Exhibit No.
Issue: Weather Normalization
Witness: Aaron J. Doll
Type of Exhibit: Direct Testimony
Sponsoring Party: Empire District Electric Co.
Case No. ER-2011-0004
Date Testimony Prepared: September 2010

Before the Missouri Public Service Commission

Direct Testimony

of

Aaron J. Doll

September 2010

DIRECT TESTIMONY
OF
AARON J. DOLL
ON BEHALF OF
THE EMPIRE DISTRICT ELECTRIC COMPANY
BEFORE THE
MISSOURI PUBLIC SERVICE COMMISSION
CASE NO. ER-2011-0004

Q. PLEASE STATE YOUR NAME, TITLE, AND BUSINESS ADDRESS.

A. My name is Aaron J. Doll. I am a Planning Analyst for The Empire District Electric Company ("Empire" or "Company). My business address is 602 South Joplin Avenue, Joplin, Missouri.

Q. WOULD YOU PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND PRIOR ACADEMIC EXPERIENCE?

A. I graduated from Missouri State University in 2003 with a Bachelor of Science Degree in Psychology and a Minor in Philosophy. Additionally, I received my Masters of Business Administration from Missouri State University in 2008. I have worked for Empire for four years in the Planning and Regulatory Department.

Q. WHAT ARE YOUR PRIMARY DUTIES AT EMPIRE?

A. During my tenure with Empire I have worked on planning related projects, such as Empire's annual demand & energy forecast as well as Empire's annual sales and revenue forecast. I am also responsible for the annual sales and revenue forecast for The Empire District Gas Company, a wholly owned subsidiary of Empire. In addition, I participate in the development of

data and perform various analyses for Empire's long-term load forecast, which is used in Empire's Integrated Resource Plan ("IRP") that is filed with the regulatory commissions in Missouri, Arkansas and Oklahoma every three years. I have testified before the Missouri Public Service Commission ("Commission") on behalf of The Empire District Gas Company in MO case GR-2009-0434 and before the Arkansas Public Service Commission on behalf of The Empire District Electric Company in Docket No. 10-052-U.

Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY THIS CASE?

A. My testimony will support the weather-normalized sales estimates for Empire in this case.

Q. WHAT IS "WEATHER NORMALIZATION"?

A. Weather normalization is the process of determining how historical usage would have changed had normal weather conditions existed. The process involves using a statistical model to adjust actual monthly sales levels, by class, under normal weather conditions.

Q. CAN YOU DESCRIBE THE WEATHER NORMALIZATION PROCESS?

A. Yes. The process for weather normalization involves using a statistical model to determine the variation in sales from what would have happened under normal weather conditions to what did happen under actual weather conditions. The fundamental equation used in the process is shown below:

$$NormalSales_{month} = \frac{ModelNormalSales_{month}}{ModelActualSales_{month}} \times ActualSales_{month}$$

In this equation, a factor is created dividing model predicted normal sales by model predicted actual sales and multiplying the factor by actual sales.

Q. HOW DO YOU OBTAIN MODEL PREDICTED ACTUAL SALES?

A. To obtain model predicted actual sales, a multivariate regression model was created for each rate class and the model estimated actual sales by using actual weather data during the test year. Each regression model is developed using the class sample means created from load research data. Independent variables include: weather splines for heating and cooling responses, various daytype and holiday variables, and sunlight variables for the impact of sunlight on consumption. Weather splines were created to reflect the nonlinear interaction between consumption and weather. I have included the regression model specifications and results for the five classes in Schedule AD-1.

Q. HOW DO YOU OBTAIN MODEL PREDICTED NORMAL SALES?

A. To obtain model predicted normal sales I used the same multivariate regression model mentioned above and reforecasted the sales levels using normal weather data during the test year.

Q. HOW DID YOU DEVELOP NORMAL WEATHER CONDITIONS FOR THE SALES MODEL?

A. Normal weather conditions have been developed using a 30-year average of daily historical weather from 1979 through 2008 from the National Oceanic and Atmospheric Administration ("NOAA") statistics from Springfield, Missouri. The averages are obtained by a Rank and Average method. In

this method, historical daily average temperatures are ranked from the highest value to the lowest value in each month. For each historical day, the corresponding heating degree day (HDD) and cooling degree day (CDD) values are calculated for multiple temperature reference points. For example, a CDD with a 65° F reference point would be calculated by subtracting 65° from the actual temperature on the condition that the actual temperature was above 65° F. For a HDD with a 65° F reference point, a calculation would be made that would subtract the actual temperature from 65° F. This procedure allows the model to check load response to different temperature reference points as well as to create autonomous slopes for both heating and cooling conditions. Next, the normal HDD and CDD values are calculated as the average from the 30 historical years within each month. The final step in this method is to map the ranked averages to the test year actual weather. This allows for assignment of the largest CDD for each particular month in the 30 year historical database to be mapped to the hottest day in the actual month of the test year.

