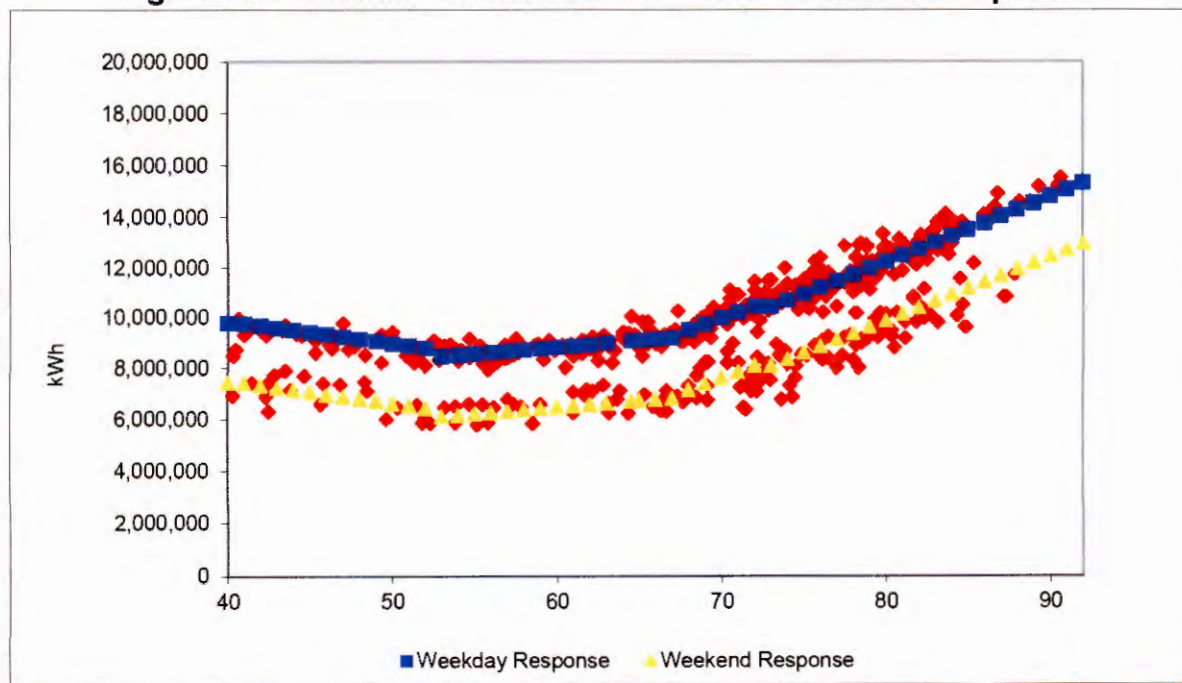


Weather normalization starts with defining “normal weather”. Ameren Missouri currently uses actual temperature readings for St. Louis Lambert Airport from the period 1971-2000 to develop its normal weather conditions, as adjusted for certain changes in the recording equipment at Lambert. Ameren Missouri creates normal temperatures by applying the “rank and average” methodology to temperatures from these decades to accommodate unique nature of the problem of normalizing energy usage. Application of this procedure is necessary in order to produce realistic levels of normal energy later in the process. Essentially it is used to ensure that normal temperatures also exhibit a normal amount of variability that would be expected to occur within a year. This method has been utilized routinely in electric rate cases by the Missouri Public Service Commission Staff (“Staff”), and was used by both the Ameren Missouri and Staff in the Company’s most recent rate cases.

The next step in the weather normalization process is to develop load-temperature relationships. Using a software package called MetrixND, daily peak and average loads at the rate and revenue class level are both modeled statistically as a function of calendar and weather variables. These statistical relationships are the basis for the weather adjustments which produce the normalized sales and hourly load research for a given period. These models are developed using various statistically significant weather variables along with various time and economic trend variables as explanatory variables to create a piecewise linear temperature response function⁵². A graphical representation of this modeling approach can be seen in Figure 3.26.

Figure 3.26: MetrixND COMSGS Non-Winter Weather Response



⁵² 4 CSR 240-22.030(1)(C)2.A

The models are first built using actual weather variables along with other explanatory variables. Then the model coefficients are applied to the normal weather variable to generate a normalized version loads. The difference between the model's estimate of actual and normal loads is the weather impact for the time period in question. This weather impact is applied to the original load value to generate a normalized version of the load in question. The actual model variables and corresponding coefficients are presented in the appendix⁵³. The weather normalized sales results are also provided in the appendix. For the purposes of normalization of hourly load research, the peak and average energy for each day are normalized as described above. The hourly normal values are then derived using the unitized load calculation described in Section 3.2.2.

3.4 Future Research Projects⁵⁴

During the time period since Ameren Missouri's 2008 IRP filing, there have been several initiatives undertaken to improve the quality of load forecasting and load analysis at the utility. Some of the efforts have been described in detail throughout the body of the chapter. Those include the detailed end-use primary information gathered about the Ameren Missouri customer base as a part of the 2009 Market Potential Study conducted by Global Energy Partners and the analysis and application of end-use load shapes in the forecasting process. Beyond these analyses, there are a couple of other efforts that have been undertaken that are worth noting.

Ameren Missouri explored various options to update and validate the North American Industry Classification System (NAICS) codes in its customer database. Ameren Missouri ultimately engaged Dunn and Bradstreet to review the NAICS codes of its customer database and append the database with corrected data and fill in missing codes. This project was completed in 2009. Due to the maintenance fee required by the vendor, the data is not currently being maintained on an ongoing basis. However, the work was used to enhance the Market Potential Study mentioned above as well as the load analysis and forecasting for this IRP.

Ameren Missouri has also made several improvements to its load research process. Notably, we have changed from using billing month sales ratio analysis to calendar month sales ratio analysis. This enhancement greatly improved the results of the load research process. As evidence of this, the adjustment needed to reconcile aggregated and loss adjusted load research data to the observed system load became significantly smaller. An additional enhancement was the implementation of census analysis of the Large Primary Service Class. Instead of maintaining a sample of customers from this class, interval data for all customers in the class is obtained and aggregated to eliminate the need for any statistical estimation of the class load. Finally, some process improvements

⁵³ 4 CSR 240-22.030(1)(C)2.C

⁵⁴ 4 CSR 240-22.070(9)(A)

have also been made to more efficiently process load data. After evaluation of the performance of the load research sample given the improvements noted above, it was not necessary to redesign the sample at this time. The precisions of the load estimates as well as the good fit of the load research data in the process of calibrating to the net system load indicate a sample that is still performing well.

Going forward, Ameren Missouri has identified the following areas of continued analysis that we believe will allow us to continue to maintain and even improve upon the high level of analysis we have been doing.

End-Use Load Research

Ameren Missouri took a step forward in its analytical approach in this IRP by acquiring end use load shapes and using load research data to calibrate those shapes to more accurately represent the Ameren Missouri customer base's load characteristics. As noted in the discussion of the end use analysis in this chapter, obtaining new end use load shapes can be a very expensive proposition. End use load research has historically been intrusive in the customer home and required large amounts of expensive equipment, installation, meter reading, and other costs. However, with advances in metering technology, other options are being explored by the industry to obtain end use load data. As an example of the interest in the industry in this area, in October 2010, EPRI conducted a workshop entitled "End-Use Load Research in a Smart Grid World." Ameren Missouri will monitor developments in this area and assess the feasibility of utilizing new technologies to obtain improved data in this area. Ameren Missouri will also monitor the actions of other utilities and industry organization to determine if there are improved secondary data sources or collaborative initiatives to participate in.

Load Research Sample Design

Although the existing load research sample continues to perform well, it is still necessary to continue to monitor the sample performance. It is critical to maintaining a good understanding of customer usage patterns to have a sample that is representative of the class. While it appears that the current sample is still representing the customer base well, things can change over time. Ameren Missouri will monitor the load research statistics on a monthly basis and annually determine whether a new sample is required. There may be opportunities for new analysis that could result from a new sample design. Segmenting the classes in more granular ways may allow innovative analyses at, for example, the building type level for energy efficiency programs. Any new sample being implemented will be designed with additional potential uses in mind.

End-Use Surveys

Ameren Missouri, as described in this chapter, executed a very detailed survey of its customer base in 2009. This data is very valuable to the forecasting and load analysis area. Even more valuable, though, than a single survey, is a time series that helps to

track changes in saturations of appliances over time. This can be useful for explaining trends in the load and for doing more detailed modeling of historical sales. This information can both improve forecasting models and lead to inferences about appliance stock that impact assumptions going forward. Ameren Missouri will weigh the potential benefits of running regular surveys to accumulate and track this type of data on an ongoing basis

3.5 Compliance References

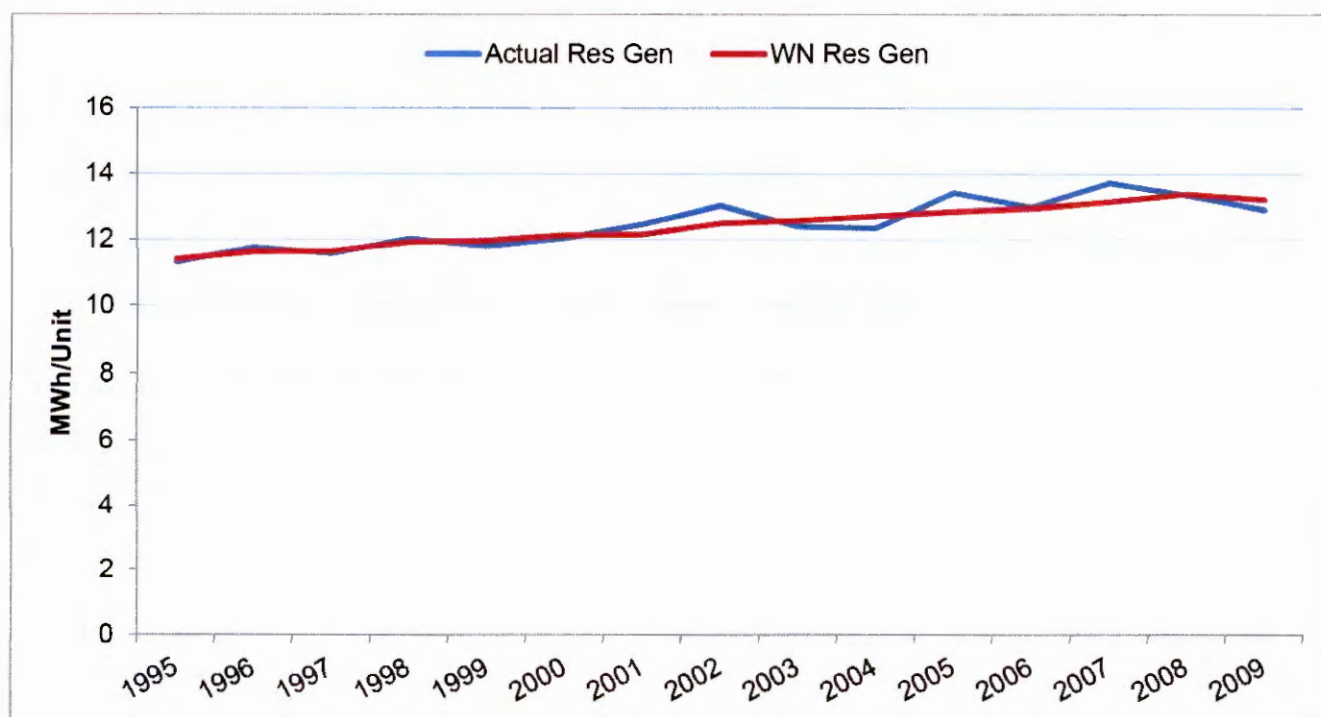
4 CSR 240-22.030(1)(A)	3
4 CSR 240-22.030(1)(A)1-2	3
4 CSR 240-22.030(1)(B)1	3
4 CSR 240-22.030(1)(B)2	32
4 CSR 240-22.030(1)(B)3	32
4 CSR 240-22.030(1)(C)	3
4 CSR 240-22.030(1)(C)1	3
4 CSR 240-22.030(1)(C)2	54
4 CSR 240-22.030(1)(C)2.A	55
4 CSR 240-22.030(1)(C)2.B	43
4 CSR 240-22.030(1)(C)2.C	56
4 CSR 240-22.030(1)(D)	3
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4 CSR 240-22.030(1)(D)2	3, 32
4 CSR 240-22.030(2)	17
4 CSR 240-22.030(2)(A)	8
4 CSR 240-22.030(2)(B)	9
4 CSR 240-22.030(2)(C)	8
4 CSR 240-22.030(3)	43
4 CSR 240-22.030(3)(A)	36
4 CSR 240-22.030(3)(A)1-4	9, 10
4 CSR 240-22.030(3)(B)1	11
4 CSR 240-22.030(3)(B)2	43
4 CSR 240-22.030(4)	34
4 CSR 240-22.030(4)(A)	34
4 CSR 240-22.030(4)(B)	32, 36
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4 CSR 240-22.030(5)(A)	22, 23, 26, 27, 28, 30, 31
4 CSR 240-22.030(5)(B)	23
4 CSR 240-22.030(5)(B)1	17
4 CSR 240-22.030(5)(B)1.A	8
4 CSR 240-22.030(5)(B)1.B	30
4 CSR 240-22.030(5)(B)2	3
4 CSR 240-22.030(5)(B)2.A	9
4 CSR 240-22.030(5)(B)2.B	48
4 CSR 240-22.030(5)(B)2.C	12
4 CSR 240-22.030(5)(B)2.D	27, 28, 30
4 CSR 240-22.030(5)(C)	44
4 CSR 240-22.030(6)	17
4 CSR 240-22.030(7)	17
4 CSR 240-22.030(8)(C)	17
4 CSR 240-22.030(8)(H)	1
4 CSR 240-22.060(4)(C)	18
4 CSR 240-22.060(6)(D)	12, 18
4 CSR 240-22.070(9)(A)	56

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EO-2007-0409 – Stipulation and Agreement #7.....	31
EO-2007-0409 – Stipulation and Agreement #9.....	12

Chapter 3 – Appendix A¹

Annual Historical Actual and Weather Normalized Energy Use per Customer for Major Class (1995-2009)²

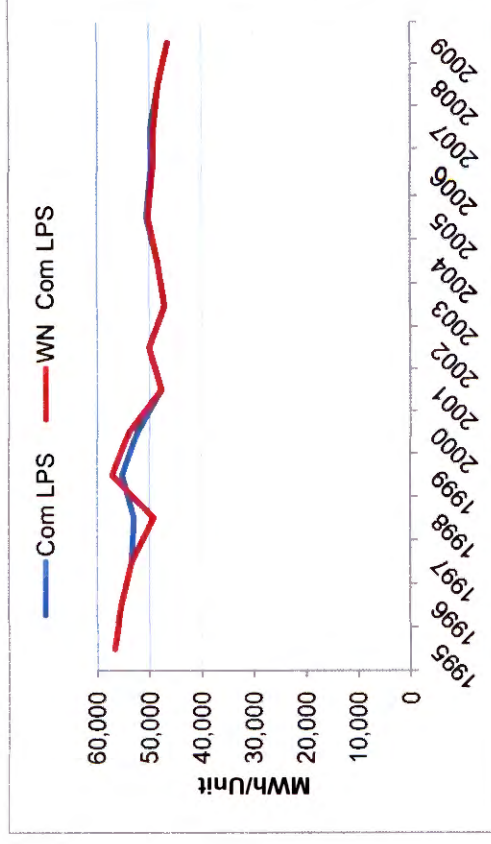
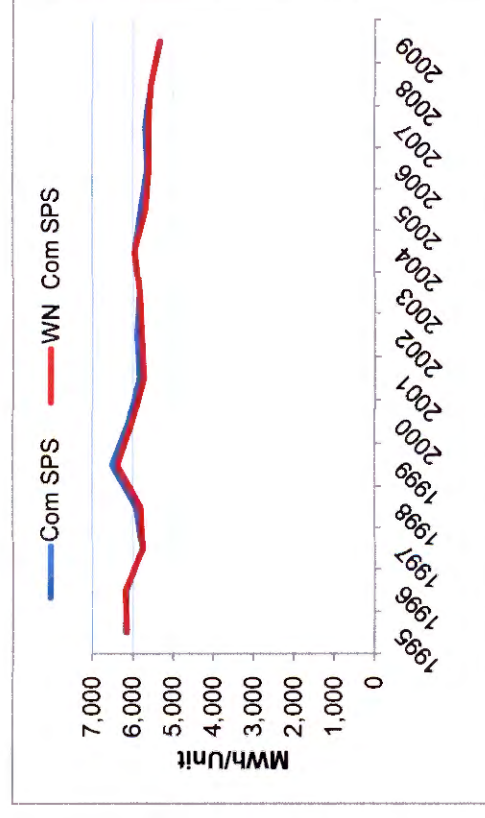
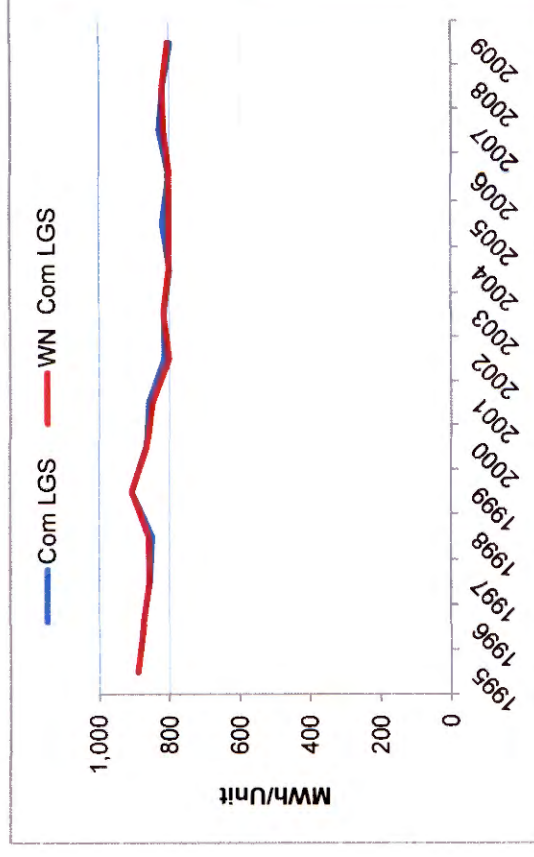
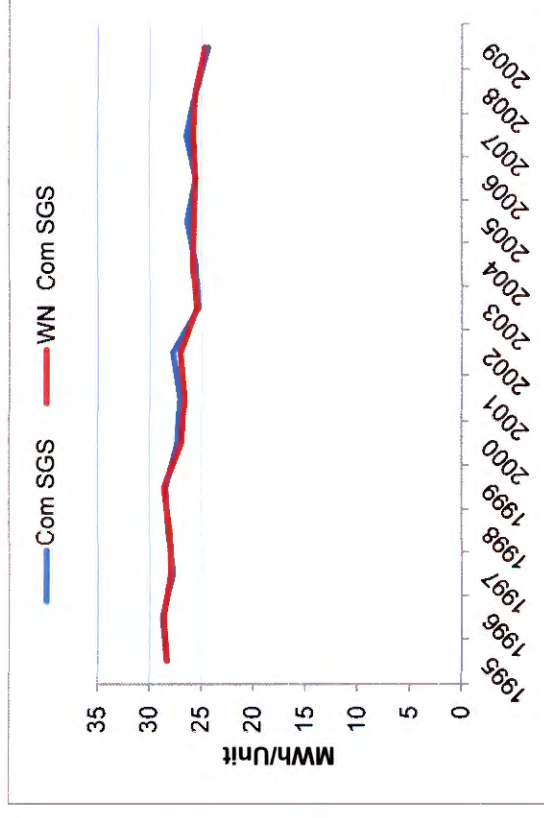
Annual Residential Use per Customer - 1995-2009



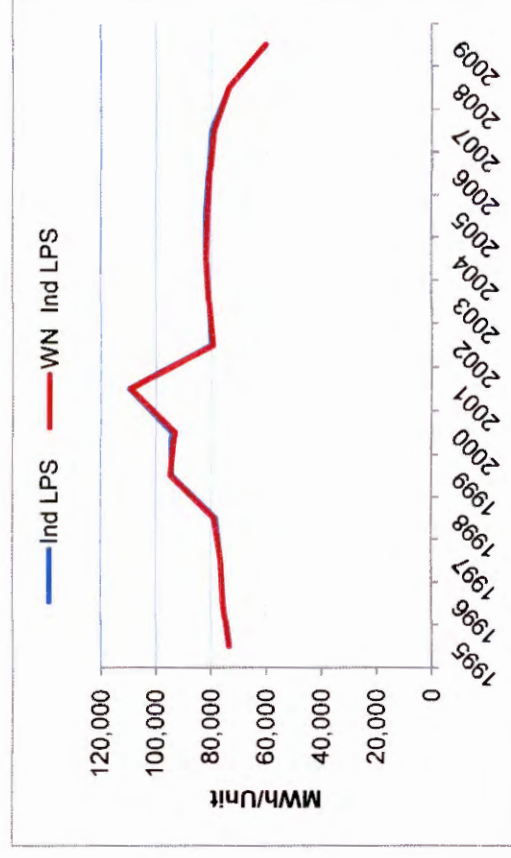
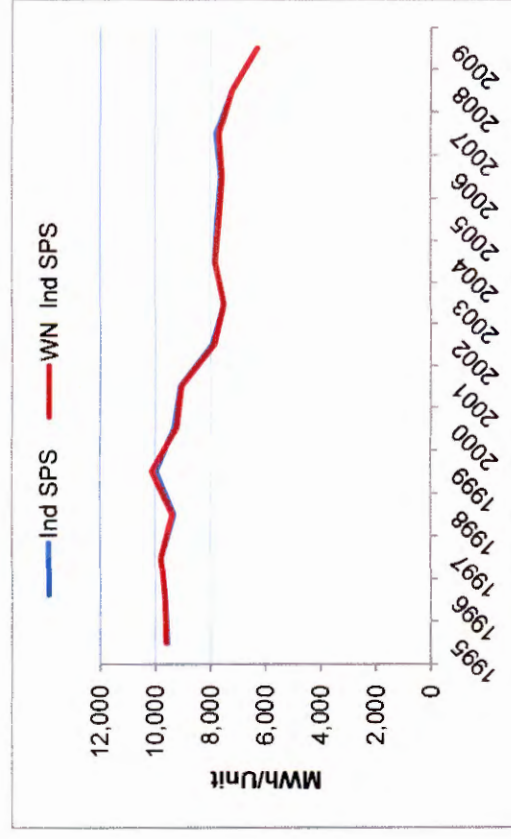
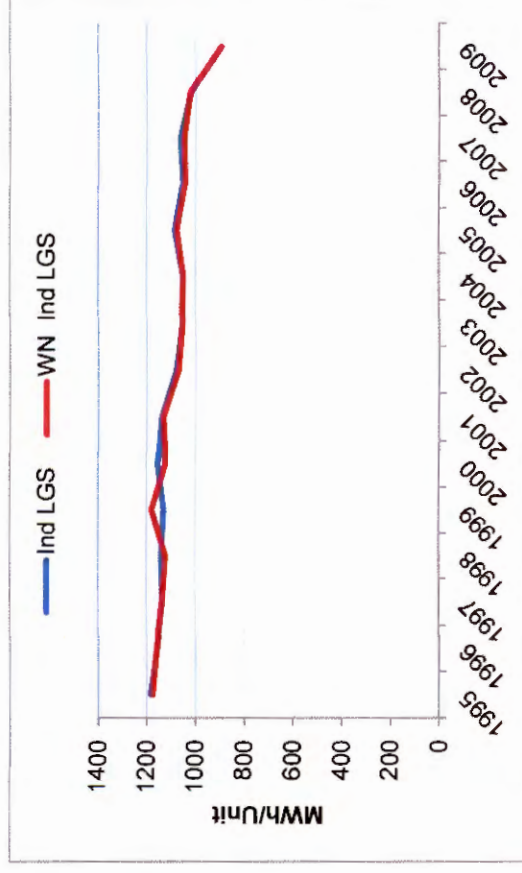
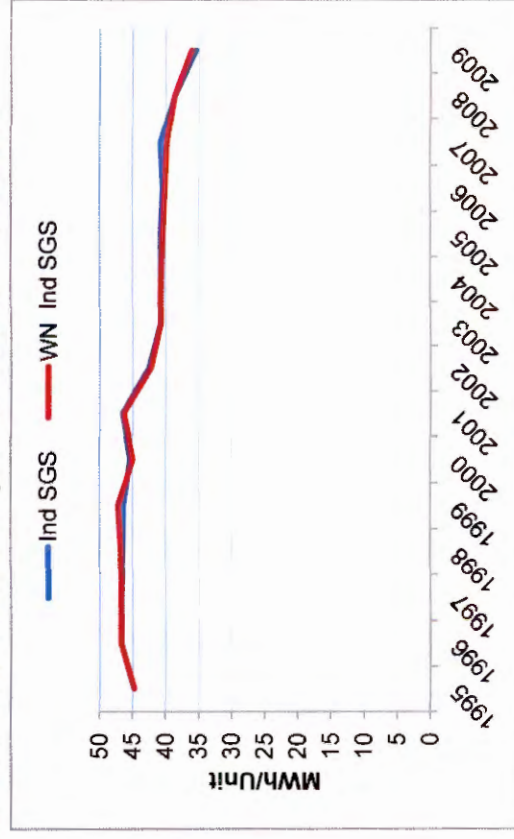
¹ 4 CSR 240-22.030(8)(G)

