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SEP 29 2006

Missouri Public  
Service Commission

Exhibit No.:

Issues: Rate Design

Witness: David Roos

Sponsoring Party: MO PSC Staff

Type of Exhibit: Direct Testimony

Case No.: ER-2006-0315

Date Testimony Prepared: June 30, 2006

**MISSOURI PUBLIC SERVICE COMMISSION**

**UTILITY OPERATIONS DIVISION**

**DIRECT TESTIMONY**

**OF**

**DAVID C. ROOS**

**THE EMPIRE DISTRICT ELECTRIC COMPANY**

**CASE NO. ER-2006-0315**

**Jefferson City, Missouri**

**June 2006**

STAFF Exhibit No. 65  
Case No(s) ER-2005-0315  
Date 9-05-06 Rptr DE

**BEFORE THE PUBLIC SERVICE COMMISSION**

**OF THE STATE OF MISSOURI**

In the matter of The Empire District Company of )  
Joplin, Missouri for authority to file tariffs )  
increasing rates for electric service provided to )  
customers in Missouri service area of the Company. )

Case No. ER-2006-0315

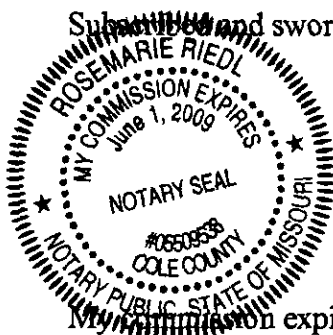
**AFFIDAVIT OF DAVID ROOS**

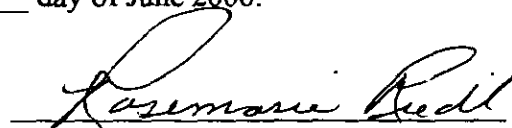
STATE OF MISSOURI     )  
                                  )     ss.  
COUNTY OF COLE     )

David Roos, of lawful age, on his oath states: that he has participated in the preparation of the foregoing Direct Testimony in question and answer form, consisting of 8 pages to be presented in the above case; that the answers in the foregoing Direct Testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such matters are true and correct to the best of his knowledge and belief.

  
David Roos

Subscribed and sworn to before me this 29<sup>th</sup> day of June 2006.



  
Notary Public

My commission expires June 1, 2009

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**DAVID ROOS**  
**THE EMPIRE DISTRICT ELECTRIC COMPANY**  
**CASE NO. ER-2006-0315**

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**DIRECT TESTIMONY**  
**OF**  
**DAVID ROOS**  
**THE EMPIRE DISTRICT ELECTRIC COMPANY**  
**CASE NO. ER-2006-0315**

Q. Please state your name and business address.

A. My name is David C. Roos and my business address is Missouri Public Service Commission, P. O. Box 360, Jefferson City, Missouri 65102.

Q. What is your present position with the Missouri Public Service Commission?

A. I am a Regulatory Economist III in the Economic Analysis Section, Energy Department, Operations Division of the Missouri Public Service Commission.

Q. Would you please review your educational background and work experience?

A. I graduated from the University of Notre Dame, Notre Dame, Indiana, with a Bachelor of Science Degree in Chemical Engineering in May 1983, and I graduated from the University of Missouri, Columbia, Missouri in December 2005, with a Master of Arts in Economics. I have been employed at the Missouri Public Service Commission as a Regulatory Economist III since March 2006. Prior to joining the Public Service Commission I taught introductory economics and conducted economic research as a graduate teaching assistant and graduate research assistant at the University of Missouri. Prior to the University of Missouri, I was employed by several private firms

Direct Testimony of  
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where I provided consulting, design and construction oversight of environmental projects for private and public sector clients.

### EXECUTIVE SUMMARY

Q. What is the purpose of your direct testimony in this filing?

A. The purpose of my direct testimony and schedules is to illustrate how to apply each of the rate design recommendations described in the direct testimony of Staff witness James A. Busch to Empire District Electric Company's (Empire) Missouri rate schedules. Mr. Busch's recommendations describe how to determine class revenues and the associated rate values under two basic scenarios:

1. The current Commission-approved Interim Energy Charge (IEC) remains in place (IEC Continuation Scenario); and,

2. The Commission determines that the IEC should be terminated (IEC Termination Scenario).

Schedules DCR-1 (class revenues) and DCR-2 (rate values) illustrate the application of Staff's recommendations for the IEC Continuation Scenario to the rate revenues and revenue requirement change presented in the June 23, 2006 direct testimony of Staff Witnesses Curt Wells and Mark L. Oligschlaeger, respectively.

Similarly, Schedules DCR-3 (class revenues) and DCR-4 (rate values) illustrate the application of Staff's recommendations for the IEC Termination Scenario to the Staff's revenue and accounting data, presented in the direct testimony of Staff witnesses Curt Wells and Mark L. Oligschlaeger, respectively.

Schedule DCR-5 presents how the monthly electric bill for a typical residential customer would appear, if the rate values associated with each scenario were

Direct Testimony of  
David Roos

1 implemented. This schedule also compares that monthly electric bill to the bills that this  
2 "typical" residential customer would pay under the tariffs in effect for the other regulated  
3 investor-owned electric utilities in Missouri.

