

Exhibit No.:  
Issue: In-Service Criteria  
Witness: Virgil E. Brill  
Sponsoring Party: The Empire District Electric  
Company  
Case No.: EM-2000-369  
Date Prepared: August 23, 2000

**NP**

MISSOURI PUBLIC SERVICE COMMISSION  
Case No. EM-2000-369

Surrebuttal Testimony

of

Virgil E. Brill

Jefferson City, Missouri

Exhibit No. 22  
Date 9-14-00 Case No. EM-2000-  
Reporter TM 369

**BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF MISSOURI  
SURREBUTTAL TESTIMONY OF VIRGIL E. BRILL  
ON BEHALF OF THE EMPIRE DISTRICT ELECTRIC COMPANY**

**CASE NO. EM-2000-369**

1 Q. Please state your name and business address.

2 A. Virgil E. Brill. My business address is 602 Joplin Street, Joplin, Missouri.

3 Q. By whom are you employed and in what capacity?

4 A. The Empire District Electric Company ("Empire"), I am Vice President - Energy Supply  
5 and a Director.

6 Q. Please state your educational background for the Missouri Public Service Commission  
7 ("Commission").

8 A. I was graduated from the University of Missouri at Columbia in 1962 with a Bachelor of  
9 Science Degree in Mechanical Engineering. I have since completed course requirements  
10 in a thesis program for a Master of Science Degree in Engineering Management from the  
11 University of Missouri at Rolla.

12 Q. When were you first employed by Empire?

13 A. In June 1962, immediately following graduation from the University of Missouri at  
14 Columbia.

15 Q. Has your employment been continuous since that time?

16 A. My employment has been continuous with Empire since 1962. I have been an Officer of  
17 Empire since 1977 and a Director since 1989. I held the position of Vice President -  
18 Finance and Chief Financial Officer from 1983 through 1995. My most recent position is  
19 Vice President - Energy Supply that I have held since 1995. Currently, my

1 responsibilities include all of Empire's energy supply, dispatching, and the  
2 telecommunications functions.

3 Q. Have you filed testimony previously before the Commission?

4 A. Yes, in various proceedings.

5 Q. In your position as Vice President - Energy Supply, are you responsible for Empire's  
6 State Line Combined Cycle ("SLCC") construction project?

7 A. Yes.

8 Q. What is the purpose of your surrebuttal testimony?

9 A. The purpose of my testimony is to respond to Commission Staff ("Staff") witness David  
10 Elliott's rebuttal testimony regarding "in-service" criteria for SLCC. The in-service  
11 criteria issue is one of several Pre-Moratorium Rate Case issues which Empire and  
12 UtiliCorp United Inc. ("UtiliCorp") seek to be resolved in this merger case. The merger  
13 should close by the end of 2000. The Pre-Moratorium Rate Case, however, will not be  
14 concluded until sometime in the fall of 2001. Consequently, UtiliCorp and Empire want  
15 to remove some of the uncertainty surrounding that rate case concerning in-service  
16 criteria and other issues prior to the closing of the merger.

17 Q. Has Empire proposed "in-service" criteria for SLCC in this merger case?

18 A. Yes. Mr. Robert Fancher proposed in his supplemental direct testimony that the  
19 Southwest Power Pool ("SPP" or "Pool") criteria be accepted as in-service criteria for the  
20 unit.

21 Q. In your opinion, would the unit be fully operational and used for service if it met the Pool  
22 criteria?

1 A. Yes. The Pool is concerned with reliability and capability requirements and the criteria  
2 are established to ascertain unit capability and readiness for service to meet loads and  
3 provide adequate reserves. Empire, in meeting the criteria, is representing to the Pool that  
4 the unit is fully qualified and capable to meet the requirements of an operationally  
5 reliable and available unit to serve load as needed.

6 Q. Do you believe the Staff in-service proposal is necessary to prove that the unit is "fully  
7 operational and used for service"?

8 A. No. If the SLCC project is on schedule, the unit has met Pool criteria and has been rated  
9 in the Pool, it should be fully operational and used for service on and after June 1, 2001.  
10 With the unit's forecasted completion schedule and the likely procedural schedule for the  
11 Pre-Moratorium Rate Case, the unit will already be in-service for some period of time  
12 prior to the operation of law date in the rate case and will have demonstrated by operation  
13 the proposed criteria suggested by the Staff.

