Exhibit No.:	
Issues:	Jurisdictional Allocations; System Losses
Witness:	Eve A. Lissik
Sponsoring Party:	MoPSC
Type of Exhibit:	Direct Testimony
Case No.:	ER-2001-299
Date Testimony Prepared:	April 3, 2001

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY OPERATIONS DIVISION

DIRECT TESTIMONY

OF

EVE A. LISSIK Exhibit No. 58
Date 5/29/01 Case No. ER-2001-299
Reporter KAM

THE EMPIRE DISTRICT ELECTRIC COMPANY

CASE NO. ER-2001-299

Jefferson City, Missouri
April, 2001

DIRECT TESTIMONY

OF

EVE A. LISSIK

THE EMPIRE DISTRICT ELECTRIC COMPANY

CASE NO. ER-2001-299

Q. Please state your name and business address.

A. Eve A. Lissik, P.O. Box 360, Jefferson City, Missouri, 65102.

Q. By whom are you employed and in what capacity?

A. I am employed by the Missouri Public Service Commission (Commission) as the Utility Engineering Supervisor in the Electric Department of the Utility Operations Division.

Q. Please describe your educational and work background.

A. I graduated from Syracuse University in 1977 with a B.S. degree in Biology in 1977 and received a Ph. D. in Engineering from Cornell University in 1988. Prior to my employment with the Commission in 1989, I was an Assistant Professor of Agricultural Engineering at the University of Missouri-Columbia.

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

A. The purpose of my testimony is to sponsor the jurisdictional allocation factors and system energy losses developed by Mr. Alan Bax, a Utility Engineering Specialist in the Engineering Section of the Electric Department in the Commission's Utility Operations Division.

Q. Why are you, and not Mr. Bax, filing this testimony?

A. Mr. Bax is currently on military leave and will be out of the country until April 6, 2001. He developed these jurisdictional allocation factors and system energy losses under my supervision before his departure. It is my expectation that Mr. Bax will adopt this direct testimony upon his return.

Q. Specifically, what was the responsibility of Mr. Bax in The Empire District Electric Company (EDE or Company) general rate case, Case No. ER-2001-299?

A. His responsibility is to discuss and make recommendations concerning the following:

1. Selection of a jurisdictional allocation methodology for the Company's generation and transmission facilities;

2. Upon determining this methodology, develop corresponding jurisdictional allocation factors for the allocation of the Company's generation and transmission facilities;

3. Develop jurisdictional allocation factors for the Company's distribution facilities;

4. Develop jurisdictional allocation factors for the cost of fuel inventory; and

5. Determine the Company's system energy losses.

Jurisdictional Allocation Factors for Generation and Transmission Assets

Q. Please explain what is meant by the term "jurisdictional allocation".

A. A jurisdictional allocation determination is used to apportion the costs of generation and transmission assets, included in the Federal Energy Regulatory Commission (FERC) Uniform System of Accounts (USOA) 310 to 346 for Generation

and 350-358 for Transmission, among the jurisdictions served by a utility that operates in both inter-state and intra-state commerce. In this case, electric property (investment/ratebase), expenses and revenues are divided among the separate state jurisdictions (retail operations) and federal jurisdiction (wholesale operations) on the basis of system usage.

Q. Please identify the jurisdictions served by the Company?

A. EDE provides retail service in the states of Missouri, Kansas, Oklahoma, and Arkansas and wholesale service in the states of Missouri, and Kansas.

Q. What methodology has Mr. Bax implemented in the determination of the jurisdictional allocations for generation and transmission costs ?

A. The twelve coincident peak (12 CP) hour methodology.

Q. What is meant by "coincident peak"?

A. The coincident peak is the highest total system one-hour demand, in megawatts (MW), occurring within a designated period (day, month, year etc). In this case, the designated period is monthly. Each jurisdiction's coincident peak is its one-hour demand in that same hour.

Q. Why use peak demand as the basis for allocations?

A. Peak demand is the largest electric load requirement occurring within a specified period (day, month, year). Since generation units and transmission lines are designed and planned to meet the Company's anticipated system peak demand, the individual jurisdiction's contribution to peak demand is the appropriate factor for the allocation of facilities costs. The Company monitors and logs the peak demand information for every hour of every day.

