

Exhibit No.:  
Witness: Maurice Brubaker  
Type of Exhibit: Direct Testimony  
Issue: Rate Design  
Sponsoring Parties: Explorer Pipeline Company  
and Praxair, Inc.  
Case No.: ER-2006-0315

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

In the matter of The Empire District  
Electric Company of Joplin,  
Missouri for authority to file tariffs  
increasing rates for electric  
service provided to customers  
in the Missouri service area of the  
Company )  
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Case No. ER-2006-0315

Direct Testimony and Schedules of

**Maurice Brubaker  
on Rate Design**

On Behalf of

**Explorer Pipeline Company  
and  
Praxair, Inc.**

June 30, 2006



BRUBAKER & ASSOCIATES, INC.  
ST. LOUIS, MO 63141-2000

Project 8531

**FILED**

SEP 29 2006

**Missouri Public  
Service Commission**

*Praxair* Exhibit No. 86  
Case No(s) ER-2006-0315  
Date 9-05-06 Rptr PF

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STATE OF MISSOURI )  
COUNTY OF ST. LOUIS )

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**Affidavit of Maurice Brubaker**

Maurice Brubaker, being first duly sworn, on his oath states:

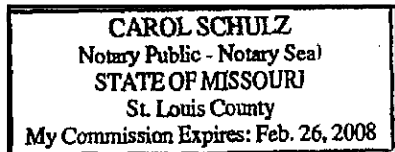
1. My name is Maurice Brubaker. I am a consultant with Brubaker & Associates, Inc., having its principal place of business at 1215 Fern Ridge Parkway, Suite 208, St. Louis, Missouri 63141-2000. We have been retained by Explorer Pipeline Company and Praxair, Inc. in this proceeding on their behalf.

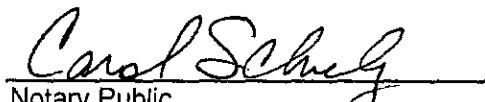
2. Attached hereto and made a part hereof for all purposes is my direct testimony on rate design issues which was prepared in written form for introduction into evidence in Missouri Public Service Commission Case No. ER-2006-0315.

3. I hereby swear and affirm that the testimony is true and correct and that it shows the matters and things it purports to show.

  
Maurice Brubaker

Subscribed and sworn to before this 30<sup>th</sup> day of June 2006.



  
Notary Public

My Commission Expires February 26, 2008.

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

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Company

Case No. ER-2006-0315

**Direct Testimony of Maurice Brubaker**

1    **Q    PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2    A    Maurice Brubaker. My business address is 1215 Fern Ridge Parkway, Suite 208,  
3    St. Louis, Missouri 63141-2000.

4    **Q    WHAT IS YOUR OCCUPATION?**

5    A    I am a consultant in the field of public utility regulation and president of Brubaker &  
6    Associates, Inc., energy, economic and regulatory consultants.

7    **Q    PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.**

8    A    This information is included in Appendix A to my June 23, 2006 testimony on revenue  
9    requirement issues.

10   **Q    WHAT IS THE SUBJECT OF YOUR TESTIMONY?**

11   A    This testimony addresses rate design issues. As in the case of my earlier direct  
12   testimony on revenue requirement issues, this testimony and accompanying exhibits  
13   are all proffered without prejudice to my clients' position on the pending IEC issue.

**Maurice Brubaker  
Page 1**

1 That matter is still before the Commission on Applications for Rehearing and may  
2 possibly be before other forums in the future.

