 17,702             | 42,585                    | (24,883)           |
|          | 2       | 2/3/08-2/4/08   | 26 Hrs 51 Mins     | 538      | Tube Leak                     | 16,138             | 32,033                    | (15,895)           |
|          | 2       | 2/11/08-2/12/08 | 32 Hrs 41 Mins     | 361      | Tube Leak                     | 10,828             | 31,696                    | (20,868)           |
|          | 1       | 3/10/08-3/12/08 | 48 Hrs 30 Mins     | 927      | Tube Leak                     | 27,535             | 83,883                    | (56,348)           |
|          | 4       | 3/14/08-3/16/08 | 46 Hrs 36 Mins     | 2,760    | Tube Leak                     | 78,228             | 176,334                   | (98,106)           |

| Plant | Unit | Dates of Outage | Duration of Outage | MWH Lost | Cause of Outage                                 | Cost of Power Lost | Cost of Replacement Power | Net Unrecovered        |
|-------|------|-----------------|--------------------|----------|---|--------------------|---------------------------|------------------------|
|       | 4    | 3/16/08-3/19/08 | 59 Hrs 9 Mins      | 2,648    | Tube Leak                                       | 75,054             | 215,176                   | (140,122)              |
|       | 3    | 4/29/08-4/30/08 | 28 Hrs 15 Mins     | 1,564    | Tube Leak                                       | 46,320             | 148,106                   | (101,786)              |
|       | 2    | 5/4/08-5/6/08   | 29 Hrs 24 Mins     | 579      | Tube Leak                                       | 19,485             | 49,117                    | (29,632)               |
|       | 2    | 5/21/08-5/23/08 | 57 Hrs 10 Mins     | 1,102    | Tube Leak                                       | 37,085             | 80,520                    | (43,435)               |
|       | 4    | 5/1/08-5/1/08   | 22 Hrs 20 Mins     | 1,225    | Tube Leak                                       | 37,541             | 84,935                    | (47,394)               |
|       | 4    | 5/5/08-5/6/08   | 30 Hrs 33 Mins     | 1,384    | Tube Leak                                       | 42,414             | 114,648                   | (72,234)               |
|       | 4    | 5/11/08-5/13/08 | 38 Hrs 32 Mins     | 1,763    | Tube Leak                                       | 54,029             | 138,953                   | (84,924)               |
|       | 1    | 6/23/08-6/25/08 | 37 Hrs 30 Mins     | 588      | Tube Leak                                       | 19,889             | 38,197                    | (18,308)               |
|       | 2    | 6/8/08-6/10/08  | 46 Hrs 51 Mins     | 786      | Tube Leak                                       | 26,354             | 92,882                    | (66,528)               |
|       | 2    | 7/15/08-7/16/08 | 25 Hrs 58 Mins     | 423      | Tube Leak                                       | 14,556             | 32,462                    | (17,906)               |
|       | 3    | 7/18/08-7/20/08 | 32 Hrs 51 Mins     | 1,572    | Tube Leak                                       | 48,361             | 107,351                   | (58,990)               |
|       | 4    | 7/27/08-7/29/08 | 40 Hrs 20 Mins     | 1,617    | Tube Leak                                       | 51,364             | 119,819                   | (68,455)               |
|       | 1    | 8/1/08-8/2/08   | 28 Hrs 19 Mins     | 445      | Tube Leak                                       | 16,749             | 37,319                    | (20,570)               |
|       | 3    | 8/28/08-8/28/08 | 7 Hrs 49 Mins      | 320      | Tube Leak                                       | 10,291             | 25,356                    | (15,065)               |
|       | 4    | 8/25/08-8/27/08 | 32 Hrs 19 Mins     | 1,408    | Tube Leak                                       | 47,265             | 87,151                    | (39,886)               |
|       |      |                 |                    |          |   |                    |                           | <u>(1,207,709)</u>     |
|       |      |                 |                    |          | Total 2008 Unrecovered Forced Outage Fuel Costs |                    |                           | <u>\$ (11,864,111)</u> |

**EAST KENTUCKY POWER COOPERATIVE, INC.**  
**PROJECTED NET MARGIN SCHEDULE--2008**

|  |                      |
|--|----------------------|
| 2008 Year-to-Date Net Margin Through August 31, 2008 | \$ 8,432,289         |
| Projected Net Margin September--December 2008        | 8,420,726            |
| Projected 2008 Net Margin                            | <u>\$ 16,853,015</u> |

East Kentucky Power Cooperative, Inc.  
Projected TIER & DSC Calculations for year 2008