4 **BACKGROUND**

5 Q. Where did you get the data you used to illustrate how Staff's rate design  
6 recommendations would be applied?

7 A. The \$4,049,869 change in revenue requirement for the IEC Termination  
8 scenario was taken from the first page of Accounting Schedule 1, filed in this case on  
9 June 23, 2006. The IEC Continuation Scenario revenue requirement change of  
10 (\$22,939,520) is shown on Schedule 2, attached to the direct testimony of Staff witness  
11 Mark L. Oligschlaeger. Missouri rate revenues by class were taken from Staff witness  
12 Curt Wells' Schedule CW-1. Mr. Wells also provided me with IEC revenues and billing  
13 units by rate.

14 Q. Are Staff's rate design recommendations applicable to all existing Empire  
15 Missouri rate classes?

16 A. Yes. However Schedules DCR-2 and DCR-3 only present the results for  
17 the six largest rate classes; namely, (1) Residential (RG); (2) Commercial (CB); (3) Small  
18 Heating (SH); (4) Total Electric Building (TEB); (5) General Power (GP); and (6) Large  
19 Power (LP).

20 Q. What is the relationship between the rate classes used by Staff and  
21 Empire's existing rate schedules?

22 A. Each rate class used by Staff corresponds to one of Empire's existing rate  
23 schedules.

Direct Testimony of  
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**CLASS REVENUES: IEC CONTINUATION SCENARIO**

Q. What are the proposed changes to the IEC in the IEC Continuation Scenario?

A. The IEC remains in place and is applied to all customers at the current rate of \$0.00213 per kilowatt hour (kWh).

Q. What method does Staff recommend be used to determine class revenues in the IEC Continuation Scenario?

A. As explained in Staff witness Busch's rate design testimony, if the Commission decides to keep the existing IEC in place, then any change in overall revenues should be assigned to each customer class in proportion to that class' current share of permanent revenues.

Q. Please describe Schedule DCR-1.

A. Schedule DCR-1 displays the calculation of the "target" revenues to be collected by new permanent rates for each customer class in the IEC Continuation Scenario. In this illustration, existing permanent rates collect \$284,423,930 and the existing IEC collects \$8,766,358 (see column 2). Under this scenario, the IEC continues to collect \$8,766,358, but the revenues collected through permanent rates should be \$216,484,410 (column 4), or \$22,939,520 (column 5) less than current permanent revenues. The revenues to be collected by each class will decrease by 8.07% (column 6), which is the result of applying Staff's method of determining each class' share of any overall increase or decrease in permanent revenues.

Direct Testimony of  
David Roos

**CLASS REVENUES: IEC TERMINATION SCENARIO**

Q. How does the Staff propose to collect the revenues that were being collected through the IEC in the IEC Termination Scenario?

A. Since the IEC ceases to exist, all prudently incurred costs should be recovered through permanent rates.

Q. What method does Staff recommend be used to determine class revenues in the IEC Termination Scenario?

A. As further described in Mr. Busch's rate design testimony, if the Commission decides to terminate the IEC, then any change in overall revenues should be assigned to customer classes in proportion to each class' current share of total rate revenues. The amount of total revenues includes both the revenues collected through permanent rates and the revenues collected through the IEC.

Q. Please describe Schedule DCR-3.

A. Schedule DCR-3 displays the calculation of the "target" revenues to be collected by new permanent rates for each customer class in the IEC Termination Scenario. In this illustration, existing permanent rates collect \$284,423,930 and the existing IEC collects \$8,766,358 (see column 2). According to Staff Accounting Schedule 1, overall revenues should increase by \$4,049,869 at the same time that the IEC is terminated. The net effect on overall revenues is a decrease of \$4,716,489 (\$4,049,869 increase in permanent rates less \$8,776,358 through termination of the IEC) in permanent revenues (column 7). The revenues to be collected by each class will decrease by 1.61% (column 8), which is the result of applying Staff's method of determining each class' share of any overall increase or decrease in total (permanent plus IEC) revenues.

**CLASS RATE VALUES**

Q. How were the rate values shown on Schedules DCR-2 (IEC Continuation Scenario) and DCR-4 (IEC Termination Scenario) calculated?

A. I followed the Staff's recommendation to determine the specific rate values for each class by adjusting all existing demand and energy charges, but not customer charges, by whatever uniform percentage results in collecting the class "target" revenues shown on Schedules DCR-1 (IEC Continuation Scenario) and DCR-3 (IEC Termination Scenario), respectively.

Q. Why does this methodology result in a uniform (same) percentage change to demand and energy charges within a class but not necessarily between classes?

A. Because the proportion of total revenues being collected by the customer charge differs from class to class.

**CLASS REVENUES AND RATE VALUES: ADOPTION OF STAFF'S METHODS**

Q. Is Staff recommending that the Commission adopt the results shown in Schedules DCR-1 through DCR-4?

A. Not necessarily. Whether or not the Commission accepts Staff's quantification of rate revenues and revenue requirement change, Staff recommends that the methods for determining class revenues and rate values illustrated in Schedules DCR-1 and DCR-2 be adopted in the event that the Commission determines that the IEC should be continued. Similarly, in the event that the Commission determines that the IEC should be terminated; Staff recommends adoption of the methods for determining class revenues and rate values illustrated in Schedules DCR-3 and DCR-4.

