

Exhibit No.:

Issues: IN THE MATTER OF THE
JOINT APPLICATION OF
UTILICORP UNITED INC.
AND THE EMPIRE
DISTRICT ELECTRIC
COMPANY FOR
AUTHORITY TO MERGE
THE EMPIRE DISTRICT
ELECTRIC COMPANY
WITH AND INTO
UTILICORP UNITED INC.

Witness: David W. Elliott

Sponsoring Party: MoPSC Staff

Type of Exhibit: Replacement Pages for
Rebuttal Testimony

Case No.: EM-2000-369

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY OPERATIONS DIVISION

REPLACEMENT PAGES

FOR

REBUTTAL TESTIMONY

OF

DAVID W. ELLIOTT

CASE NO. EM-2000-369

**Jefferson City, Missouri
September 2000**

****Denotes Highly Confidential Information****

Exhibit No. 723
Date 9-15-00 EM-2000-369
Reporter XF

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Replacement Pages for Rebuttal Testimony of
David W. Elliott

1 A. Because of the low heat rate of the combined cycle unit at State
2 Line, this unit may operate or be dispatched more like a base loaded unit than a
3 peaking unit. Therefore, I used the hours from the Iatan and Jeffery Energy Center
4 Unit No. 2 criteria.

5 Q. Do you believe this is an excessive amount of time to require for
6 the test?

7 A. No. I reviewed the 1999 monthly operational data of State Line
8 Unit No. 2 furnished by Empire under 4 CSR 240-20.080. State Line Unit No. 2 will
9 become part of the new SLCC Unit. During the months of May 1999 through
10 September 1999, the unit produced kW's every hour for a period of at least ** ____ **
11 consecutive hours in each of the five months, and the five month average was ** ____ **
12 consecutive hours. In August of 1999, the unit produced kW's for ** ____ ** consecutive
13 hours. I do not believe that testing the new SLCC Unit for less than ** ____ ** of the
14 ** ____ ** consecutive hours in August 1999 that State Line Unit No. 2 produced kW's is
15 excessive.

16 Q. Would it make any difference if State Line Unit No. 2 produced
17 kW's for those ** ____ ** hours in August 1999 due to a unique set of circumstances?

18 A. No. No one can predict the future operating conditions of a unit or
19 how many consecutive hours a unit may run during its lifetime. With capacity tight in
20 the electrical industry today, the new SLCC Unit will likely be called upon to run more
21 than just four hours at a time. I have used ~~168~~ 120 hours as a minimum requirement for
22 the in-service criteria because although it is not known exactly how the new SLCC Unit

Replacement Pages for Rebuttal Testimony of
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1 may be utilized in the future, ~~168~~ 120 hours of continuous operation is not requesting any
2 extraordinary performance for that unit.

3 Q. Why have you recommended a capacity factor of ** _____ ** to
4 be used in your proposed in-service criteria?

5 A. In response to Staff Data Request No. 4129, Empire referenced a
6 document prepared by Empire's strategic planing group which was titled "State Line
7 Combined Cycle". In this document's attachment 2.2, there is a graph indicating the
8 predicted capacity factor of the new combine cycle unit in 2002 would be ** _____
9 _____ **. I have used a capacity factor of ** _____ ** for 120 hours, which is equivalent to
10 a capacity factor of ** _____ ** for 168 hours. The total megawatt hours generated are the
11 same, but requires less hours of operation.

12 Q. How does your proposed criteria compare to the Staff criteria
13 proposed for other units?

14 A. As stated earlier, the proposed criteria for the new SLCC Unit has
15 features similar to those for the units at State Line, Iatan, and Jeffrey Energy Center. A
16 more detailed comparison of the new SLCC Unit criteria to the other units is presented
17 in Schedule 3.

18 Q. What happens if the unit does not meet all of the in-service
19 criteria?

20 A. I have included in my recommended criteria a statement that the
21 Staff may review the operational data of the unit to date and may waive application of
22 any criteria for which failure to meet the criteria is not deemed to be material to the fully

Replacement Pages for Rebuttal Testimony of
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1 operational and used for service status of the new SLCC Unit. If the Staff determines
2 after this review that the unit is still not fully operational and used for service, the
3 revenue impact of that finding will be determined in the next rate case, in which the in-
4 service status is at issue.