Q. IS THERE ANY ADVANTAGE TO CREATING HDD/CDD PRIOR TO AVERAGING THE 30 YEARS OF HISTORICAL WEATHER?

A. Yes. This procedure allows for a more accurate portrayal of historical weather by disallowing competing heating and cooling attempts to cancel out their historical influence. For example, if the database consisted of a ranked day that displayed 15 years of daily 70° F temperature reads and 15 years of daily 60° F temperature reads, averaging the temperatures prior to assigning

a HDD/CDD would fail to produce a single degree day even though historically the weather produced 15 years of 5 CDD (assuming a 65° F reference point) and 15 years of 5 HDD (assuming a 65° F reference point). [((15*70°)+(15*60°))/30 = 65°] If a temperature is assigned a HDD/CDD prior to averaging, a representation of the temperature is still created. [(15 x 5 CDD)/30 = 2.5 CDD] [(15 x 5 HDD)/30 = 2.5 HDD].

Q. PLEASE DESCRIBE THE PROCESS USED TO WEATHER-NORMALIZE EMPIRE'S MISSOURI ELECTRIC SALES.

A. In accordance with the Unanimous Stipulation and Agreement from Mo. case ER-2010-0130, I used the statistical model developed by Empire's witness Mark Quan in that case and adjusted the input for the model for a weather database created by the Commission Staff ("Staff") in that same case. In addition, I adjusted Empire's revenue cycle sales to reflect Staff's "scrubbed sales" starting point.

Q. BY INCORPORATING THE CHANGES LISTED ABOVE, DO YOU HAVE A DATABASE THAT IS COMPARABLE TO ONE THAT THE STAFF WOULD USE TO START THE WEATHER-NORMALIZATION PROCESS?

A. Almost. As I performed a quality check on the billing data, I noticed that sales from Oil Pipeline General Power ("OPP") had not been removed from the General Power ("GP") rate class sales.

Q. WHY SHOULD OPP SALES BE REMOVED FROM THE GP RATE PLAN?

A. The OPP sales have no relationship to weather and including them in the weather normalization process for the GP rate class would skew the results of the normalization process.

Q. WITH THE EXCEPTION OF THE REMOVAL OF OPP SALES, DO YOU HAVE A DATABASE COMPARABLE TO STAFF'S WITH WHICH TO START THE WEATHER NORMALIZATION PROCESS?

A. Yes.

Q. PLEASE DESCRIBE THE RESULTS OF EMPIRE'S WEATHER NORMALIZATION.

A. The normalized values I calculated are shown in Tables 1 through 5 for each class, after applying the methodology and the model developed for Empire by Mark Quan in Case No. ER-2010-0130, and revising the data for the changes described above.

Table 1: Residential Normal Values

Month	Actual Billed Sales (kWh)	Normal Billed Sales (kWh)	Normal Calendar Sales (kWh)
Jul 2008	146,574,495	147,411,215	172,462,801
Aug 2008	170,766,196	175,213,938	168,536,592
Sep 2008	140,593,324	149,455,875	120,237,480
Oct 2008	97,412,338	102,225,761	94,843,845
Nov 2008	101,542,375	100,026,866	120,093,695
Dec 2008	168,433,266	161,836,898	182,810,683
Jan 2009	214,629,985	207,554,032	200,267,891
Feb 2009	177,404,135	179,008,316	166,245,158
Mar 2009	139,982,565	145,920,098	137,409,035
Apr 2009	122,421,619	123,503,567	102,973,796
May 2009	99,004,828	99,084,224	110,535,106
Jun 2009	107,305,890	106,743,855	127,100,239