3 **Summary**

4 **Q PLEASE SUMMARIZE YOUR TESTIMONY.**

5 **A** My testimony may be summarized as follows:

- 6 1. In the absence of a current class cost of service study, the most reasonable  
7 approach to spreading any change in revenues is an equal percentage applied to  
8 the current revenues of each rate schedule.
- 9 2. An equal percent change applied to current revenues preserves the existing  
10 inter-class rate relationships that have been found to be appropriate.
- 11 3. If any change in revenue awarded in this case involves a change in the level of  
12 fuel cost, and if it is determined that fuel cost changes should be applied to rate  
13 schedules on a per kilowatthour (kWh) basis, then it is imperative that any change  
14 in non-fuel revenues be allocated proportional to the amount of non-fuel revenues  
15 in each rate schedule.
- 16 4. Failure to make the distinction between fuel-related and non-fuel related revenues  
17 when fuel costs are allocated on a kWh basis would introduce major distortions  
18 into the rate structure because each rate has a different composition of  
19 fuel-related revenues and non-fuel related revenues. Therefore, if any approach  
20 other than equal percent across-the-board is applied, fuel costs and non-fuel  
21 costs must be allocated proportional to how those costs are recovered in current  
22 rates.
- 23 5. Allocating fuel-related costs on a kWh basis, but allocating changes in non-fuel  
24 costs on base revenues (which include the recovery of both fuel-related costs and  
25 non-fuel related costs) would introduce major distortions into the rate relationships  
26 and should not be done.

27 **Revenue Allocation**

28 **Q HOW DID EMPIRE PROPOSE TO DISTRIBUTE AMONG RATE SCHEDULES THE**  
29 **INCREASE IN RATES THAT IT HAS PROPOSED IN THIS PROCEEDING?**

30 **A** Empire allocated its proposed increase in base rates as an equal percentage  
31 increase to the current rates of each customer class.

1    **Q     IS THIS AN APPROPRIATE METHOD OF ALLOCATING A REVENUE INCREASE**  
2           **(OR DECREASE) IN THIS PROCEEDING?**

3    **A     Yes, it is. In the absence of a current (and valid) class cost of service study, the most**  
4           **appropriate way to spread any change in revenues is by an equal percentage applied**  
5           **to the current revenues from each rate schedule. This is appropriate because in the**  
6           **absence of specific class cost of service information there is no basis to believe that**  
7           **the existing inter-class revenue relationships were inappropriate. To the contrary,**  
8           **those very relationships were found appropriate by the Commission in March of 2005**  
9           **in Empire's previous rate case, Case No. ER-2004-0570.**

10   **Q     EXPLORER PIPELINE COMPANY AND PRAXAIR (INDUSTRIALS) HAVE**  
11           **MAINTAINED THAT EMPIRE'S CURRENT INTERIM ENERGY CHARGE (IEC)**  
12           **SHOULD REMAIN IN EFFECT UNTIL THE END OF ITS THREE-YEAR TERM. IF,**  
13           **CONTRARY TO THAT RECOMMENDATION, THE COMMISSION WOULD PERMIT**  
14           **EMPIRE UNILATERALLY TO ABANDON ITS IEC AND ADJUST THE LEVEL OF**  
15           **FUEL AND VARIABLE PURCHASED POWER COSTS INCLUDED IN RATES,**  
16           **WOULD IT STILL BE YOUR POSITION THAT AN EQUAL PERCENTAGE**  
17           **CHANGE IN REVENUES WOULD BE APPROPRIATE?**

18   **A     Yes. For the same reasons as stated above, and subject to the stated reservation of**  
19           **right regarding my clients' position on the IEC issue, in the absence of an appropriate**  
20           **class cost of service study which would define the current position of each class**  
21           **relative to its cost of service, the existing inter-class relationships should be**  
22           **maintained. This is best done by application of a uniform percentage change**  
23           **(increase or decrease) to the current rate revenues.**

1    **Q    IF EMPIRE IS PERMITTED UNILATERALLY TO ABANDON THE EXISTING IEC,**  
2       **AND SOME PORTION OF THE INCREASE IS AWARDED BASED ON CHANGES**  
3       **IN THE LEVEL OF FUEL AND VARIABLE PURCHASE POWER EXPENSES, AND**  
4       **IF IT IS DESIRED TO SEPARATELY REFLECT CHANGES IN FIXED COSTS AND**  
5       **CHANGES IN FUEL AND VARIABLE PURCHASED POWER COSTS, IS THERE**  
6       **AN APPROPRIATE WAY TO ALLOCATE THESE TWO POTENTIAL**  
7       **COMPONENTS OF ANY REVENUE REQUIREMENT CHANGE?**

