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))))))))	**File No. ER-2011-0004** Tariff No. YE-2011-0154

Rebuttal Testimony and Schedule of

Maurice Brubaker

On behalf of

Enbridge Energy, LP
Explorer Pipeline Company
Praxair, Inc.

April 18, 2011

BAI

BRUBAKER & ASSOCIATES, INC.
CHESTERFIELD, MO 63017

Project 9358

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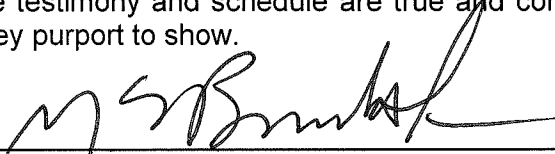STATE OF MISSOURI   )
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COUNTY OF ST. LOUIS   )

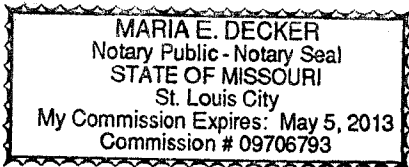### Affidavit of Maurice Brubaker

Maurice Brubaker, being first duly sworn, on his oath states:
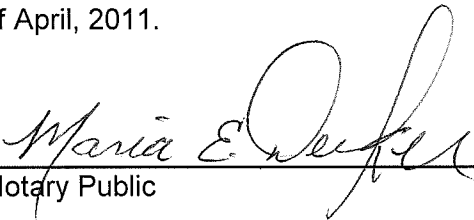
1.   My name is Maurice Brubaker. I am a consultant with Brubaker & Associates, Inc., having its principal place of business at 16690 Swingley Ridge Road, Suite 140, Chesterfield, Missouri 63017. We have been retained by Enbridge Energy, LP, Explorer Pipeline Company and Praxair, Inc. in this proceeding on their behalf.

2.   Attached hereto and made a part hereof for all purposes is my rebuttal testimony and schedule which were prepared in written form for introduction into evidence in the Missouri Public Service Commission's Case No. ER-2011-0004.

3.   I hereby swear and affirm that the testimony and schedule are true and correct and that they show the matters and things that they purport to show.

                                         Maurice Brubaker

Subscribed and sworn to before me this 15th day of April, 2011.

Notary Public

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<u>Rebuttal Testimony of Maurice Brubaker</u>

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

2 A   Maurice Brubaker. My business address is 16690 Swingley Ridge Road, Suite 140,

3   Chesterfield, MO 63017.

4 **Q   ARE YOU THE SAME MAURICE BRUBAKER WHO HAS PREVIOUSLY FILED**

5   **TESTIMONY IN THIS PROCEEDING?**

6 A   Yes. I have previously filed direct testimony on rate design issues.

7 **Q   IS YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE OUTLINED IN ANY**

8   **PRIOR TESTIMONY?**

9 A   Yes. This information is included in Appendix A to my direct testimony on rate design

10   issues.

11 **Q   ON WHOSE BEHALF ARE YOU APPEARING IN THIS PROCEEDING?**

12 A   I am appearing on behalf of Enbridge Energy, LP, Explorer Pipeline Company and

13   Praxair, Inc. (collectively "Industrials"). These companies purchase substantial

| 1 | amounts of electricity from The Empire District Electric Company ("Empire") and the |

1 amounts of electricity from The Empire District Electric Company ("Empire") and the

2 outcome of this proceeding will have an impact on their cost of electricity.

3 **Q WHAT IS THE SCOPE OF YOUR REBUTTAL TESTIMONY?**

4 A I will briefly address the class cost of service studies presented by the Staff of the

5 Missouri Public Service Commission ("Staff"), by the Office of Public Counsel ("OPC")

6 and the study presented by Empire District Electric Company ("Empire"). In addition,

7 I will address certain issues concerning the recovery of costs associated with

8 demand-side management ("DSM") programs.