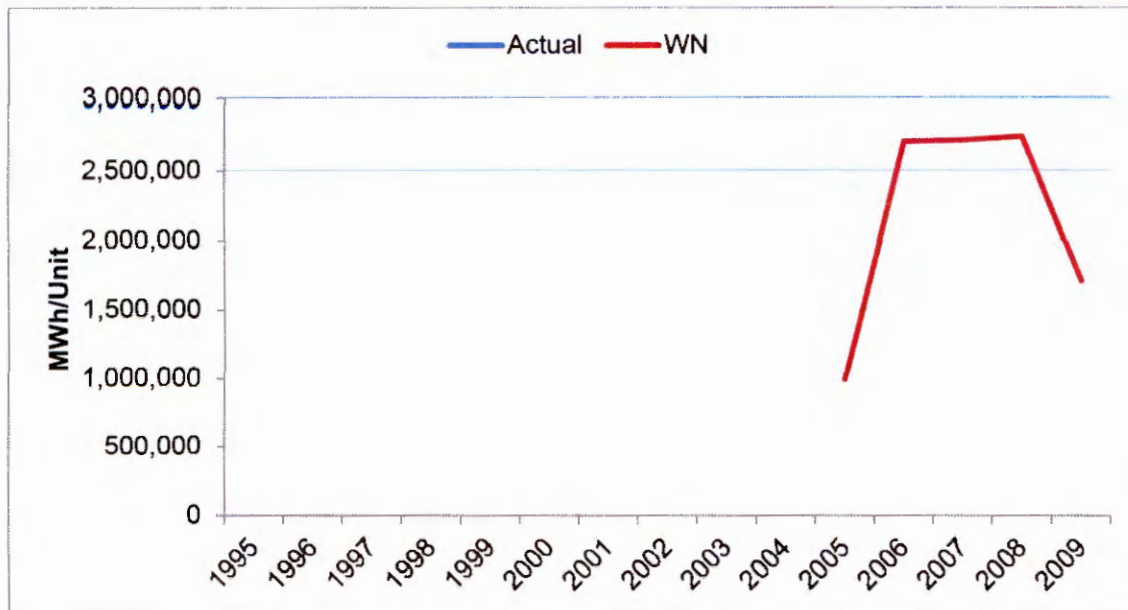
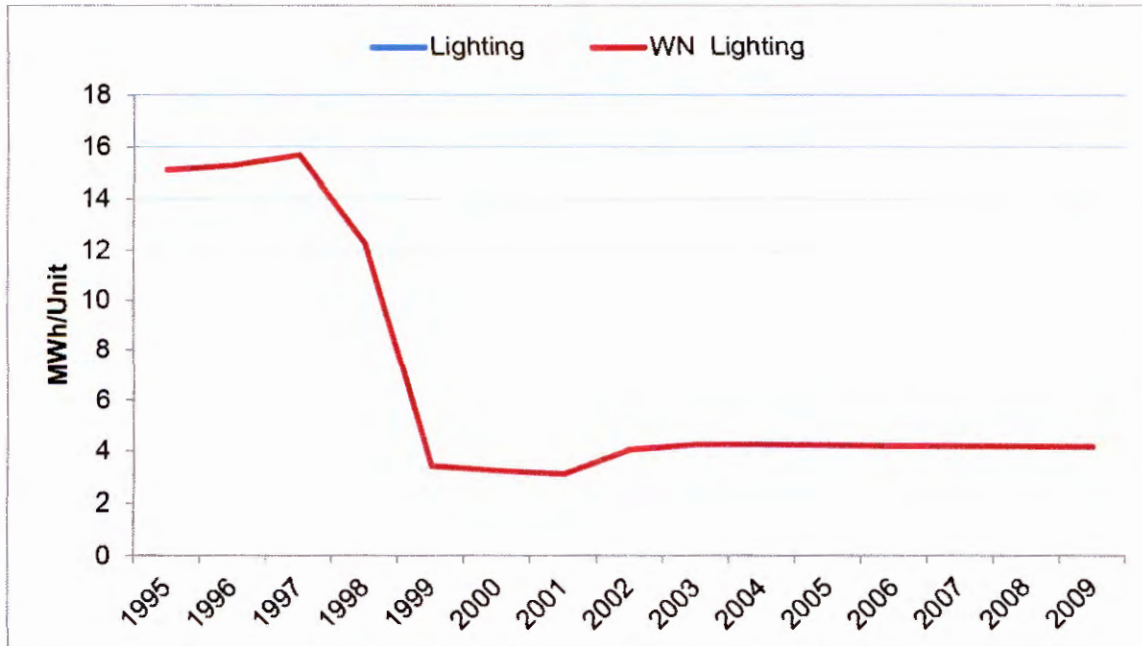
² 4 CSR 240-22.030(8)(A), 4 CSR 240-22.030(8)(A)1, 4 CSR 240-22.030(8)(A)2.A

Annual Commercial Use per Customer - 1995-2009



Annual Industrial Use per Customer – 1995-2009



Annual Large Transmission Service Use per Customer - 1995-2009**Annual Lighting Use per Customer - 1995-2009³**

* A change in the methodology of reporting Lighting customers took place 1999. Lighting usage data after this change was used for forecasting.

³ EO-2007-0409 – Stipulation and Agreement #8

Historical Annual Use per Customer (MWh/Customer)

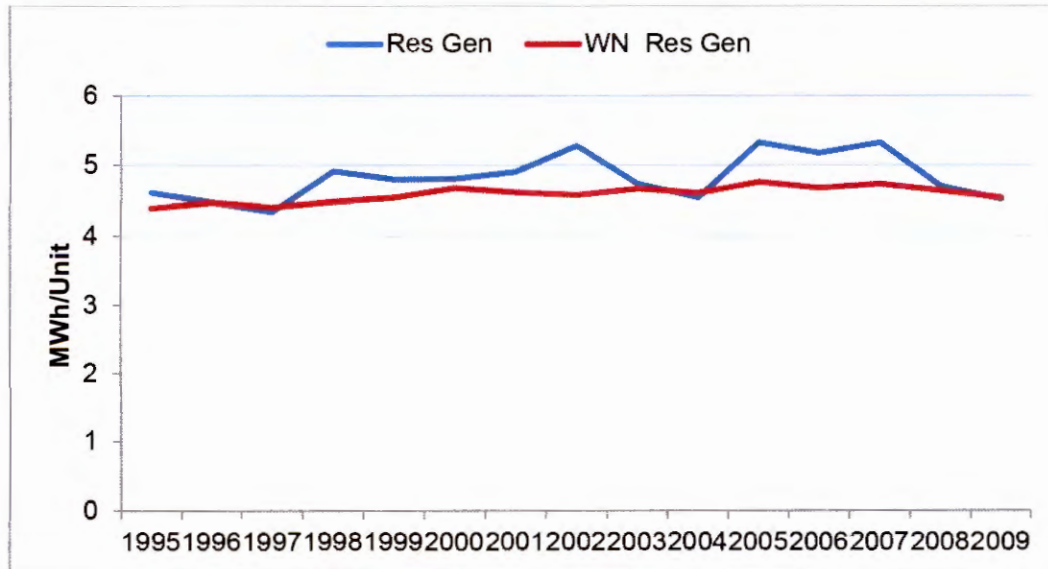
Year	Res Gen	Com SGS	Com LGS	Com SPS	Com LPS	Ind SGS	Ind LGS	Ind SPS	Ind LPS	Lighting	LTS
1995	11.31	28.35	889	6,174	56,693	44.82	1,183	9,573	73,409	15.10	
1996	11.74	28.75	875	6,161	55,386	46.68	1,157	9,640	75,583	15.28	
1997	11.57	27.77	855	5,763	53,393	46.68	1,135	9,778	76,481	15.69	
1998	12.01	28.20	849	5,910	52,990	46.46	1,140	9,327	78,376	12.27	
1999	11.79	28.45	907	6,515	55,210	46.38	1,131	9,967	94,267	3.42	
2000	12.04	27.34	865	6,099	52,261	45.35	1,154	9,325	94,305	3.24	
2001	12.45	27.09	859	5,838	47,689	46.53	1,137	9,093	109,681	3.12	
2002	13.01	27.81	814	5,891	50,059	42.57	1,079	7,928	79,992	4.05	
2003	12.39	25.37	816	5,836	46,989	40.78	1,053	7,512	80,825	4.25	
2004	12.34	25.54	798	5,943	48,356	40.69	1,051	7,839	81,868	4.25	
2005	13.40	26.39	819	5,798	50,474	40.74	1,085	7,750	81,944	4.22	2,000,773
2006	12.96	25.55	803	5,634	49,679	40.41	1,051	7,608	80,909	4.19	4,086,126
2007	13.72	26.44	829	5,685	49,762	40.74	1,062	7,787	79,867	4.19	4,096,908
2008	13.34	25.57	819	5,553	48,342	38.62	1,019	7,221	73,503	4.17	4,128,768
2009	12.90	24.39	797	5,325	46,460	35.45	891	6,310	60,229	4.16	2,500,029

Historical Annual Weather Normalized Use per Customer (MWh/Customer)

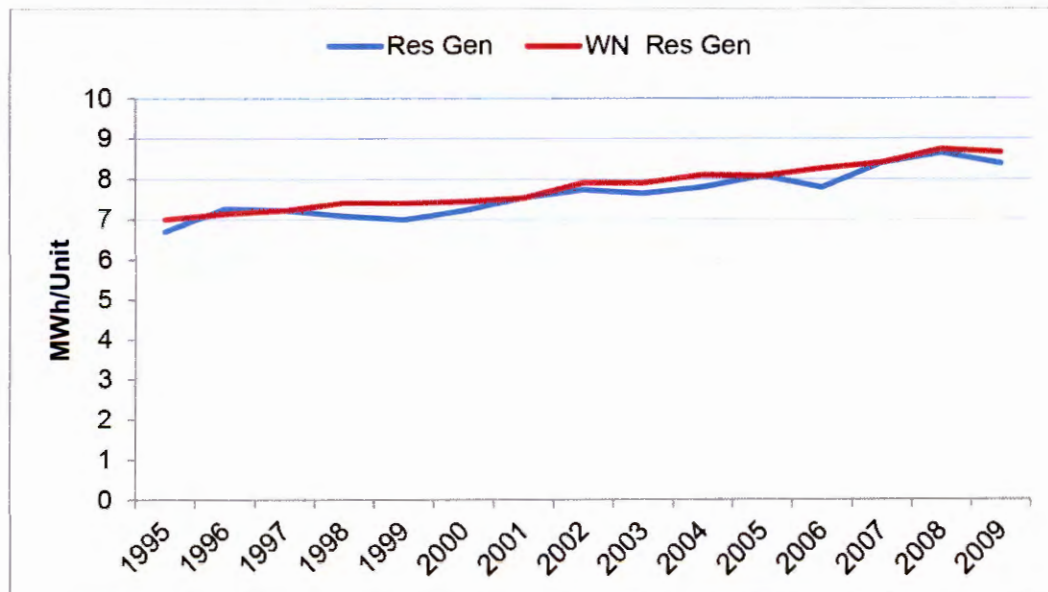
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1995	11.39	28.07	890	6,143	56,688	44.72	1,175	9,606	73,496	15.10	
1996	11.62	28.34	874	6,185	55,389	46.72	1,158	9,648	75,647	15.28	
1997	11.63	27.94	857	5,747	53,394	46.68	1,136	9,783	76,519	15.69	
1998	11.91	28.03	859	5,794	52,861	46.70	1,130	9,380	78,912	12.27	
1999	11.96	27.74	896	6,218	53,827	46.53	1,162	9,986	94,749	3.42	
2000	12.12	26.92	863	6,015	52,281	44.90	1,128	8,945	93,435	3.24	
2001	12.15	26.85	834	5,804	48,699	44.69	1,112	9,050	109,148	3.12	
2002	12.48	27.12	799	5,780	50,033	42.23	1,073	7,992	80,278	4.05	
2003	12.57	26.05	817	5,828	46,987	40.75	1,053	7,615	81,510	4.25	
2004	12.71	25.84	801	5,950	48,352	40.64	1,049	7,827	81,756	4.25	
2005	12.84	25.75	800	5,678	50,180	40.40	1,076	7,684	81,233	4.22	2,000,773
2006	12.93	25.57	799	5,594	49,391	40.07	1,043	7,565	80,505	4.19	4,086,126
2007	13.13	25.79	817	5,605	49,170	39.78	1,046	7,681	78,925	4.19	4,096,908
2008	13.38	25.60	821	5,552	48,301	38.64	1,021	7,222	73,532	4.17	4,128,768
2009	13.20	24.72	804	5,338	46,472	36.05	891	6,313	60,278	4.16	2,500,029

Historical Actual and Weather Normalized Energy Use per Customer for Major Class for Summer and Non Summer (1995-2009)⁴

Residential Use per Customer – for Summer Months (1995-2009)

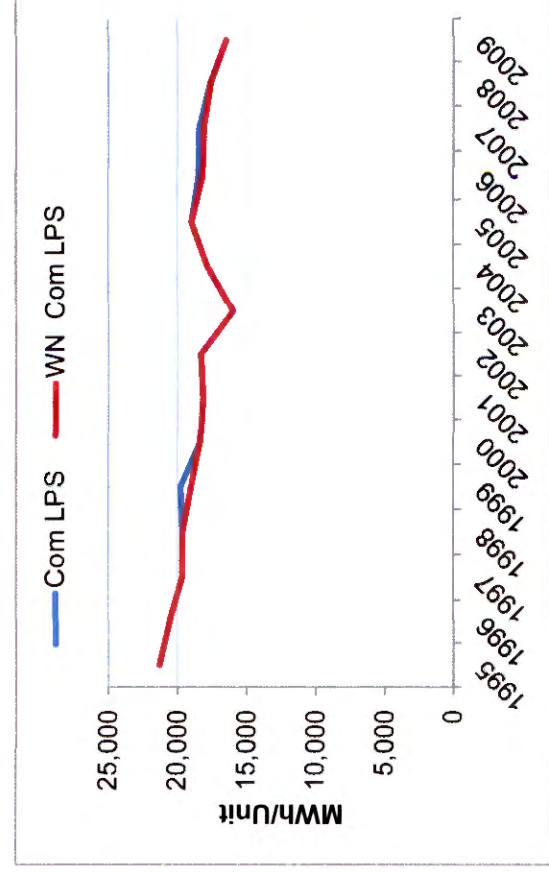
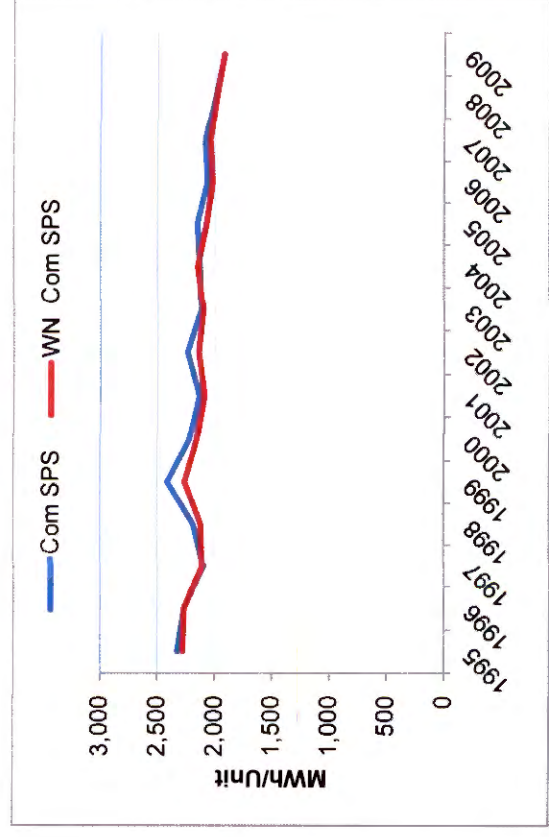
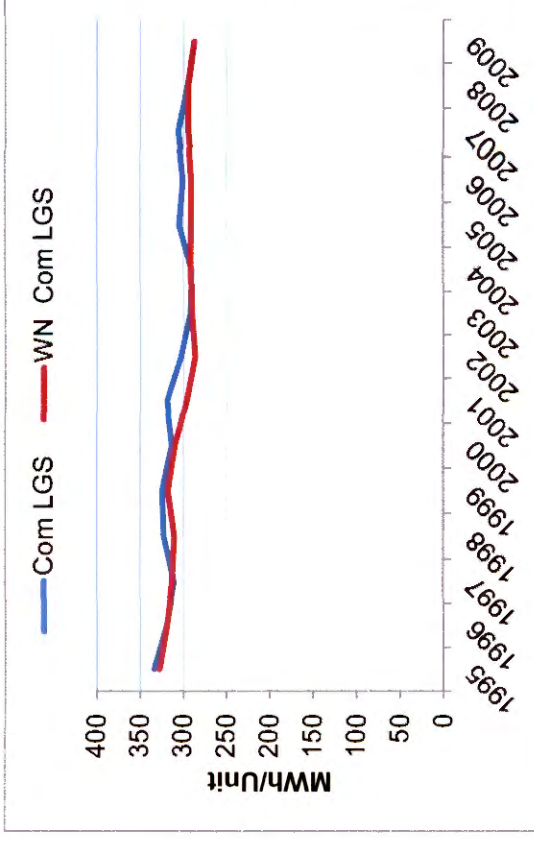
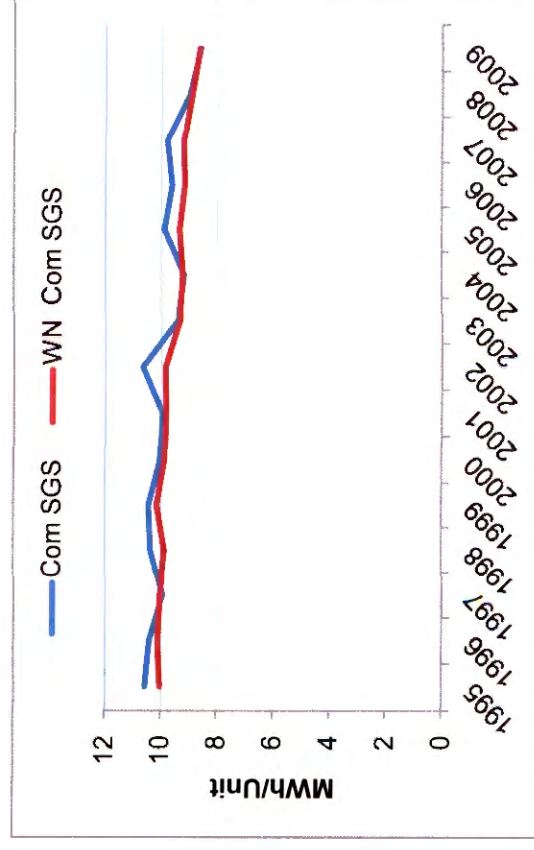


Residential Use per Customer – for Non-Summer Months (1995-2009)

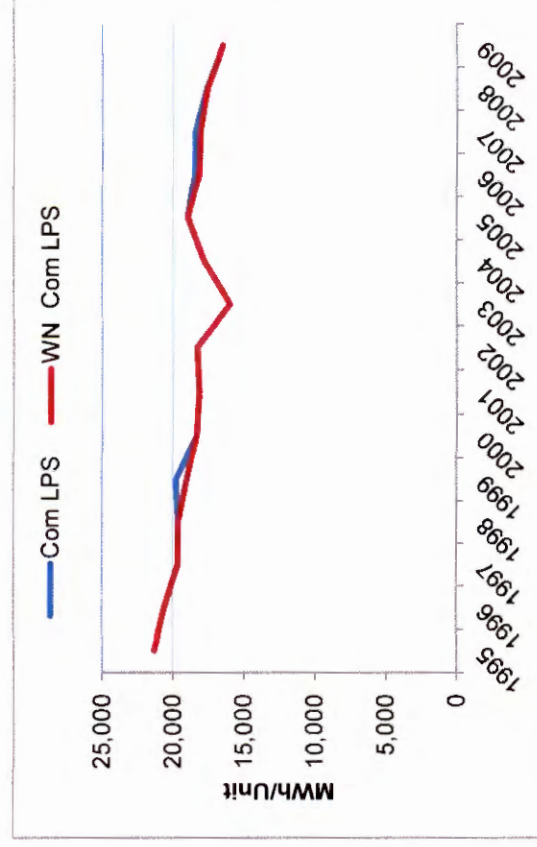
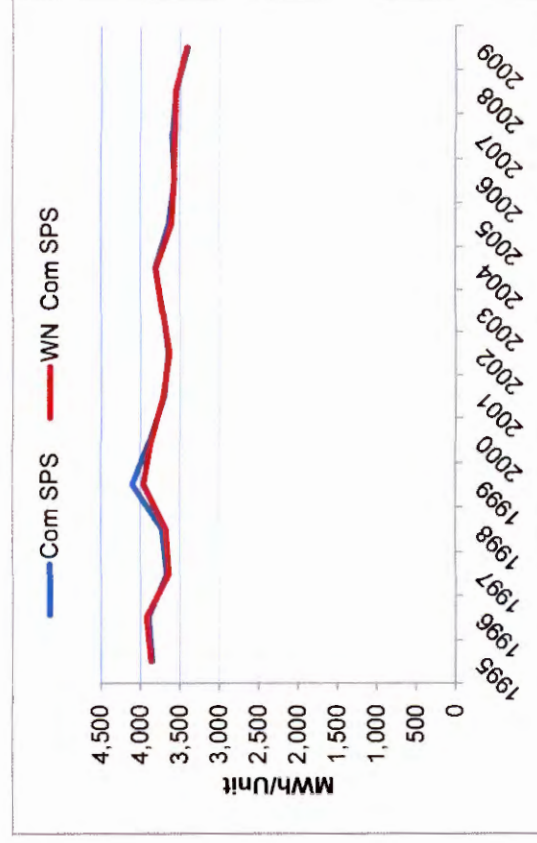
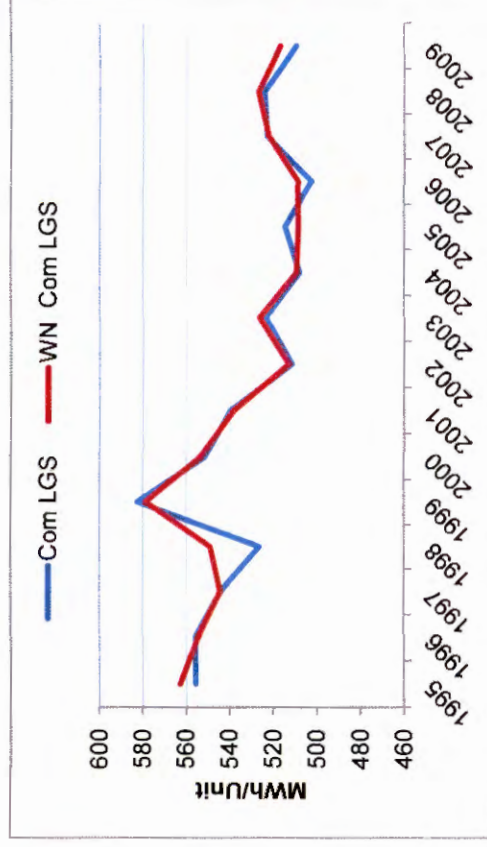
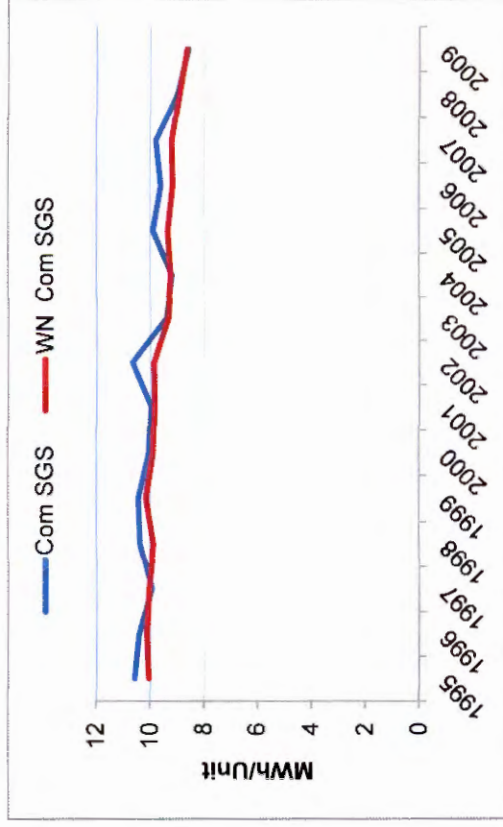