Table 2: Commercial Normal Values

Month	Actual Billed Sales (kWh)	Normal Billed Sales (kWh)	Normal Calendar Sales (kWh)
Jul 2008	30,795,777	30,749,579	34,331,373
Aug 2008	33,129,928	33,602,721	32,618,841
Sep 2008	31,120,855	32,140,378	27,945,699
Oct 2008	25,132,379	25,722,973	24,005,287
Nov 2008	22,177,999	22,061,001	23,080,831
Dec 2008	27,544,823	27,081,515	29,147,114
Jan 2009	32,843,838	32,360,188	30,480,322
Feb 2009	27,763,416	27,874,592	26,601,381
Mar 2009	25,312,826	25,674,845	25,703,103
Apr 2009	24,210,851	24,244,047	22,598,211
May 2009	23,047,314	23,109,450	25,736,796
Jun 2009	24,842,993	24,792,657	28,366,882

Table 3: GP Normal Values

Month	Actual Billed Sales (kWh)	Normal Billed Sales (kWh)	Normal Calendar Sales (kWh)
Jul 2008	76,642,839	76,692,027	80,709,347
Aug 2008	80,083,874	80,500,414	81,238,956
Sep 2008	79,368,675	80,106,324	73,624,751
Oct 2008	67,581,539	67,965,735	68,435,815
Nov 2008	58,948,257	58,827,215	55,816,490
Dec 2008	62,876,298	62,578,923	67,297,408
Jan 2009	68,611,769	68,328,811	65,431,807
Feb 2009	59,234,965	59,257,467	58,616,079
Mar 2009	59,282,668	59,429,126	60,886,469
Apr 2009	60,822,097	60,868,864	58,678,483
May 2009	61,311,701	61,490,957	64,326,785
Jun 2009	66,508,062	66,472,423	70,579,081

Table 4: SH Normal Values

Month	Actual Billed Sales (kWh)	Normal Billed Sales (kWh)	Normal Calendar Sales (kWh)
Jul 2008	8,505,851	8,506,899	9,120,837
Aug 2008	9,217,136	9,322,879	9,156,486
Sep 2008	8,586,095	8,774,823	7,959,289
Oct 2008	7,167,208	7,255,161	6,985,574
Nov 2008	6,394,923	6,347,765	6,669,177
Dec 2008	9,342,730	9,126,497	10,393,980
Jan 2009	12,212,184	11,887,812	11,338,809
Feb 2009	10,225,573	10,270,713	9,609,503
Mar 2009	8,388,898	8,573,756	8,375,325
Apr 2009	7,180,111	7,214,756	6,739,506
May 2009	6,585,182	6,609,033	7,155,977
Jun 2009	7,090,560	7,079,993	7,675,592

Table 5: TEB Normal Values

Month	Actual Billed Sales (kWh)	Normal Billed Sales (kWh)	Normal Calendar Sales (kWh)
Jul 2008	33,297,993	33,294,673	36,135,967
Aug 2008	35,957,239	36,336,268	35,508,586
Sep 2008	35,634,572	36,381,234	33,202,173
Oct 2008	30,654,821	31,043,841	29,789,170
Nov 2008	26,897,191	26,689,551	29,526,722
Dec 2008	34,686,799	33,976,148	36,426,358
Jan 2009	40,867,462	39,965,032	36,925,819
Feb 2009	33,146,128	33,287,108	31,965,934
Mar 2009	29,151,538	29,748,751	29,325,143
Apr 2009	27,608,924	27,779,769	25,923,498
May 2009	27,770,776	27,834,677	30,335,522
Jun 2009	29,983,136	29,931,340	32,212,556

Q. WHAT IS THE RESULT OF THE WEATHER NORMALIZATION PROCESS FOR EMPIRE'S FIVE CUSTOMER CLASSES?

A. The results of the normalization process reflect a sales level increase of 15,335,571 kilowatt-hours due to weather and an increase of 11,075,776 kilowatt-hours due to the unbilled adjustment.

Q. WAS EMPIRE'S REVENUE ALSO ADJUSTED FOR THE AFFECT OF WEATHER?

A. Yes. Both the test year sales levels and revenue were adjusted to account for the impact of abnormal weather.

Q. HOW WAS THE REVENUE ADJUSTMENT DUE TO WEATHER CALCULATED?

A. Rates were determined for each pricing plan and then applied to the sales adjustment for a total of $1,610,447. This result was netted against the weather adjustment included by Staff in their Accounting Schedules from Case No. ER-2010-013. The result was a decrease to revenue of $1,666,175.