9 ## Class Cost of Service Studies

10 **Q HAVE YOU REVIEWED THE CLASS COST OF SERVICE STUDIES PROVIDED BY**

11 **OPC?**

12 A Yes. OPC provides two versions of its class cost of service study. One is a peak and

13 average ("P&A") study and the other is a time of use ("TOU") study.

14 **Q ARE EITHER OF THESE STUDIES APPROPRIATE FOR USE IN THIS**

15 **PROCEEDING TO MEASURE THE COST OF SERVING EMPIRE'S VARIOUS**

16 **CUSTOMER CLASSES?**

17 A No. Both studies are flawed, and have previously been rejected by this Commission.

18 **Q PLEASE DESCRIBE OPC'S P&A ALLOCATION APPROACH.**

19 A For the peak component of the study, OPC uses the contribution to five monthly

20 coincident peaks. The average portion is simply represented by class average

21 demands. OPC's P&A allocation factor is developed by weighting the average

1   demand by a measure of system load factor and the total contribution to the five

2   coincident peaks by the quantity one minus the load factor. As a result, average

3   demand is counted twice in this allocation because average demand is a component

4   of the peak demand.

5 **Q   HOW DOES THE P&A ALLOCATION METHOD DIFFER FROM THE AVERAGE**

6 **AND   EXCESS ("A&E") METHODOLOGY THAT YOU USED IN YOUR**

7 **TESTIMONY?**

8 A   Both the P&A and A&E methods are two-step processes. In both methods, the first

9   step is to weight the average demand by the system load factor. The second step is

10   where the difference occurs. This is illustrated in Figure 1.

Figure 1

Components of Allocation Factor
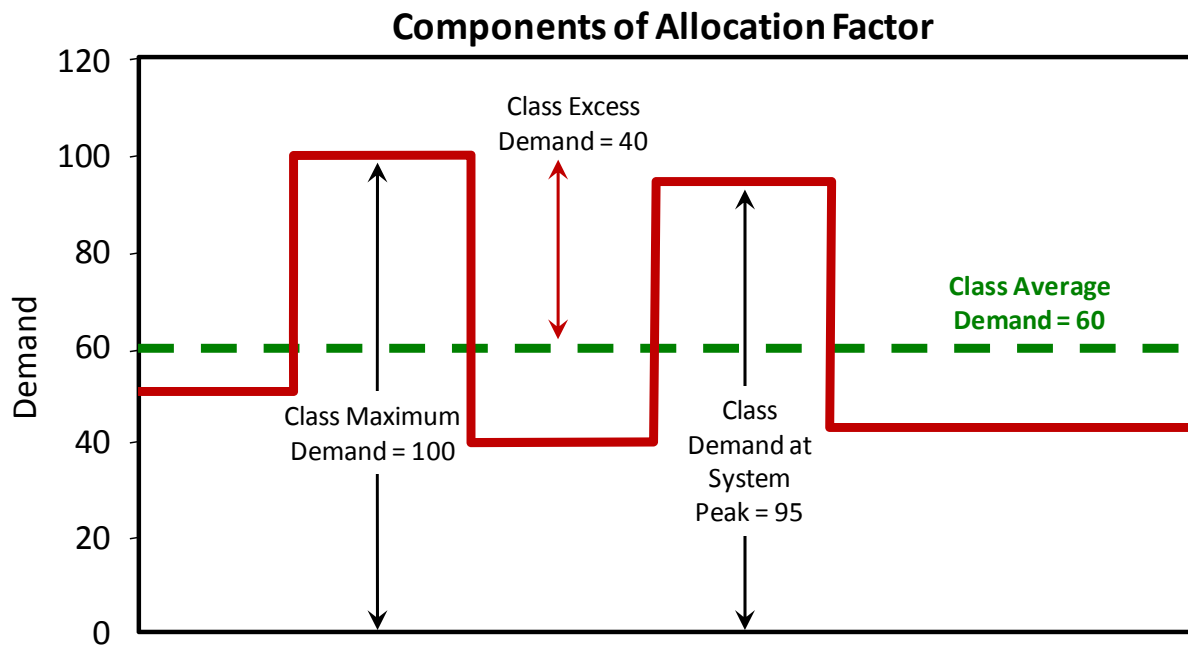
| 1 | Q | **PLEASE REFER TO FIGURE 1 AND EXPLAIN THE DIFFERENCES.** |