⁴ 4 CSR 240-22.030(8)(A), 4 CSR 240-22.030(8)(A)1, 4 CSR 240-22.030(8)(A)2.A

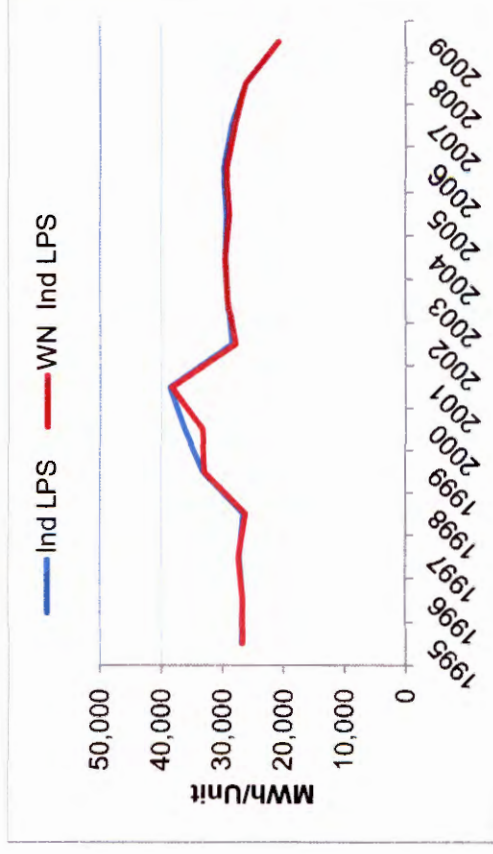
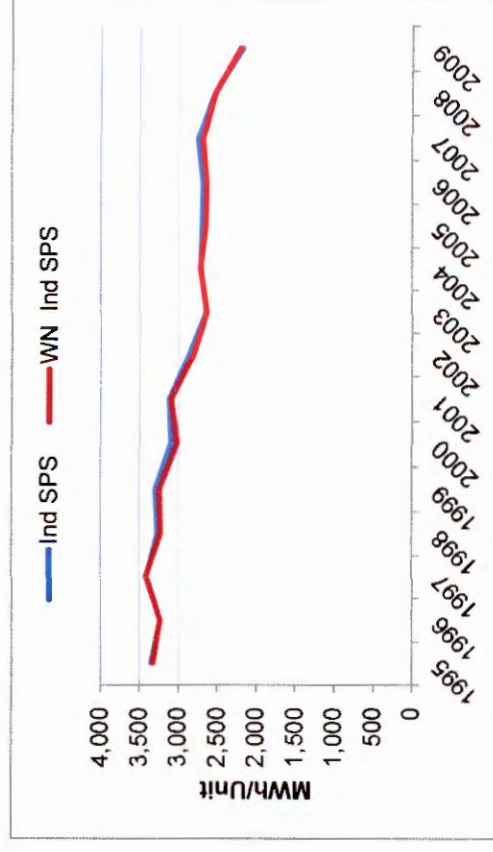
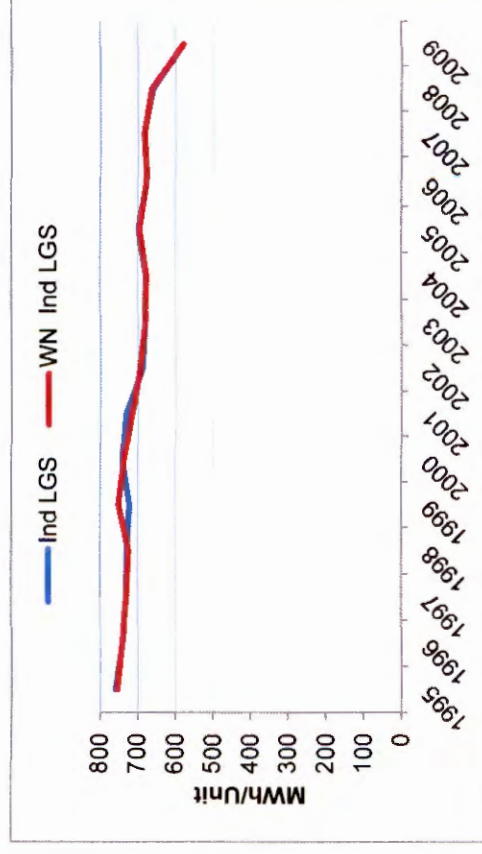
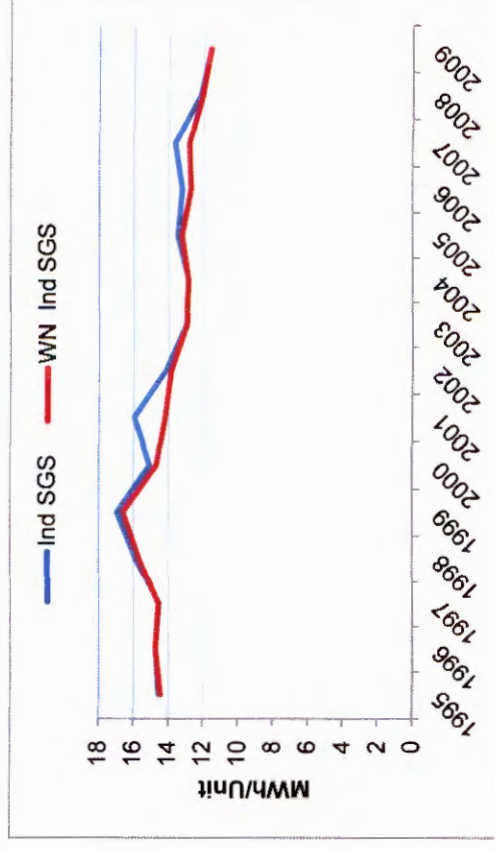
Commercial Use per Customer – for Summer Months (1995-2009)



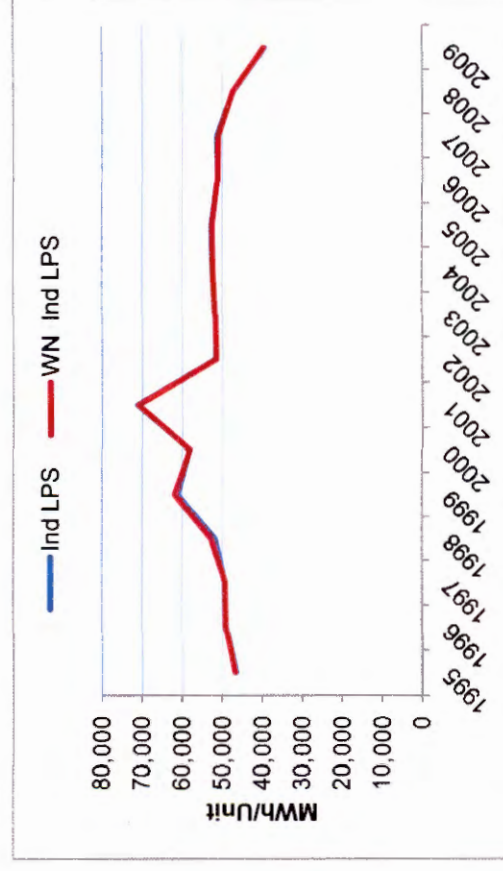
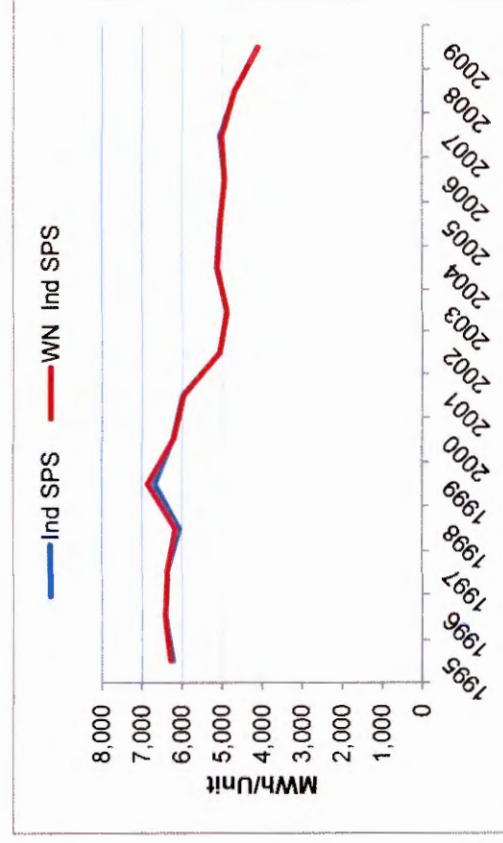
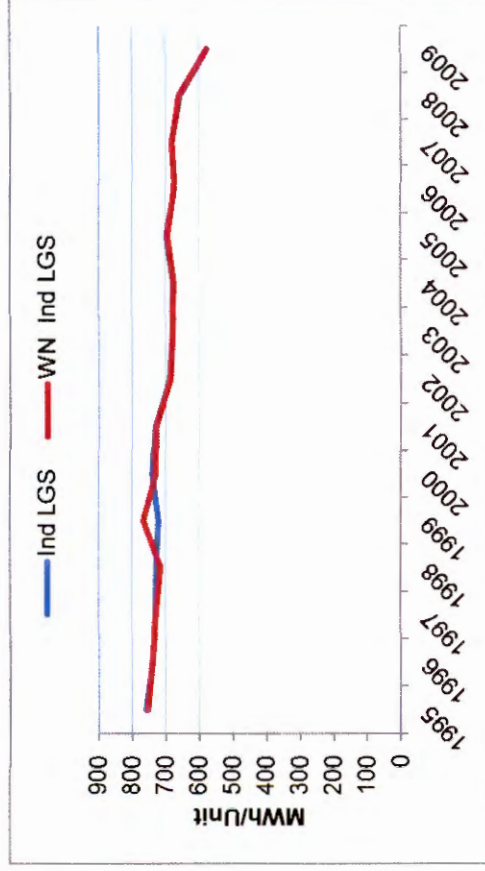
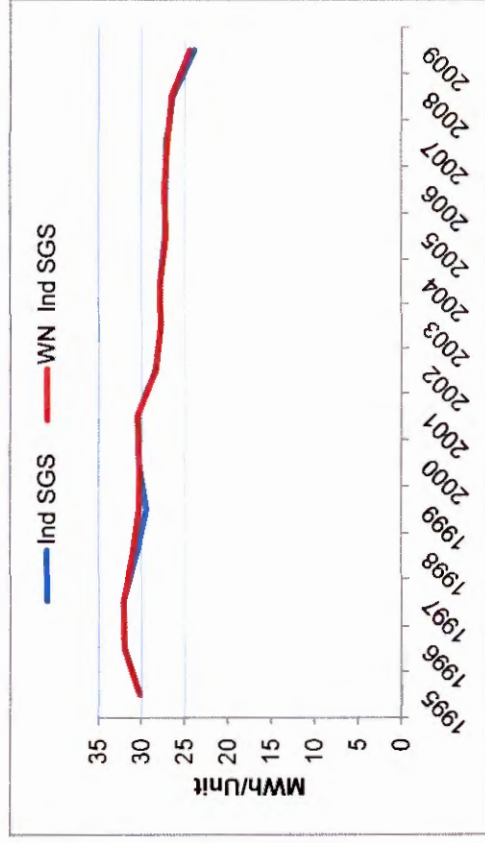
Commercial Use per Customer – for Non-Summer Months (1995-2009)



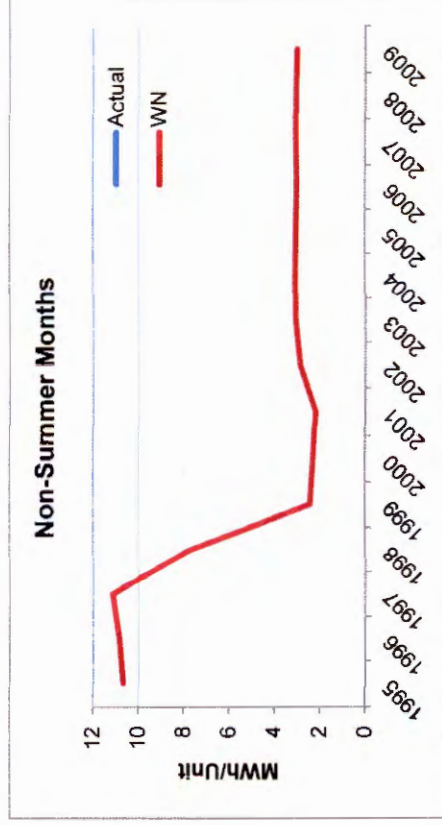
Industrial Use per Customer – for Summer Months (1995-2009)



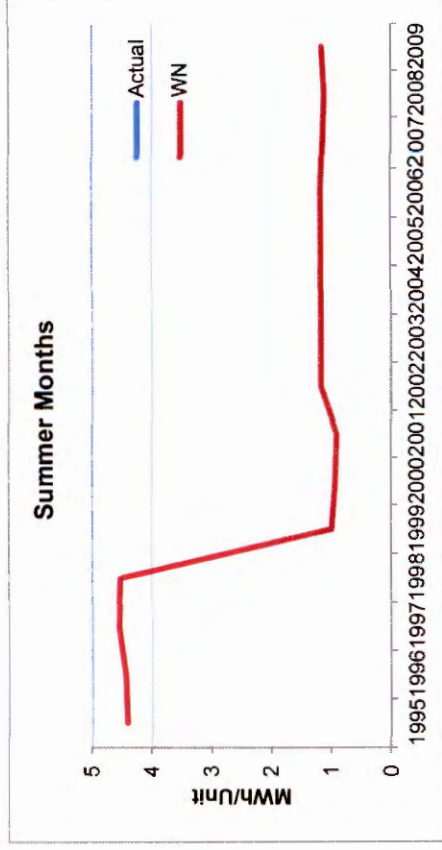
Industrial Use per Customer – for Non-Summer Months (1995-2009)



Lighting per Customer (1995-2009)*

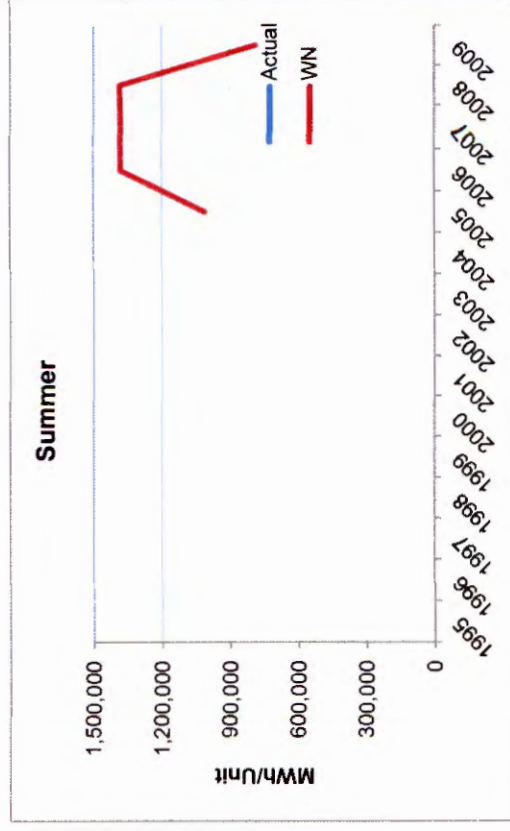
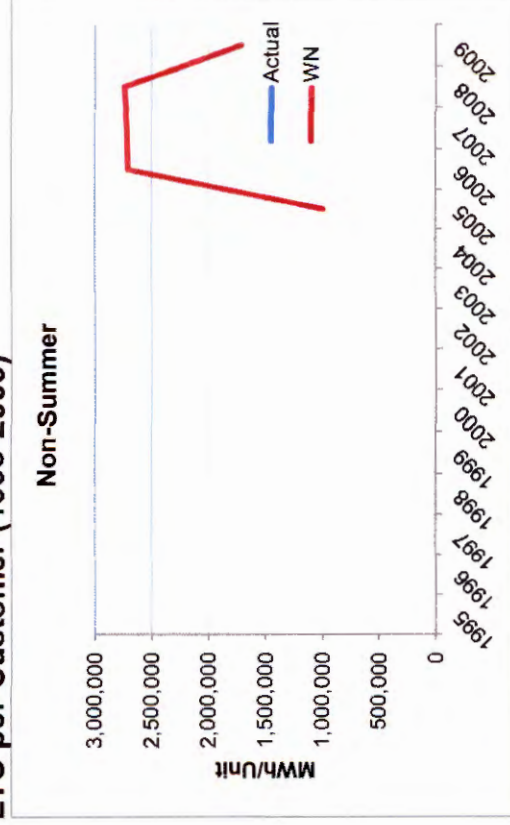


* A change in the methodology of reporting Lighting customers took place 1999. Lighting usage data after this change was used for forecasting.



* A change in the methodology of reporting Lighting customers took place 1999. Lighting usage data after this change was used for forecasting.

LTS per Customer (1995-2009)



Historical Summer Use per Customer (MWh/Unit)

Year	Res Gen	Com SGS	Com LGS	Com SPS	Com LPS	Ind SGS	Ind LGS	Ind SPS	Ind LPS	Lighting	LTS
1995	4.61	10.57	334	2,325	21,331	14.57	424	3,350	26,925	4.42	
1996	4.48	10.41	319	2,266	20,589	14.73	417	3,232	26,626	4.45	
1997	4.34	9.94	311	2,098	19,640	14.54	405	3,407	27,247	4.56	
1998	4.92	10.37	322	2,188	19,648	15.87	411	3,266	26,589	4.53	
1999	4.80	10.44	325	2,413	19,775	16.95	409	3,292	33,179	1.00	
2000	4.81	10.03	313	2,220	18,358	15.07	414	3,096	36,238	0.94	
2001	4.91	9.96	319	2,137	18,171	15.97	406	3,115	38,597	0.91	
2002	5.28	10.66	303	2,241	18,331	14.14	391	2,863	28,427	1.18	
2003	4.74	9.40	292	2,119	15,990	12.99	373	2,640	29,120	1.18	
2004	4.54	9.19	290	2,132	17,825	12.83	374	2,713	29,461	1.18	
2005	5.33	9.89	305	2,155	18,989	13.47	388	2,696	29,310	1.17	1,009,942
2006	5.18	9.60	300	2,065	18,491	13.21	377	2,684	29,801	1.18	1,379,053
2007	5.33	9.78	306	2,086	18,455	13.62	379	2,744	28,536	1.14	1,380,696
2008	4.70	8.99	295	1,997	17,671	12.19	360	2,537	26,232	1.12	1,385,442
2009	4.52	8.60	287	1,920	16,493	11.57	314	2,183	20,867	1.16	788,135

Weather Normalized Historical Summer Use per Customer (MWh/Customer)

Year	Res Gen	Com SGS	Com LGS	Com SPS	Com LPS	Ind SGS	Ind LGS	Ind SPS	Ind LPS	Lighting	LTS
1995	4.39	10.04	327	2,278	21,321	14.46	421	3,326	26,748	4.42	
1996	4.47	10.12	319	2,266	20,589	14.73	417	3,231	26,620	4.45	
1997	4.41	10.04	313	2,109	19,643	14.57	406	3,416	27,316	4.56	
1998	4.49	9.87	310	2,120	19,632	15.66	406	3,223	26,228	4.53	
1999	4.54	10.15	318	2,262	19,023	16.60	411	3,237	32,921	1.00	
2000	4.68	9.88	310	2,156	18,353	14.67	393	3,014	33,272	0.94	
2001	4.61	9.83	296	2,092	18,162	14.21	396	3,089	38,273	0.91	
2002	4.58	9.85	287	2,144	18,309	13.85	380	2,806	27,868	1.18	
2003	4.67	9.33	290	2,103	15,987	12.96	372	2,634	29,065	1.18	
2004	4.61	9.23	291	2,147	17,827	12.85	374	2,717	29,512	1.18	
2005	4.76	9.34	291	2,072	18,966	13.23	381	2,649	28,797	1.17	1,009,942
2006	4.68	9.16	291	2,022	18,168	12.72	367	2,639	29,360	1.18	1,379,053
2007	4.73	9.20	294	2,039	18,106	12.80	364	2,682	27,988	1.14	1,380,696
2008	4.64	8.92	294	1,991	17,604	12.07	359	2,532	26,196	1.12	1,385,442
2009	4.54	8.64	288	1,922	16,492	11.60	314	2,209	20,755	1.16	788,135