Average of  
Best 2 of 3

For 2008: Mortgage Agreement and Credit Agreement

TIER

|                                 |  |
|---------------------------------|--|
| (a) Net Margins                 | 16,853,000                               |
| (b) Interest on Long Term Debt  | 110,426,000                              |
| <b>TIER = (a) + (b) / (b) =</b> | <b>127,279,000 / 110,426,000 = 1.153</b> |

|                    |   |       |   |       |   |
|--------------------|---|-------|---|-------|---|
| Mortgage Agreement | <table border="1"> <tr> <td>1.280</td> <td>✓</td> </tr> <tr> <td>1.142</td> <td>✓</td> </tr> </table> | 1.280 | ✓ | 1.142 | ✓ |
| 1.280              |   | ✓     |   |       |   |
| 1.142              | ✓   |       |   |       |   |
| Credit Agreement   |   |       |   |       |   |

DSC

|                                      |              |
|--------------------------------------|--------------|
| (a) Depreciation                     | 44,155,277   |
| (b) Interest on L-T Debt             | 110,426,000  |
| (c) Margins                          | 16,853,000   |
| (d) Interest + Principal             | 172,433,000  |
| <b>DSC = (a) + (b) + (c) / (d) =</b> | <b>0.994</b> |

|                    |   |       |   |       |   |
|--------------------|---|-------|---|-------|---|
| Mortgage Agreement | <table border="1"> <tr> <td>1.073</td> <td>✓</td> </tr> <tr> <td>0.986</td> <td>✓</td> </tr> </table> | 1.073 | ✓ | 0.986 | ✓ |
| 1.073              |   | ✓     |   |       |   |
| 0.986              | ✓   |       |   |       |   |
| Credit Agreement   |   |       |   |       |   |

## **Exhibit 2**

1 COMMONWEALTH OF KENTUCKY  
2  
3 BEFORE THE PUBLIC SERVICE COMMISSION  
4

5 In the Matter of:

6  
7 APPLICATION OF EAST KENTUCKY POWER )  
8 COOPERATIVE, INC. FOR AN ORDER )  
9 APPROVING ACCOUNTING PRACTICES )  
10 TO ESTABLISH A REGULATORY ASSET ) CASE NO.  
11 RELATED TO CERTAIN REPLACEMENT ) 2008-  
12 POWER COSTS RESULTING FROM )  
13 GENERATION FORCED OUTAGES )  
14

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15  
16 DIRECT TESTIMONY OF CRAIG A. JOHNSON, PE  
17 ON BEHALF OF EAST KENTUCKY POWER COOPERATIVE, INC.  
18  
19

---

20 **Q. Please state your name, business address and occupation.**

21 A. My name is Craig Johnson, East Kentucky Power Cooperative, Inc., 4775  
22 Lexington Road, Winchester, Kentucky 40391. I am the Vice President of  
23 Production in the Generation and Transmission Operations Division of East  
24 Kentucky Power Cooperative, Inc.

25 **Q. Please state your education and professional experience.**

26 A. I received a Bachelor's degree in Engineering from West Virginia Institute of  
27 Technology and a Master's of Science degree in Engineering from the University  
28 of Kentucky. I am a licensed professional engineer in the Commonwealth of  
29 Kentucky. I have been employed by EKPC since September 1989 and have  
30 occupied my current position within the EKPC organization since May 2007.

31 **Q. Please provide a brief description of your duties at EKPC.**

32 A. I am responsible for all operational and maintenance functions at EKPC's three  
33 coal fired power plants, combustion turbine plant, and landfill gas operations.

1 **Q. What is the purpose of your testimony?**

2 A. The purpose of my testimony is to discuss the circumstances surrounding the  
3 Gilbert coal-fired generating unit forced outage that EKPC experienced in 2008,  
4 and to explain the steps EKPC has taken to address that outage. I will describe  
5 EKPC's coal fired generating unit maintenance activities. Also, I will compare  
6 EKPC's forced outage rate ("FOR") for its coal- fired units to the national historic  
7 averages and explain why a forced outage of the Gilbert Unit boiler, which  
8 utilizes Circulating Fluidized Bed (CFB) technology, is typically longer than for  
9 a pulverized coal boiler.

10 **Q. Please provide a brief review of the forced outages experienced at EKPC**  
11 **coal-fired generating units, so far in 2008.**

12 A. Exhibit AFW-1 in Ms. Wood's testimony provides details about the forced  
13 outages of EKPC's coal -fired generating units in 2008. In general, the types of  
14 outages described in AFW-1 are typical of the outages for any utility with a mix  
15 of unit sizes and age that represent the EKPC generation fleet. The June 2008  
16 outage of the Gilbert unit is described in more detail in this testimony.

