Exhibit No. _____
Issue: Fuel & Purchased Power
Witness: Greg Sweet
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Sponsoring Party: Empire District
Case No.: ER-2001-299
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Before the Public Service Commission of the State of Missouri

Rebuttal Testimony

of

Greg Sweet

May 3, 2001

REBUTTAL TESTIMONY
OF
GREG SWEET
CASE NO. ER-2001-299

I. Introduction

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. Greg Sweet. My business address is 602 Joplin Street, Joplin, Missouri.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. The Empire District Electric Company ("Empire" or "Company"). I am a Planning Analyst in the Planning and Regulatory department.

Q. PLEASE STATE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.

A. I was graduated from Missouri Southern State College in July of 1985 with a Bachelor of Science degree in Mathematics. After graduation, I accepted a position with Empire in the Corporate Planning Department as a Planning Analyst. From August 1988 through October 1995, I worked in the Marketing and Load Management Department in the areas of conservation, demand-side management, resource evaluation, and marketing analysis and planning. In November 1995, I accepted the position of Planning Analyst in the Strategic Planning Department (recently became Planning and Regulatory), the position I currently hold. As Planning Analyst, I work primarily with the fuel budget, load forecasting, load research, and preparation of Empire's financial forecast.

Q. HAVE YOU PRESENTED TESTIMONY BEFORE THIS OR ANY OTHER REGULATORY BODY?

A. Yes, I filed direct testimony in this case.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. The purpose of my testimony is to rebut the fuel and purchased power expense direct testimony of Staff witnesses Mr. Leon Bender and Mr. William Harris.

Q. HOW DOES THE LEVEL OF EXPENSE FOR NORMALIZED FUEL AND PURCHASED POWER THAT STAFF IS RECOMMENDING IN DIRECT TESTIMONY COMPARE TO THE ACTUAL 2000 EXPENSE EXPERIENCED BY EMPIRE?

A. Staff's recommendation for fuel and purchased power (without demand charges) is approximately $10 million less than Empire's actual expense for the year 2000 ($79.795 million vs. $89.750 million.)

Q. COULD WEATHER ACCOUNT FOR THIS SUBSTANTIAL DIFFERENCE?

A. In theory, abnormal weather can have a significant impact on Net System Input (NSI). However, that is not the case in this situation. Staff's weather normalization actually raised NSI by about 7,600 MWh (less than 1%). With nearly normal weather, one would expect the production costing computer model Staff used would produce results much closer to those actually experienced.

Q. HOW DOES THE LEVEL OF EXPENSE FOR NORMALIZED FUEL AND PURCHASED POWER THAT EMPIRE IS RECOMMENDING COMPARE TO THE STAFF'S RECOMMENDATION IN THIS CASE?

A. Staff's recommendation for fuel and purchased power (without demand charges) is approximately $30 million less than Empire's normalized test-year level ($107.296 Mil.) as filed in direct testimony

Q. WHAT FACTORS ARE CAUSING THIS SUBSTANTIAL DIFFERENCE?

A. There is a major difference between the assumptions used in Staff's computer model and those filed by Empire. In Empire's case, the generating and purchased power resources are those that

will be available on June 1, 2001 (see Schedule GS-1 from my direct testimony). Staff's filed case does not include the SLCC unit, but does include Stateline unit 2, which has been out of service since September 2000. Staff's computer run also includes two purchase power contracts that expire in May 2001. These resource assumptions by the Staff, along with a low assumed price of natural gas, appear to be the largest differences between the two computer model results.

Q. HAS STAFF MADE A FUEL MODEL COMPUTER RUN WITH EMPIRE'S ASSUMPTIONS FOR COMPARISON PURPOSES?

A. Yes. At our request, during the pre-hearing conference, Staff made a model run with resource assumptions that matched Empire's and provided us with the results. The total fuel and purchased power expense of this run is much closer to the results of Empire's computer model, however, it appears that the two models dispatched the various generation and purchased power resources very differently.

Q. WHAT DO YOU MEAN BY "DISPATCH"?

A. The computer model attempts to model the real world, in which various power plants are brought on line at various times to match the demand being placed on the system by the customers. This generally means the lowest-cost units are "dispatched" first. These are generally coal-fired base-load plants. Higher-cost units or sources of purchased power, generally referred to as intermediate or peaking sources, such as combustion turbines, are brought into use as needed to meet the growing demand. This is generally referred to in the industry as "economic dispatch."

Q. WHAT ARE THE MAJOR DIFFERENCES IN THE DISPATCH OF THE MODELS?

A. Two areas of obvious concern are:

1. Unit Start-ups and Stops. The number of starts for some of Empire's generating units in the Staff's computer model output is unrealistically high. If these units were actually operated as suggested by the model output, they would require some type of major maintenance every year. If indeed there were any fuel expense savings in operating the units in this manner, the savings would be trivialized by the resultant increase in maintenance expense.

2. Capacity Factor. The capacity factor on several of the Empire generating units as dispatched by the Staff's model is not logical. The SLCC has a much lower heat rate than any of the combustion turbines on Empire's system, i.e., it is more efficient. However, the Staff's model is dispatching some of the combustion turbines at a higher load factor than the SLCC. In comparison, Staff's model output lists SLCC capacity factor at 17.6% while Empire's model operates the SLCC at approximately a 50% capacity factor. In an economic dispatch model, as in the real world, the more efficient unit should run more than a less efficient one.