2 A Figure 1 is a simplified representation of a class load. The maximum demand of this

3 particular class is represented as 100. Its contribution at the time of the system peak

4 is 95, its average demand is 60, and the excess demand (the difference between its

5 peak demand and its average demand) is 40.

6 As explained in more detail beginning at page 19 of my direct testimony on

7 cost of service, the A&E method combines the class average demand with the class

8 excess demand in order to construct an allocation factor that reflects average use as

9 well as the excess of each class's maximum demand over its average demand. The

10 A&E allocation factor is developed using the average demand (60) and the excess

11 demand (40) for this class, along with the corresponding demands for all other

12 classes. (This is shown in detail on Schedule MEB-COS-3 attached to my direct

13 testimony.)

14 OPC's P&A method, on the other hand, combines the average demand with

15 the class monthly peak demands. As is evident from Figure 1, the average demand

16 (60) is a component or sub-set of the class peak demand (100) and of the class load

17 coincident with the system peak (95). Accordingly, in the P&A method when roughly

18 equal weighting is given to the average demand and the contribution to system peak

19 demand, the <u>average demand is double-counted</u>. This is a serious error, and has the

20 effect of allocating significantly more costs to high load factor customers than is

21 appropriate.

22 Q **IS THE P&A METHOD A REASONABLE ONE TO USE?**

23 A No, it is not. As noted above, this allocation gives more weighting to annual energy

24 consumption than to the class peaks used in the allocation of the investment in

1   generation facilities. Since generation facilities must be designed to carry the peak

2   loads imposed on them, the heavy weighting given to energy consumption in the

3   allocation factor is not related to cost of service at all.

4   Unlike the A&E method, which considers class individual peaks and class load

5   factors, as well as diversity between class peaks and system peak, the P&A method

6   arbitrarily allocates about half of these costs on annual energy consumption.

7   **Q   WHAT IS THE IMPACT OF OPC'S P&A METHOD?**

8   A   The result of OPC's P&A method is to allocate above-average capital costs per

9   kilowatt of peak demand to high load factor customers and below-average capital

10   costs to the low load factor customers. At the same time, however, OPC allocates

11   variable costs on kilowatthours, which means that each class gets the same average

12   cost per kilowatthour (adjusted for losses) regardless of the fact that high load factor

13   customers have been allocated a disproportionately large share of the capital costs.

14   This lack of symmetry is another major problem with the P&A type of cost allocation

15   study.

16   **Q   DID THE MISSOURI PUBLIC SERVICE COMMISSION RECENTLY HAVE AN**

17   **OPPORTUNITY TO REVIEW THIS TYPE OF COST OF SERVICE ALLOCATION**

18   **AND RULE ON IT?**

19   A   Yes.   In the recently concluded Ameren Missouri case (then Union Electric

20   Company), Case No. ER-2010-0036 (Order entered May 28, 2010), the Commission

21   was presented with the same type of cost study by OPC. The following language at

22   page 85 of that Order is instructive:

23   "14. The Peak and Average method, in contrast, initially allocates
24   average costs to each class, but then, instead of allocating just

1   the excess of the peak usage period to the various classes to the
2   cost causing classes, the method reallocates the entire peak
3   usage to the classes that contribute to the peak. Thus, the
4   classes that contribute a large amount to the average usage of
5   the system but add little to the peak, have their average usage
6   allocated to them a second time. Thus, the Peak and Average
7   method double counts the average system usage, and for that
8   reason is unreliable."[278] [Footnote omitted.]