Direct Testimony of  
David Roos

**IMPACT OF SCENARIOS ON THE TYPICAL RESIDENTIAL CUSTOMER**

Q. How does each Scenario affect the electric bills incurred by residential customers served by Empire?

A. Schedule DCR-5 compares the monthly electrical bill that a typical residential customer would incur under current Empire rates (permanent plus IEC) with the monthly bills generated by the IEC Continuation Scenario residential rates shown on Schedule DCR-2-1 and the IEC Termination Scenario residential rates shown on Schedule DCR-4-1. The typical residential customer defined for these computations uses 1,000 kWh each summer (June-September) month and 750 kWh per month during the remaining eight months.

The typical residential customer's average electricity bill is \$74.33 per month when billed on current Empire rates. Under the IEC Continuation Scenario, the average monthly electricity bill for this typical residential customer would be \$68.65. The average monthly electricity bill would be \$73.16 under the IEC Termination Scenario.

Q. How do the electric bills incurred by residential customers served by Empire compare to the electric bills paid by residential customers served by the other regulated Missouri electric utilities?

A. Schedule DCR-5 also presents the average monthly electric bills that the typical residential customer would incur if served by each of the other Missouri regulated investor-owned electric utilities (Aquila Networks - L&P Division, Aquila Networks - MPS Division, Kansas City Power and Light Company, and Union Electric Company d/b/a AmerenUE). These bills, in addition to the three Empire bills described above, are displayed in order from the highest (rank=1) to the lowest (rank=7). The schedule shows

Direct Testimony of  
David Roos

1 that current Empire rates produce the highest average monthly bill and that current  
2 Aquila-MPS rates produce the second highest average monthly bill. For this illustration,  
3 both Empire scenarios produce average monthly bills that are lower (ranked 4 and 3  
4 respectively) than Aquila-MPS (ranked 2).

5 Q. Does this conclude your direct testimony on the issue of Rate Design in  
6 this case?

7 A. Yes, it does.

**THE EMPIRE DISTRICT ELECTRIC COMPANY -- CASE NO. ER-2006-0315**  
**"TARGET" REVENUE TO BE COLLECTED BY NEW RATES**

**IEC CONTINUATION SCENARIO**

**Change in Revenue Requirement: (\$22,939,520)**

| <b>Sources of Rate Revenue<br/>MO Rate Schedule</b> | <b>Current<br/>Revenue</b> | <b>Class Share of \$ from<br/>Permanent Rates</b> | <b>"Target"<br/>Revenue</b> | <b>Revenue<br/>Difference</b> | <b>Percent<br/>Difference</b> |
|-----------------------------------------------------|----------------------------|---------------------------------------------------|-----------------------------|-------------------------------|-------------------------------|
| RG- Residential                                     | \$129,598,382              | 45.57%                                            | \$119,145,921               | (\$10,452,441)                | -8.07%                        |
| CB-Commercial                                       | \$28,159,955               | 9.90%                                             | \$25,888,782                | (\$2,271,173)                 | -8.07%                        |
| SH-Small Heating                                    | \$6,928,204                | 2.44%                                             | \$6,369,427                 | (\$558,777)                   | -8.07%                        |
| PFM- Feed Mill/ Grain Elev                          | \$58,694                   | 0.02%                                             | \$52,122                    | (\$4,573)                     | -8.07%                        |
| MS- Traffic Signals                                 | \$57,566                   | 0.02%                                             | \$52,923                    | (\$4,643)                     | -8.07%                        |
| GP-General Power                                    | \$53,633,607               | 18.86%                                            | \$49,307,919                | (\$4,325,688)                 | -8.07%                        |
| TEB- Total Electric Building                        | \$22,573,232               | 7.94%                                             | \$20,752,642                | (\$1,820,589)                 | -8.07%                        |
| LP- Large Power                                     | \$36,211,703               | 12.73%                                            | \$33,291,136                | (\$2,920,567)                 | -8.07%                        |
| SC-P PRAXAIR                                        | \$2,435,500                | 0.86%                                             | \$2,239,071                 | (\$196,429)                   | -8.07%                        |
| SPL- Municipal St. Lighting                         | \$1,242,402                | 0.44%                                             | \$1,142,199                 | (\$100,203)                   | -8.07%                        |
| PL- Private Lighting                                | \$3,385,197                | 1.18%                                             | \$3,093,786                 | (\$271,412)                   | -8.07%                        |
| LS- Special Lighting                                | \$161,508                  | 0.06%                                             | \$148,482                   | (\$13,026)                    | -8.07%                        |
| <b>Billed \$ from Permanent Rates</b>               | <b>\$284,423,930</b>       | <b>100.00%</b>                                    | <b>\$261,484,410</b>        | <b>(\$22,939,520)</b>         |                               |
| <b>\$ from IEC Charge</b>                           | <b>\$8,766,358</b>         |                                                   | <b>\$8,766,358</b>          | <b>\$0</b>                    | <b>0.00%</b>                  |
| <b>Other Rate Revenue</b>                           |                            |                                                   |                             |                               |                               |
| CP-Cogeneration Purchase                            | (\$165)                    |                                                   | (\$165)                     | \$0                           | 0.00%                         |
| Excess Facilities Charges                           | \$1,741,643                |                                                   | \$1,741,643                 | \$0                           | 0.00%                         |
| Interruptible Credits                               | (\$342,912)                |                                                   | (\$342,912)                 | \$0                           | 0.00%                         |
| <b>MO Other Rate Revenue</b>                        | <b>\$1,398,566</b>         |                                                   | <b>\$1,398,566</b>          | <b>\$0</b>                    |                               |
| <b>Total Missouri Rate Revenue</b>                  | <b>\$294,588,854</b>       |                                                   | <b>\$271,649,334</b>        | <b>(\$22,939,520)</b>         |                               |