Q. YOU STATED IN DIRECT TESTIMONY THAT, WITH THE COMPLETION OF THE SLCC UNIT, THE PRICE OF NATURAL GAS IS NOW THE KEY DRIVER IN EMPIRE'S FUEL AND PURCHASED POWER COSTS. WHAT IMPACT DOES THE STAFF'S ASSUMPTIONS FOR FUTURE GAS PRICES HAVE ON EMPIRE'S FUEL EXPENSE IN THE PRODUCTION COST MODELLING?

A. The Staff utilized three-year historical average natural gas prices which, unless natural gas prices somehow drop dramatically, virtually guarantees that Empire will not recover its fuel expense. This low-cost gas assumption can also change the way the computer model dispatches the generating units since it assumes they have a much lower cost than we are really experiencing. This is particularly important when the model evaluates the cost of running a gas-fired unit compared to potential purchases of power from other sources.

Q. HAVE YOU EXAMINED THE STAFF'S INPUT ASSUMPTIONS FOR NON-CONTRACT PURCHASED POWER?

A. Yes. The assumptions of price, quantity, availability, and deliverability of non-contract purchased power in Staff's computer model are suspect when compared to real-world system operations. At the Pre-Hearing Conference, Mr. Bender delivered a copy of A Methodology to Calculate Representative Prices for Purchased Energy in the Spot Market. It was developed by the Energy Department, Missouri Public Service Commission in March of 1996 and describes a very statistical method of developing hourly prices for purchased energy from utility-specific historical data. It either doesn't fit the current energy market or it was not implemented very well in Staff's computer model for this case. The input data is voluminous, but I will note a few of the irregularities I observed from the input files of Mr. Bender's workpapers.

1. The highest price found in Staff's input is $139.97/MWh. Empire actually paid prices higher than that: 31 hours in 1998 (maximum was $3,850.00/MWh),
52 hours in 1999 (maximum was $1,710.39/MWh),
and 47 hours in 2000 (maximum was $275.00/MWh).
In 2001 Empire has already paid as high as $135/MWh for spot market energy. While the maximum price paid may appear to be trending downward, real world experience suggests that is not the case and that the actual prices listed above are a result of specific market conditions in each year. Factors such as extreme weather, unit outages and transmission congestion all influence the spot market price at any given time.

2. There are numerous occurrences of the hourly price increasing by $30 or more for one or two hours and then decreasing the same amount. This occurs at various times of the day, month and year for no apparent reason. This type of price behavior, while not impossible, is far

from normal in Empire's experience. Prices tend to increase/decrease more predictably and in smaller increments from hour to hour. Additionally, in the Staff's model inputs the highest hourly price in July occurs at 9 p.m. In July, air conditioning drives our system demands and Empire typically reaches peak load at 4 or 5 p.m. Spot market energy prices tend to peak during those afternoon hours, not at night when the load is declining.

3. Similar hourly fluctuations exist in the available capacity with as much as 400 MW available on an August afternoon. Again from Empire's experience, spot market energy in that quantity is not likely to be available during a normal summer afternoon when every utility in the region is approaching peak demand at roughly the same time. What capacity is available tends not to increase/decrease so dramatically from hour to hour.

4. Aside from the price, quantity and availability issues, in discussions with Mr. Bender and other Staff members it became clear that they were ignoring the deliverability issue. Transmission congestion has become an important consideration as the wholesale power market evolves and Empire is not immune to its effects. Even if Empire could purchase energy in the spot market in the quantities and at the prices that Staff has assumed, there is no guarantee that we could get it delivered to our system. In the Southwest Power Pool, Transmission Loading Relief incidents have increased from just a handful in 1998 to over 100 incidents in 2000. The transmission congestion problem will almost certainly get worse before it gets better as any long-term solution will require significant capital investments.

Q. WAS THERE DISCUSSION AT THE PRE-HEARING CONFERENCE CONCERNING A POSSIBLE APPROACH FOR SETTING FUEL AND PURCHASED POWER COSTS THAT WOULD RESOLVE MOST OF THESE ISSUES AND BE ACCEPTABLE TO EMPIRE?

A. Yes. There was general agreement in concept between Staff and Empire for a two-part tariff for a 24-month term with a true-up feature at the end. Please see Mr. Beecher's rebuttal testimony for further discussion of the suggested approach.

Q. DOES THIS CONCLUDE YOUR PREPARED REBUTTAL TESTIMONY?

A. Yes, at this time.

AFFIDAVIT

STATE OF MISSOURI)
) ss
COUNTY OF JASPER)

On the 2nd day of May, 2001, before me appeared Greg Sweet, to me personally known, who, being by me first duly sworn, states that he is a Planning Analyst for The Empire District Electric Company and acknowledged that he has read the above and foregoing document and believes that the statements therein are true and correct to the best of his information, knowledge and belief.

Greg Sweet

Subscribed and sworn to before me this 2nd day of May, 2001.

Donna M. Longan, Notary Public

My commission expires: January 24, 2004.

DONNA M LONGAN
Notary Public - Notary Seal
STATE OF MISSOURI
JASPER COUNTY
MY COMMISSION EXP. JAN. 24,2004