Q. Please describe the procedure for calculating the jurisdictional allocation factors for generation and transmission.

A. The jurisdictional allocation factors are calculated by dividing the MW requirement in each jurisdiction during the CP hour by the total MW used throughout the entire system during the same hour.

Q. Why did the Staff decide to use the 12 CP allocation method?

A. FERC has historically advocated utilizing either a one CP or a 12 CP methodology. A utility that experiences a single distinctive peak during a month in the year would most likely determine allocations based on a one CP method. A utility that experiences a relatively uniform load or distinct monthly peaks in both summer and winter would utilize the 12 CP method. Schedule 1 presents a table of the Company's monthly coincident peaks for Calendar Years 1997 through 2000. This information was taken from FERC Form 1 and updated from the Company response to Staff Data Request (DR) No. 2918. As shown, EDE experiences its highest system peak during the summer months (July, August, and September) in the test year, calendar year 2000. However, a relatively high system peak also occurs during the winter (December or January).

The line graph on Schedule 2 represents a load profile of each month's peak as a percentage of the corresponding annual system peak for each year. It was derived from the data given in Schedule 1. This also shows relatively high peaks in both the summer and winter.

Included in Schedule 3 is a table reflecting the relationship between the actual Missouri Retail Load and the System Peak Load during the monthly System Peak hour in Calendar Years 1999 and 2000 as well as the average for the year. These data were

compiled from the information in the Direct Testimony of Company Witness David W. Gibson (Section M – Schedule 3) and a subsequent Company update to Staff DR 2917. The table is sorted by value of monthly System Coincident Peak Hourly Load (highest to lowest). This table reflects slight variations in the percentage of the System Peak loads that are utilized by Missouri Retail customers. Utilization of the 12 CP method for jurisdictional allocations essentially averages out these variations.

Q. What are the jurisdictional allocations you have calculated in this general rate case?

A. As shown on Schedule 4, the calculated factors are as follows:

Missouri Retail	0.8013
Arkansas Retail	0.0290
Kansas Retail	0.0669
Oklahoma Retail	0.0339
Missouri Wholesale	0.0618
Kansas Wholesale	0.0072

The data were taken from an updated EDE response to Staff DR 2918 received March 13, 2001.

Jurisdictional Distribution Allocation Factors

Q. Please describe the process in determining the jurisdictional distribution allocation factors?

A. The jurisdictional distribution allocation factors, supplied by the Company in the direct testimony of Mr. Gibson (Section M - Schedule 2, Page 1), are shown in Schedule 5. The Company developed these allocation factors by direct assignment of

distribution facilities and their associated costs to each local jurisdiction and then divided the jurisdictional costs by the total system-wide costs.

While Staff agrees that distribution facilities were constructed with the intention of serving a prescribed "local" area, past experience indicates the possibility that certain facilities deemed as solely serving one local area in reality serve multiple jurisdictions. In reviewing the Company's numbers for Distribution plant accounts (accounts 360 to 373), received from the Company in response to Staff DR 2918, the cost assignments shown by the Company for accounts 364 to 373, from poles all the way down to the customers' meters, do reflect direct assignments to the local jurisdiction that is served. Thus, the costs given in these accounts are assigned as per the filed Company allocation factors.

However, accounts 360 to 362, those accounts that deal with substations, were sized based on demand; and therefore, these accounts should be allocated on a 12 CP basis (utilizing the factors calculated previously in this testimony) weighted according to the total retail portion.

The distribution allocators are shown in Schedule 6 with the distribution retail allocators reiterated below:

Missouri Retail:	0.8735
Arkansas Retail:	0.0213
Kansas Retail:	0.0600
Oklahoma Retail:	0.0288

Fuel Inventory Allocation

Q. Please describe how Mr. Bax calculated the fuel inventory allocation factors?

A. Fuel is classified as energy-related, being used to run a power plant at a specified power level, for a specified period of time. Traditionally, the percentage of kiloWatthour (kWh) sales per year in each jurisdiction has been the basis used for allocating fuel inventory. The allocation factors have been calculated by dividing the annual kWh sales in each jurisdiction by the total annual kWh sales for the Company.