**THE EMPIRE DISTRICT ELECTRIC COMPANY - CASE NO. ER-2006-0315  
ILLUSTRATIVE RATES FOR IEC CONTINUATION SCENARIO**

**CLASS: RG - RESIDENTIAL**

|                           | Current Rates | Percent Change to<br>Current Rates | Final Rates[1] |
|---------------------------|---------------|------------------------------------|----------------|
| Customer Charge           | \$10.35       | 0.00%                              | \$10.35        |
| Permanent Energy Charges: |               |                                    |                |
| Summer                    | \$0.07770     | -9.13%                             | \$0.07061      |
| Winter                    |               |                                    |                |
| First 600 kWh             | \$0.07770     | -9.13%                             | \$0.07061      |
| Over 600 kWh              | \$0.05220     | -9.13%                             | \$0.04743      |
| Interim Energy Charge     | \$0.00213     | 0.00%                              | \$0.00213      |

[1] These rates, when applied to test year billing units, result in the "target" revenues shown on Schedule DCR-1.

**CLASS: CB - COMMERCIAL SERVICE**

|                           | Current Rates | Percent Change to<br>Current Rates | Final Rates[1] |
|---------------------------|---------------|------------------------------------|----------------|
| Customer Charge           | \$14.60       | 0.00%                              | \$14.60        |
| Permanent Energy Charges: |               |                                    |                |
| Summer                    | \$0.08670     | -9.04%                             | \$0.07886      |
| Winter                    |               |                                    |                |
| First 700 kWh             | \$0.08670     | -9.04%                             | \$0.07886      |
| Over 700 kWh              | \$0.06530     | -9.04%                             | \$0.05940      |
| Interim Energy Charge     | \$0.00213     | 0.00%                              | \$0.00213      |

[1] These rates, when applied to test year billing units, result in the "target" revenues shown on Schedule DCR-1.

**CLASS: SH - SMALL HEATING**

|                           | Current Rates | Percent Change to<br>Current Rates | Final Rates[1] |
|---------------------------|---------------|------------------------------------|----------------|
| Customer Charge           | \$14.60       | 0.00%                              | \$14.60        |
| Permanent Energy Charges: |               |                                    |                |
| Summer                    | \$0.08670     | -8.88%                             | \$0.07917      |
| Winter                    |               |                                    |                |
| First 700 kWh             | \$0.08670     | -8.88%                             | \$0.07917      |
| Over 700 kWh              | \$0.05040     | -8.88%                             | \$0.04602      |
| Interim Energy Charge     | \$0.00213     | 0.00%                              | \$0.00213      |

[1] These rates, when applied to test year billing units, result in the "target" revenues shown on Schedule DCR-1.

**THE EMPIRE DISTRICT ELECTRIC COMPANY - CASE NO. ER-2006-0315  
ILLUSTRATIVE RATES FOR IEC CONTINUATION SCENARIO**

**CLASS: TEB - TOTAL ELECTRIC BUILDING**

|                           | Current Rates | Percent Change to<br>Current Rates | Final Rates[1] |
|---------------------------|---------------|------------------------------------|----------------|
| Customer Charge           | \$49.61       |                                    | \$49.61        |
| Demand Charge             |               |                                    |                |
| Summer                    | \$4.22        | -8.25%                             | \$3.87         |
| Winter                    | \$3.47        | -8.25%                             | \$3.18         |
| Permanent Energy Charges: |               |                                    |                |
| Summer                    |               |                                    |                |
| First 150HU               | \$0.08140     | -8.25%                             | \$0.07469      |
| Next 200HU                | \$0.05140     | -8.25%                             | \$0.04716      |
| All Add'l kWh             | \$0.04630     | -8.25%                             | \$0.04248      |
| Winter                    |               |                                    |                |
| First 150HU               | \$0.04260     | -8.25%                             | \$0.03909      |
| Next 200HU                | \$0.04010     | -8.25%                             | \$0.03679      |
| All Add'l kWh             | \$0.03880     | -8.25%                             | \$0.03560      |
| Interim Energy Charge     | \$0.00213     | 0.00%                              | \$0.00213      |

[1] These rates, when applied to test year billing units, result in the "target" revenues shown on Schedule DCR-1.