Q. PLEASE DESCRIBE THE PROPOSED ADJUSTMENT RELATED TO UNBILLED REVENUE.

A. The revenue in the test year should equal the amount actually billed to customers and the portion of sales that were used but not billed during the test year. While the amount of revenues actually billed to customers is known, the portion not yet billed to customers is not known and therefore must be estimated. This adjustment is calculated by multiplying a rate per kWh to the unbilled sales by pricing plan. The unbilled sales were THEN multiplied by the determined rates to derive the unbilled revenue. This resulted in an increase in unbilled revenue of $683,560. This result was netted against the unbilled revenue adjustment included by Staff in their Accounting Schedules from Case No. ER-2010-0130. The result was a decrease to revenue of $895,898.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.

Schedule AD-1

REGRESSION MODEL SPECIFICATIONS AND RESULTS

RESIDENTIAL RG MODEL

Model fit statistics

- R-Squared 0.953
- Adjusted R-Squared 0.952
- Mean Abs. Dev. (MAD) 1.80
- Mean Abs. % Err. (MAPE) 5.18%
- Durbin-Watson Statistic 2.098

Variable Statistics

Variable	Coefficient	T-Stat
CONST	26.83104	29.563
DailyAverageTemperature.HDD60	0.02191	0.441
DailyAverageTemperature.HDD55	0.52236	9.427
WeatherTransforms.HDD55_Trend	0.03313	5.634
DailyAverageTemperature.CDD65	0.84322	14.176
DailyAverageTemperature.CDD70	0.67846	8.911
MonthlyBinary.Jan	5.25088	7.233
MonthlyBinary.Feb	5.11622	8.881
MonthlyBinary.Mar	2.65972	4.963
MonthlyBinary.May	1.50313	2.840
MonthlyBinary.Jun	5.27710	9.092
MonthlyBinary.Jul	8.35619	13.706
MonthlyBinary.Aug	7.82552	12.772
MonthlyBinary.Sep	3.04079	5.378
MonthlyBinary.Oct	0.18675	0.316
MonthlyBinary.Nov	1.36330	1.845
MonthlyBinary.Dec	4.13112	4.182

DOWBinary.Monday	-1.21720	-7.255
DOWBinary.Tuesday	-1.59638	-7.983
DOWBinary.Wednesday	-1.56102	-7.319
DOWBinary.Thursday	-1.69882	-7.927
DOWBinary.Friday	-1.88932	-9.382
DOWBinary.Saturday	-0.37854	-2.312
SunTimes.FracDark17	6.79729	2.536
SunTimes.FracDark8	1.27743	0.727
US_Holidays.NYHol	0.68947	0.744
US_Holidays.MLKing	0.80379	0.857
US_Holidays.PresidentDay	1.09646	1.279
US_Holidays.MemorialDay	2.18998	2.329
US_Holidays.July4thHol	-0.13240	-0.142
US_Holidays.LaborDay	4.24425	4.044
US_Holidays.Thanksgiving	0.48266	0.464
US_Holidays.FriAftThanks	-0.07074	-0.068
US_Holidays.XMasHol	0.79753	0.857
MonthlyBinary.Year2006	-1.45124	-1.807
MonthlyBinary.Year2005	-2.13120	-2.611
MonthlyBinary.Year2004	-2.60714	-3.127
MonthlyBinary.Year2003	-2.40696	-2.817
MonthlyBinary.Year2002	-2.62918	-3.005
AR(1)	0.53790	26.592

COMMERICAL CB MODEL

Model fit statistics

- R-Squared 0.952
- Adjusted R-Squared 0.951
- Durbin-Watson Statistic 2.073
- Mean Abs. Dev. (MAD) 1.99
- Mean Abs. % Err. (MAPE) 4.16%

Variable Statistics

Variable	Coefficient	T-Stat
CONST	28.567	23.454
DailyAverageTemperature.HDD55	0.357	29.280
DailyAverageTemperature.CDD65	0.897	12.831
DailyAverageTemperature.CDD60	0.236	4.142
MonthlyBinary.Jan	3.629	4.377
MonthlyBinary.Feb	3.094	3.852
MonthlyBinary.Mar	0.755	1.027
MonthlyBinary.May	3.151	4.310
MonthlyBinary.Jun	7.303	8.954
MonthlyBinary.Jul	10.258	12.167
MonthlyBinary.Aug	9.709	11.413
MonthlyBinary.Sep	5.903	7.293
MonthlyBinary.Oct	2.726	3.427
MonthlyBinary.Nov	2.213	2.218
MonthlyBinary.Dec	3.269	2.819
DOWBinary.Monday	11.828	67.953
DOWBinary.Tuesday	12.418	58.056
DOWBinary.Wednesday	12.768	55.297
DOWBinary.Thursday	12.469	53.802
DOWBinary.Friday	12.135	56.617