Q. What are the fuel inventory allocation factors in this case?

A. The fuel inventory allocation factors were calculated using the method noted in the preceding answer and are stated in Schedule 7 (compiled from data received in a Company update to Staff DR 2918 received March 8, 2001) and repeated here:

Missouri Retail	0.8184
Arkansas Retail	0.0306
Kansas Retail	0.0540
Oklahoma Retail	0.0268
Missouri Wholesale	0.0636
Kansas Wholesale	0.0066

System Energy Losses

Q. What are system energy losses?

A. System energy losses are the energy losses that occur in the electrical equipment (transmission and distribution lines, transformers, etc.) in the system between the generator and the customers' meters.

Q. How are the system energy losses determined?

A. The basis for this calculation is that Net System Input (NSI) must equal the sum of Total Sales, Company Usage, and System Energy Losses. This can be expressed mathematically as:

NSI = Total Sales + Company Usage + System Energy Losses

Therefore:

System Energy Losses = NSI - Company Usage - Total Sales

Then:

System Energy Losses (%) = (System Energy Losses / NSI) x 100

Q. How is NSI determined?

A. NSI is the sum of the Company's generation and the net of any purchases and sales, taking into account inadvertent flows. The output of each generator, the net of all purchases and sales, and inadvertent (loop) flows are all monitored in the Company's dispatch center. This information was obtained from data supplied by the Company in response to Staff DR 2948.

Q. How are Total Sales and Company Usage determined?

A. Total Sales are metered by the Company at the customers' premises. The Company also keeps track of the electricity used at the Company's power plants and non-generating facilities, such as the Company's main office building. Both Total Sales and

Company Usage data came from an update provided by the Company to Staff DR 13, which was given as a response to Staff DRs 2946 and 2947, received March 8, 2001.

Q. What is the result of these calculations?

A. As shown on Schedule 8, the system energy losses are calculated to be 7.61% of NSI.

Q. Does this conclude your prepared direct testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

IN THE MATTER OF THE APPLICATION OF THE EMPIRE DISTRICT ELECTRIC COMPANY FOR A GENERAL RATE INCREASE	))))	Case No. ER-2001-299

AFFIDAVIT OF EVE A. LISSIK

STATE OF MISSOURI)
) **ss**
COUNTY OF COLE)

Eve A. Lissik, of lawful age, on her oath states: that she has participated in the preparation of the foregoing written testimony in question and answer form, consisting of 9 pages of testimony to be presented in the above case, that the answers in the attached written testimony were given by her; that she has knowledge of the matters set forth in such answers; and that such matters are true to the best of her knowledge and belief.

Eve A. Lissik

Subscribed and sworn to before me this 29th day of March, 2001.