5 Q. Please summarize the recommendations of your testimony.

6 A. I recommend that the Commission should not set the in-service
7 criteria for SLCC Unit as part of this merger case. If the Commission determines that
8 the in-service criteria should be set as part of this case, I would propose the criteria
9 outlined in Schedule 2.

10 Q. Does this conclude your rebuttal testimony?

11 A. Yes, it does.
12

**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI**

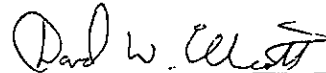
IN THE MATTER OF THE JOINT)
APPLICATION OF UTILICORP)
UNITED, INC. AND THE EMPIRE)
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COMPANY WITH AND INTO)
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Case No. EM-2000-369

AFFIDAVIT OF DAVID W. ELLIOTT

STATE OF MISSOURI)
) ss
COUNTY OF COLE)

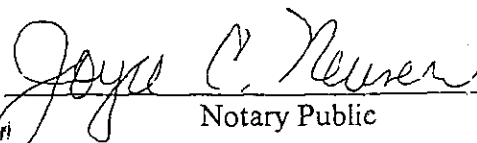
David W. Elliott, of lawful age, on his oath states: that he has participated in the preparation of the foregoing written testimony in question and answer form, consisting of 3 pages of testimony to be presented in the above case, that the answers in the attached written testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such matters are true to the best of his knowledge and belief.



David W. Elliott

Subscribed and sworn to before me this 8th day of September, 2000.

Joyce C. Neuner
Notary Public, State of Missouri
County of Osage
My Commission Exp. 06/16/2001


Notary Public

My commission expires _____

STAFF IN-SERVICE TEST CRITERIA

State Line combined cycle unit

1. ~~All~~ Major construction work, and pre-operational tests have been successfully completed such that the Combined Cycle Unit may be operated and successfully complete criteria items 2 through 9.
2. ~~Unit will demonstrate its ability to meet the contract guarantees made by manufacturer.~~ The new Westinghouse Combustion Turbine will demonstrate its ability to operate at the contract capacity at contract heat rate, and if required as per contract, produce the contract combustion gas exhaust flow at the contract temperature. The Heat Recovery Steam Generators (HRSGs) will demonstrate their ability to produce the contract steam flows at the contract steam conditions, with the contract combustion gas exhaust flow from both of the Westinghouse Combustion Turbines. The Westinghouse Steam Turbine will demonstrate its ability to operate at contract capacity, with the contract steam flow from the HRSGs at contract conditions. The existing Westinghouse Combustion Turbine will demonstrate its ability to operate at its new nominal capacity. These items will all be demonstrated together for a period of four hours during the testing for criteria item 7.
3. The Combined Cycle Unit will demonstrate its ability to ~~initiate the proper~~ startup from turning gear operation to nominal capacity ~~sequence resulting in the unit operating from zero rpm to base load~~ on natural gas fuel when prompted ~~locally, or remotely~~ by the operator.
4. The Combined Cycle Unit will demonstrate its ability to ~~initiate the proper~~ shut down sequence from base load resulting in ~~zero rpm on the unit~~ turning gear operation when prompted ~~locally, or remotely~~ by the operator.
5. The Combined Cycle Unit will demonstrate its ability to operate at minimum load for one hour on natural gas fuel.
6. The Combined Cycle Unit will demonstrate its ability to operate at or above 95% of ~~base~~ nominal load at the corresponding nominal heat rate for four continuous hours on natural gas fuel.
7. The Combined Cycle Unit will demonstrate its ability to produce an amount of energy (mwhr) within a 120 hour period which would result in a ~~operate at a capacity factor of ** _____ ** over a period~~ during the period of 168 continuous hours ~~on natural gas fuel~~ when calculated by the formula shown in note 4.
8. Sufficient transmission facilities shall exist to carry the total design net electrical capacity of the combined cycle unit into the system.
9. The Combined Cycle Unit will demonstrate it has met all contract emission guarantees, and has met all environmental regulations required for unrestricted operation of the unit.