**CLASS: GP - GENERAL POWER**

|                           | Current Rates | Percent Change to<br>Current Rates | Final Rates[1] |
|---------------------------|---------------|------------------------------------|----------------|
| Customer Charge           | \$49.61       |                                    | \$49.61        |
| Demand Charge             |               |                                    |                |
| Summer                    | \$6.76        | -8.21%                             | \$6.20         |
| Winter                    | \$5.28        | -8.21%                             | \$4.85         |
| Primary Discount          | (\$0.234)     | -8.21%                             | (\$0.215)      |
| Permanent Energy Charges: |               |                                    |                |
| Summer                    |               |                                    |                |
| First 150HU               | \$0.06950     | -8.21%                             | \$0.06379      |
| Next 200HU                | \$0.04380     | -8.21%                             | \$0.04020      |
| All Add'l kWh             | \$0.03940     | -8.21%                             | \$0.03616      |
| Winter                    |               |                                    |                |
| First 150HU               | \$0.04080     | -8.21%                             | \$0.03745      |
| Next 200HU                | \$0.03940     | -8.21%                             | \$0.03616      |
| All Add'l kWh             | \$0.03840     | -8.21%                             | \$0.03525      |
| Interim Energy Charge     | \$0.00213     | 0.00%                              | \$0.00213      |

[1] These rates, when applied to test year billing units, result in the "target" revenues shown on Schedule DCR-1.

**THE EMPIRE DISTRICT ELECTRIC COMPANY - CASE NO. ER-2006-0315  
ILLUSTRATIVE RATES FOR IEC CONTINUATION SCENARIO**

**CLASS: LP - LARGE POWER**

|                              | Current Rates | Percent Change to<br>Current Rates | Final Rates[1] |
|------------------------------|---------------|------------------------------------|----------------|
| Customer Charge              | \$183.44      |                                    | \$183.44       |
| Demand Charge                |               |                                    |                |
| Summer                       | \$10.85       | -8.21%                             | \$9.95         |
| Winter                       | \$5.98        | -8.21%                             | \$5.48         |
| Secondary Adder              | \$0.23        | -8.21%                             | \$0.21         |
| Substation Facilities Credit | (\$1.11)      | -8.21%                             | \$1.02         |
| Permanent Energy Charges:    |               |                                    |                |
| Summer                       |               |                                    |                |
| First 350HU                  | \$0.04310     | -8.21%                             | \$0.03951      |
| All Add'l kWh                | \$0.02230     | -8.21%                             | \$0.02044      |
| Winter                       |               |                                    |                |
| First 350HU                  | \$0.03800     | -8.21%                             | \$0.03483      |
| All Add'l kWh                | \$0.02150     | -8.21%                             | \$0.01971      |
| Interim Energy Charge        | \$0.00213     | 0.00%                              | \$0.00213      |

[1] These rates, when applied to test year billing units, result in the "target" revenues shown on Schedule DCR-1.

**THE EMPIRE DISTRICT ELECTRIC COMPANY -- CASE NO. ER-2006-0315**  
**"TARGET" REVENUE TO BE COLLECTED BY NEW RATES**

**IEC TERMINATION SCENARIO**

Changes in Revenue Requirement: \$4,049,869 Increase to Permanent Rates  
(\$8,766,358) Decrease from Terminating IEC  
**Net Change: (\$4,716,489)**

| Sources of Rate Revenue<br>MO Rate Schedules | Current<br>Revenue   | IEC Revenue<br>by Class | Total<br>Revenue     | Class Share of<br>Total Revenue | "Target"<br>Revenue  | Revenue<br>Difference | Percent<br>Difference |
|----------------------------------------------|----------------------|-------------------------|----------------------|---------------------------------|----------------------|-----------------------|-----------------------|
| RG- Residential                              | \$129,598,362        | \$3,559,298             | \$133,157,660        | 45.42%                          | \$131,015,581        | (\$2,142,079)         | -1.61%                |
| CB-Commercial                                | \$28,159,955         | \$691,959               | \$28,851,914         | 9.84%                           | \$28,387,778         | (\$464,135)           | -1.61%                |
| SH-Small Heating                             | \$6,928,204          | \$201,682               | \$7,129,887          | 2.43%                           | \$7,015,190          | (\$114,697)           | -1.61%                |
| PFM- Feed Mill/ Grain Elev                   | \$58,684             | \$1,024                 | \$57,718             | 0.02%                           | \$58,790             | (\$928)               | -1.61%                |
| MS- Traffic Signals                          | \$57,566             | \$1,809                 | \$59,376             | 0.02%                           | \$58,421             | (\$955)               | -1.61%                |
| GP-General Power                             | \$53,633,807         | \$1,812,913             | \$55,446,520         | 18.91%                          | \$54,554,564         | (\$891,956)           | -1.61%                |
| TEB- Total Electric Building                 | \$22,573,232         | \$752,909               | \$23,326,140         | 7.96%                           | \$22,950,897         | (\$375,243)           | -1.61%                |
| LP- Large Power                              | \$36,211,703         | \$1,545,344             | \$37,757,047         | 12.88%                          | \$37,148,658         | (\$607,390)           | -1.61%                |
| SC-P PRAXAIR                                 | \$2,435,500          | \$127,183               | \$2,562,683          | 0.87%                           | \$2,521,457          | (\$41,225)            | -1.61%                |
| SPL- Municipal St. Lighting                  | \$1,242,402          | \$34,800                | \$1,277,202          | 0.44%                           | \$1,256,656          | (\$20,546)            | -1.61%                |
| PL- Private Lighting                         | \$3,365,187          | \$34,207                | \$3,399,404          | 1.16%                           | \$3,344,719          | (\$54,685)            | -1.61%                |
| LS- Special Lighting                         | \$161,508            | \$3,230                 | \$164,738            | 0.06%                           | \$162,088            | (\$2,650)             | -1.61%                |
| <b>Billed \$ from Permanent Rates</b>        | <b>\$284,423,930</b> | <b>\$8,766,358</b>      | <b>\$293,190,288</b> | <b>100.00%</b>                  | <b>\$288,473,799</b> | <b>(\$4,716,489)</b>  |                       |
| <b>\$ from IEC Charge</b>                    | <b>\$8,766,358</b>   | <b>(\$8,766,358)</b>    |                      |                                 | <b>\$0</b>           |                       | <b>-100.00%</b>       |
| <b>Other Rate Revenue</b>                    |                      |                         |                      |                                 |                      |                       |                       |
| CP-Cogeneration Purchase                     | (\$165)              |                         | (\$165)              |                                 | (\$165)              | \$0                   | 0.00%                 |
| Excess Facilities Charges                    | \$1,741,643          |                         | \$1,741,643          |                                 | \$1,741,643          | \$0                   | 0.00%                 |
| Interruptible Credits                        | (\$342,912)          |                         | (\$342,912)          |                                 | (\$342,912)          | \$0                   | 0.00%                 |
| <b>MO Other Rate Revenue</b>                 | <b>\$1,398,566</b>   |                         | <b>\$1,398,566</b>   |                                 | <b>\$1,398,566</b>   | <b>\$0</b>            |                       |
| <b>Total Missouri Rate Revenue</b>           | <b>\$294,588,854</b> |                         | <b>\$294,588,854</b> |                                 | <b>\$289,872,365</b> | <b>(\$4,716,489)</b>  |                       |