9   **Q**   **SHOULD THE P&A PROPOSAL OF OPC IN THIS CASE ALSO BE REJECTED?**

10 A   Yes. It has basically the same premise or the same type of calculation methodology

11   and contains the same flaws noted by the Commission in rejecting it in the referenced

12   Union Electric case.

13 **Q**   **PLEASE ADDRESS OPC'S TOU STUDY.**

14 A   OPC's TOU study essentially assigns capital costs to every hour that a generating

15   facility operates. This is even more extreme than the P&A method.

16 **Q**   **HAS THE MISSOURI PUBLIC SERVICE COMMISSION PREVIOUSLY RULED ON**

17   **THIS TYPE OF ALLOCATION METHOD?**

18 A   Yes. The Commission had the opportunity to do so in the Ameren Missouri (Union

19   Electric Company) case referenced above.

20 **Q**   **HOW DID THE COMMISSION RULE ON OPC'S TOU STUDY?**

21 A   The Commission rejected it, as indicated by the following which appeared at

22   pages 85 and 86 of the Ameren Missouri (Union Electric Company) Order:

23   "15. Public Counsel also offered a time of use study that assigns
24   production costs to each hour of the year that the specific
25   production occurs. The method then sums each class' share of
26   hourly investments based on only those hours when the class
27   actually uses the system.[279]   Public Counsel's time of use

1		method is also unreliable because it considers every hour in the
2		year to be a demand peak. As a result, the actual peaks in
3		usage are given no additional weight. This, of course, benefits
4		the residential class, which tends to drive peaks, at the expense
5		of industrial users of electricity that have high load factors and
6		contribute little to the peaks in usage.[280] [Footnotes omitted.]

7 **Q WHAT METHOD DID COMMISSION STAFF USE FOR THE ALLOCATION OF**

8 **GENERATION FIXED, OR DEMAND-RELATED, COSTS?**

9 A Mr. Scheperle states that he has used something called the Base, Intermediate and

10 Peaking ("BIP") method. In fact, however, Mr. Scheperle has applied what I think is

11 best described as an alternative version of the BIP method. The BIP method

12 described in the NARUC Cost Allocation Manual and as proposed to be implemented

13 in the KCPL rate case, Case No. ER-2010-0355, develops separate allocation factors

14 for different categories of plant. The BIP method is not an accepted method in the

15 industry and rarely has been used, or even proposed. In fact, the principal proponent

16 of the BIP method in the KCPL rate case was only able to identify one instance in the

17 30 years that he had been proposing the BIP method that it had been adopted by a

18 public service commission.

19 **Q HOW DOES MR. SCHEPERLE'S MODIFIED BIP DIFFER FROM THE BIP**

20 **METHOD DESCRIBED IN THE NARUC COST ALLOCATION MANUAL AND AS**

21 **PROPOSED FOR IMPLEMENTATION IN THE KCPL CASE?**

22 A In Mr. Scheperle's alternate BIP application, he devises a composite allocation factor

23 using a combination of class average demands and class 12 monthly coincident peak

24 demands. He subtracts the average demand from the 12 coincident peak demands

25 in order to avoid the double-counting problem. However, when Mr. Scheperle

26 weights together the average demands with the 12 monthly coincident peak excess

1   demands he gives a 62% weighting to class average demands, far in excess of the

2   48% weighting that is appropriate under the A&E method. The 62% weighting is the

3   load factor based on the 12CP average demand and is totally inappropriate. As a

4   result, Mr. Scheperle's study is biased against high load factor customers and should

5   not be accepted.