Schedule 2-1

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NOTES:

1. If the unit cannot demonstrate its ability to meet any of the criteria for which failure to meet the proposed criteria is judged to be immaterial to the overall in-service status of the unit, the Staff for good cause may waive that particular criteria. In making a decision to wave any particular criteria, the ~~The~~ Staff may review the completed testing documentation, and any additional unit operating data, to determine if the unit should be considered in-service, without further testing. Staff will provide it's rational in the event it decides to waive any particular criteria.
2. It is the Staff's intention, when possible, to witness the unit's ability to meet the criteria items. Regardless, Empire will provide to Staff all necessary documentation, including operating data logs, clearly demonstrating the capability of the unit to meet each of the criteria items.
3. ~~Several generic terms ("base load" and "minimum load") have been used because these actual loads of the unit are dependent upon ambient conditions. It is the Staff's intention to use the loads determined as part of the guarantee testing as base load and minimum load.~~ The "nominal capacity" of the combined cycle unit shall be at least 500 megawatts, at ISO conditions (i.e., 59 degrees F and 60% relative humidity). The "new nominal capacity " for the existing Westinghouse Combustion Turbine shall be the new capacity demonstrated by Empire District Electric Company as a result of the 1999 compressor upgrade. Manufacturer supplied ambient correction factors will be used when operation occurs at other than ISO conditions.
4. Capacity Factor $** \frac{\text{Mwhs generated in the } 168 \text{ a 120 hour continuous period}}{((\text{base load}) \times (168 \text{ 120 hours}))}$
5. The contract guarantee data referenced in criteria items 2 and 9 can be found in the Westinghouse Combustion Turbine contract section IVa, the Westinghouse Steam Turbine contract section IVb, and the Nooter/Eriksen contract Table 2A-1 and Section GC-40.2. Manufacturer supplied ambient correction factors will be used when operation occurs at other than ISO conditions.

Schedule 2-2

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COMPARISON OF CRITERIA

ITEM NO.	State Line No. 1 and No. 2 CRITERIA	NEW SLCC STAFF CRITERIA	NEW SLCC EMPIRE CRITERIA	Iatan STAFF CRITERIA	Jeffery Energy Center Unit No. 2 STAFF CRITERIA
1	All construction completed	Same as SL 1& 2	Same as SL 1& 2	NO	NO
2	All preoperational tests completed	Same as SL 1& 2	Same as SL 1& 2	Same as SL 1& 2	Same as SL 1& 2
3	Ability to start on natural gas	Similar; start and run to full load	Same as SL 1& 2	NO	NO
4	Ability to start on oil	Not Applicable	Not Applicable	NO	NO
5	Ability to stop	Similar; full load to stop	Same as SL 1& 2	NO	NO
6	Ability to fast start	Not Applicable	Not Applicable	Not Applicable	Not Applicable
7	Ability to fast load	Not applicable	Not applicable	Not applicable	Not applicable
8	One hour peak load	Not applicable	Not applicable	Not applicable	Not applicable
9	Four hour base load	Same as SL 1& 2	Same as SL 1& 2	Same as SL 1& 2	Same as SL 1& 2
10	Guaranteed heat rate	Similar; all guarantees	NO	NO	NO
11	Guaranteed NOx	NO	NO	NO	NO
12	72 hours continuous operation above minimum load	120 hours with **_____** capacity factor	NO	168 hours with 60% capacity factor	168 hours with 60% capacity factor
13	8 hours operation on back up fuel	Not applicable	Not applicable	Not applicable	Not applicable
14	NO	One hour at minimum load	NO	NO	NO
15	NO	Transmission system capable of unit output	NO	Same as Staff SLCC	NO
16	NO	NO	Final payment recorded on Empire's books	NO	NO
17	NO	NO	NO	Operate for 80% of 400 hours at or above minimum load	Same as Iatan
18	Not applicable	Not applicable	Not applicable	Operate to show coal is primary fuel	Same as Iatan
NOTE: Changed from 168 hours with **_____**					