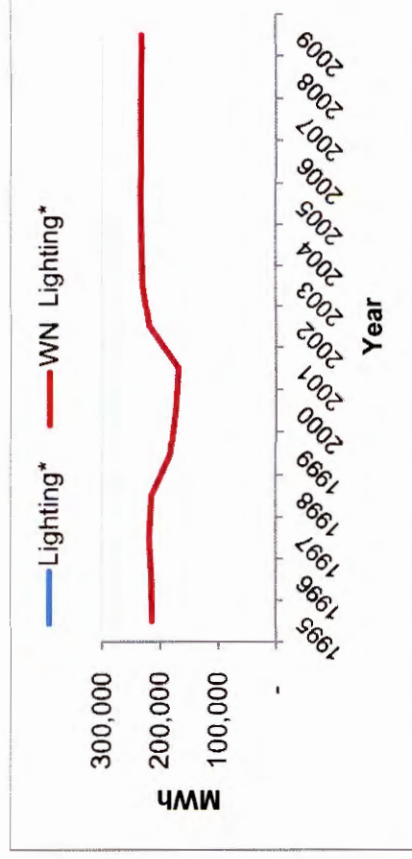
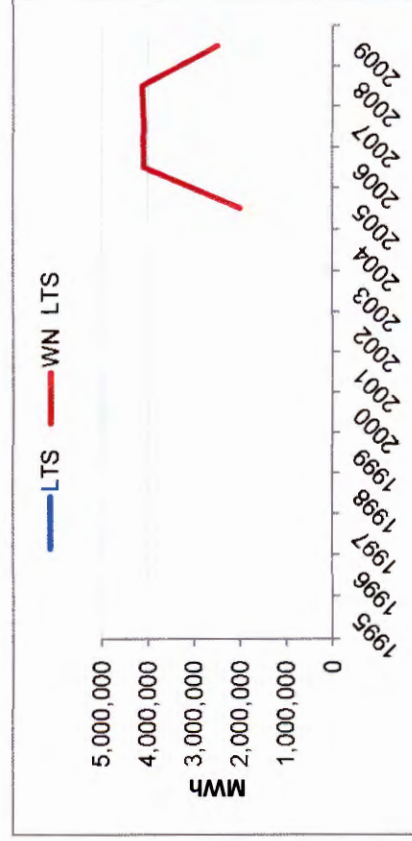
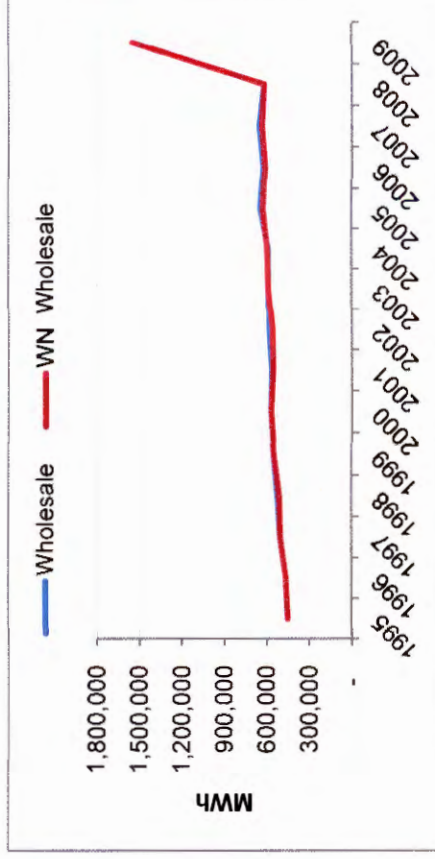
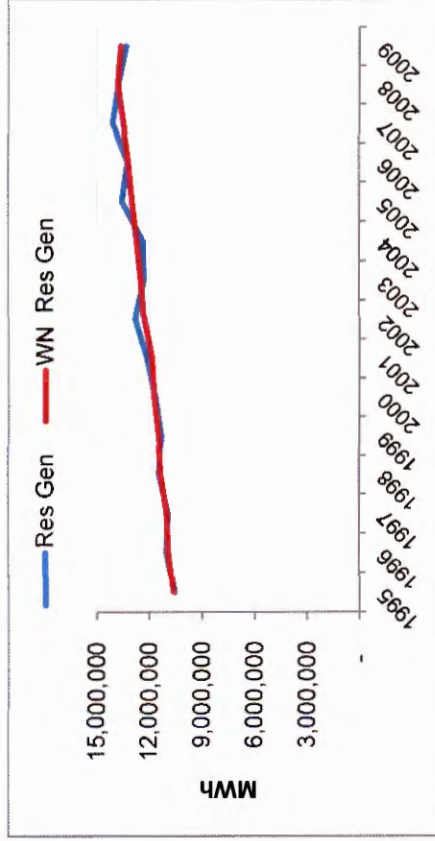
Historical Non-Summer Use per Customer (MWh/Customer)

Year	Res Gen	Com SGS	Com LGS	Com SPS	Com LPS	Ind SGS	Ind LGS	Ind SPS	Ind LPS	Lighting	LTS
1995	6.70	17.77	556	3,848	35,363	30.25	759	6,223	46,485	10.68	
1996	7.27	18.33	556	3,896	34,797	31.95	740	6,408	48,957	10.84	
1997	7.23	17.83	544	3,666	33,753	32.14	730	6,370	49,234	11.14	
1998	7.09	17.83	526	3,723	33,342	30.59	728	6,061	51,787	7.74	
1999	6.99	18.02	582	4,103	35,435	29.42	721	6,675	61,087	2.43	
2000	7.23	17.30	552	3,879	33,903	30.28	740	6,229	58,067	2.30	
2001	7.54	17.13	540	3,701	29,517	30.55	731	5,979	71,085	2.21	
2002	7.73	17.15	512	3,650	31,728	28.43	687	5,065	51,565	2.87	
2003	7.65	15.97	524	3,717	31,000	27.80	680	4,871	51,706	3.07	
2004	7.80	16.35	508	3,811	30,531	27.86	677	5,126	52,407	3.07	
2005	8.07	16.50	515	3,643	31,485	27.28	697	5,053	52,634	3.05	990,830
2006	7.79	15.95	503	3,569	31,189	27.20	675	4,924	51,108	3.02	2,707,074
2007	8.39	16.66	523	3,599	31,306	27.12	683	5,043	51,330	3.05	2,716,212
2008	8.64	16.58	524	3,556	30,671	26.43	658	4,684	47,271	3.05	2,743,326
2009	8.38	15.79	510	3,405	29,967	23.88	576	4,127	39,362	3.00	1,711,894

Weather Normalized Historical Non-Summer Use per Customer (MWh/Customer)

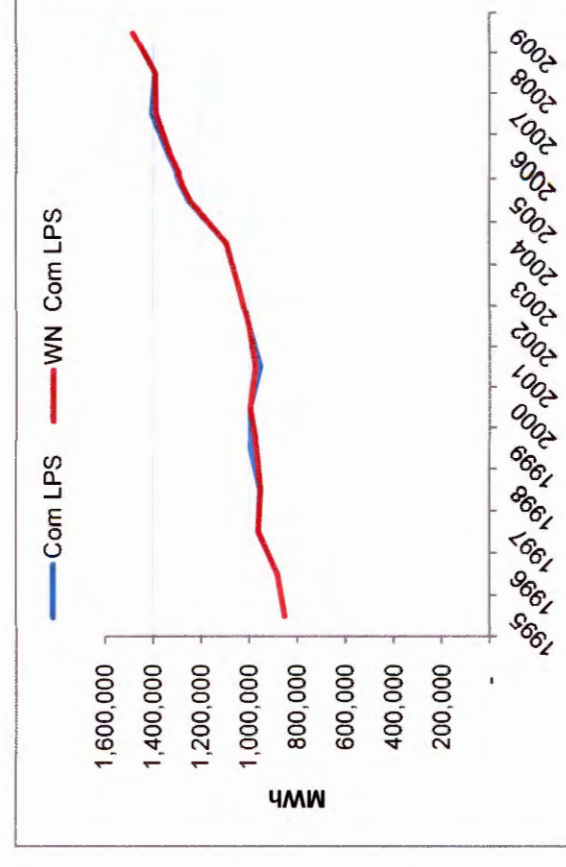
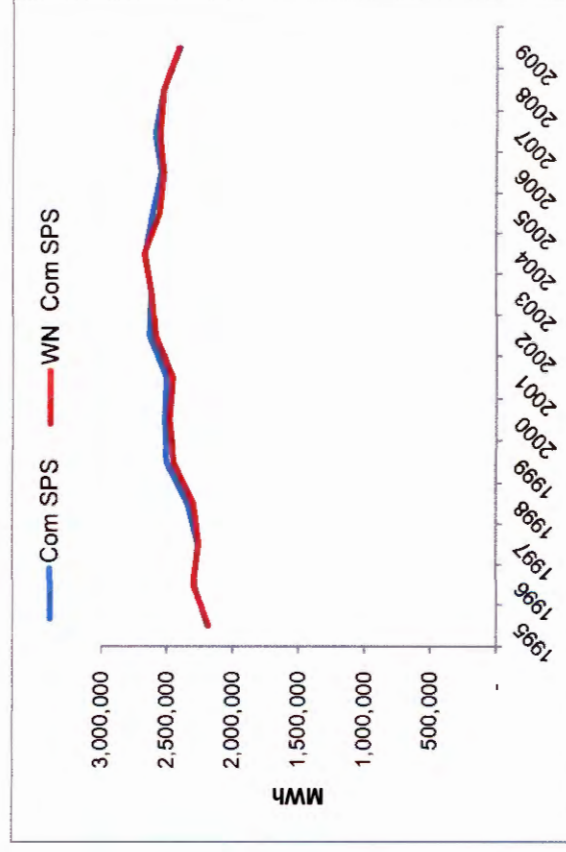
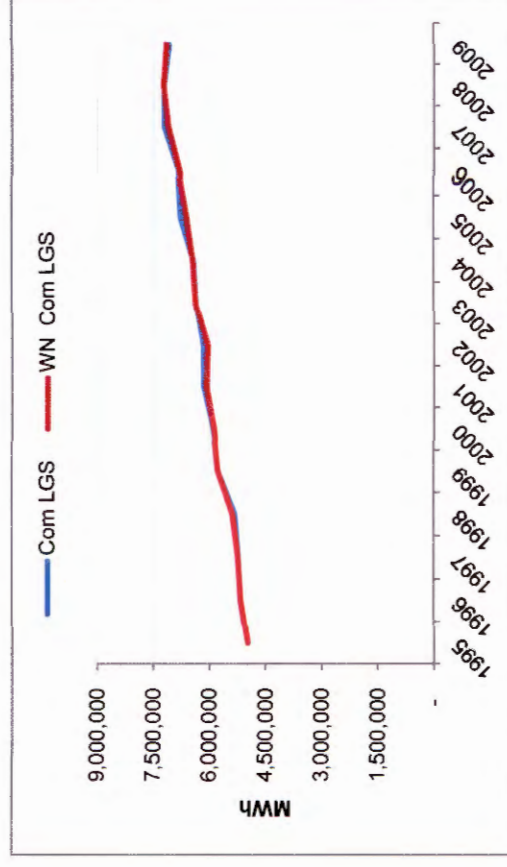
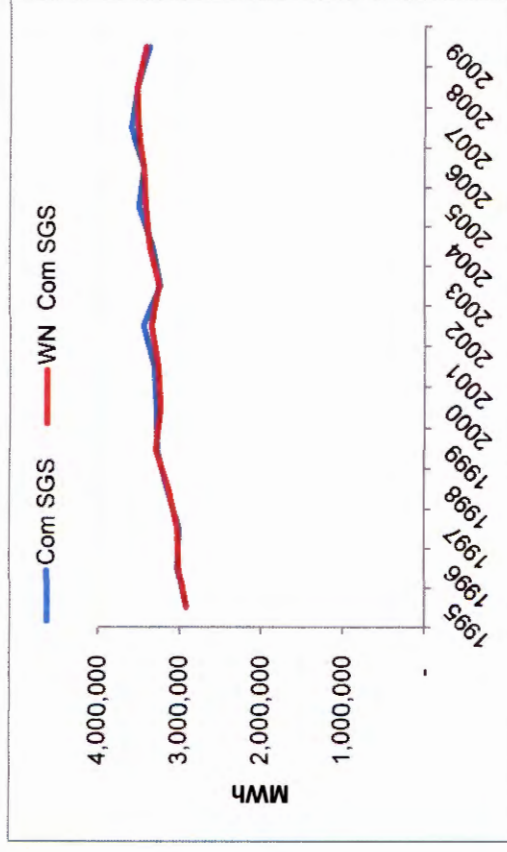
Year	Res Gen	Com SGS	Com LGS	Com SPS	Com LPS	Ind SGS	Ind LGS	Ind SPS	Ind LPS	Lighting	LTS
1995	7.00	18.03	563	3,865	35,367	30.26	754	6,280	46,749	10.68	
1996	7.14	18.22	555	3,919	34,801	31.99	741	6,417	49,027	10.84	
1997	7.23	17.90	544	3,638	33,752	32.12	729	6,367	49,203	11.14	
1998	7.42	18.16	549	3,673	33,229	31.04	724	6,157	52,683	7.74	
1999	7.41	17.59	579	3,956	34,804	29.93	751	6,749	61,828	2.43	
2000	7.45	17.04	554	3,860	33,928	30.23	736	5,931	60,163	2.30	
2001	7.53	17.02	538	3,713	30,538	30.49	715	5,961	70,874	2.21	
2002	7.91	17.27	513	3,636	31,724	28.38	693	5,186	52,410	2.87	
2003	7.90	16.72	527	3,725	30,999	27.80	680	4,981	52,444	3.07	
2004	8.10	16.60	510	3,804	30,526	27.79	675	5,111	52,244	3.07	
2005	8.08	16.41	509	3,606	31,214	27.17	695	5,035	52,436	3.05	990,830
2006	8.26	16.42	509	3,572	31,223	27.35	676	4,926	51,145	3.02	2,707,074
2007	8.40	16.59	522	3,566	31,063	26.98	682	4,998	50,937	3.05	2,716,212
2008	8.74	16.69	527	3,561	30,697	26.57	662	4,690	47,336	3.05	2,743,326
2009	8.66	16.07	517	3,416	29,979	24.45	577	4,104	39,523	3.00	1,711,894

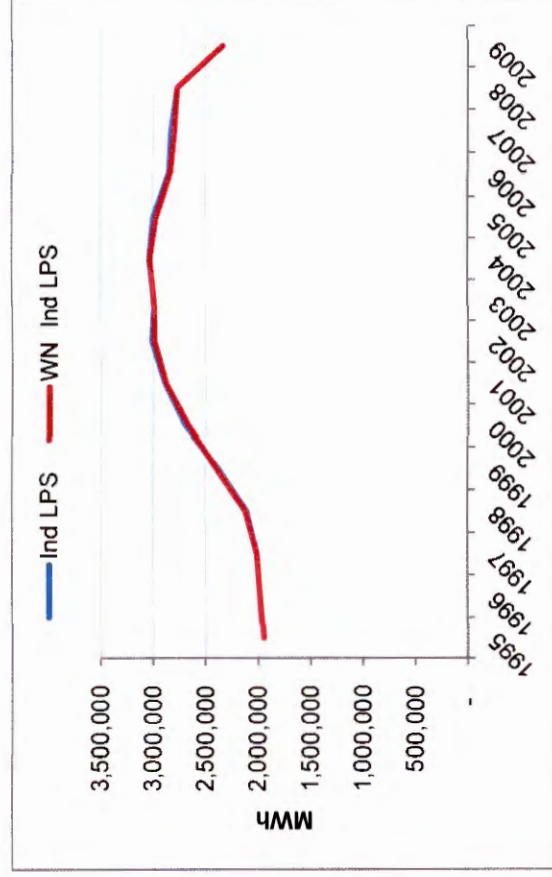
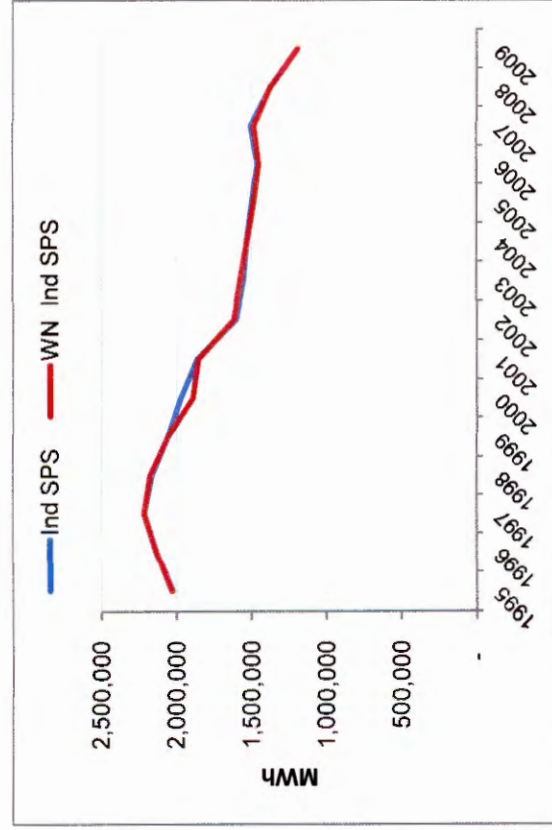
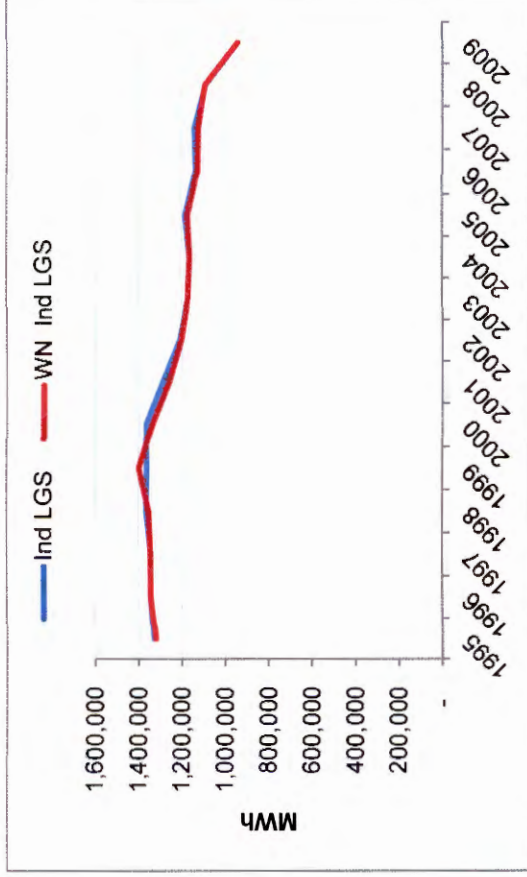
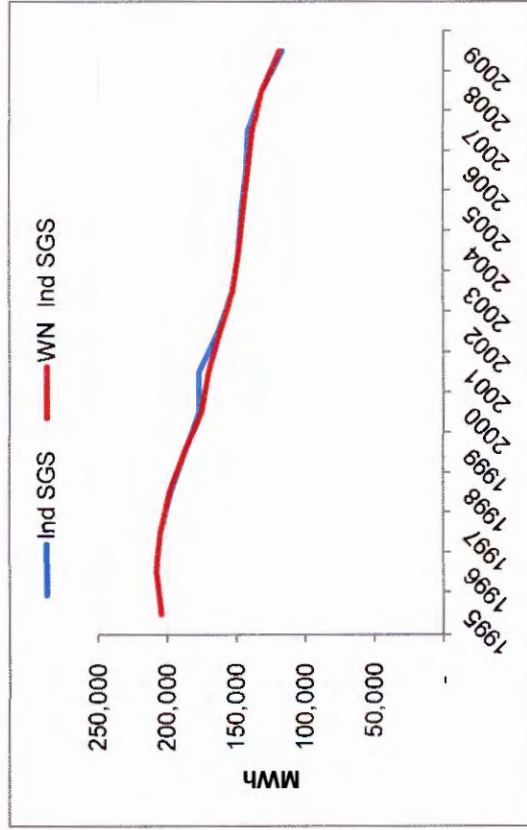
Historical Actual and Weather Normalized Total Annual Energy Usage (Total Billed Sales) by Classes (1995-2009)⁵



⁵ 4 CSR 240-22.030(8)(A), 4 CSR 240-22.030(8)(A)1, 4 CSR 240-22.030(8)(A)2.A; EO-2007-0409 – Stipulation and Agreement #8

* A change in the methodology of reporting Lighting customers took place 1999. Lighting usage data after this change was used for forecasting.





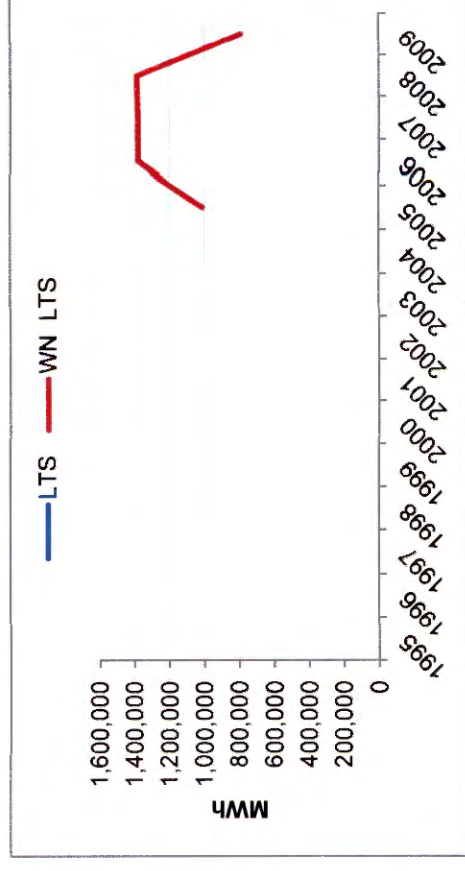
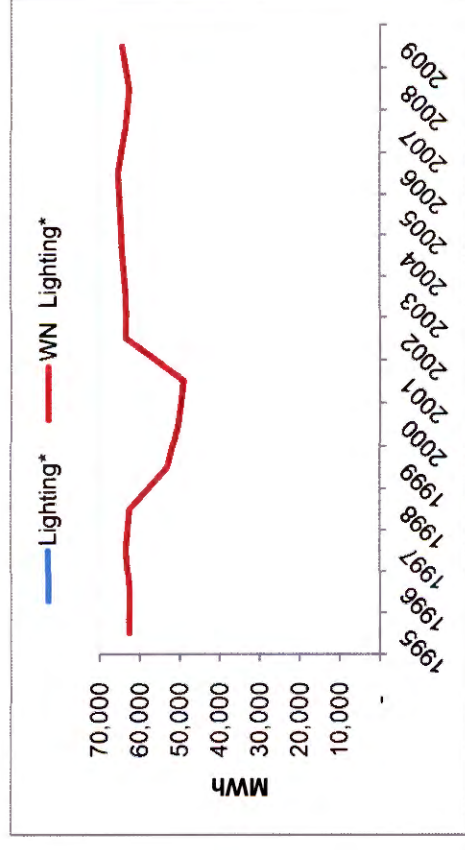
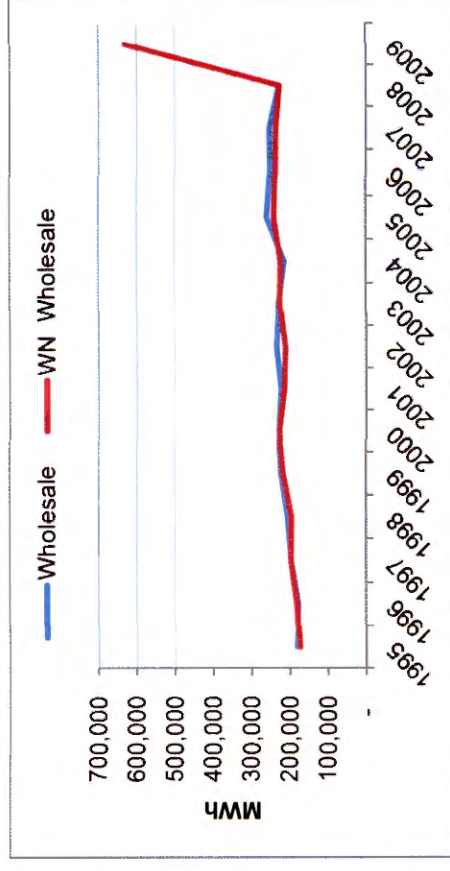
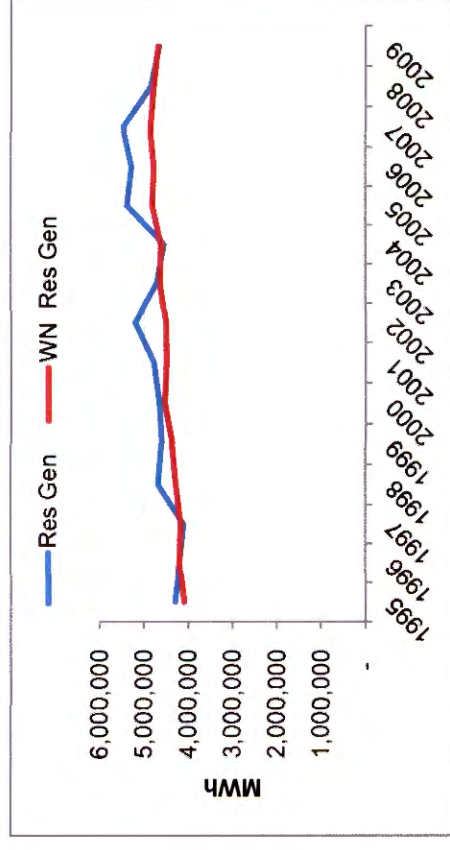
Historical Actual Total Annual Energy Usage (Total Billed Sales) by Classes (MWh)