17 **Q. How do EKPC's historical forced outage rates for its coal-fired units**  
18 **compare to the national average for similar coal-fired generating units?**

19 A. EKPC's coal-fired generating forced outage rate is typically lower than the  
20 national average. The latest information for national averages comes from the  
21 2002 - 2006 Generating Availability Report (GADS) published in November of  
22 2007. This report is published by the North American Electric Reliability Council  
23 (NERC) and is a compilation of operating histories from more than 230 utilities in

1 the United States and Canada. A copy of that report is attached to this testimony  
2 as Exhibit CAJ-1. The following table compares each EKPC coal-fired unit to the  
3 national average for a coal-fired unit in its size class.

| 4  | <u>Unit</u> | <u>EKPC Average FOR 2002-2006</u> | <u>National Average FOR 2002-2006</u> |
|----|-------------|-----------------------------------|---------------------------------------|
| 5  | Dale 1      | 2.1%                              | 5.2%                                  |
| 6  | Dale 2      | 1.6%                              | 5.2%                                  |
| 7  | Dale 3      | 2.0%                              | 5.2%                                  |
| 8  | Dale 4      | 1.7%                              | 5.2%                                  |
| 9  | Cooper 1    | 2.2%                              | 4.5%                                  |
| 10 | Cooper 2    | 2.1%                              | 4.7%                                  |
| 11 | Spurlock 1  | 0.3% (avg. yrs 02, 03, 05 & 06)   | 4.2%                                  |
| 12 | Spurlock 2  | 1.7%                              | 5.1%                                  |
| 13 | Gilbert     | 13.2%                             | 4.7%                                  |

14 Note that the average FOR for Spurlock 1 does not include 2004, when an  
15 unusually long forced outage, the circumstances of which were discussed in detail  
16 in PSC Case No. 2006-00472, contributed to a 32 % annual FOR. Also, note that  
17 the average FOR for the Gilbert Unit reflects less than two years of outage  
18 experience during its initial months of operation, since that unit went into  
19 commercial operation in March 2005. The generating data collected by NERC  
20 does not distinguish between the different types of coal boilers and groups  
21 Gilbert, a CFB, with pulverized coal units.

22 **Q. What are EKPC's 2007 and 2008 YTD coal-fired generating unit forced**  
23 **outage rates?**

| 1  | A. | <u>Unit</u>  | <u>FOR 2007</u> | <u>FOR YTD 2008</u> |
|----|----|--------------|-----------------|---------------------|
| 2  |    | Dale 1       | 4.5%            | 2.8%                |
| 3  |    | Dale 2       | 2.6%            | 3.9%                |
| 4  |    | Dale 3       | 5.6%            | 1.3%                |
| 5  |    | Dale 4       | 4.9%            | 6.8%                |
| 6  |    | Cooper 1     | 1.5%            | 1.3%                |
| 7  |    | Cooper 2     | 1.6%            | 2.5%                |
| 8  |    | Spurlock 1   | 0.07%           | 1.6%                |
| 9  |    | Spurlock 2   | 1.4%            | 2.4%                |
| 10 |    | Gilbert Unit | 0.3%            | 7.1%                |

11 **Q. How does a forced outage caused by a tube leak on a circulating fluidized**  
12 **bed (“CFB”) boiler differ from a similar forced outage on a pulverized coal**  
13 **boiler?**

14 A. When a major tube leak that causes an immediate trip of all systems occurs on a  
15 conventional pulverized coal unit, the standard procedure is to re-establish air  
16 flow in the boiler. Because there is no fuel left in the boiler after a trip of this  
17 nature, this action purges all of the gases and cools the inside of the boiler. This  
18 cool down process usually takes around 24 hours, after which personnel can then  
19 enter the boiler and repair the leak. After the repairs are made to a pulverized  
20 coal unit, it typically takes less than a day to bring the unit back on-line.

21 A major tube leak on a CFB boiler, like that on the Gilbert Unit, which results in a  
22 similar trip of all systems, causes the fluidized material in either the main boiler  
23 or fluid bed heat exchangers to accumulate, or slump in the bottom of the boiler.

1 This large mass of slumped material is extremely hot and contains non-combusted  
2 fuel and limestone. The recommended standard operating procedure from the  
3 manufacturer of the CFB is to let the remaining fuel burn itself out prior to re-  
4 establishing air flow with the fans. Re-establishing air flow too quickly will result  
5 in a re-ignition of the remaining fuel. This would result in severe overheating of  
6 the boiler tubes due to the lack of condensate (water) flowing through the tubes.  
7 A minimum of three days is required to cool the CFB to temperature levels that  
8 are safe for personnel to begin inspections of the tube damage and begin the  
9 repairs. After the temperature has reached a safe level, an additional day is  
10 required to vacuum out the slumped material from within the boiler and fluid bed  
11 heat exchangers. The amount of free lime in the slumped material, if mixed with  
12 the water from the tube leak, sets up like a low strength concrete. This material  
13 has to be carefully chipped out by hand and removed. Returning a CFB to service  
14 requires considerably more time than for a pulverized coal unit because the boiler  
15 has to be recharged with approximately 350 tons of bed ash. It then takes two to  
16 three days after fuel is introduced to bring the unit back to full operating capacity.  
17 Even if the tube repair time were equal in a pulverized coal boiler versus a CFB  
18 boiler, the cool down time, clean out time, and startup time are approximately five  
19 days longer with the CFB.