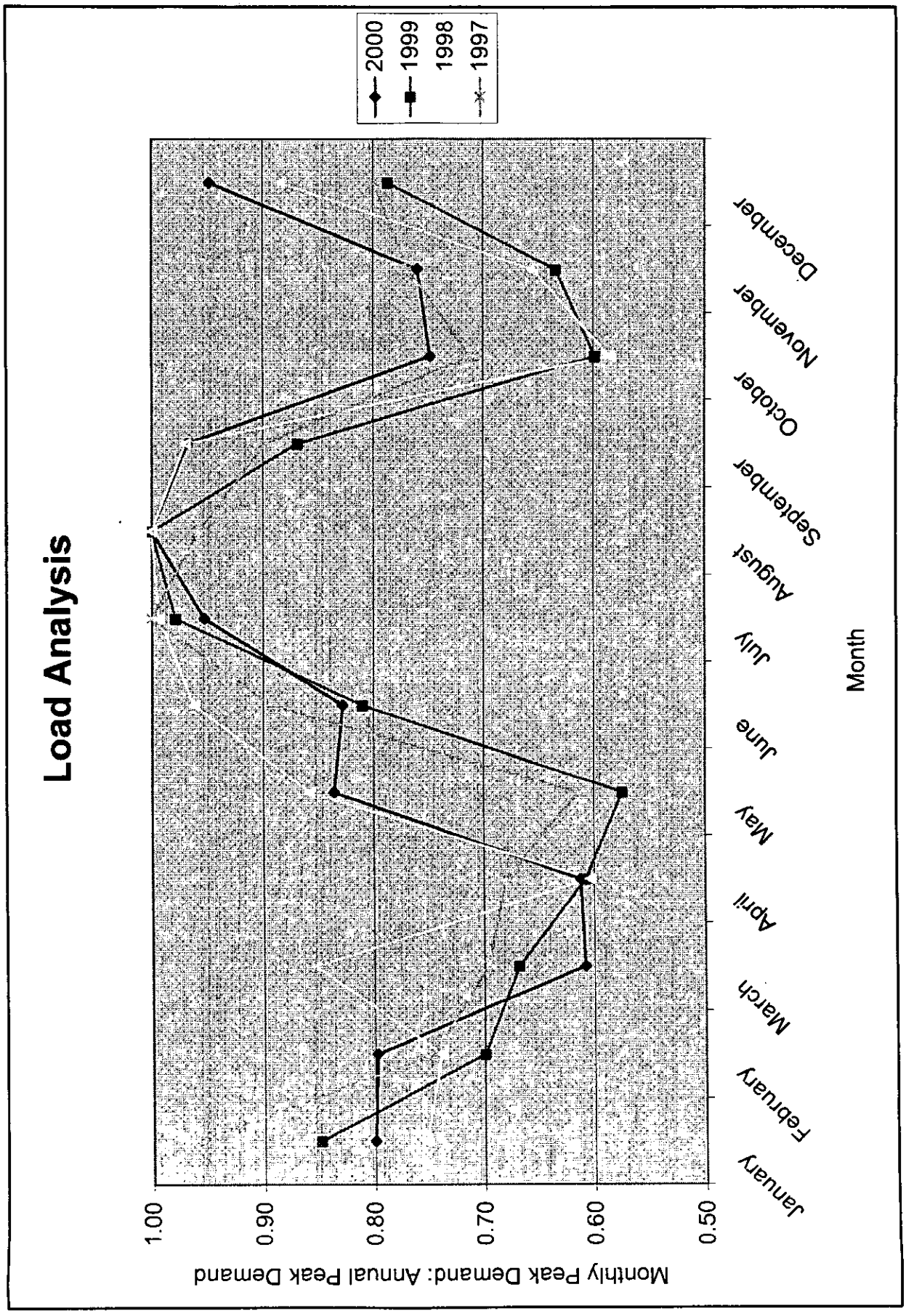
Notary Public

My commission expires_____

DAWN L. HAKE
Notary Public – State of Missouri
County of Cole
My Commission Expires Jan 9, 2005

MONTHLY COINCIDENT PEAKS (MW)				
	2000	**1999**	**1998**	**1997**
January	794	831	690	841
February	792	685	677	653
March	604	654	781	610
April	608	595	553	595
May	830	562	785	538
June	822	793	881	782
July	946	958	910	876
August	993	979	916	839
September	961	850	888	786
October	743	586	536	623
November	754	621	600	673
December	941	770	809	700

Schedule 1


Load Analysis
2000
1999
1998
1997
Monthly Peak Demand: Annual Peak Demand
1.00
0.90
0.80
0.70
0.60
0.50
January
February
March
April
May
June
July
August
September
October
November
December
Month

Schedule 2

Ratio of Missouri Retail Peak Demand to System Peak Demand

2000	Missouri Retail (MW)	System Peak (MW)	Ratio
August	797	993	0.8026
September	776	961	0.8074
July	756	946	0.7992
December	760	941	0.8079
May	662	830	0.7973
June	664	822	0.8083
January	656	794	0.8256
February	642	792	0.8107
November	607	754	0.8056
October	594	743	0.7996
April	465	608	0.7643
March	464	604	0.7677
Annual Average			0.8013