DOWBinary.Saturday	3.426	20.227
SunTimes.FracDark17	5.156	1.475
US_Holidays.NYHol	-7.708	-8.099
US_Holidays.MLKing	-2.219	-2.482
US_Holidays.PresidentDay	-0.724	-0.823
US_Holidays.MemorialDay	-12.690	-13.142
US_Holidays.July4thHol	-15.729	-16.478
US_Holidays.LaborDay	-12.504	-12.950
US_Holidays.Thanksgiving	-14.245	-13.082
US_Holidays.FriAftThanks	-5.832	-5.354
US_Holidays.XMasHol	-9.185	-9.616
MonthlyBinary.Year2006	1.703	1.526
MonthlyBinary.Year2005	-0.580	-0.512
MonthlyBinary.Year2004	-2.842	-2.517
MonthlyBinary.Year2003	-0.987	-0.873
MonthlyBinary.Year2002	1.329	1.166
AR(1)	0.682	38.940

GENERAL POWER GP MODEL

Model fit statistics

- R-Squared 0.966
- Adjusted R-Squared 0.963
- Durbin-Watson Statistic 2.042
- Mean Abs. Dev. (MAD) 223.73
- Mean Abs. % Err. (MAPE) 2.86%

Variable Statistics

Variable	Coefficient	T-Stat
CONST	5007.091	35.783
DailyAverageTemperature.HDD50	19.680	5.923
DailyAverageTemperature.CDD70	26.952	2.464
DailyAverageTemperature.CDD55	29.904	5.166
MonthlyBinary.Jan	259.087	1.510
MonthlyBinary.Feb	468.065	2.731
MonthlyBinary.Mar	-43.966	-0.251
MonthlyBinary.May	81.743	0.467
MonthlyBinary.Jun	373.014	1.953
MonthlyBinary.Jul	499.013	2.479
MonthlyBinary.Aug	931.632	4.612
MonthlyBinary.Sep	271.985	1.459
MonthlyBinary.Oct	300.983	1.637
MonthlyBinary.Nov	-164.721	-0.863
MonthlyBinary.Dec	120.336	0.627
DOWBinary.Monday	3237.501	69.401
DOWBinary.Tuesday	3628.496	64.868
DOWBinary.Wednesday	3717.656	61.957
DOWBinary.Thursday	3737.022	62.138
DOWBinary.Friday	3406.916	60.209

DOWBinary.Saturday	1122.179	25.020
US_Holidays.NYHol	-2606.313	-13.436
US_Holidays.MLKing	-893.098	-4.398
US_Holidays.PresidentDay	-495.816	-2.608
US_Holidays.MemorialDay	-3229.216	-12.088
US_Holidays.July4thHol	-3042.702	-10.255
US_Holidays.LaborDay	-2815.807	-10.602
US_Holidays.Thanksgiving	-3848.724	-12.523
US_Holidays.FriAftThanks	-2983.526	-8.656
US_Holidays.SatAftThanks	-850.299	-2.765
US_Holidays.XMasHol	-3114.262	-10.707
US_Holidays.XMASAft	-1803.278	-6.976
US_Holidays.July4thMonFri	-2279.050	-7.677
AR(1)	0.614	14.911

SMALL HEATING SH MODEL

Model fit statistics

- R-Squared 0.937
- Adjusted R-Squared 0.934
- Mean Abs. Dev. (MAD) 3.53
- Mean Abs. % Err. (MAPE) 3.87%
- Durbin-Watson Statistic 1.984

Variable Statistics

Variable	Coefficient	T-Stat
CONST	67.773	28.016
DailyAverageTemperature.HDD40	1.117	10.082
DailyAverageTemperature.HDD50	0.778	10.631
DailyAverageTemperature.CDD55	0.408	4.487
DailyAverageTemperature.CDD65	0.810	4.707
DailyAverageTemperature.CDD75	0.369	1.852
MonthlyBinary.Jan	6.422	3.194
MonthlyBinary.Feb	5.711	2.873
MonthlyBinary.Mar	1.243	0.658
MonthlyBinary.May	2.303	1.218
MonthlyBinary.Jun	6.398	3.009
MonthlyBinary.Jul	7.534	3.443
MonthlyBinary.Aug	7.505	3.355
MonthlyBinary.Sep	3.639	1.782
MonthlyBinary.Oct	0.615	0.312
MonthlyBinary.Nov	0.361	0.179
MonthlyBinary.Dec	9.301	4.529
DOWBinary.Monday	18.305	35.262
DOWBinary.Tuesday	18.475	29.707
DOWBinary.Wednesday	19.090	28.690
DOWBinary.Thursday	18.760	27.966