6   **Q   AT PAGE 24 OF YOUR DIRECT TESTIMONY YOU INDICATED THAT ALTHOUGH**

7   **EMPIRE ASSERTED THAT IT USED THE A&E METHOD FOR ALLOCATION OF**

8   **GENERATION COSTS, IT ACTUALLY USED A COMBINATION OF AVERAGE**

9   **DEMANDS AND CONTRIBUTIONS TO PEAKS WHICH YOU SAID DOUBLE-**

10 **COUNTS THE AVERAGE DEMAND IN THE DEVELOPMENT OF THE**

11 **ALLOCATION FACTOR. YOU INDICATED THAT YOU WOULD ADDRESS THIS**

12 **ISSUE IN MORE DETAIL IN YOUR REBUTTAL. PLEASE DO SO NOW.**

13 A   Empire claimed to have used the A&E 12CP method for allocation of generation costs

14 in its cost of service study. In developing its A&E 12CP, Empire calculated the

15 average portion correctly. However, when developing the excess portion of the A&E

16 12CP, Empire double-counted the average demand by using the ratio of each class's

17 total 12CP to the Empire total 12CP multiplied by the demand portion. By using this

18 methodology, Empire double-counted the average demand. Empire's allocation is a

19 form of P&A. This error has the effect of allocating significantly more costs to high

20 load factor customers than is appropriate. According to the NARUC manual, the

21 "excess" component should be derived from the difference between the customer

22 group's maximum coincident peak demand and the "average" demand component.[1]

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[1]NARUC Electric Utility Cost Allocation Manual, 1992, pages 81-82.

1   In addition, Empire calculated the system load factor of 57.73% based on the

2   12CP-Transmission demand of 819,763 kW. The system load factor should be

3   48.28% based on the single CP of 980,129 kW. Overstating the system load factor,

4   over-allocates cost to the average portion of the A&E allocation method. Since the

5   excess portion of the A&E method is developed by taking one minus the system load

6   factor, the excess portion would be understated.

7   Empire's erroneous calculation, as well as a corrected version based on class

8   excess demands, is shown on Schedule MEB-R-1.

9 **DSM Cost Recovery**

10 **Q   HAVE YOU REVIEWED THE TESTIMONY OF THE MISSOURI DEPARTMENT OF**

11 **NATURAL RESOURCES ("MDNR") WITNESS DR. BICKFORD?**

12 A   Yes.

13 **Q   DOES HE COMMENT ABOUT RECOVERY OF DSM PROGRAM INVESTMENTS?**

14 A   Yes. He does so very briefly at pages 10 and 11 of his testimony in a six line

15   response to a question. He generally says that in recent cases MDNR has been

16   supportive of expensing program cost and supportive of shortening the amortization

17   period for regulatory assets.

18 **Q   DOES HE PROVIDE ANY SUPPORT FOR HIS RECOMMENDATION?**

19 A   No. He does not provide any support for his recommendation.

1 **Q** **WHAT IS THE CONCEPT BEHIND CAPITALIZING AND AMORTIZING COSTS**

2 **ASSOCIATED WITH DSM INVESTMENTS?**

3 A The fundamental principle is that a utility's investment in DSM programs provides

4 benefits over a period of years. When an expenditure provides benefits over a period

5 of years, it is traditional to treat the costs as an asset and to amortize those costs to

6 income over a period of time that reasonably reflects the time during which the

7 benefits will be provided. Under its current Regulatory Plan, Empire creates a

8 regulatory asset and amortizes it over a ten-year period. In my opinion, this is the

9 appropriate recovery mechanism and should not be disturbed in this case. Certainly,