1999	Missouri Retail (MW)	System Peak (MW)	Ratio
August	782	979	0.7989
September	761	958	0.7947
July	677	850	0.7968
December	693	831	0.8339
May	637	793	0.8038
June	638	770	0.8279
January	569	685	0.8309
February	515	654	0.7875
November	480	621	0.7723
October	479	595	0.8055
April	466	586	0.7949
March	454	562	0.8071
Annual Average			0.8049

COMPARISON OF METHODOLOGIES FOR TEST YEAR									
	Missouri Retail	Kansas Retail	Oklahoma Retail	Arkansas Retail	Total Retail	Missouri Wholesale	Kansas Wholesale	Total Wholesale	Retail + Wholesale
1CP	0.8026	0.0693	0.0250	0.0323	0.9292	0.0628	0.0080	0.0708	1.0000
2CP	0.8050	0.0665	0.0287	0.0313	0.9314	0.0603	0.0082	0.0686	1.0000
3CP	0.8031	0.0664	0.0294	0.0314	0.9303	0.0616	0.0081	0.0697	1.0000
4CP	0.8042	0.0705	0.0290	0.0297	0.9334	0.0588	0.0078	0.0666	1.0000
5CP	0.8030	0.0700	0.0292	0.0303	0.9325	0.0598	0.0077	0.0675	1.0000
6CP	0.8038	0.0693	0.0290	0.0295	0.9316	0.0607	0.0077	0.0684	1.0000
7CP	0.8066	0.0682	0.0287	0.0289	0.9324	0.0600	0.0076	0.0676	1.0000
8CP	0.8070	0.0676	0.0299	0.0285	0.9330	0.0595	0.0075	0.0670	1.0000
9CP	0.8069	0.0675	0.0290	0.0284	0.9317	0.0609	0.0074	0.0683	1.0000
10CP	0.8063	0.0670	0.0292	0.0287	0.9312	0.0615	0.0073	0.0688	1.0000
11CP	0.8035	0.0670	0.0318	0.0288	0.9311	0.0617	0.0072	0.0689	1.0000
12CP	**0.8013**	**0.0669**	**0.0339**	**0.0290**	**0.9310**	**0.0618**	**0.0072**	**0.0690**	**1.0000**

Schedule 4

COMPANY DISTRIBUTION ALLOCATIONS									
	Missouri Retail	Arkansas Retail	Kansas Retail	Oklahoma Retail	Total Retail	Missouri Wholesale	Kansas Wholesale	Total Wholesale	Company Total
Assigned Costs	341,804,462	7,740,286	22,688,228	10,777,640	383,010,616	2,478,695	251,742	2,730,437	385,741,052
Adjustment	3,125,407	70,776	207,458	98,549	3,502,190	22,665	2,302	24,967	3,527,156
Total Costs	344,929,868	7,811,062	22,895,686	10,876,189	386,512,805	2,501,359	254,044	2,755,403	389,268,208
Allocation	0.8861	0.0201	0.0588	0.0279	0.9929	0.0064	0.0007	0.0071	1.0000

Schedule 5

MOPSC STAFF DISTRIBUTION ALLOCATIONS									
	Missouri Retail	Arkansas Retail	Kansas Retail	Oklahoma Retail	Total Retail	Missouri Wholesale	Kansas Wholesale	Total Wholesale	Company Total
Accounts 360-362	46,398,283	1,676,956	3,871,590	1,962,432	53,909,261	3,578,007	418,660	3,996,667	57,905,928
Allocation	0.8013	0.0290	0.0669	0.0339	0.9310	0.0618	0.0072	0.0690	1.0000
Accounts 364-373	290,494,704	6,556,703	19,276,705	9,146,600	325,474,712	2,098,145	214,076	2,312,221	327,835,125
Allocation	0.8861	0.0200	0.0588	0.0279	0.9928	0.0064	0.0007	0.0071	1.0000
Total Costs	336,892,987	8,233,658	23,148,296	11,109,032	379,383,973	5,676,152	632,736	6,308,888	385,741,053
Total Allocation	0.8735	0.0213	0.0600	0.0288	0.9835	0.0147	0.0016	0.0164	1.0000