8    **A    Subject to my earlier reservation regarding my clients' legal positions on this issue, if**  
9       the above assumption is hypothesized, there is an appropriate way to allocate those  
10      two potential components of any revenue requirement change. When the current IEC  
11      was developed, the amount of fuel and variable purchased power costs (hereafter  
12      referred to as fuel-related costs) in base rates was specifically identified and  
13      stipulated. Accordingly, as discussed in my revenue requirement testimony, the  
14      amount of fuel-related cost recovery built into the current tariffs is known. It would  
15      therefore be possible to adjust this fuel-related cost recovery, by rate schedule, to  
16      reflect any changes in the amount of fuel-related costs to be included in base rates.

17   **Q    IF IT SHOULD BE DECIDED THAT CHANGES IN THE FUEL-RELATED**  
18       **COMPONENT OF RATES SHOULD BE SEPARATELY IDENTIFIED AND**  
19       **REFLECTED IN RATE CHANGES ON A PER KWH BASIS, HOW SHOULD**  
20       **CHANGES IN THE NON-FUEL COMPONENT BE REFLECTED IN RATES?**

21   **A    The appropriate way to reflect in rates these changes in non-fuel costs would be to**  
22      allocate them proportional to the amount of non-fuel base revenues at present rates.

1    **Q     HAVE YOU PREPARED SCHEDULES TO SHOW THE DERIVATION OF THE**  
2           **FUEL AND NON-FUEL REVENUES BY RATE GROUP?**

3    **A     Yes. This is shown on Schedule 1.**

4    **Q     PLEASE EXPLAIN SCHEDULE 1.**

5    **A     Column 1 shows the adjusted annual megawatthours (MWh) as reflected in the**  
6           **Company's workpapers. Column 2 shows pro forma adjusted rate revenues,**  
7           **column 3 shows excess facilities revenue, column 4 shows franchise revenues and**  
8           **column 5 (the sum of columns 2, 3 and 4) equals total base rate revenues.**

9           Column 6 shows the amount of fuel included in base rates. It is derived by  
10          multiplying the adjusted annual MWh sales (column 1) times \$21.975 per MWh fuel  
11          cost included in base rates in accordance with the stipulation in the previous case.  
12          Column 7 shows the non-fuel revenues and is determined by subtracting column 6  
13          from column 5. Columns 8 through 10 show the composition of fuel and non-fuel  
14          revenue by rate schedule. Note that, on average, fuel is 31% of the base revenues of  
15          Missouri retail customers, but that fuel as a percent of base revenues is 13.9% for  
16          lighting customers, 27.5% for the residential class, 43% for Large Power customers  
17          and 66% for Praxair. These percentages of fuel compared to total revenue are  
18          dramatically different across rate schedules.

19   **Q     WHAT IS THE DIFFERENCE IN THE DISTRIBUTION OF A REVENUE INCREASE**  
20          **(OR DECREASE) BETWEEN AN ALLOCATION ON BASE REVENUES, ON**  
21          **FUEL-RELATED REVENUES AND ON NON-FUEL REVENUES?**

22   **A     This is shown on Schedule 2. The relevant percentages are shown in columns 5**  
23          **through 7. Column 5 shows the distribution across rate schedules of any revenue**  
24          **change that is allocated according to total base revenues, column 6 shows the**

1 distribution of any change that is spread on a fuel-related (i.e., kWh) basis, and  
2 column 7 shows the distribution if spread on the basis of non-fuel revenues.