10 MDNR has not provided any basis for changing this method.

11 **Q** **DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

12 A Yes, it does.

EMPIRE DISTRICT ELECTRIC COMPANY

	Total	Res Gen	Comm	Comm SH	Gen Pow	Prax	Tot.Elec. Bldg	Feed Mill	Large Pow	Misc Lts	Street Lts	Private Lts	Spec Lts
Metered w/losses Weather Norm		0	1	2	3	4	5	6	7	8	9	10	11
CP-T	980,129	493,238	91,159	22,442	182,077	92	70,608	116	120,328	68	0	0	0
CP-P	975,476	493,238	91,159	22,442	182,077	0	70,608	116	115,768	68	0	0	0
CP-S	848,536	493,238	91,159	22,442	155,328	0	70,608	116	15,576	68	0	0	0
12CP-T	819,763	425,192	65,050	19,474	132,458	5,158	75,021	77	97,264	68	0	0	0
12CP-P	811,737	425,192	65,050	19,474	132,458	0	75,021	77	94,397	68	0	0	0
12CP-S	707,453	425,192	65,050	19,474	110,328	0	75,021	77	12,242	68	0	0	0
NCP-T	1,073,009	523,835	97,947	22,698	196,658	8,814	78,074	259	132,628	68	4,744	5,269	2,015
NCP-P	1,053,610	523,835	97,947	22,698	196,658	0	78,074	259	122,044	68	4,744	5,269	2,015
NCP-S	916,769	523,835	97,947	22,698	165,719	0	78,074	259	16,141	68	4,744	5,269	2,015
NCP-SxLT	904,741	523,835	97,947	22,698	165,719	0	78,074	259	16,141	68	0	0	0
Sales	4,145,486,736	1,714,543,361	317,310,039	98,865,505	862,757,122	65,655,786	403,215,447	474,474	648,676,817	675,570	16,601,310	15,862,380	848,926

Company AED 12CP Calculation

Load Factor (Based on 12CP-T) 57.73% Company used the load factor based on 12CP-T.
(1 - Load Factor) 42.27%

	Total	Res Gen	Comm	Comm SH	Gen Pow	Prax	Tot.Elec. Bldg	Feed Mill	Large Pow	Misc Lts	Street Lts	Private Lts	Spec Lts
Sales Portion	473,229	195,724	36,223	11,286	98,488	7,495	46,029	54	74,050	77	1,895	1,811	97
Demand Portion	346,534	179,739	27,498	8,232	55,993		31,713	33	41,116	29	0	0	0
AED12CP	817,582	375,463	63,721	19,518	154,481	7,495	77,743	87	115,166	106	1,895	1,811	97
AED 12CP		**45.92%**	**7.79%**	**2.39%**	**18.89%**	**0.92%**	**9.51%**	**0.01%**	**14.09%**	**0.01%**	**0.23%**	**0.22%**	**0.01%**

Company AED 12CP Calculation - Corrected

Load Factor (Based on CP-T) 48.28% Company Corrected load factor based on a single CP-T
(1 - Load Factor) 51.72%

	Total	Res Gen	Comm	Comm SH	Gen Pow	Prax	Tot.Elec. Bldg	Feed Mill	Large Pow	Misc Lts	Street Lts	Private Lts	Spec Lts
Sales Portion	473,229	195,724	36,223	11,286	98,488	7,495	46,029	54	74,050	77	1,895	1,811	97
Demand Portion	346,534	229,468	28,827	8,188	33,970		28,992	23	23,215				
AED12CP	819,763	425,192	65,050	19,474	132,458	7,495	75,021	77	97,264	77	1,895	1,811	97
Percentage		**54.22%**	**8.00%**	**2.37%**	**15.12%**	**0.76%**	**9.02%**	**0.01%**	**11.02%**	**0.01%**	**0.19%**	**0.18%**	**0.01%**

Notes:
1. Empire's Load Factor is based on the 12CP-T of 819,763 instead of the CP-T of 980,129.
2. Empire used the 12CP-T values to calculate the Excess portion instead of using the 12CP-T values minus the Sales portion
3. Empire calculated the AED 12CP allocation factors by taking the total of the Sales and Demand Portion and dividing it by the system total instead of using the load factor percentage
4. Negative excess demand was excluded

Source:
H.Edwin Overcast's COSS workpapers, File "Datasheet.xls", Tab "Demand"

Schedule MEB-R-1