DOWBinary.Friday	18.441	29.637
DOWBinary.Saturday	9.104	18.157
US_Holidays.NYHol	-11.614	-3.987
US_Holidays.MLKing	-2.591	-0.903
US_Holidays.PresidentDay	-3.954	-1.676
US_Holidays.July4thHol	-19.913	-7.012
US_Holidays.MemorialDay	-14.612	-5.102
US_Holidays.LaborDay	-16.705	-5.816
US_Holidays.Thanksgiving	-22.930	-5.395
US_Holidays.FriAftThanks	-7.031	-2.307
US_Holidays.XMasHol	-9.992	-3.488
MonthlyBinary.Year2005	-7.709	-3.947
MonthlyBinary.Year2006	-7.599	-3.940
AR(1)	0.614	20.857

TOTAL ELECTRIC TEB MODEL

Model fit statistics

- R-Squared 0.934
- Adjusted R-Squared 0.932
- Mean Abs. Dev. (MAD) 39.25
- Mean Abs. % Err. (MAPE) 3.28%
- Durbin-Watson Statistic 1.968

Variable Statistics

Variable	Coefficient	T-Stat
CONST	887.617	35.398
DailyAverageTemperature.HDD55	5.616	9.034
DailyAverageTemperature.HDD45	10.640	13.228
DailyAverageTemperature.CDD60	7.887	5.916
DailyAverageTemperature.CDD65	6.142	3.234
DailyAverageTemperature.CDD75	4.473	2.685
MonthlyBinary.Jan	51.631	2.436
MonthlyBinary.Feb	58.548	3.282
MonthlyBinary.Mar	9.883	0.607
MonthlyBinary.May	46.713	2.896
MonthlyBinary.Jun	92.493	5.168
MonthlyBinary.Jul	149.587	8.111
MonthlyBinary.Aug	129.952	6.972
MonthlyBinary.Sep	86.800	4.877
MonthlyBinary.Oct	56.998	3.096
MonthlyBinary.Nov	65.596	2.954
MonthlyBinary.Dec	101.064	3.688
DOWBinary.Monday	157.927	40.475
DOWBinary.Tuesday	162.005	34.052
DOWBinary.Wednesday	182.319	35.337

DOWBinary.Thursday	176.098	33.997
DOWBinary.Friday	191.067	39.717
DOWBinary.Saturday	73.276	19.232
SunTimes.FracDark17	186.634	2.430
SunTimes.FracDark8	-123.141	-2.564
US_Holidays.NYHol	-130.638	-6.201
US_Holidays.MLKing	15.100	0.699
US_Holidays.PresidentDay	-22.660	-1.168
US_Holidays.MemorialDay	-140.849	-6.458
US_Holidays.July4thHol	-148.729	-6.920
US_Holidays.LaborDay	-167.076	-7.679
US_Holidays.Thanksgiving	-227.722	-9.304
US_Holidays.FriAftThanks	-42.608	-1.738
US_Holidays.XMasHol	-115.531	-5.374
MonthlyBinary.Year2006	-36.235	-1.623
MonthlyBinary.Year2005	-1.076	-0.048
MonthlyBinary.Year2004	-29.664	-1.317
MonthlyBinary.Year2003	6.502	0.286
AR(1)	0.673	34.112

AFFIDAVIT OF AARON J. DOLL

STATE OF MISSOURI)
) ss
COUNTY OF JASPER)

On the 21st day of September, 2010, before me appeared Aaron J. Doll, to me personally known, who, being by me first duly sworn, states that he is a Planning Analyst of The Empire District Electric Company and acknowledges that he has read the above and foregoing document and believes that the statements therein are true and correct to the best of his information, knowledge and belief.

Aaron J. Doll

Subscribed and sworn to before me this 21st day of September, 2010.

Notary Public

My commission expires: 10-30-10.

VICKI L. KRAMER-GIBSON
Notary Public - Notary Seal
STATE OF MISSOURI
Jasper County - Comm#06482169
My Commission Expires Oct. 30, 2010