20 **Q. What caused the forced outage in June and July of 2008 to the Gilbert Unit?**

21 A. A tube leak located in the fluid bed heat exchanger (“FBHE”) occurred on the  
22 Gilbert Unit in June 2008. This FBHE box is located external to the main  
23 furnace, and is a main component which controls the combustion temperature

1 over a wide load range by taking a slip stream of ash from the combustion cycle,  
2 prior to it being reintroduced in the main boiler. The heat of the ash is transferred  
3 into a bank of tubes containing the finishing superheat. The operating pressure of  
4 the superheat elements is approximately 2,900 pounds per square inch, and the  
5 escaping superheated steam, mixed with the ash inside the box, typically causes  
6 collateral damage by cutting through any surrounding tubes.

7 The originating tube leak in the FBHE box occurred in a field weld that was  
8 installed during an outage of Gilbert in 2006. One hundred percent (100%) of the  
9 2006 field welds within the FBHE were x-rayed for quality at that time. A  
10 metallurgical analysis of the failed weld performed by Alstom Power (“Alstom”),  
11 the equipment supplier of the CFB technology and the FBHEs, revealed that the  
12 root cause of the weld failure was due to overheating of the tube material at the  
13 time of weld placement. A third party retained by EKPC substantiated this  
14 metallurgical analysis. Conventional x-rays do not readily detect this overheating  
15 of the material.

16 **Q. Is EKPC concerned that other tube welds are defective? If so, what steps has**  
17 **EKPC taken to mitigate the situation?**

18 A. Yes, EKPC is concerned about all of the field welds in the two Gilbert FBHE  
19 boxes and also in the two FBHE boxes on Spurlock Unit 4, a sister unit to Gilbert  
20 which is currently under construction. The physical space limitations and tube  
21 spacing inside of the FBHE boxes make it extremely difficult to weld tubes.  
22 These welds are difficult to make in the field and are a challenge even for an  
23 experienced welder. EKPC is working with Alstom, which was responsible for

1 the original installation of the defective field weld, and is currently under contract  
2 with EKPC for the installation of the Spurlock Unit 4 boiler and its components.  
3 Since the failure of the Gilbert tube, Alstom has initiated a new quality control  
4 technique utilizing shear wave technology. This technique is a non-destructive  
5 test and was successfully demonstrated in the laboratory on tube samples taken  
6 from the Gilbert FBHE box. Although there are no non-destructive tests that are  
7 100% accurate in finding weld defects, the shear wave technique is the best non-  
8 destructive test known at this time. The field welds of the Spurlock Unit 4 FBHE  
9 boxes have since been tested using this new technique and found to be acceptable.  
10 EKPC has a planned maintenance outage of the Gilbert Unit scheduled for the fall  
11 of 2008 so that the same shear wave technique can evaluate the field welds in the  
12 Gilbert FBHE boxes. Any defective welds found will be repaired at that time.

13 **Q. Has Alstom experienced similar weld problems with other clients?**

14 A. No, according to Alstom representatives, there have not been such outages on  
15 other Alstom CFB units. This indicates that the weld failure was a field  
16 installation problem, and not a result of any design flaws.

17 **Q. Do you believe that EKPC could have anticipated or prevented the Gilbert  
18 Unit forced outage?**

19 A. No. EKPC prudently required 100% x-ray evaluation of the welds when they  
20 were installed in 2006. EKPC does not believe that routine examination of welds  
21 is typically part of normal generating unit maintenance, especially for a new unit  
22 such as Gilbert.

1 **Q. Did EKPC take reasonable actions to return the Gilbert Unit to service as**  
2 **soon as possible?**

3 A. Yes. EKPC personnel worked substantial amounts of overtime to return the  
4 Gilbert Unit to service as quickly as possible.

5 **Q. Has EKPC learned anything else from the Gilbert Unit forced outage which**  
6 **may be useful in helping to minimize such outages in the future?**

7 A. Yes. EKPC required the evaluation of all field welds in the Spurlock 4 unit using  
8 the shear wave technology, and will retest all similar welds in the Gilbert unit  
9 during its fall of 2008 maintenance outage.

10 **Q. If the time from failure to repair for a CFB is longer than the repair time for**  
11 **a pulverized coal unit, why did EKPC select the CFB technology instead of**  
12 **pulverized coal technology for the Gilbert unit?**

13 A. The CFB technology has several advantages for EKPC's rate payers compared to  
14 the pulverized coal technology. The environmental performance of a CFB unit is  
15 superior to that of a conventional pulverized coal unit. A CFB is capable of  
16 burning a wider range of fuels, including biomass, than a pulverized coal unit.  
17 Because of the environmental performance of a CFB, it is capable of utilizing less  
18 costly fuel than a pulverized coal unit. The CFB technology provides a lower bus  
19 bar cost to the consumer than a similar sized conventional pulverized coal unit.