**THE EMPIRE DISTRICT ELECTRIC COMPANY - CASE NO. ER-2006-0315  
ILLUSTRATIVE RATES FOR IEC TERMINATION SCENARIO**

**CLASS: RG - RESIDENTIAL**

|                           | Current Rates | Effect to Rates of<br>IEC Termination | Rates Equivalent<br>to Current Rates [1] | Percent Change to<br>Equivalent Rates | Final Rates [2] |
|---------------------------|---------------|---------------------------------------|------------------------------------------|---------------------------------------|-----------------|
| Customer Charge           | \$10.35       |                                       | \$10.35                                  | 0.00%                                 | \$10.35         |
| Permanent Energy Charges: |               |                                       |                                          |                                       |                 |
| Summer                    | \$0.07770     | \$0.00213                             | \$0.07983                                | -1.82%                                | \$0.07838       |
| Winter                    |               |                                       |                                          |                                       |                 |
| First 600 kWh             | \$0.07770     | \$0.00213                             | \$0.07983                                | -1.82%                                | \$0.07838       |
| Over 600 kWh              | \$0.05220     | \$0.00213                             | \$0.05433                                | -1.82%                                | \$0.05334       |
| Interim Energy Charge     | \$0.00213     | (\$0.00213)                           | \$0.00000                                |                                       |                 |

[1] These rates collect the same revenues from the same customers as current rates.

[2] These rates, when applied to test year billing units, result in the "target" revenues shown on Schedule DCR-3.

**CLASS: CB - COMMERCIAL SERVICE**

|                           | Current Rates | Effect to Rates of<br>IEC Termination | Rates Equivalent<br>to Current Rates [1] | Percent Change to<br>Equivalent Rates | Final Rates [2] |
|---------------------------|---------------|---------------------------------------|------------------------------------------|---------------------------------------|-----------------|
| Customer Charge           | \$14.60       |                                       | \$14.60                                  | 0.00%                                 | \$14.60         |
| Permanent Energy Charges: |               |                                       |                                          |                                       |                 |
| Summer                    | \$0.08670     | \$0.00213                             | \$0.08883                                | -0.05%                                | \$0.08878       |
| Winter                    |               |                                       |                                          |                                       |                 |
| First 700 kWh             | \$0.08670     | \$0.00213                             | \$0.08883                                | -0.05%                                | \$0.08878       |
| Over 700 kWh              | \$0.06530     | \$0.00213                             | \$0.06743                                | -0.05%                                | \$0.06739       |
| Interim Energy Charge     | \$0.00213     | (\$0.00213)                           | \$0.00000                                |                                       |                 |

[1] These rates collect the same revenues from the same customers as current rates.

[2] These rates, when applied to test year billing units, result in the "target" revenues shown on Schedule DCR-3.

**CLASS: SH - SMALL HEATING**

|                           | Current Rates | Effect to Rates of<br>IEC Termination | Rates Equivalent<br>to Current Rates [1] | Percent Change to<br>Equivalent Rates | Final Rates [2] |
|---------------------------|---------------|---------------------------------------|------------------------------------------|---------------------------------------|-----------------|
| Customer Charge           | \$14.80       |                                       | \$14.80                                  | 0.00%                                 | \$14.80         |
| Permanent Energy Charges: |               |                                       |                                          |                                       |                 |
| Summer                    | \$0.08670     | \$0.00213                             | \$0.08883                                | -1.72%                                | \$0.08730       |
| Winter                    |               |                                       |                                          |                                       |                 |
| First 700 kWh             | \$0.08670     | \$0.00213                             | \$0.08883                                | -1.72%                                | \$0.08730       |
| Over 700 kWh              | \$0.05040     | \$0.00213                             | \$0.05253                                | -1.72%                                | \$0.05163       |
| Interim Energy Charge     | \$0.00213     | (\$0.00213)                           | \$0.00000                                |                                       |                 |

[1] These rates collect the same revenues from the same customers as current rates.