Schedule 6

FUEL ALLOCATIONS						
Month	**Missouri Retail**	**Missouri Wholesale**	**Kansas Retail**	**Kansas Wholesale**	**Arkansas Retail**	**Oklahoma Retail**
January	296,022,796	22,884,800	21,381,009	2,555,600	14,605,454	5,509,927
February	285,941,558	20,910,000	16,697,342	2,120,000	7,512,489	8,282,897
March	268,489,438	20,965,600	16,485,211	1,947,000	10,573,895	9,768,915
April	233,934,007	21,059,600	15,097,358	1,758,000	9,660,360	9,118,548
May	273,156,440	23,559,600	17,083,186	2,023,200	10,745,418	8,469,134
June	282,366,226	23,635,800	19,871,330	2,266,000	10,423,596	10,074,961
July	352,622,184	28,411,600	23,416,483	3,257,800	13,443,659	11,540,286
August	397,031,596	29,024,400	27,426,671	3,587,800	14,626,988	14,516,412
September	302,235,795	25,059,200	20,680,692	2,680,800	11,946,377	12,326,410
October	254,388,396	22,773,200	16,339,968	1,944,400	10,456,914	8,284,318
November	291,372,891	20,674,200	18,006,063	2,228,200	11,274,717	8,162,326
December	377,936,271	21,990,400	26,107,372	2,975,600	9,785,948	12,398,636
TOTAL:	3,615,497,598	280,948,400	238,592,685	29,344,400	135,055,815	118,452,770
Allocators	**0.8184**	**0.0636**	**0.0540**	**0.0066**	**0.0306**	**0.0268**

Schedule 7

SYSTEM ENERGY LOSS PERCENTAGE CALCULATION										
Month	Net Generation	Purchases	Inadvertant	Total	Retail Sales	Wholesale Sales	Company Use	Company Use +Sales	Losses	Total
January	236,819,000	180,087,000	-683,000	416,223,000	337,519,186	25,440,400	8,971,999	371,931,585	44,291,415	416,223,000
February	216,013,000	146,738,000	174,000	362,925,000	318,434,286	23,043,000	6,303,000	347,780,286	15,144,714	362,925,000
March	179,132,000	183,297,000	510,000	362,939,000	305,317,459	22,918,600	14,525,000	342,761,059	20,177,941	362,939,000
April	107,928,000	215,217,000	287,000	323,432,000	267,810,273	22,817,600	9,579,000	300,206,873	23,225,127	323,432,000
May	216,753,000	163,346,000	-655,000	379,444,000	309,454,178	25,582,800	17,633,000	352,669,978	26,774,022	379,444,000
June	219,114,000	184,791,000	607,000	404,512,000	322,736,113	25,932,800	22,333,000	371,001,913	33,510,087	404,512,000
July	296,836,000	193,013,000	-252,000	489,597,000	401,022,612	31,678,400	22,318,000	455,019,012	34,577,988	489,597,000
August	355,983,000	182,740,000	-391,000	538,332,000	453,601,667	32,615,200	13,284,000	499,500,867	38,831,133	538,332,000
September	226,813,000	183,143,000	1,135,000	411,091,000	347,189,274	27,740,000	8,873,000	383,802,274	27,288,726	411,091,000
October	191,751,000	167,268,000	-930,000	358,089,000	289,469,596	24,717,600	11,951,000	326,138,196	31,950,804	358,089,000
November	209,747,000	191,306,000	-210,000	400,843,000	328,815,997	22,902,400	15,448,000	367,166,397	33,676,603	400,843,000
December	243,768,000	264,830,000	-147,000	508,451,000	426,228,227	24,978,000	9,340,000	460,546,227	47,904,773	508,451,000
TOTALS	2,700,657,000	2,255,776,000	-555,000	4,955,878,000	4,107,598,868	310,366,800	160,558,999	4,578,524,667	377,353,333	4,955,878,000

NSI = 4,955,878,000
Total Sales = 4,417,965,668
Company Use = 160,558,999
Losses = 377,353,333
Loss (%) = 0.0761

Schedule 8