20 **Q. Have EKPC's cost containment initiatives negatively impacted its scheduled**  
21 **maintenance activities?**

22 A. No, EKPC's cost containment initiatives have not impacted its scheduled  
23 maintenance activities. EKPC is currently enhancing its maintenance practices to

1 ensure the reliability of its coal-fired generating fleet. EKPC's 2008 forced  
2 outages have not been the result of any deferred unit maintenance.

3 **Q. What major scheduled maintenance activities have been performed to**  
4 **EKPC's coal-fired generating units since the extended forced outage on**  
5 **Spurlock Unit 1 in 2004?**

6 A. EKPC continues to perform annual inspections on all of its boilers. Condition  
7 assessments of the boiler components are performed to facilitate long-term and  
8 short-term maintenance activities. Spurlock Unit 1 underwent a major turbine  
9 overhaul and generator rewind in 2004. Spurlock Unit 2 underwent a major  
10 overhaul in the spring of 2008. The Spurlock Unit 2 boiler was inspected at this  
11 time and repairs made. The Spurlock Unit 2 cooling tower was also re-built.  
12 Dale Units 4 and 3 underwent major turbine overhauls in 2006 and 2007,  
13 respectively. The Unit 3 generator was rewound at that time. Dale Unit 3 had a  
14 complete change out of a major section of boiler tubes in 2007. The Cooper Units  
15 have undergone annual outages for routine repairs and inspections and condition  
16 assessments since 2004. A major turbine overhaul for Cooper Unit 1 is scheduled  
17 for the fall of 2009. Dale Units 1 and 2 have a major overhaul scheduled for the  
18 spring of 2009. Maintenance activities continue to be a major focus of EKPC.  
19 EKPC also continues to make design improvements on the Gilbert Unit which are  
20 also incorporated into the Spurlock Unit 4.

21 **Q. Does EKPC still follow the MEAGER program?**

22 A. Yes, EKPC continues to follow the MEAGER program. MEAGER is an acronym  
23 for Maintaining Electric and Generation Equipment Reliability. EKPC developed

1           this program in the 1980's as a way to identify major capital improvements and  
2           large maintenance items for its generating fleet over a 20 year planning horizon.  
3           This program is updated on an annual basis. The basis for the schedule in the  
4           MEAGER program can either be on a certain frequency such as the 10 year cycle  
5           for the major turbine overhauls, an OEM recommendation, or a component  
6           condition assessment. The items identified in the MEAGER program are used to  
7           assist in developing the annual plant maintenance budget.

8   **Q.    Does this conclude your testimony?**

9   A.    Yes.



ELECTRONIC GADS PUBLICATIONS  
FOR WINDOWS

2002-2006

GENERATING AVAILABILITY REPORT

Introduction and Table of Contents

November 2007

North American Electric Reliability Corporation  
Princeton Forrestal Village  
116-390 Village Boulevard  
Princeton, New Jersey 08540-5731

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| MW Size Ranges:                      |     |      |     |       |         |
| All Size Ranges                      | 01a | 02a  | 03a | 04a   | 05a     |
| 1 to 99                              | 01b | 02b  | 03b | 04b   |         |
| 100 to 199                           | 01c | 02c  | 03c | 04c   |         |
| 200 to 299                           | 01d | 02d  | 03d | 04d   |         |
| 300 to 399                           | 01e | 02e  | 03e | 04e   |         |
| 400 to 599                           | 01f | 02f  | 03f | 04f   |         |
| 600 to 799                           | 01g | 02g  | 03g | 04g   |         |
| 800 to 999                           | 01h | 02h  | 03h | 04h   |         |
| 1000 and Above                       | 01i | 02i  |     |       |         |
| NUCLEAR UNITS                        | ALL | PWR  | BWR | CANDU |         |
| MW Size Ranges:                      |     |      |     |       |         |
| All Size Ranges                      | 06a | 07a  | 08a | 09a   |         |
| 400 to 799                           | 06b | 07b  | 08b |       |         |
| 800 to 999                           | 06c | 07c  | 08c |       |         |
| 1000 and Above                       | 06d | 07d  | 08d |       |         |
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| All Size Ranges                      | 17a |      |     |       |         |

## INTRODUCTION

### ABOUT GADS

Generating unit availability is important to electric utilities. Poor performance has many consequences: loading units out of economic order, purchasing power, and installing new capacity, for instance. Decisions that influence availability are, therefore, far-reaching. Utilities created the Generating Availability Data System (GADS) to help them make informed decisions.

GADS is an effective tool utilities can use to study the causes and effects of unavailability. They also learn about improvement strategies that have been useful for others. This knowledge helps prevent availability losses, or at least lessens their impact.

GADS encompasses 1) an availability data collection and validation system, 2) a maintenance and support program for the resulting database, and 3) a process for analyzing the database and reporting availability trends to the industry.

The GADS database includes operating histories - some dating back to the early 1960s - for more than 6,500 electric generating units. These units represent more than 74% of the installed generating capacity in the United States and Canada. The 200+ utilities who voluntarily participate in GADS represent investor-owned, municipal, state, cooperative, provincial, independent power and federal sectors.