3 **Q IF IT WERE DECIDED THAT EMPIRE COULD COLLECT ADDITIONAL**  
4 **REVENUES FOR FUEL COST, AND IF IT WERE FURTHER DETERMINED TO**  
5 **ALLOCATE THESE FUEL COSTS REVENUES ON A PER KWH BASIS, HOW**  
6 **SHOULD ANY CHANGE IN NON-FUEL COSTS BE SPREAD TO CLASSES?**

7 A If increased recovery of fuel-related costs is allowed, and is passed through on a kWh  
8 basis, then the change in non-fuel costs should be in proportion to the level of  
9 non-fuel revenues paid by each rate schedule. In other word, if increases in fuel cost  
10 are to be reflected in customer rates by uniformly increasing the amount on a per  
11 kWh basis, then any increase in the level of non-fuel costs should be allocated  
12 proportional to the amount of non-fuel revenues recovered in each rate schedule.

13 **Q WHY IS THIS NON-FUEL ALLOCATION IMPORTANT?**

14 A Since total revenues include both fuel-related and non-fuel revenues, allocating  
15 increases of non-fuel costs on total revenues would distort rate relationships.

16 **Q PLEASE ILLUSTRATE.**

17 A Please refer again to Schedule 2. The residential class is responsible for 46% of total  
18 costs (column 5), 40% of fuel-related costs (column 6), and 48% (column 7) of non  
19 fuel-related costs. In contrast, Praxair is responsible for 0.73% of total costs, and  
20 1.55% of fuel-related costs, but only 0.36% of non-fuel related costs. Therefore, if the  
21 above average proportion of fuel-related cost recovery associated with Praxair (and  
22 Large Power) were to be recognized by assigning increases in fuel costs on a per  
23 kWh basis, it is imperative that the approach be applied consistently so that any

1 changes in non-fuel costs would be applied on the basis of existing non-fuel  
2 revenues, and not on the basis of total base revenues, which include both fuel and  
3 non-fuel related revenues.

4 **Q HOW LARGE WOULD THE DISTORTION BE IF INCREASES IN NON-FUEL**  
5 **REVENUES WERE ALLOCATED ON THE BASIS OF TOTAL BASE REVENUES,**  
6 **RATHER THAN ON THE BASIS OF NON-FUEL REVENUES?**

7 **A** First, consider Praxair. Since Praxair is responsible for 0.73% of total base revenues  
8 (covering both fuel costs and non-fuel costs) but only 0.36% of non-fuel revenues,  
9 allocation of changes in non-fuel revenues on total base revenues would allocate to  
10 Praxair roughly two times the amount that it should receive.

11 In the case of Large Power, it is the difference between 13% on base  
12 revenues and 10% on non-fuel revenues, or approximately 30% too much if changes  
13 in non-fuel costs are allocated based on total base rate revenues

14 Note that for the residential class allocating changes in non-fuel revenues on  
15 non-fuel costs as opposed to allocating them on base revenues is only the difference  
16 between 48% of the amount to be allocated and 46% of the amount to be allocated.  
17 This much smaller difference for the residential class occurs because the residential  
18 class characteristics are much closer to the system average than is true for the larger  
19 high load factor customers such as Praxair and customers who take service under the  
20 Large Power rate. A similar comparison for commercial class customers shows that  
21 the difference in the allocations is relatively minor at 21% for a non-fuel allocation  
22 versus 20% for a base revenue allocation.

1    **Q     WHAT DO YOU CONCLUDE FROM THESE COMPARISONS?**

2    A     I conclude that properly allocating changes in non-fuel costs on non-fuel revenues, as  
3           opposed to incorrectly allocating them on base revenues, makes a very significant  
4           difference to large high load factor customers such as Praxair and Large Power  
5           customers, but has very little impact on other customer classes.

6    **Rate Design**

7    **Q     HOW DID EMPIRE DESIGN INDIVIDUAL TARIFFS?**

8    A     I have not reviewed all tariffs, but for the Large Power tariff and the Praxair tariff, the  
9           equal percent increase was applied to the current tariff charges.