Year	Res Gen	Com SGS	Com LGS	Com SPS	Com LPS	Ind SGS	Ind LGS	Ind SPS	Ind LPS	Wholesale	LTS	Lighting
1995	10,556,934	2,916,810	4,978,079	2,193,581	850,399	204,760	1,329,272	2,025,270	1,943,848	451,259		213,517
1996	11,026,442	3,022,101	5,166,584	2,292,942	880,650	207,763	1,342,564	2,131,947	1,976,871	465,950		214,739
1997	10,938,516	3,004,293	5,226,292	2,264,252	961,072	204,619	1,343,288	2,213,572	2,007,899	504,993		218,458
1998	11,442,954	3,149,536	5,325,312	2,343,137	953,817	197,252	1,363,284	2,163,472	2,107,819	523,639		214,634
1999	11,329,430	3,277,296	5,778,763	2,504,808	993,221	187,050	1,360,296	2,058,575	2,379,580	550,830		182,464
2000	11,669,122	3,289,375	5,896,079	2,520,499	995,854	177,051	1,366,040	1,971,381	2,699,228	571,298		173,639
2001	12,147,640	3,318,044	6,154,496	2,507,473	953,773	177,096	1,289,055	1,861,309	2,889,639	566,064		168,152
2002	12,811,661	3,447,261	6,163,417	2,638,698	1,001,177	163,025	1,209,709	1,603,599	3,013,506	583,579		218,851
2003	12,300,297	3,238,336	6,356,926	2,620,439	1,044,329	152,368	1,171,873	1,550,777	2,989,082	588,336		229,491
2004	12,354,282	3,332,923	6,416,254	2,669,818	1,093,086	148,044	1,164,009	1,529,513	3,033,066	590,750		231,690
2005	13,547,688	3,503,037	6,763,533	2,610,827	1,250,430	145,948	1,183,801	1,495,759	2,996,097	645,510	2,000,773	233,005
2006	13,229,965	3,439,734	6,825,584	2,546,129	1,335,773	142,490	1,136,968	1,456,480	2,850,936	626,581	4,086,126	232,936
2007	14,100,232	3,605,231	7,209,062	2,594,151	1,404,905	141,162	1,143,051	1,501,339	2,829,588	653,723	4,096,908	233,841
2008	13,779,099	3,528,087	7,217,904	2,533,957	1,392,364	131,236	1,091,790	1,373,246	2,768,194	621,485	4,128,768	233,294
2009	13,327,546	3,376,760	7,080,540	2,407,769	1,482,235	116,762	942,887	1,191,463	2,334,640	1,544,195	2,500,029	231,525

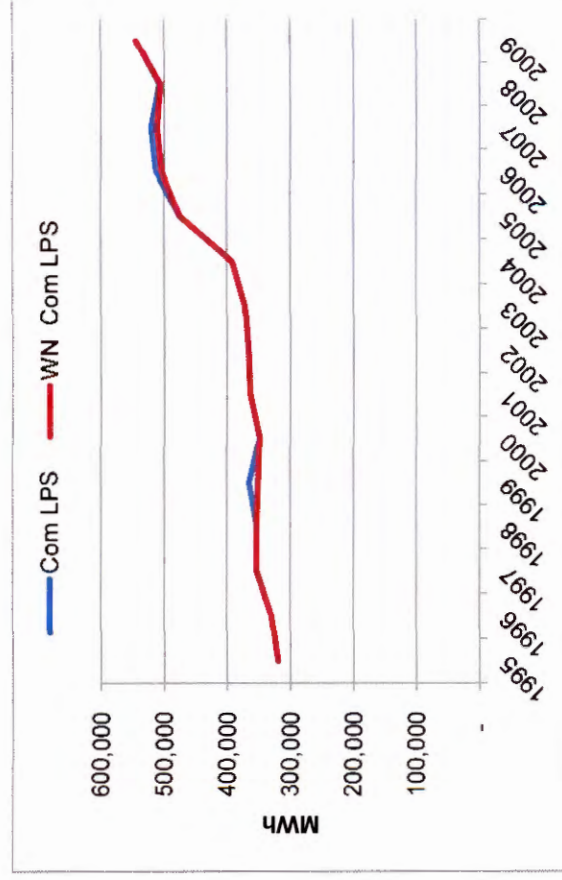
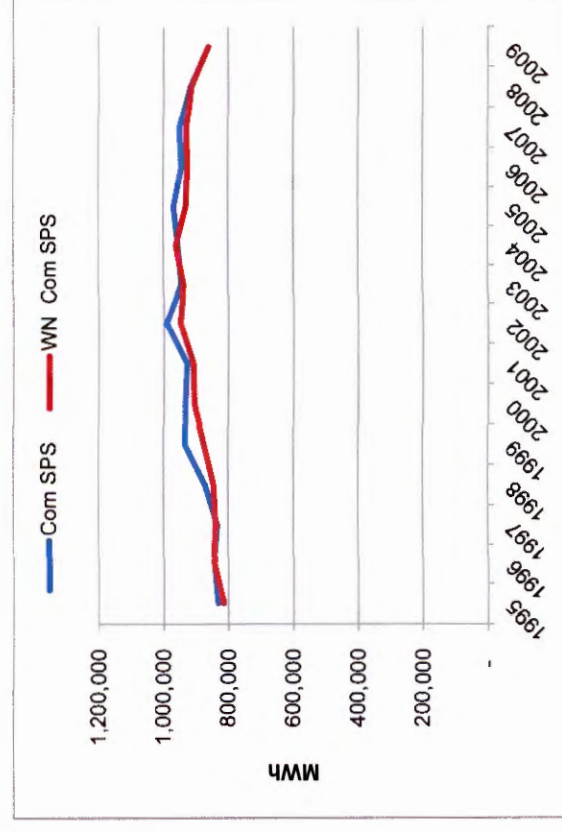
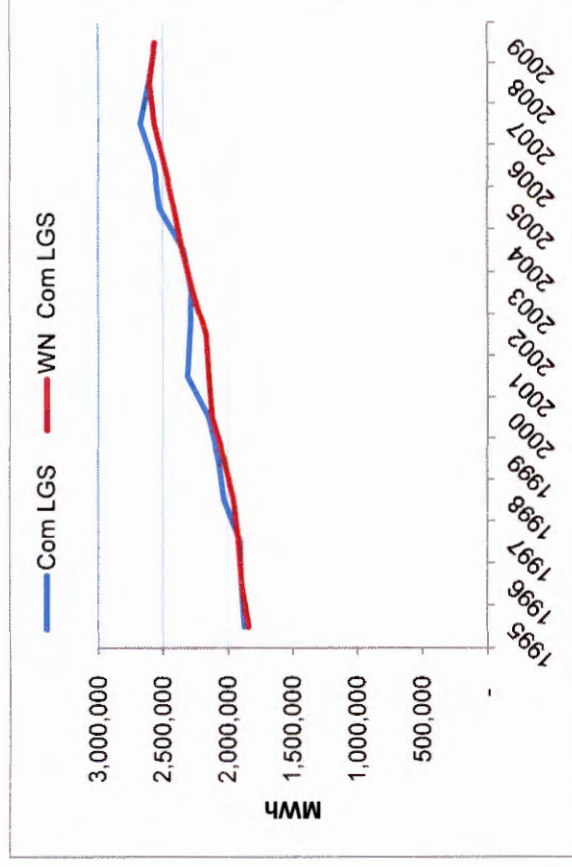
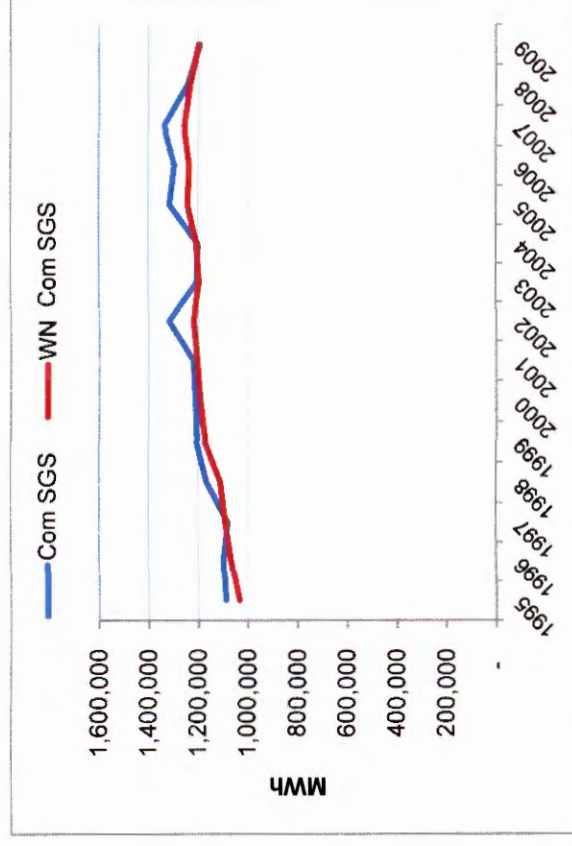
Historical Weather Normalized Total Annual Energy Usage (Total Billed Sales) by Classes (MWh)

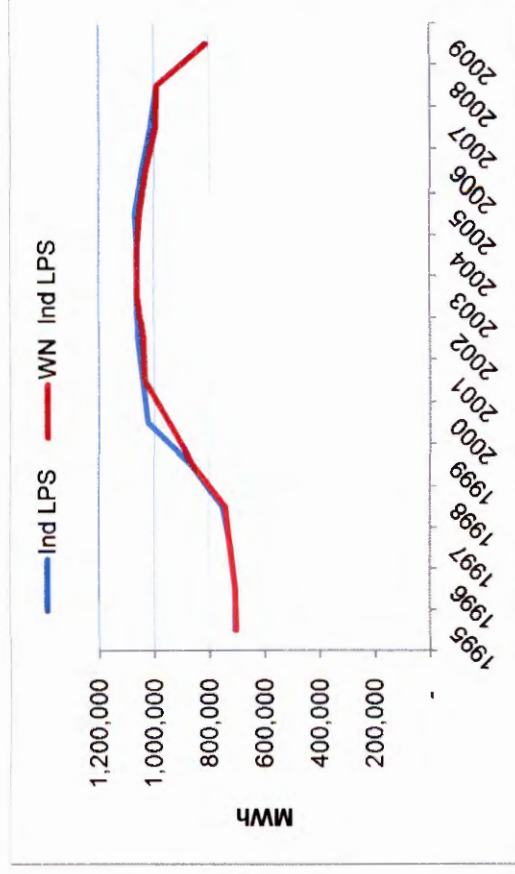
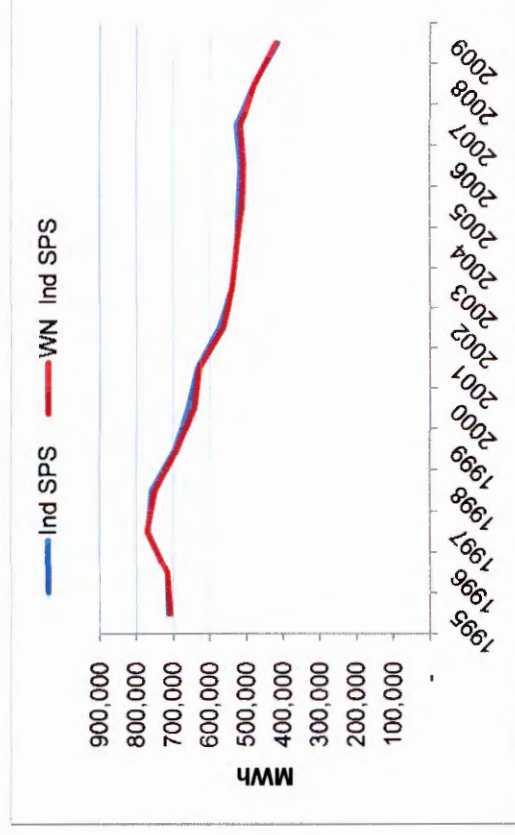
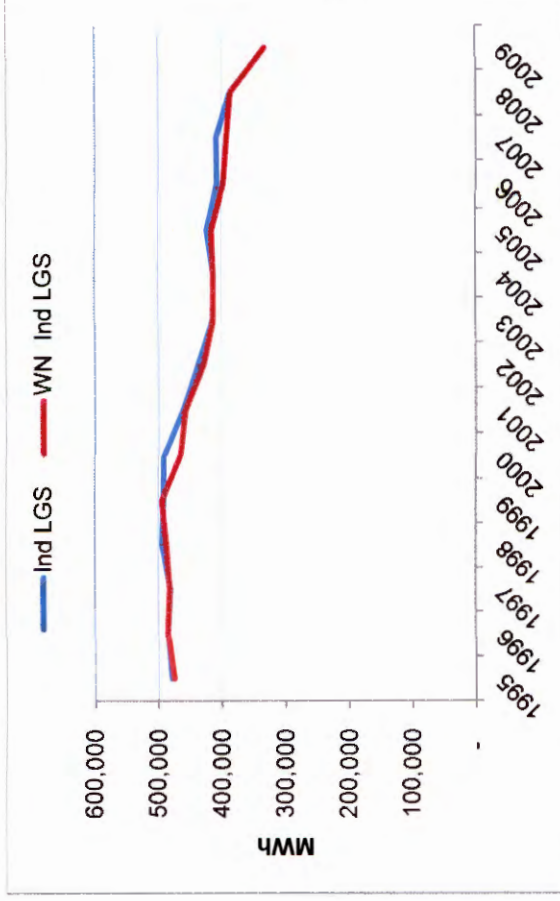
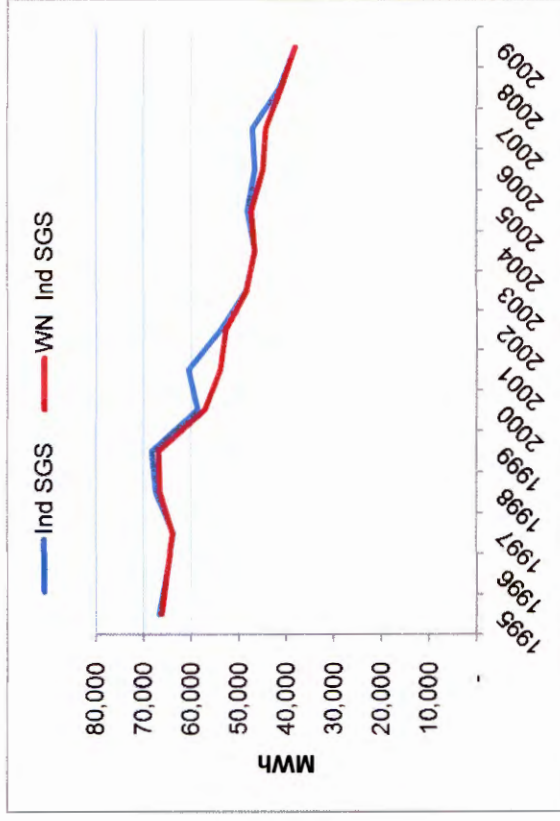
YEAR	Res Gen	Com SGS	Com LGS	Com SPS	Com LPS	Ind SGS	Ind LGS	Ind SPS	Ind LPS	Wholesale	LTS	Lighting
1995	10,636,036	2,888,689	4,981,339	2,182,301	850,319	204,318	1,319,903	2,032,074	1,946,232	448,249		213,517
1996	10,905,786	2,978,824	5,159,109	2,302,030	880,701	207,949	1,343,670	2,133,653	1,978,634	465,747		214,739
1997	11,000,345	3,021,849	5,239,833	2,257,951	961,099	204,632	1,343,831	2,214,749	2,009,044	503,776		218,458
1998	11,348,408	3,130,263	5,392,469	2,296,718	951,496	198,152	1,351,763	2,173,660	2,119,851	511,721		214,634
1999	11,488,273	3,195,531	5,711,810	2,390,546	967,851	187,606	1,398,844	2,055,885	2,395,841	548,538		182,464
2000	11,751,536	3,239,420	5,882,287	2,484,374	996,161	175,281	1,335,801	1,888,880	2,687,101	570,222		173,639
2001	11,852,485	3,288,104	5,980,585	2,492,607	973,986	170,154	1,259,543	1,852,432	2,875,289	556,254		168,152
2002	12,289,287	3,362,441	6,049,575	2,589,361	1,000,662	161,733	1,203,365	1,616,048	3,024,595	561,068		218,851
2003	12,479,231	3,323,380	6,366,371	2,616,561	1,044,280	152,241	1,170,844	1,572,110	3,013,706	587,257		229,491
2004	12,724,586	3,371,407	6,438,293	2,673,133	1,093,001	147,864	1,162,304	1,527,188	3,028,818	597,971		231,690
2005	12,978,636	3,417,184	6,600,314	2,556,996	1,243,353	144,728	1,173,548	1,483,103	2,970,236	626,926	2,000,773	233,005
2006	13,200,138	3,442,008	6,796,266	2,527,967	1,327,748	141,274	1,127,899	1,448,189	2,836,380	614,405	4,086,126	232,936
2007	13,500,608	3,516,068	7,097,076	2,557,883	1,388,144	137,854	1,126,064	1,480,984	2,796,097	634,515	4,096,908	233,841
2008	13,818,096	3,532,526	7,235,411	2,533,603	1,391,129	131,313	1,094,320	1,373,558	2,769,140	620,822	4,128,768	233,294
2009	13,638,993	3,421,569	7,149,205	2,413,929	1,482,746	118,733	943,427	1,192,118	2,336,402	1,547,369	2,500,029	231,525

Historical Actual and Weather Normalized Total Energy Usage (Total Billed Sales) by Classes for Summer Months (1995-2009)⁶



⁶ 4 CSR 240-22.030(8)(A), 4 CSR 240-22.030(8)(A)1, 4 CSR 240-22.030(8)(A)2.A; EO-2007-0409 – Stipulation and Agreement #8
 * A change in the methodology of reporting Lighting customers took place 1999. Lighting usage data after this change was used for forecasting.





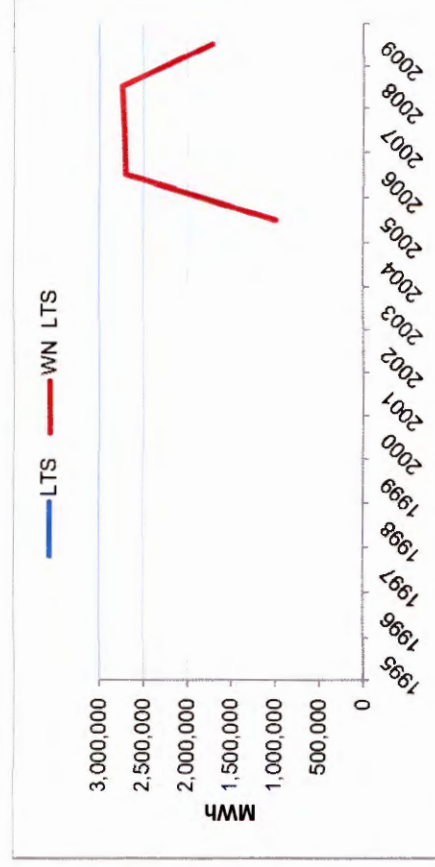
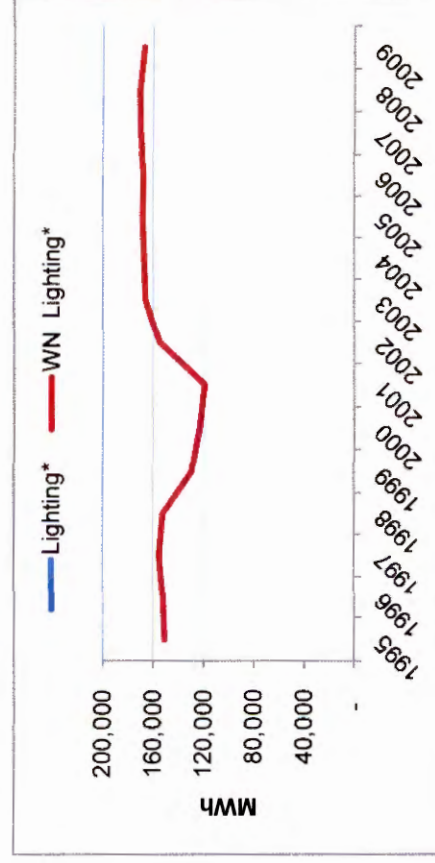
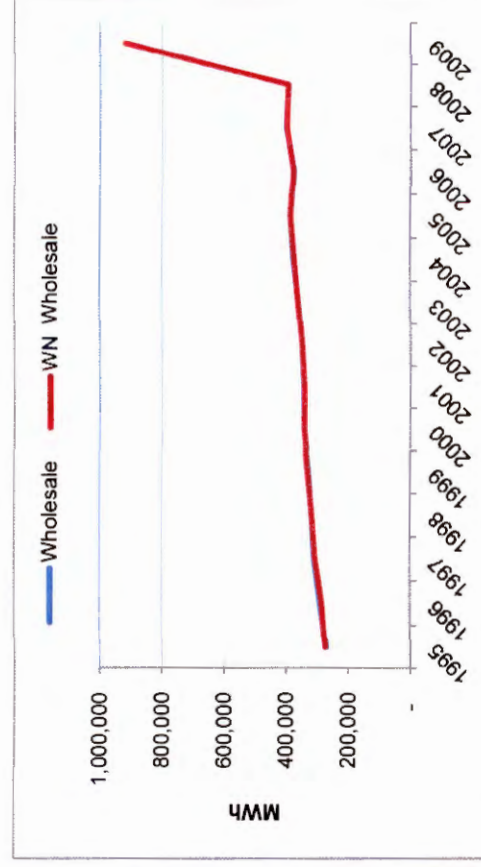
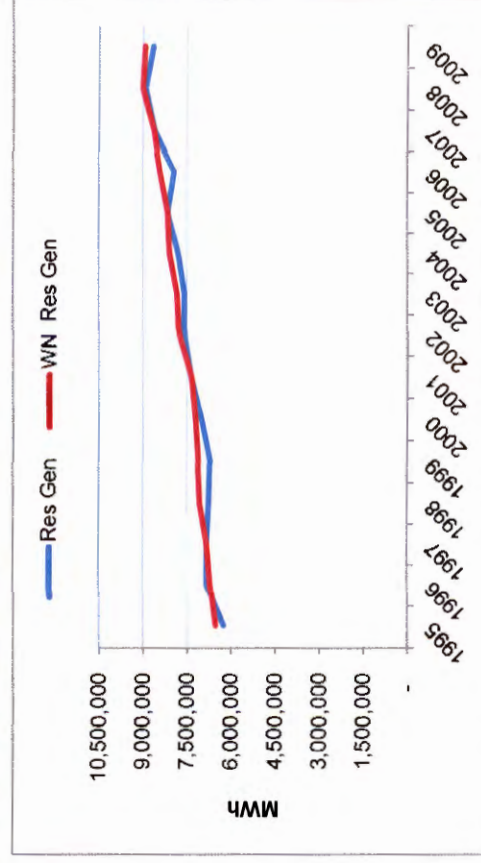
Historical Actual Total Energy Usage (Total Billed Sales) for Summer Months