Each utility provides reports, detailing its units' operation and performance. The reports include types and causes of outages and deratings; unit capacity ratings; energy production; fuel use; design information, and much more. These data are summarized and published annually.

A comprehensive set of guidelines, called the "GADS Data Reporting Instructions," assures data comparability between utilities and units. Exacting validation procedures assures data accuracy.

The quantity and quality of its data have made GADS an indispensable industry asset. Utilities, manufacturers, architect/engineers, consultants, regulators, and others rely on GADS to help them improve the availability of generating units and equipment. The uses are numerous: availability trend analyses, comparative performance studies, unit benchmarking, vendor evaluations, spare parts inquiries, probability assessments, and unit modeling are just a few.

Through a process called Special Requests, NERC will provide generic GADS data for user-developed applications, and perform analyses at the user's request. A NERC software product called pc-G.A.R allows users to develop GADS-based analyses on their own. Direct inquiries to NERC's GADS Services for more information about Special Requests and the pc-GAR CD-ROM.

### ABOUT THIS REPORT

The "Generating Availability Report" is the means NERC uses to distribute generating unit and equipment availability information to the industry. It presents statistics for 17 categories of electric generating units and their related equipment. Data are displayed on an annual and five-year cumulative basis. The measures of generating unit performance calculated from the GADS data, and presented in this report, are based on standard definitions and statistical methods developed by the Institute of Electrical and

Electronics Engineers (IEEE), and recognized world-wide.

Classification of Units - For the purpose of this report, units are grouped by type, size, and fuel. Type is determined from unit design data which participants supply to GADS. Size is determined from the design data, too. For fossil, nuclear, multi-boiler/multi-turbine, combined cycle, and geothermal units, the turbine nameplate rating is used to assure consistent classification from year-to-year. The turbine nameplate is not reported for other types of units, so size is estimated by multiplying the generator megavoltamperes (MVA) by its power factor. Finally, fuel is used to classify fossil-steam units. The primary fuel - that which contributes the most Btu to thermal generation - is used.

Computation Method - The statistics in this report are composites, representing the performance of a group of units. To understand how these statistics are calculated, the following concepts are important (see the "Equations" appendix of this report, for more information).

Unit-Year - This is the common denominator used to standardize data when units in a group have different lengths of service during a report period; it is a necessary element in the calculation of Unit-Year Averages. Unit-years are determined by 1) the length of the study period, and 2) the number of years that each unit in the group was in commercial service during the study period. As an example, assume that during a five-year study period Units #1, #2, #3, and #4 were in commercial service for 3, 2, 5, and 3 years respectively. The number of unit-years is 13.

Unit-Year Average - This results from summing the data for each term in an equation, (for instance, Available Hours (AH) and Period Hours (PH) are terms in the equation for Availability Factor (AF)) and dividing each of those sums by the number of unit-years in the group. Unit-year averages are then used to calculate a composite statistic.

As an example, the composite AF for Units #1, #2, #3, and #4 for a one-year study period is calculated below. The units experienced 4,000, 5,500, 7,500, and 8,000 AH, respectively. All the units were in service during the year, but Unit #1 started commercial operation in mid-year. Thus, PH are 4380, 8760, 8760, and 8760, respectively. The number of unit-years in this example is 4. The Unit-Year Average Available Hours and Unit-Year Average Period Hours are:

$$AH = (4000 + 5500 + 7500 + 8000) / 4 = 6250$$

$$PH = (4380 + 8760 + 8760 + 8760) / 4 = 7665$$

The composite AF for this group of units is:

$$AF = (AH/PH) = (6250/7665) \times 100 = 81.54 \%$$

#### DISCLAIMER

The statistics presented in this report are based on data reported to NERC GADS by its utility participants. All data are considered in these statistics, including unusual events such as lengthy forced outages and regulatory-imposed conditions that affect unit operation and performance. NERC does not warrant or guarantee the accuracy of those underlying data, and assumes no liability thereof.

#### ACKNOWLEDGEMENTS

NERC thanks all the utility representatives responsible for the

preparation and submittal of electric generating unit data and for all their efforts. Without this foundation data, this report would not have been possible. We believe this report benefits all who participated in this task, and is valuable to electric utilities and those who provide services to them.