[2] These rates, when applied to test year billing units, result in the "target" revenues shown on Schedule DCR-3.

**THE EMPIRE DISTRICT ELECTRIC COMPANY - CASE NO. ER-2006-0315  
ILLUSTRATIVE RATES FOR IEC TERMINATION SCENARIO**

**CLASS: TEB - TOTAL ELECTRIC BUILDING**

|                           | Current Rates | Effect to Rates of<br>IEC Termination | Rates Equivalent<br>to Current Rates [1] | Percent Change to<br>Equivalent Rates | Final Rates [2] |
|---------------------------|---------------|---------------------------------------|------------------------------------------|---------------------------------------|-----------------|
| Customer Charge           | \$49.61       |                                       | \$49.61                                  | 0.00%                                 | \$49.61         |
| Demand Charge             |               |                                       |                                          |                                       |                 |
| Summer                    | \$4.22        | \$0.00                                | \$4.22                                   | -1.64%                                | \$4.15          |
| Winter                    | \$3.47        | \$0.00                                | \$3.47                                   | -1.64%                                | \$3.41          |
| Permanent Energy Charges: |               |                                       |                                          |                                       |                 |
| Summer                    |               |                                       |                                          |                                       |                 |
| First 150HU               | \$0.08140     | \$0.00213                             | \$0.08353                                | -1.64%                                | \$0.08216       |
| Next 200HU                | \$0.05140     | \$0.00213                             | \$0.05353                                | -1.64%                                | \$0.05265       |
| All Add'l kWh             | \$0.04630     | \$0.00213                             | \$0.04843                                | -1.64%                                | \$0.04764       |
| Winter                    |               |                                       |                                          |                                       |                 |
| First 150HU               | \$0.04260     | \$0.00213                             | \$0.04473                                | -1.64%                                | \$0.04400       |
| Next 200HU                | \$0.04010     | \$0.00213                             | \$0.04223                                | -1.64%                                | \$0.04154       |
| All Add'l kWh             | \$0.03880     | \$0.00213                             | \$0.04093                                | -1.64%                                | \$0.04026       |
| Interim Energy Charge     | \$0.00213     | (\$0.00213)                           | \$0.00000                                |                                       |                 |

[1] These rates collect the same revenues from the same customers as current rates.

[2] These rates, when applied to test year billing units, result in the "target" revenues shown on Schedule DCR-3.

**CLASS: GP - GENERAL POWER**

|                           | Current Rates | Effect to Rates of<br>IEC Termination | Rates Equivalent<br>to Current Rates [1] | Percent Change to<br>Equivalent Rates | Final Rates [2] |
|---------------------------|---------------|---------------------------------------|------------------------------------------|---------------------------------------|-----------------|
| Customer Charge           | \$49.61       |                                       | \$49.61                                  | 0.00%                                 | \$49.61         |
| Demand Charge             |               |                                       |                                          |                                       |                 |
| Summer                    | \$6.76        | \$0.00                                | \$6.76                                   | -1.64%                                | \$6.65          |
| Winter                    | \$5.28        | \$0.00                                | \$5.28                                   | -1.64%                                | \$5.19          |
| Primary Discount          | (\$0.234)     | \$0.00                                | (\$0.234)                                | -1.64%                                | (\$0.23017)     |
| Permanent Energy Charges: |               |                                       |                                          |                                       |                 |
| Summer                    |               |                                       |                                          |                                       |                 |
| First 150HU               | \$0.06960     | \$0.00213                             | \$0.07163                                | -1.64%                                | \$0.07046       |
| Next 200HU                | \$0.04380     | \$0.00213                             | \$0.04593                                | -1.64%                                | \$0.04518       |
| All Add'l kWh             | \$0.03940     | \$0.00213                             | \$0.04153                                | -1.64%                                | \$0.04085       |
| Winter                    |               |                                       |                                          |                                       |                 |
| First 150HU               | \$0.04080     | \$0.00213                             | \$0.04293                                | -1.64%                                | \$0.04223       |
| Next 200HU                | \$0.03940     | \$0.00213                             | \$0.04153                                | -1.64%                                | \$0.04085       |
| All Add'l kWh             | \$0.03840     | \$0.00213                             | \$0.04053                                | -1.64%                                | \$0.03987       |
| Interim Energy Charge     | \$0.00213     | (\$0.00213)                           | \$0.00000                                |                                       |                 |

[1] These rates collect the same revenues from the same customers as current rates.

[2] These rates, when applied to test year billing units, result in the "target" revenues shown on Schedule DCR-3.