Year	Res Gen	Com SGS	Com LGS	Com SPS	Com LPS	Ind SGS	Ind LGS	Ind SPS	Ind LPS	Wholesale	LTS	Lighting
1995	4,299,982	1,088,273	1,870,815	832,563	319,961	66,689	479,435	712,798	706,251	180,367		62,580
1996	4,196,485	1,097,269	1,894,684	844,132	329,425	65,086	485,364	715,946	705,200	176,446		62,509
1997	4,102,546	1,080,255	1,904,410	834,286	353,522	63,682	481,183	768,350	722,038	195,628		63,431
1998	4,681,190	1,165,000	2,028,755	871,321	353,661	67,400	493,834	758,527	750,925	205,206		62,556
1999	4,606,841	1,205,897	2,070,498	933,196	365,437	68,184	491,824	693,809	864,140	222,491		53,091
2000	4,658,294	1,210,723	2,148,547	933,137	348,802	58,674	491,419	659,463	1,023,511	227,856		50,412
2001	4,784,793	1,220,344	2,311,896	928,576	363,423	60,551	461,630	633,815	1,042,108	222,068		49,040
2002	5,202,537	1,317,834	2,293,923	991,334	366,617	53,822	437,530	574,599	1,059,005	233,908		63,534
2003	4,705,934	1,204,256	2,278,232	944,751	371,351	48,451	414,155	539,341	1,062,193	227,989		63,437
2004	4,544,821	1,199,933	2,339,523	954,997	392,153	46,527	413,072	525,554	1,059,885	213,296		64,288
2005	5,382,566	1,314,053	2,525,337	968,025	474,727	48,098	423,469	521,051	1,069,469	258,809	1,009,942	64,757
2006	5,282,781	1,294,668	2,568,858	944,721	513,317	46,542	408,294	515,764	1,044,664	250,730	1,379,053	65,322
2007	5,476,327	1,335,835	2,674,015	950,390	521,095	47,017	409,089	526,906	1,013,428	252,806	1,380,696	63,684
2008	4,852,731	1,242,341	2,610,466	917,616	507,820	41,506	387,572	478,902	990,540	227,511	1,385,442	62,665
2009	4,662,987	1,191,430	2,557,185	861,100	544,274	38,151	332,463	415,368	813,866	629,858	788,135	64,447

Historical Weather Normalized Total Energy Usage (Total Billed Sales) for Summer Months

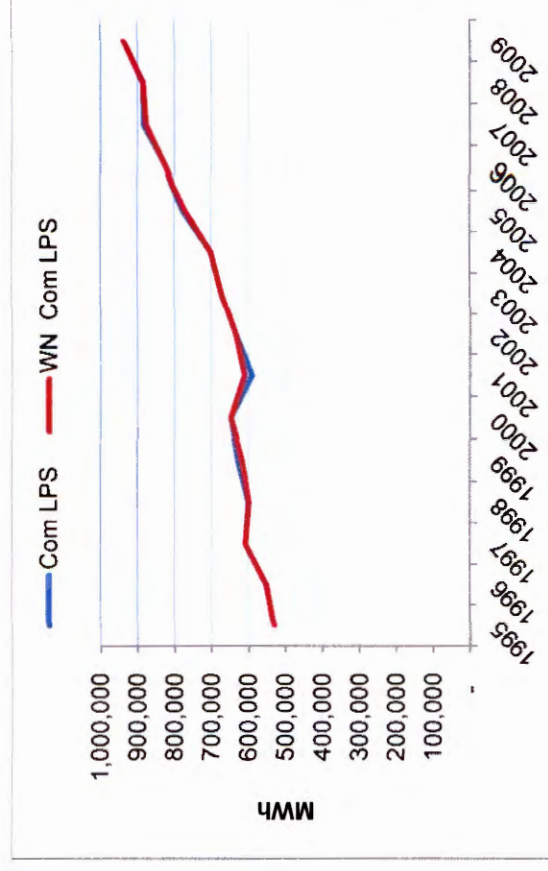
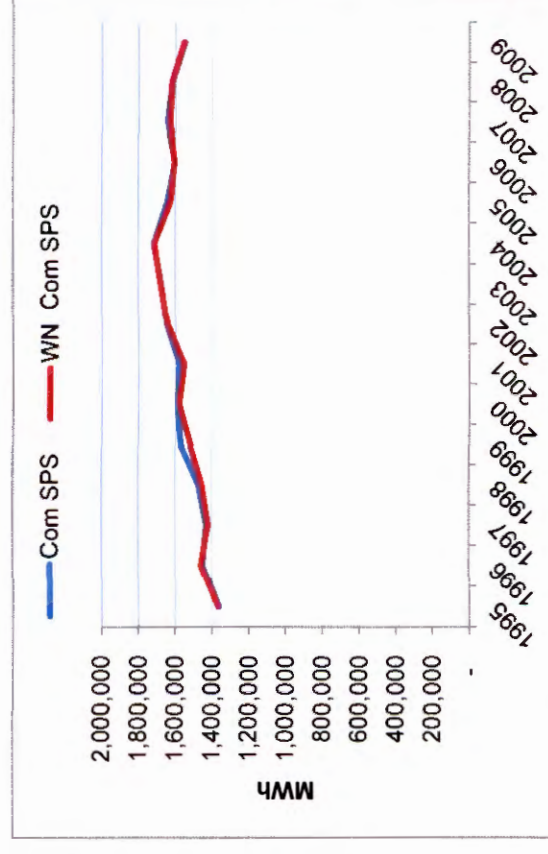
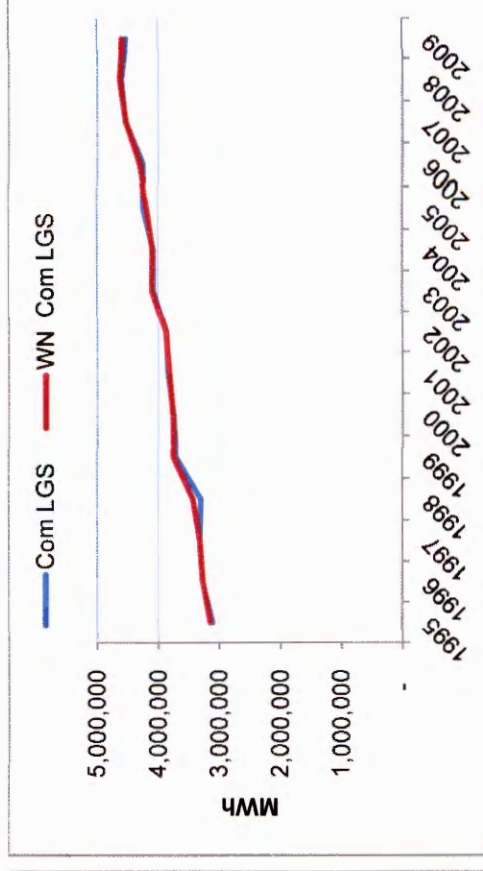
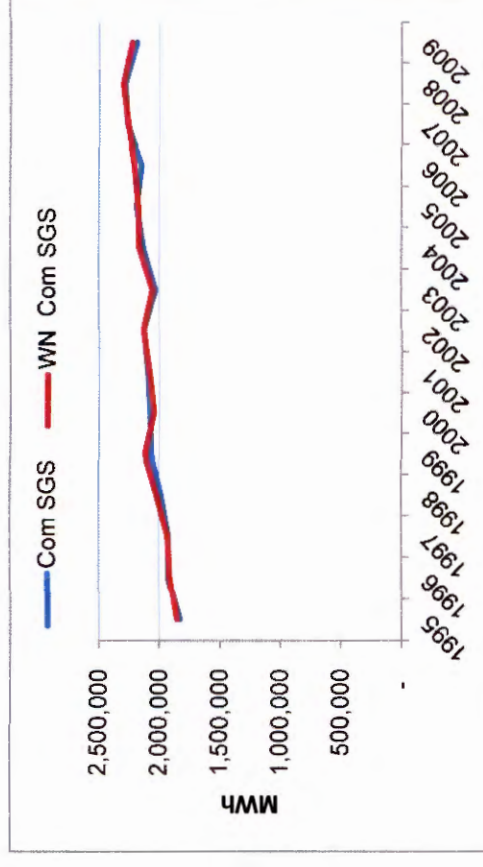
Year	Res Gen	Com SGS	Com LGS	Com SPS	Com LPS	Ind SGS	Ind LGS	Ind SPS	Ind LPS	Wholesale	LTS	Lighting
1995	4,096,255	1,033,702	1,834,831	815,339	319,808	66,173	475,897	707,645	701,536	173,419		62,580
1996	4,193,510	1,065,973	1,893,214	844,260	329,421	65,080	485,214	715,630	705,060	181,184		62,509
1997	4,165,195	1,090,450	1,918,009	838,640	353,571	63,800	482,279	770,235	723,971	196,808		63,431
1998	4,274,873	1,109,150	1,953,361	844,499	353,379	66,506	487,282	748,534	740,688	194,919		62,556
1999	4,362,919	1,172,466	2,026,528	875,110	351,042	66,752	494,576	682,181	857,562	216,832		53,091
2000	4,528,663	1,192,064	2,122,407	905,721	348,706	57,120	465,891	641,967	945,471	227,161		50,412
2001	4,497,543	1,204,600	2,146,013	908,770	363,235	53,862	450,139	628,594	1,033,381	214,051		49,040
2002	4,508,222	1,218,453	2,169,618	948,257	366,189	52,739	424,380	563,274	1,037,826	211,479		63,534
2003	4,635,567	1,195,217	2,264,857	937,237	371,304	48,325	413,161	538,162	1,059,997	225,078		63,437
2004	4,613,247	1,205,815	2,348,764	961,510	392,185	46,598	413,604	526,262	1,061,469	223,452		64,288
2005	4,812,788	1,241,124	2,412,627	930,935	474,151	47,250	416,023	511,915	1,050,772	240,083	1,009,942	64,757
2006	4,773,738	1,234,166	2,487,980	925,194	504,323	44,787	398,024	507,101	1,028,848	236,423	1,379,053	65,322
2007	4,864,924	1,256,085	2,568,232	928,913	511,312	44,200	393,111	515,111	993,889	235,680	1,380,696	63,684
2008	4,790,145	1,232,019	2,603,324	914,719	505,940	41,094	386,565	477,908	989,067	226,201	1,385,442	62,665
2009	4,688,999	1,196,990	2,561,740	861,911	544,244	38,232	332,291	420,222	809,515	630,047	788,135	64,447

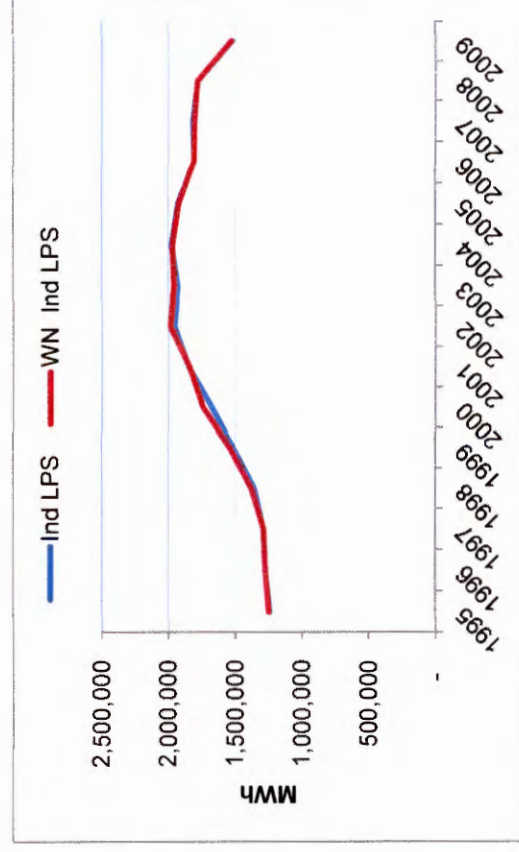
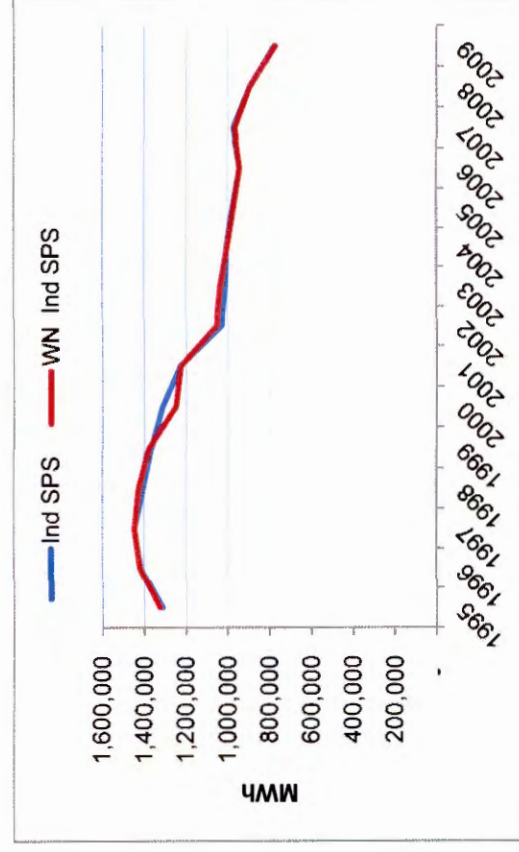
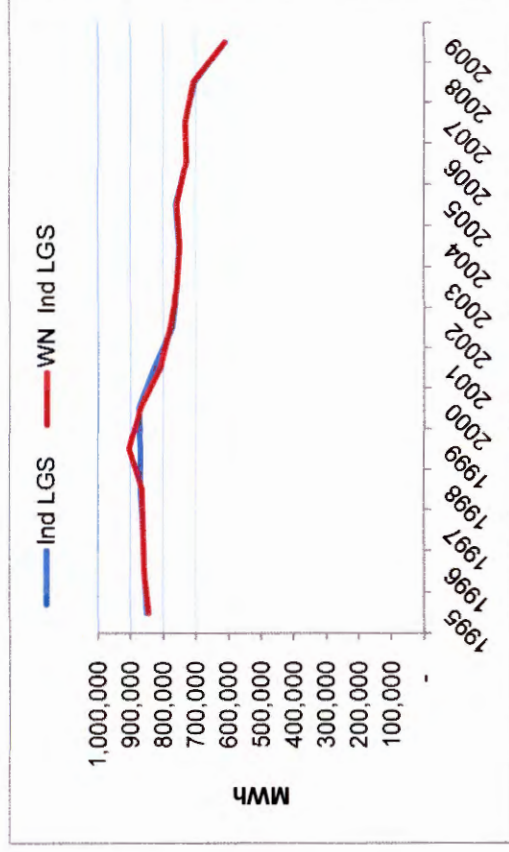
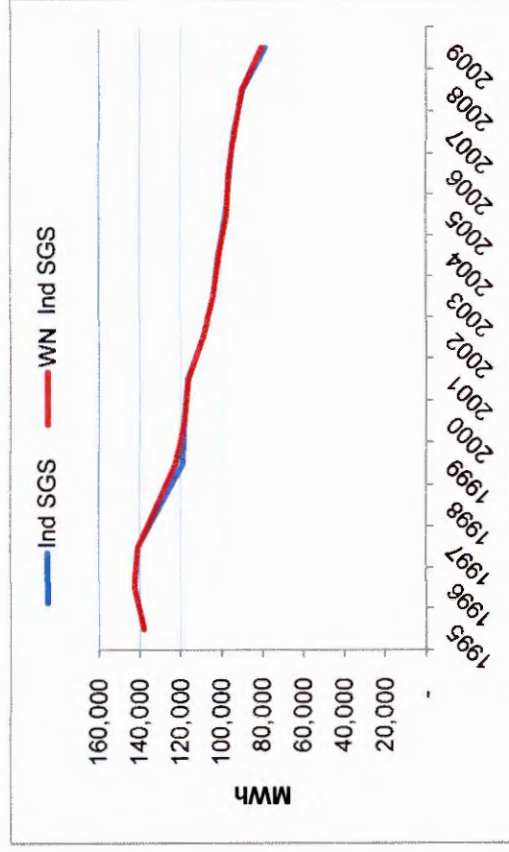
Historical Actual and Weather Normalized Total Energy Usage (Total Billed Sales) by Classes for Non-Summer Months (1995-2009)⁷



⁷ 4 CSR 240-22.030(8)(A), 4 CSR 240-22.030(8)(A)1, 4 CSR 240-22.030(8)(A)2.A; EO-2007-0409 – Stipulation and Agreement #8

* A change in the methodology of reporting Lighting customers took place 1999. Lighting usage data after this change was used for forecasting





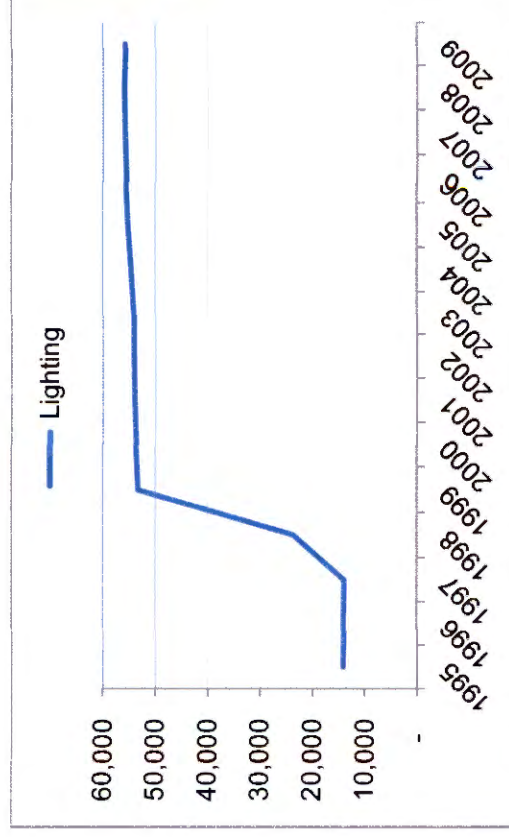
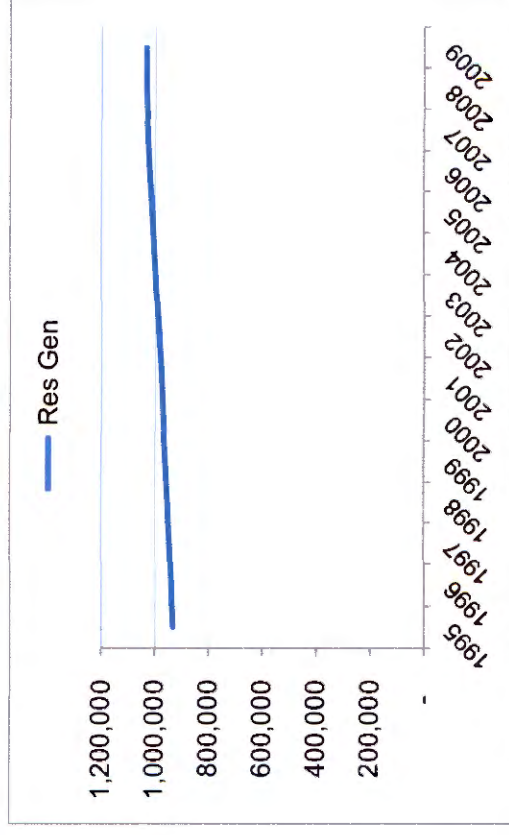
Historical Actual Total Energy Usage (Total Billed Sales) for Non-Summer Months (MWh)

Year	Res Gen	Com SGS	Com LGS	Com SPS	Com LPS	Ind SGS	Ind LGS	Ind SPS	Ind LPS	Wholesale	LTS	Lighting
1995	6,256,952	1,828,538	3,107,264	1,361,018	530,439	138,072	849,837	1,312,472	1,237,597	270,892		150,937
1996	6,829,957	1,924,832	3,271,900	1,448,810	551,225	142,677	857,200	1,416,001	1,271,671	289,504		152,230
1997	6,835,970	1,924,038	3,321,882	1,429,966	607,550	140,937	862,105	1,445,222	1,285,861	309,365		155,027
1998	6,761,764	1,984,536	3,296,557	1,471,816	600,156	129,852	869,450	1,404,945	1,356,894	318,433		152,078
1999	6,722,589	2,071,399	3,708,265	1,571,613	627,784	118,866	868,472	1,364,766	1,515,440	328,340		129,373
2000	7,010,828	2,078,652	3,747,532	1,587,363	647,052	118,377	874,622	1,311,918	1,675,717	343,442		123,227
2001	7,362,847	2,097,700	3,842,600	1,578,897	590,350	116,545	827,425	1,227,494	1,847,531	343,996		119,112
2002	7,609,124	2,129,427	3,869,494	1,647,364	634,560	109,203	772,179	1,029,000	1,954,501	349,671		155,317
2003	7,594,363	2,034,080	4,078,694	1,675,688	672,978	103,917	757,719	1,011,436	1,926,889	360,346		166,054
2004	7,809,461	2,132,990	4,076,731	1,714,821	700,933	101,517	750,937	1,003,959	1,973,181	377,454		167,402
2005	8,165,122	2,188,984	4,238,196	1,642,802	775,703	97,850	760,332	974,708	1,926,628	386,701	990,830	168,249
2006	7,947,184	2,145,066	4,256,726	1,601,408	822,456	95,948	728,673	940,717	1,806,272	375,851	2,707,074	167,614
2007	8,623,905	2,269,396	4,535,048	1,643,762	883,810	94,144	733,962	974,433	1,816,160	400,917	2,716,212	170,157
2008	8,926,368	2,285,746	4,607,439	1,616,341	884,544	89,730	704,218	894,344	1,777,655	393,974	2,743,326	170,629
2009	8,664,559	2,185,331	4,523,355	1,546,669	937,961	78,612	610,424	776,095	1,520,774	914,337	1,711,894	167,078