Date-11/02/07

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION  
UNIT SUMMARY REPORT

FOSSIL Coal Primary 001-099 MW 2002-2006 Data

\*\*\*\*\* NERC STANDARD \*\*\*\*\*

\*\*\*\*\* WEIGHTED METHOD \*\*\*\*\*

|            |             |
|------------|-------------|
| NCF        | 53.35       |
| SF         | 72.28       |
| AF         | 88.36       |
| EAFF       | 85.43       |
| <u>FOR</u> | <u>5.22</u> |
| EFOR       | 7.74        |
| SOF        | 7.66        |
| FOF        | 3.98        |
| AGE        | 46.09       |
| UNIT YEARS | 719.75      |

|            |        |
|------------|--------|
| WSF        | 73.35  |
| WAF        | 88.52  |
| WEAF       | 85.55  |
| WFOR       | 5.01   |
| WEFOR      | 7.60   |
| WSOF       | 7.62   |
| WFOF       | 3.87   |
| UNIT YEARS | 719.75 |

|                |            |
|----------------|------------|
| PH             | 8,763.69   |
| AH             | 7,743.59   |
| SH             | 6,334.58   |
| ESDH           | 30.41      |
| EFDH           | 170.23     |
| EMDH           | 11.39      |
| EPDH           | 19.02      |
| FOH            | 348.69     |
| POH            | 482.30     |
| MOH            | 189.11     |
| ERSH           | 1,386.51   |
| NET GENERATION | 307,622.00 |
| PH x NMC       | 576,593.47 |
| NMC            | 66.00      |

|       |            |
|-------|------------|
| WPH   | 576,593.47 |
| WAH   | 510,374.07 |
| WSH   | 422,944.01 |
| WESDH | 2,024.09   |
| WEFDH | 11,645.67  |
| WEMDH | 796.50     |
| WEPDH | 1,227.59   |
| WFOH  | 22,309.16  |
| WPOH  | 32,157.46  |
| WMOH  | 11,028.87  |
| WERSH | 85,916.73  |

FOR for Dale Units 1-4 – Category 001-099 MW

Date-11/02/07

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION  
UNIT SUMMARY REPORT

FOSSIL Coal Primary      100-199 MW    2002-2006 Data

\*\*\*\*\* NERC STANDARD \*\*\*\*\*

\*\*\*\*\* WEIGHTED METHOD \*\*\*\*\*

|            |             |
|------------|-------------|
| NCF        | 65.78       |
| SF         | 83.52       |
| AF         | 88.80       |
| EAF        | 85.43       |
| <u>FOR</u> | <u>4.48</u> |
| EFOR       | 6.58        |
| SOF        | 7.28        |
| FOF        | 3.91        |
| AGE        | 45.87       |
| UNIT YEARS | 1,135.17    |

|            |          |
|------------|----------|
| WSF        | 84.07    |
| WAF        | 88.70    |
| WEAF       | 85.41    |
| WFOR       | 4.44     |
| WEFOR      | 6.49     |
| WSOF       | 7.40     |
| WFOF       | 3.90     |
| UNIT YEARS | 1,135.17 |

|                |              |
|----------------|--------------|
| PH             | 8,764.91     |
| AH             | 7,783.53     |
| SH             | 7,320.63     |
| ESDH           | 85.28        |
| EFDH           | 161.95       |
| EMDH           | 55.72        |
| EPDH           | 29.56        |
| FOH            | 343.07       |
| POH            | 461.94       |
| MOH            | 176.22       |
| ERSH           | 451.78       |
| NET GENERATION | 797,924.00   |
| PH x NMC       | 1,213,037.14 |
| NMC            | 138.00       |

|       |              |
|-------|--------------|
| WPH   | 1,213,037.14 |
| WAH   | 1,075,930.37 |
| WSH   | 1,019,762.92 |
| WESDH | 11,484.37    |
| WEFDH | 22,012.18    |
| WEMDH | 7,913.50     |
| WEPDH | 3,570.87     |
| WFOH  | 47,346.06    |
| WPOH  | 64,316.40    |
| WMOH  | 24,316.18    |
| WERSH | 54,750.01    |

FOR for Cooper Unit 1 – Category 100-199 MW

Date-11/02/07

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION  
UNIT SUMMARY REPORT

FOSSIL Coal Primary 200-299 MW 2002-2006 Data

\*\*\*\*\* NERC STANDARD \*\*\*\*\*

\*\*\*\*\* WEIGHTED METHOD \*\*\*\*\*

|            |             |
|------------|-------------|
| NCF        | 70.79       |
| SF         | 86.33       |
| AF         | 88.14       |
| EAF        | 85.31       |
| <u>FOR</u> | <u>4.65</u> |
| EFOR       | 6.02        |
| SOF        | 7.65        |
| FOF        | 4.21        |
| AGE        | 40.82       |
| UNIT YEARS | 578.75      |

|            |        |
|------------|--------|
| WSF        | 86.31  |
| WAF        | 88.12  |
| WEAF       | 85.25  |
| WFOR       | 4.65   |
| WEFOR      | 6.03   |
| WSOF       | 7.67   |
| WFOF       | 4.21   |
| UNIT YEARS | 578.75 |

|                |              |
|----------------|--------------|
| PH             | 8,764.74     |
| AH             | 7,725.59     |
| SH             | 7,566.34     |
| ESDH           | 77.28        |
| EFDH           | 108.63       |
| EMDH           | 45.03        |
| EPDH           | 32.25        |
| FOH            | 368.77       |
| POH            | 531.42       |
| MOH            | 138.82       |
| ERSH           | 140.99       |
| NET GENERATION | 1,437,933.00 |
| PH x NMC       | 2,031,388.59 |
| NMC            | 232.00       |

|       |              |
|-------|--------------|
| WPH   | 2,031,388.59 |
| WAH   | 1,790,044.08 |
| WSH   | 1,753,367.88 |
| WESDH | 17,624.01    |
| WEFDH | 25,411.77    |
| WEMDH | 10,850.33    |
| WEPDH | 6,773.68     |
| WFOH  | 85,551.92    |
| WPOH  | 122,084.75   |
| WMOH  | 31,501.47    |
| WERSH | 32,336.26    |