**THE EMPIRE DISTRICT ELECTRIC COMPANY - CASE NO. ER-2006-0315  
ILLUSTRATIVE RATES FOR IEC TERMINATION SCENARIO**

**CLASS: LP - LARGE POWER**

|                              | Current Rates | Effect to Rates of<br>IEC Termination | Rates Equivalent<br>to Current Rates [1] | Percent Change to<br>Equivalent Rates | Final Rates [2] |
|------------------------------|---------------|---------------------------------------|------------------------------------------|---------------------------------------|-----------------|
| Customer Charge              | \$183.44      | 0                                     | \$183.44                                 | 0.00%                                 | \$183.44        |
| Demand Charge                |               |                                       |                                          |                                       |                 |
| Summer                       | \$10.85       | \$0.00                                | \$10.85                                  | -1.62%                                | \$10.67         |
| Winter                       | \$5.98        | \$0.00                                | \$5.98                                   | -1.62%                                | \$5.88          |
| Secondary Adder              | \$0.23        | \$0.00                                | \$0.23                                   | -1.62%                                | \$0.23          |
| Substation Facilities Credit | (\$1.11)      | \$0.00                                | (\$1.11)                                 | -1.62%                                | (\$1.09)        |
| Permanent Energy Charges:    |               |                                       |                                          |                                       |                 |
| Summer                       |               |                                       |                                          |                                       |                 |
| First 350HU                  | \$0.04310     | \$0.00213                             | \$0.04523                                | -1.62%                                | \$0.04450       |
| All Add'l kWh                | \$0.02230     | \$0.00213                             | \$0.02443                                | -1.62%                                | \$0.02404       |
| Winter                       |               |                                       |                                          |                                       |                 |
| First 350HU                  | \$0.03800     | \$0.00213                             | \$0.04013                                | -1.62%                                | \$0.03948       |
| All Add'l kWh                | \$0.02150     | \$0.00213                             | \$0.02363                                | -1.62%                                | \$0.02325       |
| Interim Energy Charge        | \$0.00213     | (\$0.00213)                           | \$0.00000                                |                                       |                 |

[1] These rates collect the same revenues from the same customers as current rates.

[2] These rates, when applied to test year billing units, result in the "target" revenues shown on Schedule DCR-3.

**THE EMPIRE DISTRICT ELECTRIC COMPANY – CASE NO. ER-2006-0315  
AVERAGE MONTHLY BILLS FOR A TYPICAL<sup>1</sup> RESIDENTIAL CUSTOMER**

**Ranked by Average Monthly Bill for 12 Consecutive Months of Service**

| <b>Utility/<br/>Scenario</b> | <b>Average<br/>Summer</b> | <b>Average<br/>Winter</b> | <b>12-Month<br/>Average</b> | <b>Rank</b> |
|------------------------------|---------------------------|---------------------------|-----------------------------|-------------|
| Empire/ Current              | \$90.18                   | \$66.40                   | \$74.33                     | 1           |
| Aquila MPS                   | \$91.15                   | \$65.72                   | \$74.19                     | 2           |
| Empire/ Terminated IEC       | \$88.73                   | \$65.38                   | \$73.16                     | 3           |
| Empire/ Continued IEC        | \$83.09                   | \$61.43                   | \$68.65                     | 4           |
| KCPL                         | \$80.11                   | \$52.04                   | \$61.40                     | 5           |
| Aquila L&P                   | \$77.96                   | \$52.42                   | \$60.93                     | 6           |
| UE                           | \$79.75                   | \$47.90                   | \$58.52                     | 7           |

**Ranked by Average Summer Monthly Bill**

| <b>Utility/<br/>Scenario</b> | <b>Average<br/>Summer</b> | <b>Average<br/>Winter</b> | <b>12-Month<br/>Average</b> | <b>Rank</b> |
|------------------------------|---------------------------|---------------------------|-----------------------------|-------------|
| Aquila MPS                   | \$91.15                   | \$65.72                   | \$74.19                     | 1           |
| Empire/ Current              | \$90.18                   | \$66.40                   | \$74.33                     | 2           |
| Empire/ Terminated IEC       | \$88.73                   | \$65.38                   | \$73.16                     | 3           |
| Empire/ Continued IEC        | \$83.09                   | \$61.43                   | \$68.65                     | 4           |
| KCPL                         | \$80.11                   | \$52.04                   | \$61.40                     | 5           |
| UE                           | \$79.75                   | \$47.90                   | \$58.52                     | 6           |
| Aquila L&P                   | \$77.96                   | \$52.42                   | \$60.93                     | 7           |

**Ranked by Average Winter Monthly Bill**

| <b>Utility/<br/>Scenario</b> | <b>Average<br/>Summer</b> | <b>Average<br/>Winter</b> | <b>12-Month<br/>Average</b> | <b>Rank</b> |
|------------------------------|---------------------------|---------------------------|-----------------------------|-------------|
| Empire/ Current              | \$90.18                   | \$66.40                   | \$74.33                     | 1           |
| Aquila MPS                   | \$91.15                   | \$65.72                   | \$74.19                     | 2           |
| Empire/ Terminated IEC       | \$88.73                   | \$65.38                   | \$73.16                     | 3           |
| Empire/ Continued IEC        | \$83.09                   | \$61.43                   | \$68.65                     | 4           |
| Aquila L&P                   | \$77.96                   | \$52.42                   | \$60.93                     | 5           |
| KCPL                         | \$80.11                   | \$52.04                   | \$61.40                     | 6           |
| UE                           | \$79.75                   | \$47.90                   | \$58.52                     | 7           |

1. A "typical" residential customer is defined as a customer in the residential general class that uses 1000 kWh per month during four Summer months and 750kWh during eight Winter months.