10   **Q     DO YOU HAVE ANY DISAGREEMENT WITH THIS APPROACH?**

11   A     No, I do not. This is an appropriate approach.

12   **Q     DOES THIS CONCLUDE YOUR DIRECT TESTIMONY ON RATE DESIGN?**

13   A     Yes, it does.

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# EMPIRE DISTRICT ELECTRIC COMPANY

## Derivation of Fuel and Non-Fuel Revenue in Current Base Rates Pro Forma Test Year (Dollars in Thousands)

| Line | Rate Classes          | Adjusted<br>Annual<br>MWh<br>(1) | Adjusted<br>Rate<br>Revenue<br>(2) | Excess<br>Facilities<br>Revenue<br>(3) | Franchise<br>Fee<br>Revenue<br>(4) | Total<br>Base<br>Revenue<br>(5) | Fuel<br>in Base<br>Rates *<br>(6) | Total<br>Non-Fuel<br>Revenue<br>(7) | Fuel<br>Revenue<br>as a<br>Percent<br>of Base<br>Revenue<br>(8) | Non-Fuel<br>Revenue<br>as a<br>Percent<br>of Base<br>Revenue<br>(9) | Total<br>(10) |
|------|-----------------------|----------------------------------|------------------------------------|----------------------------------------|------------------------------------|---------------------------------|-----------------------------------|-------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------------------|---------------|
| 1    | Residential           | 1,627,326                        | \$ 126,619                         | \$ -                                   | \$ 3,611                           | \$ 130,230                      | \$ 35,760                         | \$ 94,469                           | 27.5%                                                           | 72.5%                                                               | 100.0%        |
|      | Commercial:           |                                  |                                    |                                        |                                    |                                 |                                   |                                     |                                                                 |                                                                     |               |
| 2    | Rate CB               | 318,424                          | 27,685                             | 3                                      | 785                                | 28,472                          | 6,997                             | 21,475                              | 24.6                                                            | 75.4                                                                | 100.0         |
| 3    | Rate SH               | 91,598                           | 6,728                              | 0                                      | 167                                | 6,895                           | 2,013                             | 4,882                               | 29.2                                                            | 70.8                                                                | 100.0         |
| 4    | Rate TEB              | 344,576                          | 22,050                             | 138                                    | 278                                | 22,466                          | 7,572                             | 14,893                              | 33.7                                                            | 66.3                                                                | 100.0         |
| 5    | Rate PFM              | 578                              | 68                                 | -                                      | 1                                  | 69                              | 13                                | 57                                  | 18.3                                                            | 81.7                                                                | 100.0         |
| 6    | Total Commercial      | 755,176                          | 56,531                             | 141                                    | 1,231                              | 57,902                          | 16,595                            | 41,307                              | 28.7                                                            | 71.3                                                                | 100.0         |
| 7    | General Power         | 840,415                          | 52,811                             | 201                                    | 624                                | 53,636                          | 18,468                            | 35,168                              | 34.4                                                            | 65.6                                                                | 100.0         |
| 8    | Praxair               | 62,432                           | 2,077                              | 1                                      | -                                  | 2,078                           | 1,372                             | 706                                 | 66.0                                                            | 34.0                                                                | 100.0         |
| 9    | Large Power           | 701,204                          | 35,080                             | 724                                    | 38                                 | 35,842                          | 15,409                            | 20,433                              | 43.0                                                            | 57.0                                                                | 100.0         |
|      | Lighting:             |                                  |                                    |                                        |                                    |                                 |                                   |                                     |                                                                 |                                                                     |               |
| 10   | Rate MS               | 835                              | 56                                 | -                                      | 0                                  | 57                              | 18                                | 38                                  | 32.4                                                            | 67.6                                                                | 100.0         |
| 11   | Rate SPL              | 16,329                           | 1,235                              | 631                                    | -                                  | 1,866                           | 359                               | 1,507                               | 19.2                                                            | 80.8                                                                | 100.0         |
| 12   | Rate PL               | 16,174                           | 3,368                              | 5                                      | 40                                 | 3,414                           | 355                               | 3,058                               | 10.4                                                            | 89.6                                                                | 100.0         |
| 13   | Rate LS               | 1,279                            | 140                                | -                                      | 1                                  | 141                             | 28                                | 112                                 | 20.0                                                            | 80.0                                                                | 100.0         |
| 14   | Total Lighting        | 34,617                           | 4,800                              | 636                                    | 41                                 | 5,477                           | 761                               | 4,716                               | 13.9                                                            | 86.1                                                                | 100.0         |
| 15   | Total Missouri Retail | 4,021,170                        | \$ 277,918                         | \$ 1,703                               | \$ 5,545                           | \$ 285,166                      | \$ 88,365                         | \$ 196,800                          | 31.0%                                                           | 69.0%                                                               | 100.0%        |