14 Q. Were there any discussions between Empire and the Staff regarding in-service criteria  
15 before Mr. Fancher's testimony was filed?

16 A. No.

17 Q. After reviewing Mr. Elliott's rebuttal testimony, how do you believe the in-service  
18 criteria should be structured?

19 A. As Mr. Fancher has done in his supplemental direct testimony.

20 Q. Please explain.

21 A. Any criteria should be written based on the performance and operation of SLCC.  
22 Basically, we are building a nominal 500 Mw unit with a design heat rate of about 7200  
23 Btu/Kwh Higher Heating Value. Of that, Empire is seeking to rate base its ownership of

1 about 300 Mw. Any in-service criteria should focus on these key facts and not on the  
2 myriad details and parts which make up the unit. The combustion turbines, the Heat  
3 Recovery Steam Generator's, and the steam turbine and generator with all other  
4 components are specified and designed to meet these outcomes.

5 Q. Would you address the criteria as proposed in Mr. Elliott's Testimony?

6 A. Yes. Generally the criteria are not reflective of the unit that is being built. We discussed  
7 this with the Staff in a meeting held August 8, 2000, after Mr. Elliott's testimony was  
8 filed.

9 Q. Do you agree with Staff's criteria No. 1?

10 A. No. "All" construction work will not be complete when the unit is "fully operational and  
11 used for service." There is continuous construction work or "projects" at generating  
12 plants throughout the life of the plant. This unit is no different. There will be work  
13 continuing at the time the unit is in-service that has no effect on whether or not the unit is  
14 fully operational and used for service.

15 Q. Are you in agreement with the Staff's proposal No. 2?

16 A. No. The criteria are too broad and do not recognize the complexity of the SLCC project.  
17 There are about 70 contracts covering all the elements that are involved with the  
18 engineering, procurement and construction of the project. Each contract carries  
19 performance standards and specifications required for the unit to meet its designed output  
20 and efficiency. This is not a turnkey project with one contract containing certain  
21 guarantees for acceptance as were the simple cycle State Line Units 1 & 2. As described  
22 in Mr. Elliott's testimony on page 5, lines 6-15, this is a unit that produces a nominal 500  
23 Mw of capacity with various elements working together for this outcome. Criteria similar

1 to that used for State Line Units 1 & 2 are not applicable to this unit because of the added  
2 steam cycle and the overall design for total output and efficiency.

3 Q. What of Staff criteria Nos. 3 & 4?

4 A. These are worded appropriately for a simple cycle unit, but not for a combined cycle unit.  
5 SLCC will more appropriately be started from turning gear operation and will be fully  
6 staffed and operated at the site. In both criteria, the reference to remote operation and  
7 "zero rpm" is inappropriate and does not recognize the characteristics of a combined  
8 cycle unit.

9 Q. What of Staff criteria Nos. 5 & 6?

10 A. The definitions of minimum load and base load are not defined for the unit and do not  
11 consider that Empire is rate basing a part of unit and owns only 60% of the unit.

12 Q. Do you agree with Criteria No. 7?

13 A. No. We do not feel it is reflective of true operation to run the unit for a week with  
14 continuous operation when not cost justified. Also, the capacity factor suggested is a  
15 number estimated for the plant to average over a years operation and has no direct  
16 relationship in the period suggested to insure the unit is "fully operational and used for  
17 service."

18 Q. What of criteria No.8?

19 A. I have no problem with this criteria and believe it to be proper for determining that the  
20 unit is in-service.

21 Q. Did you meet with the Staff to discuss these points and attempt to reach agreement as to  
22 criteria for the unit to be declared "fully operational and used for service."

1 A. Yes and those discussions are continuing. Hopefully we will be able to resolve this issue  
2 before the Commission must decide it. In this regard, if we could settle the in-service  
3 issue and if an agreement could be reached to treat Empire as a standalone company in  
4 the Pre-Moratorium Rate case with no consideration given to the impacts of the merger  
5 for ratemaking purposes, this would resolve the other Pre-Moratorium Rate Case issues  
6 discussed in Mr. Fancher's direct testimony and those matters would not have to be  
7 decided by the Commission in this merger case.