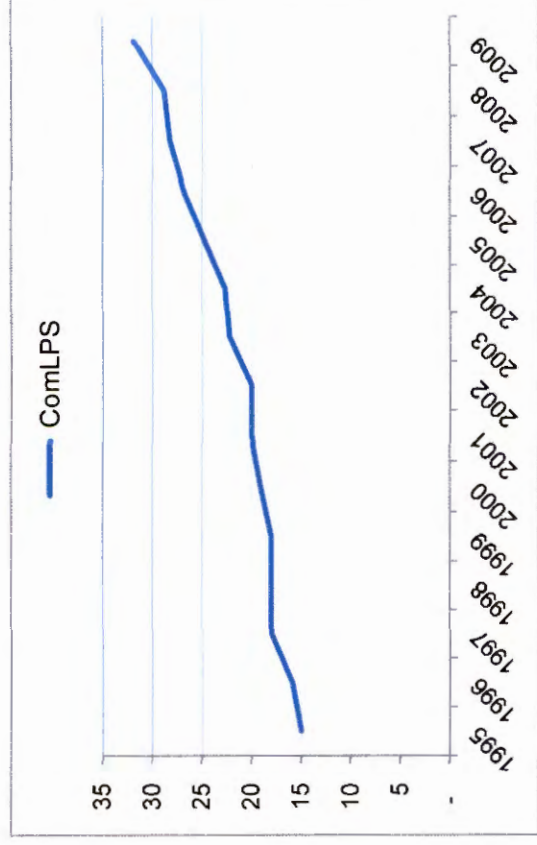
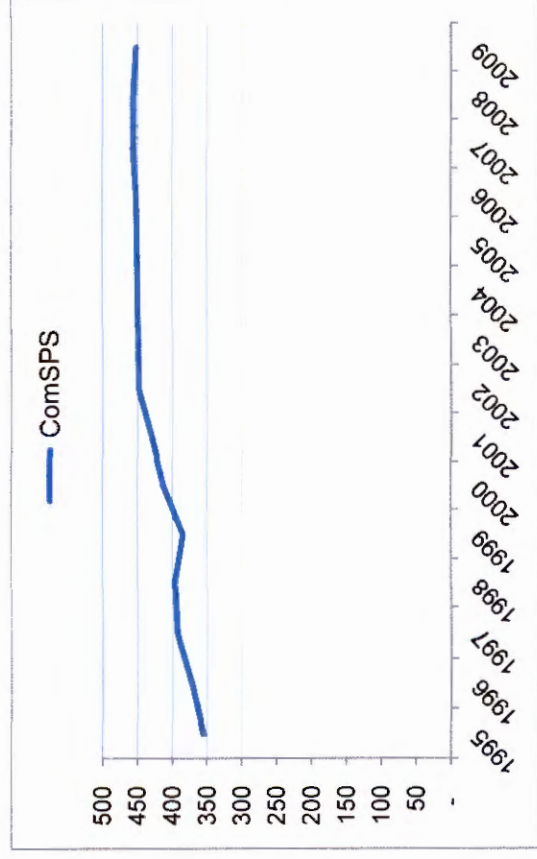
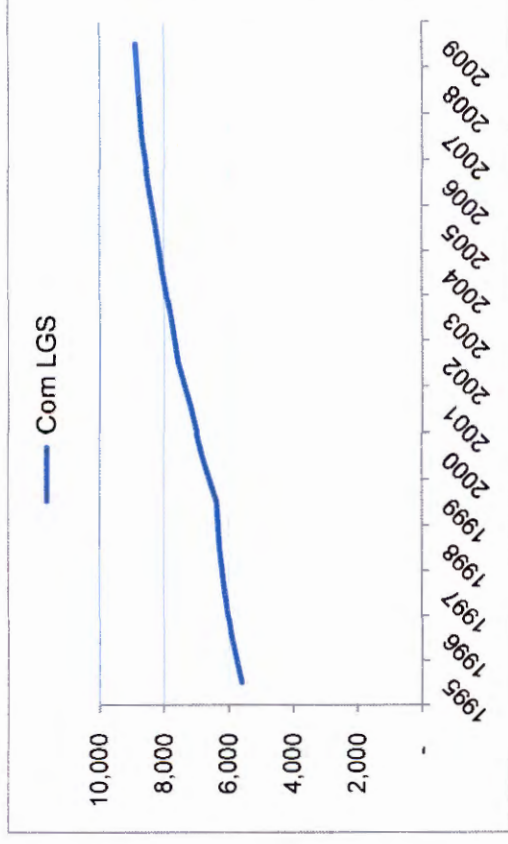
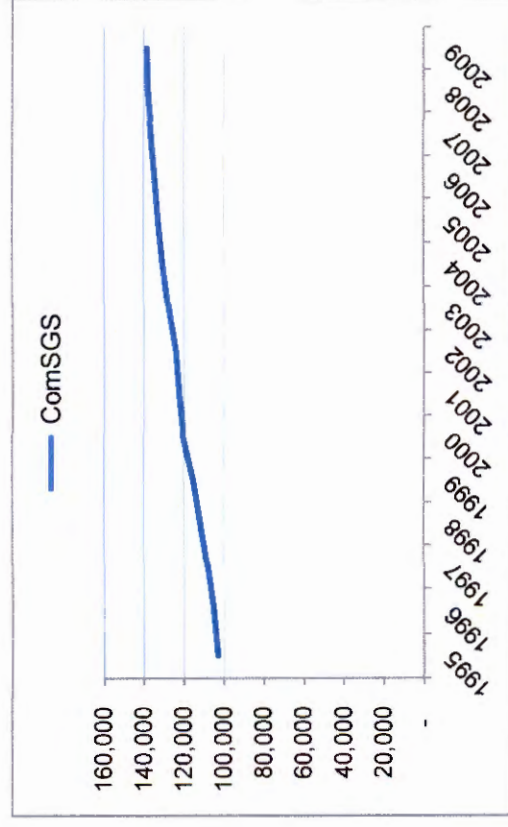
Historical Weather Normalized Energy Usage (Total Billed Sales) for Non-Summer Months (MWh)

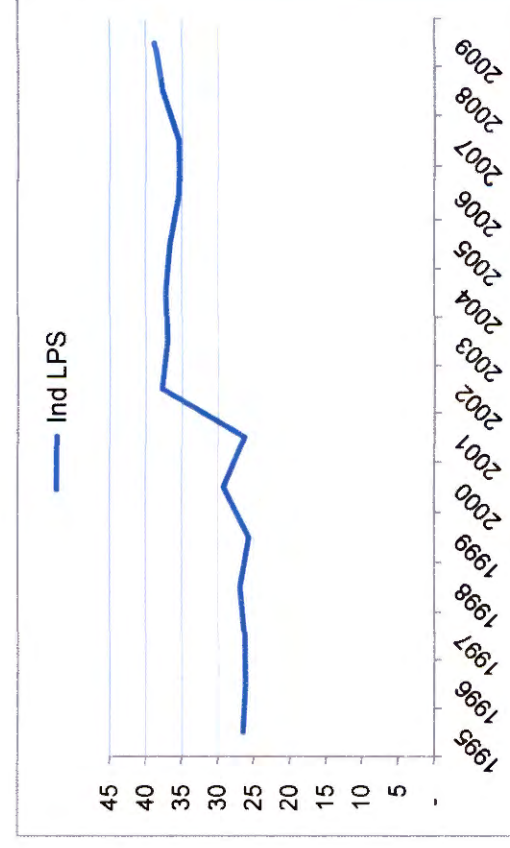
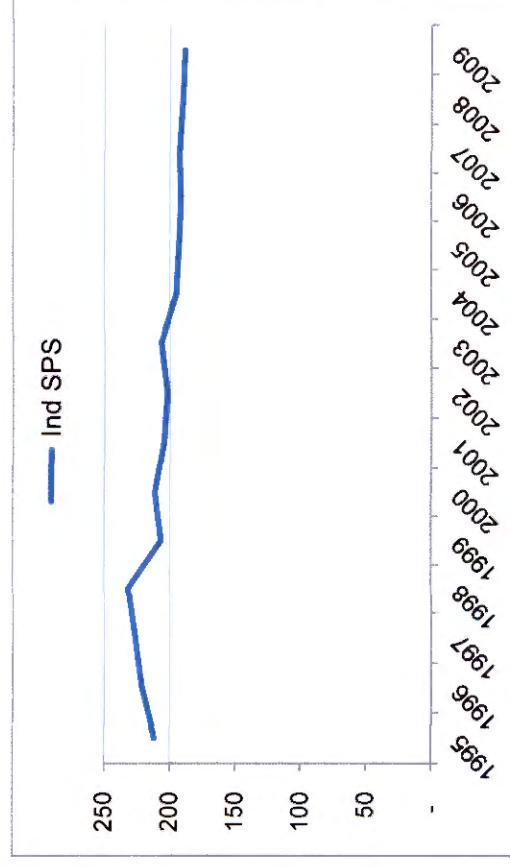
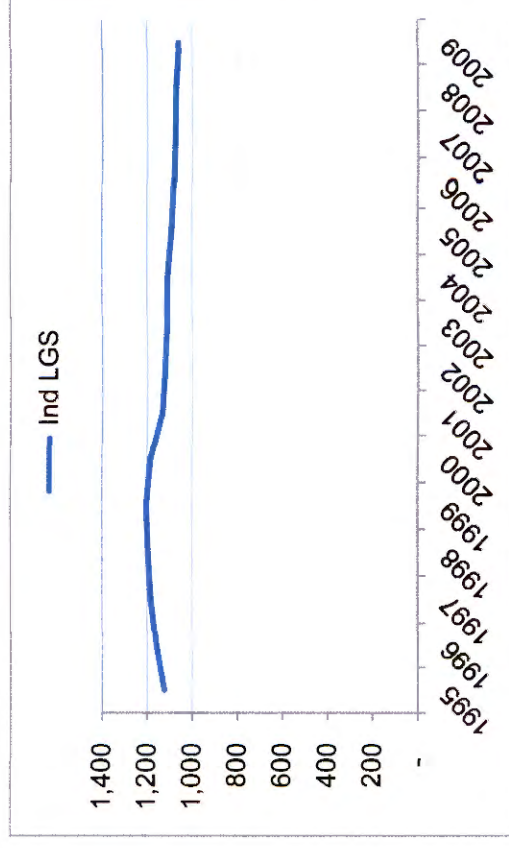
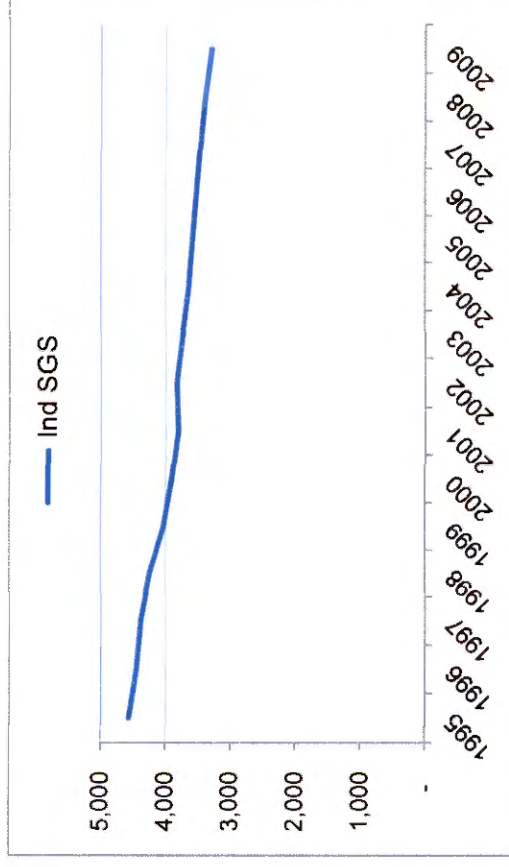
Year	Res Gen	Com SGS	Com LGS	Com SPS	Com LPS	Ind SGS	Ind LGS	Ind SPS	Ind LPS	Wholesale	LTS	Lighting
1995	6,539,781	1,854,986	3,146,508	1,366,963	530,511	138,145	844,005	1,324,429	1,244,696	274,831		150,937
1996	6,712,276	1,912,851	3,265,894	1,457,770	551,281	142,870	858,456	1,418,023	1,273,574	284,563		152,230
1997	6,835,150	1,931,399	3,321,824	1,419,312	607,528	140,832	861,552	1,444,514	1,285,074	306,968		155,027
1998	7,073,535	2,021,112	3,439,108	1,452,218	598,117	131,645	864,481	1,425,126	1,379,163	316,802		152,078
1999	7,125,354	2,023,065	3,685,282	1,515,436	616,808	120,854	904,268	1,373,704	1,538,279	331,706		129,373
2000	7,222,873	2,047,356	3,759,880	1,578,653	647,455	118,161	869,910	1,246,913	1,741,630	343,062		123,227
2001	7,354,942	2,083,504	3,834,572	1,583,837	610,751	116,293	809,404	1,223,838	1,841,908	342,203		119,112
2002	7,781,066	2,143,988	3,879,957	1,641,104	634,473	108,994	778,986	1,052,775	1,986,769	349,589		155,317
2003	7,843,663	2,128,162	4,101,514	1,679,324	672,976	103,917	757,683	1,033,948	1,953,709	362,179		166,054
2004	8,111,339	2,165,592	4,089,529	1,711,623	700,816	101,266	748,699	1,000,925	1,967,350	374,520		167,402
2005	8,165,848	2,176,060	4,187,687	1,626,060	769,203	97,478	757,524	971,189	1,919,463	386,843	990,830	168,249
2006	8,426,400	2,207,842	4,308,286	1,602,773	823,425	96,488	729,875	941,088	1,807,532	377,982	2,707,074	167,614
2007	8,635,684	2,259,983	4,528,843	1,628,970	876,832	93,654	732,953	965,872	1,802,208	398,834	2,716,212	170,157
2008	9,027,951	2,300,506	4,632,087	1,618,885	885,189	90,219	707,755	895,650	1,780,073	394,622	2,743,326	170,629
2009	8,949,994	2,224,579	4,587,465	1,552,018	938,502	80,500	611,136	771,896	1,526,887	917,322	1,711,894	167,078

Number of Annual Units (Billed Customer Counts) by Class⁸



⁸ 4 CSR 240-22.030(8)(A), 4 CSR 240-22.030(8)(A)1

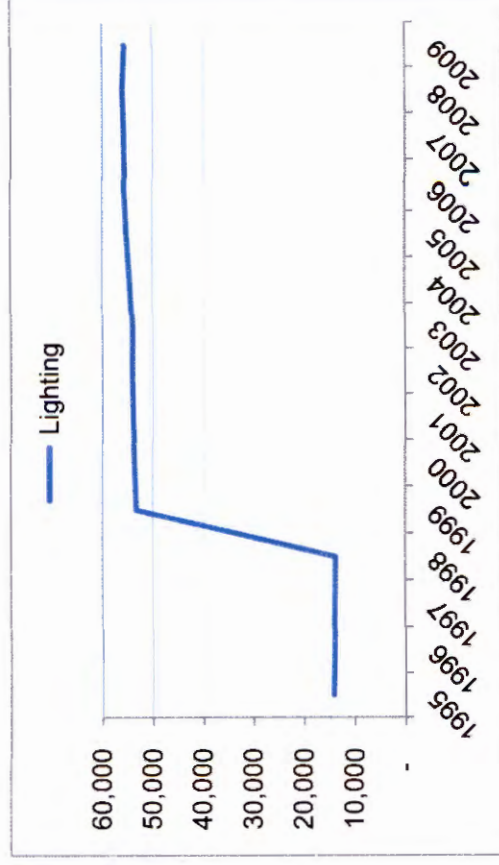
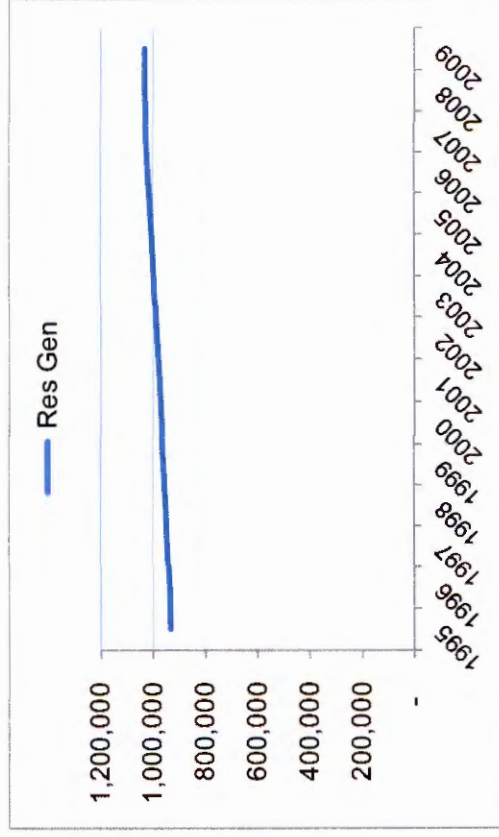




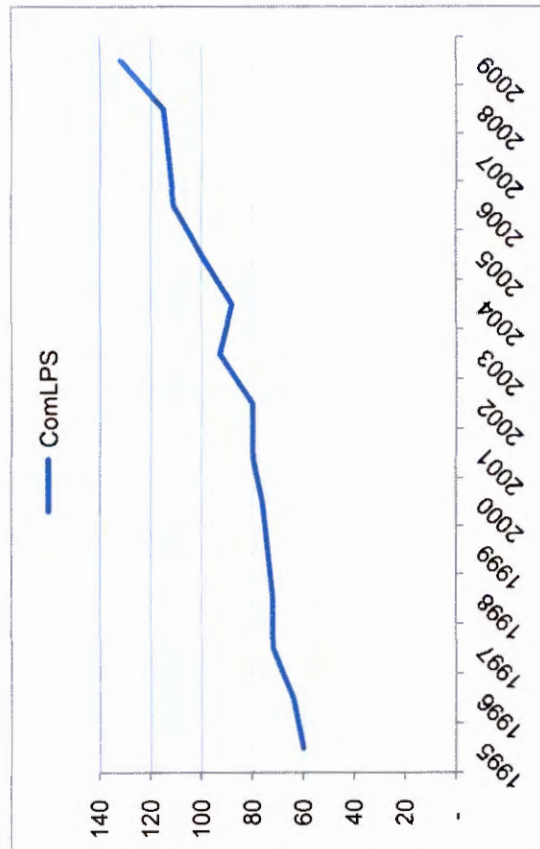
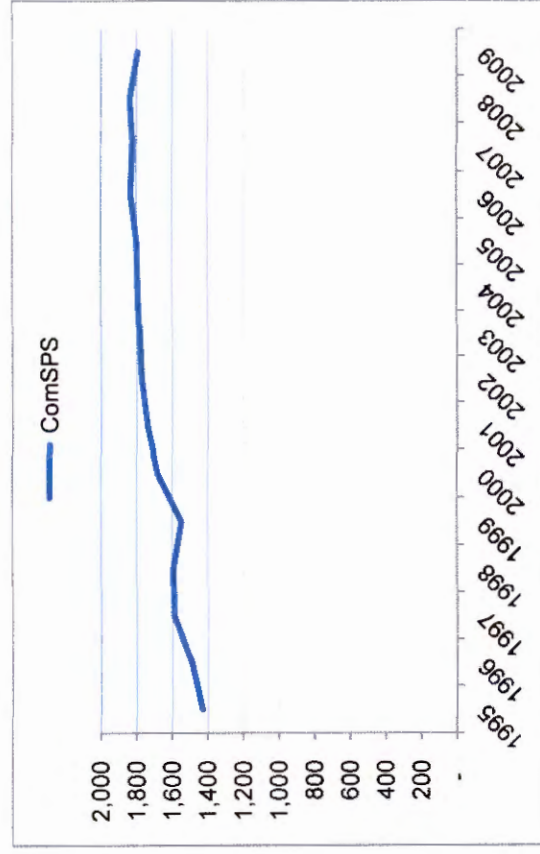
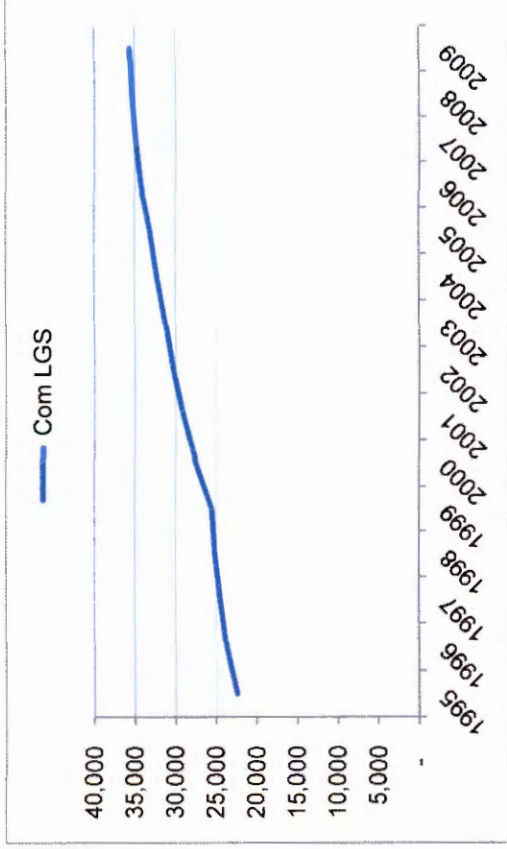
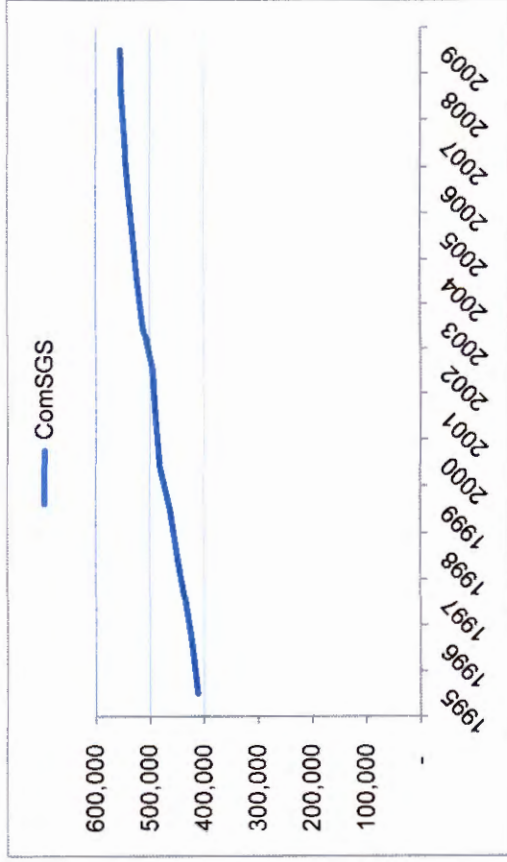
Number of Annual Units (Billed Customer Counts) by Class