\* Fuel in Base Rates is \$ 21.975 per MWh times Column (1).

# EMPIRE DISTRICT ELECTRIC COMPANY

## Distribution of Fuel and Non-Fuel Revenue by Rate Classes at Current Base Rates Pro Forma Test Year (Dollars in Thousands)

| Line | Rate Classes          | Total Rate<br>Revenue<br>from<br>Base Rates | Annual<br>MWh | Fuel Related<br>Revenue<br>Included in<br>Base Rates* | Non-Fuel<br>Revenue | Percent of<br>Revenue by Rate Group |                        |                 |
|------|-----------------------|---------------------------------------------|---------------|-------------------------------------------------------|---------------------|-------------------------------------|------------------------|-----------------|
|      |                       | (1)                                         | (2)           | (3)                                                   | (4)                 | Total<br>Base<br>(5)                | Fuel<br>Related<br>(6) | Non-Fuel<br>(7) |
| 1    | Residential           | \$ 130,230                                  | 1,627,326     | \$ 35,760                                             | \$ 94,469           | 46%                                 | 40%                    | 48%             |
|      | Commercial:           |                                             |               |                                                       |                     |                                     |                        |                 |
| 2    | Rate CB               | 28,472                                      | 318,424       | 6,997                                                 | 21,475              | 10                                  | 8                      | 11              |
| 3    | Rate SH               | 6,895                                       | 91,598        | 2,013                                                 | 4,882               | 2                                   | 2                      | 2               |
| 4    | Rate TEB              | 22,466                                      | 344,576       | 7,572                                                 | 14,893              | 8                                   | 9                      | 8               |
| 5    | Rate PFM              | 69                                          | 578           | 13                                                    | 57                  | 0                                   | 0                      | 0               |
| 6    | Total Commercial      | 57,902                                      | 755,176       | 16,595                                                | 41,307              | 20                                  | 19                     | 21              |
| 7    | General Power         | 53,636                                      | 840,415       | 18,468                                                | 35,168              | 19                                  | 21                     | 18              |
| 8    | Praxair               | 2,078                                       | 62,432        | 1,372                                                 | 706                 | 0.73                                | 1.55                   | 0.36            |
| 9    | Large Power           | 35,842                                      | 701,204       | 15,409                                                | 20,433              | 13                                  | 17                     | 10              |
|      | Lighting:             |                                             |               |                                                       |                     |                                     |                        |                 |
| 10   | Rate MS               | 57                                          | 835           | 18                                                    | 38                  | 0                                   | 0                      | 0               |
| 11   | Rate SPL              | 1,866                                       | 16,329        | 359                                                   | 1,507               | 1                                   | 0                      | 1               |
| 12   | Rate PL               | 3,414                                       | 16,174        | 355                                                   | 3,058               | 1                                   | 0                      | 2               |
| 13   | Rate LS               | 141                                         | 1,279         | 28                                                    | 112                 | 0                                   | 0                      | 0               |
| 14   | Total Lighting        | 5,477                                       | 34,617        | 761                                                   | 4,716               | 2                                   | 1                      | 2               |
| 15   | Total Missouri Retail | \$ 285,166                                  | 4,021,170     | \$ 88,365                                             | \$ 196,800          | 100%                                | 100%                   | 100%            |

\* Fuel in Base Rates is \$ 21.975 per MWh times Column (2).