FOR for Cooper Unit 2 and Gilbert – Category 200-299 MW

Date-11/02/07

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION  
UNIT SUMMARY REPORT

FOSSIL Coal Primary 300-399 MW 2002-2006 Data

\*\*\*\*\* NERC STANDARD \*\*\*\*\*

\*\*\*\*\* WEIGHTED METHOD \*\*\*\*\*

|            |             |
|------------|-------------|
| NCF        | 71.76       |
| SF         | 86.87       |
| AF         | 87.80       |
| EAF        | 85.25       |
| <u>FOR</u> | <u>4.24</u> |
| EFOR       | 6.14        |
| SOF        | 8.36        |
| FOF        | 3.84        |
| AGE        | 33.71       |
| UNIT YEARS | 373.25      |

|            |        |
|------------|--------|
| WSF        | 87.12  |
| WAF        | 88.01  |
| WEAF       | 85.50  |
| WFOR       | 4.14   |
| WEFOR      | 6.00   |
| WSOF       | 8.23   |
| WFOF       | 3.76   |
| UNIT YEARS | 373.25 |

|                |              |
|----------------|--------------|
| PH             | 8,765.97     |
| AH             | 7,696.61     |
| SH             | 7,614.81     |
| ESDH           | 46.53        |
| EFDH           | 151.75       |
| EMDH           | 24.15        |
| EPDH           | 22.38        |
| FOH            | 336.76       |
| POH            | 582.39       |
| MOH            | 150.06       |
| ERSH           | 66.79        |
| NET GENERATION | 2,114,321.00 |
| PH x NMC       | 2,946,541.64 |
| NMC            | 336.00       |

|       |              |
|-------|--------------|
| WPH   | 2,946,541.64 |
| WAH   | 2,593,281.50 |
| WSH   | 2,567,018.03 |
| WESDH | 15,589.45    |
| WEFDH | 49,794.69    |
| WEMDH | 8,051.38     |
| WEPDH | 7,538.07     |
| WFOH  | 110,812.29   |
| WPOH  | 191,470.02   |
| WMOH  | 48,587.16    |
| WERSH | 21,262.24    |

FOR for Spurlock Unit 1 – Category 300-399 MW

Date-11/02/07

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION  
UNIT SUMMARY REPORT

FOSSIL Coal Primary 400-599 MW 2002-2006 Data

\*\*\*\*\* NERC STANDARD \*\*\*\*\*

\*\*\*\*\* WEIGHTED METHOD \*\*\*\*\*

|            |             |
|------------|-------------|
| NCF        | 74.10       |
| SF         | 85.78       |
| AF         | 86.63       |
| EAF        | 83.92       |
| <u>FOR</u> | <u>5.10</u> |
| EFOR       | 7.32        |
| SOF        | 8.78        |
| FOF        | 4.61        |
| AGE        | 27.74       |
| UNIT YEARS | 743.50      |

|            |        |
|------------|--------|
| WSF        | 85.91  |
| WAF        | 86.69  |
| WEAF       | 84.04  |
| WFOR       | 5.06   |
| WEFOR      | 7.21   |
| WSOF       | 8.74   |
| WFOF       | 4.58   |
| UNIT YEARS | 743.50 |

|                |              |
|----------------|--------------|
| PH             | 8,764.80     |
| AH             | 7,592.90     |
| SH             | 7,518.25     |
| ESDH           | 38.42        |
| EFDH           | 176.39       |
| EMDH           | 15.56        |
| EPDH           | 22.86        |
| FOH            | 403.86       |
| POH            | 621.30       |
| MOH            | 146.63       |
| ERSH           | 48.01        |
| NET GENERATION | 3,336,862.00 |
| PH x NMC       | 4,502,891.79 |
| NMC            | 514.00       |

|       |              |
|-------|--------------|
| WPH   | 4,502,891.79 |
| WAH   | 3,903,609.42 |
| WSH   | 3,868,239.94 |
| WESDH | 19,236.52    |
| WEFDH | 87,903.13    |
| WEMDH | 7,496.29     |
| WEPDH | 11,740.23    |
| WFOH  | 206,072.29   |
| WPOH  | 311,233.54   |
| WMOH  | 73,593.83    |
| WERSH | 23,238.32    |

FOR for Spurlock Unit 2 – Category 400-599 MW