8 Q. Would you summarize your testimony?

9 A. Yes. If the SLCC project had been constructed with the more typical Engineering  
10 Procurement Construction Contract, Empire's guarantees would have been focused on the  
11 output and efficiency of the finished project. We chose to keep more control of the  
12 project in our hands to build the least costly, most efficient and reliable unit we could for  
13 our customers. The goal remains the same to have a combined cycle unit, which produces  
14 a nominal 500 Mw of output with a nominal heat rate of 7200 Btu/Kwh. Criteria which is  
15 too detailed and adds nothing to the end result will be costly to test for and will provide  
16 no meaningful results necessary to determining if the unit is "fully operational and used  
17 for service." Consequently, Empire's proposed criteria should be adopted.

18 Q. Does this conclude your testimony?

19 A. Yes.

EMPIRE PROPOSED STAFF IN-SERVICE TEST CRITERIA

State Line Combined Cycle Unit

1. Major construction work, and pre-operational tests have been successfully completed such that The Combined Cycle Unit may be operated and successfully complete items 2 through 7.
2. The Combined Cycle Unit will demonstrate its ability to operate.
3. The Combined Cycle Unit will demonstrate its ability to startup from turning gear operation to nominal capacity on natural gas fuel when prompted by the operator.
4. The Combined Cycle Unit will demonstrate its ability to shut down from load resulting in turning gear operation when prompted by the operator.
5. The Combined Cycle Unit will demonstrate its ability to operate at a 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 nominal capacity for four continuous hours on natural gas fuel.
7. Unit will demonstrate its ability to produce an amount of energy (mwhr) within a 168 hour period which would result in a capacity factor of \*\* \_\_\_\_ \*\* during the period when calculated by the formula shown in note 3. (See note 4)
8. Sufficient transmission facilities shall exist to carry the total design net electrical capacity of the combined cycle unit into the system.

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 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.

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. Capacity Factor = (Mwhs generated in a 168 hour period) / ((nominal capacity) x (168 hours)).
4. The "nominal capacity" of the combined cycle unit shall be assumed to be 500 megawatts, at ISO conditions (i.e. 59 degrees F and 60% relative humidity. The term "nominal heat rate" shall be defined as 7200 Btu/kWh HHV when operating at nominal capacity. Manufacturers supplied ambient correction factors will be used when operation occurs at other than ISO conditions.
5. For the purposes of "in-service criteria" calculations, Empire's ownership portion of the combined cycle unit shall be used where appropriate. This condition may result from the operating requirements of joint owner.
6. **\*\*xxx\*\*** denotes highly confidential information.

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

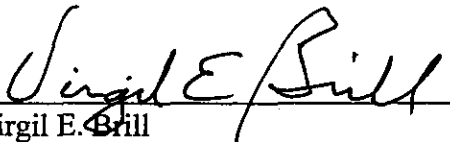
In the Matter of the Joint Application of     )  
UtiliCorp United Inc. and The Empire     )  
District Electric Company for Authority to     )  
Merge The Empire District Electric     )  
Company with and into UtiliCorp United     )  
Inc., and, in Connection Therewith, Certain     )  
Other Related Transactions.     )

Case No. EM-2000-369

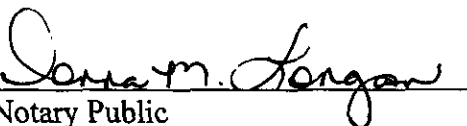
County of Jasper     )  
                                      )  
State of Missouri     )

**AFFIDAVIT OF VIRGIL E. BRILL**

Virgil E. Brill, **being first duly sworn**, deposes and says that he is the witness who sponsors the accompanying testimony entitled surrebuttal testimony; that said testimony was prepared by him and or under his direction and supervision; that if inquiries were made as to the facts in said testimony and schedules, he would respond as therein set forth; and that the aforesaid testimony and schedules are true and correct to the best of his knowledge, information, and belief.

  
Virgil E. Brill

Subscribed and sworn before me this 18<sup>th</sup> day of August, 2000.

  
Notary Public

My Commission Expires: 01-24-04