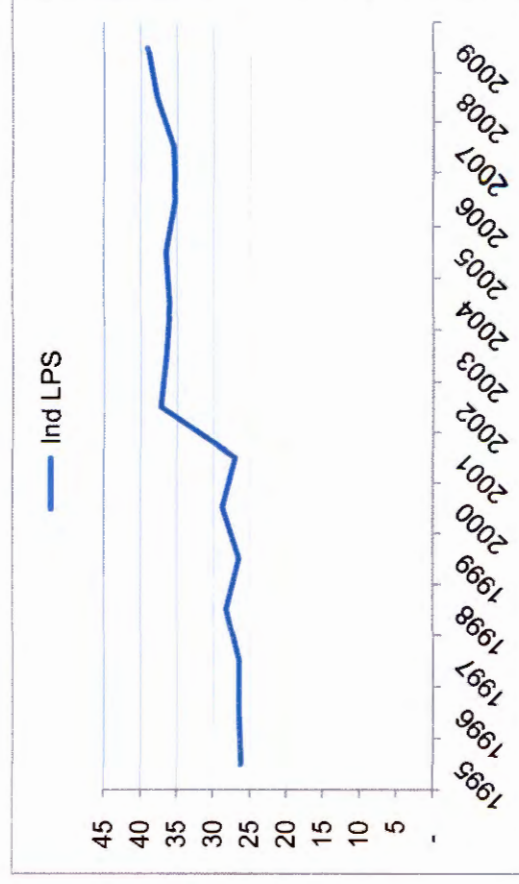
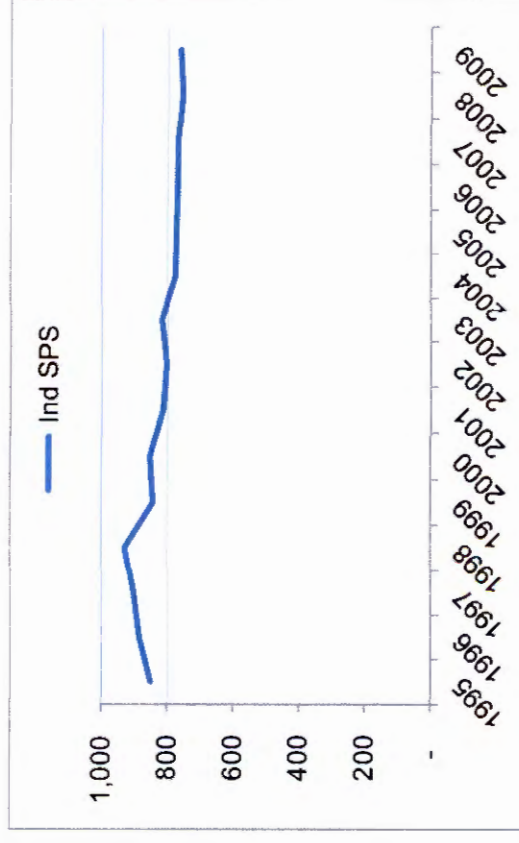
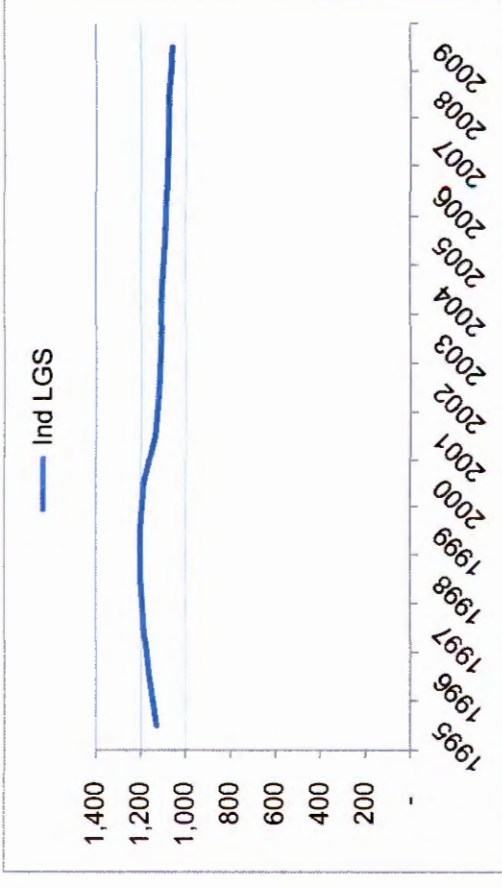
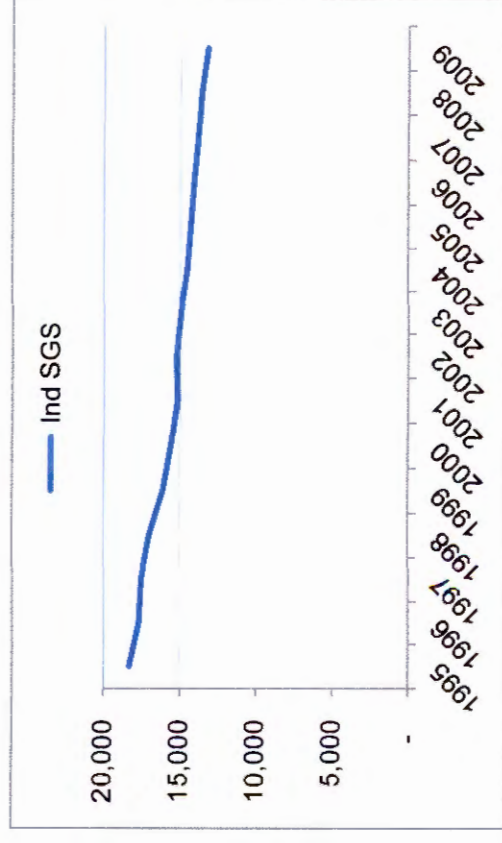
Year	Res Gen	Com SGS	Com LGS	Com SPS	Com LPS	Ind SGS	Ind LGS	Ind SPS	Ind LPS	LTS	Lighting
1995	933,588	102,913	5,597	355	15	4,571	1,123	212	26		14,139
1996	939,004	105,155	5,904	372	16	4,451	1,160	221	26		14,053
1997	945,607	108,184	6,112	393	18	4,387	1,183	226	26		13,920
1998	953,120	111,678	6,274	396	18	4,247	1,196	232	27		23,669
1999	961,048	115,221	6,370	384	18	4,032	1,203	207	26		53,281
2000	969,485	120,342	6,815	413	19	3,905	1,184	211	29		53,636
2001	975,924	122,495	7,164	429	20	3,806	1,133	205	26		53,917
2002	984,448	124,006	7,566	449	20	3,833	1,122	202	38		54,054
2003	993,142	127,666	7,791	449	22	3,738	1,112	207	37		54,034
2004	1,001,447	130,506	8,038	449	23	3,640	1,108	195	37		54,528
2005	1,010,857	132,718	8,251	450	25	3,584	1,091	193	37	1	55,148
2006	1,020,482	134,612	8,498	452	27	3,527	1,082	191	35	1	55,538
2007	1,027,667	136,332	8,689	456	28	3,465	1,076	193	35	1	55,762
2008	1,032,902	137,974	8,808	456	29	3,398	1,072	190	38	1	55,911
2009	1,033,360	138,443	8,888	452	32	3,294	1,059	189	39	1	55,634

Number of Units (Billed Customer Counts) for Summer Months⁹



⁹ 4 CSR 240-22.030(8)(A), 4 CSR 240-22.030(8)(A)1

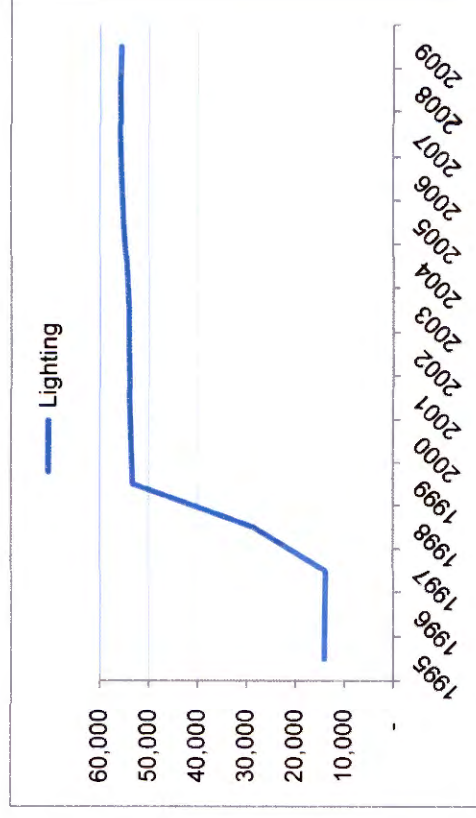
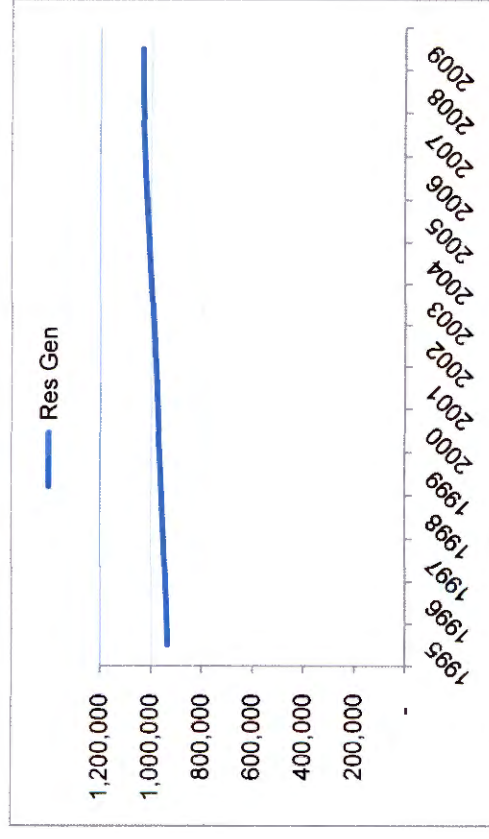




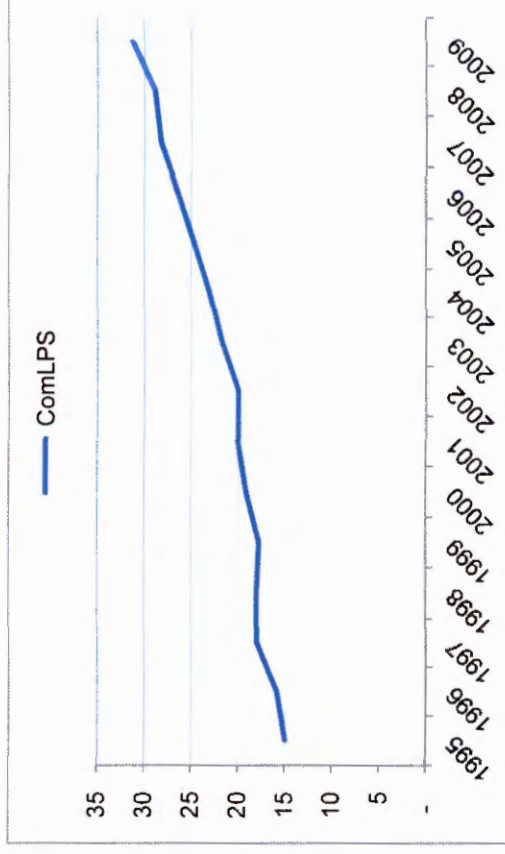
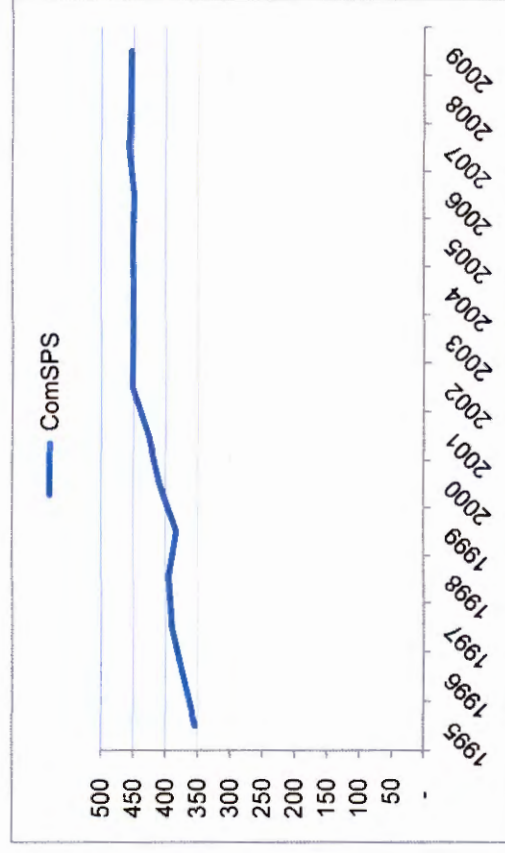
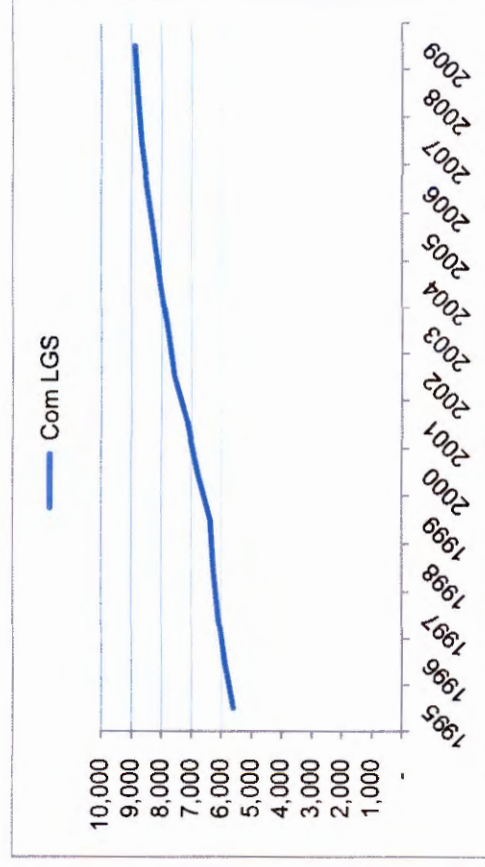
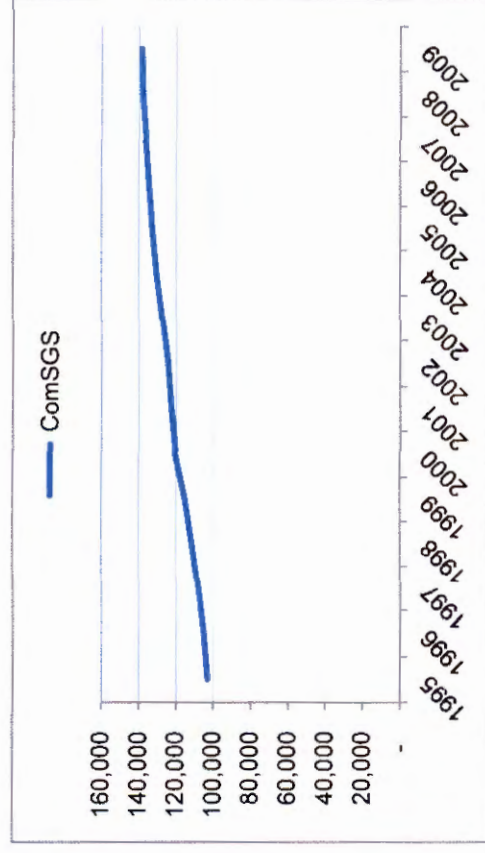
Number of Units (Billed Customer Counts) for Summer Months

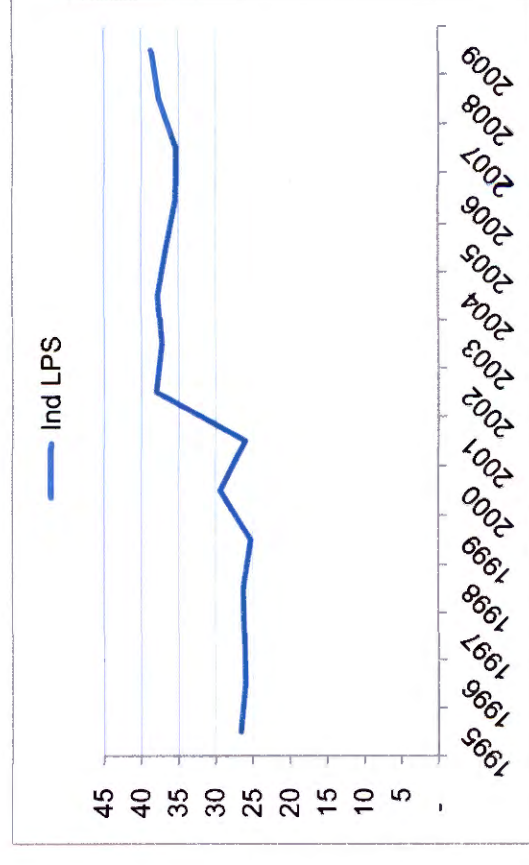
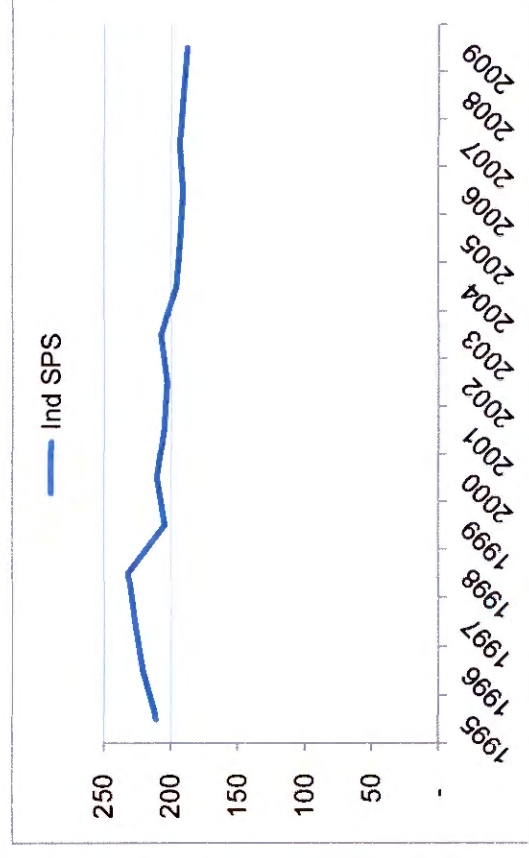
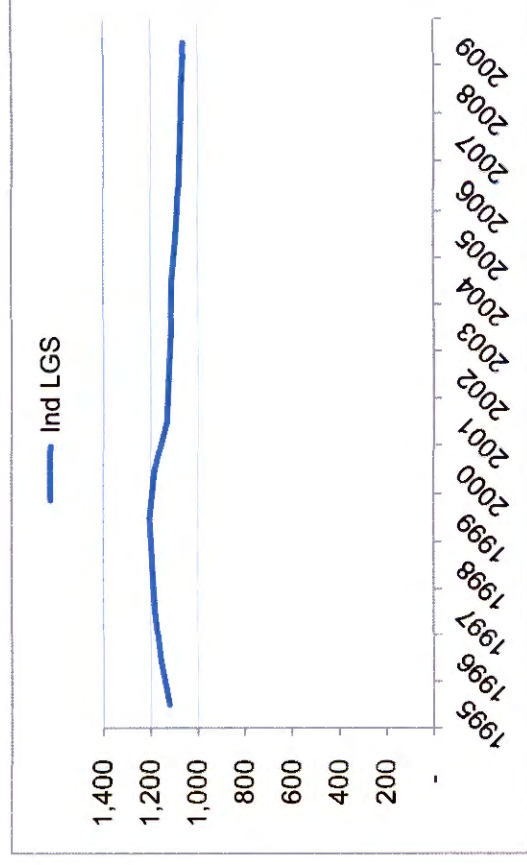
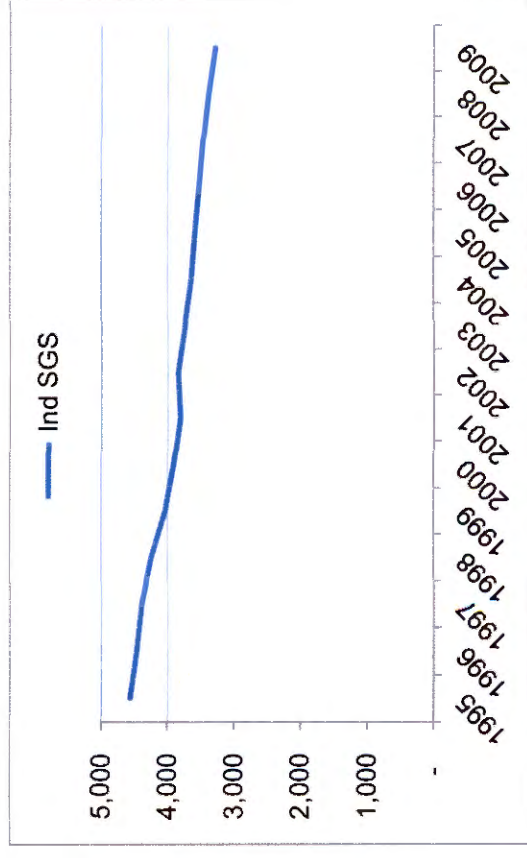
	Res Gen	Com SGS	Com LGS	Com SPS	Com LPS	Ind SGS	Ind LGS	Ind SPS	Ind LPS	LTS	Lighting
1995	932,486	102,925	5,601	358	15	4,579	1,130	213	26		14,159
1996	937,307	105,345	5,933	373	16	4,419	1,164	222	26		14,057
1997	944,987	108,607	6,127	398	18	4,381	1,187	225	26		13,916
1998	952,180	112,314	6,291	398	18	4,249	1,201	232	28		13,804
1999	960,312	115,532	6,380	387	18	4,024	1,202	211	26		53,300
2000	968,320	120,652	6,858	420	19	3,893	1,186	213	29		53,637
2001	974,729	122,520	7,246	434	20	3,792	1,136	204	27		53,926
2002	985,070	123,643	7,571	442	20	3,808	1,118	201	37		54,051
2003	993,485	128,116	7,801	445	23	3,730	1,110	205	36		53,980
2004	1,001,343	130,604	8,063	448	22	3,626	1,106	194	36		54,531
2005	1,010,365	132,833	8,288	449	25	3,572	1,091	193	37	1	55,148
2006	1,020,511	134,794	8,560	458	28	3,523	1,084	192	35	1	55,587
2007	1,027,781	136,569	8,727	455	28	3,453	1,079	192	36	1	55,725
2008	1,032,636	138,147	8,845	460	29	3,405	1,076	189	38	1	56,019
2009	1,032,708	138,529	8,905	448	33	3,297	1,058	190	39	1	55,601

Number of Units (Billed Customer Counts) for Non-Summer Months¹⁰



¹⁰ 4 CSR 240-22.030(8)(A), 4 CSR 240-22.030(8)(A)1



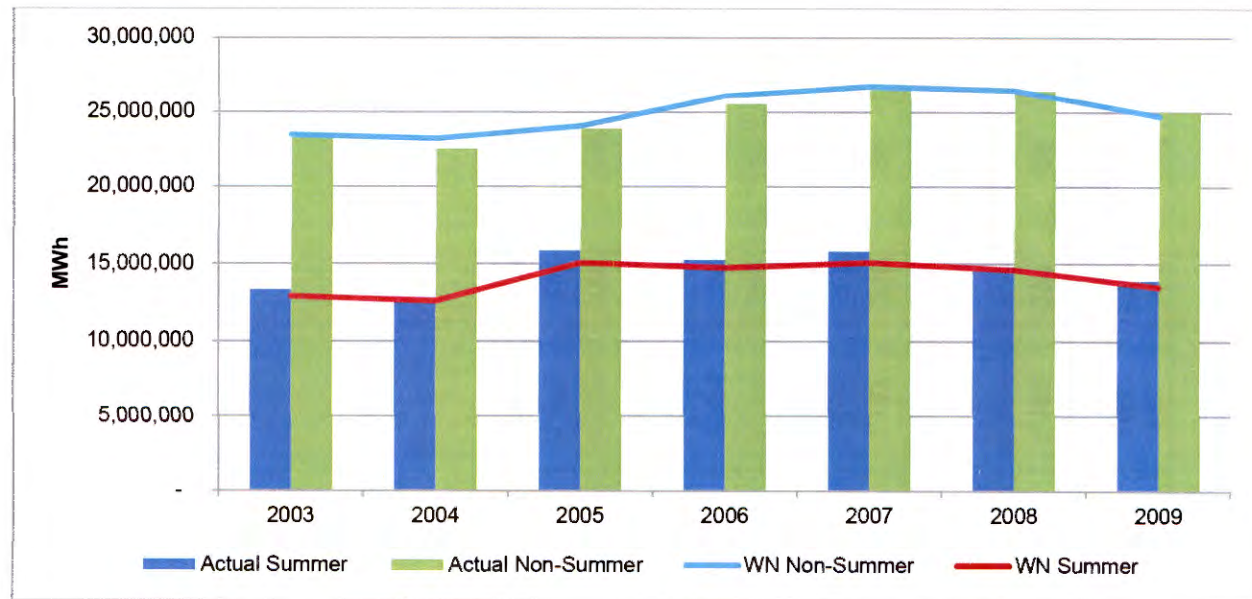


Number of Units (Billed Customer Counts) for Non-Summer Months

	Res Gen	Com SGS	Com LGS	Com SPS	Com LPS	Ind SGS	Ind LGS	Ind SPS	Ind LPS	LTS	Lighting
1995	934,140	102,908	5,594	354	15	4,567	1,120	211	27		14,129
1996	939,852	105,059	5,890	372	16	4,467	1,158	221	26		14,051
1997	945,917	107,973	6,104	390	18	4,389	1,181	227	26		13,922
1998	953,590	111,361	6,265	395	18	4,246	1,193	232	26		28,601
1999	961,415	115,066	6,365	383	18	4,037	1,204	204	25		53,272
2000	970,068	120,187	6,794	409	19	3,911	1,182	210	29		53,636
2001	976,521	122,482	7,123	427	20	3,813	1,131	205	26		53,912
2002	984,137	124,188	7,563	452	20	3,845	1,123	203	38		54,056
2003	992,971	127,440	7,786	451	22	3,742	1,114	208	37		54,061
2004	1,001,499	130,457	8,026	450	23	3,647	1,108	196	38		54,526
2005	1,011,103	132,661	8,233	451	25	3,590	1,091	193	37	0	55,149
2006	1,020,468	134,522	8,468	449	26	3,530	1,080	191	35	1	55,514
2007	1,027,611	136,214	8,671	457	28	3,471	1,075	193	35	1	55,781
2008	1,033,036	137,888	8,790	455	29	3,395	1,070	191	38	1	55,856
2009	1,033,686	138,399	8,879	454	31	3,293	1,059	188	39	1	55,651

Historical Net System Load¹¹

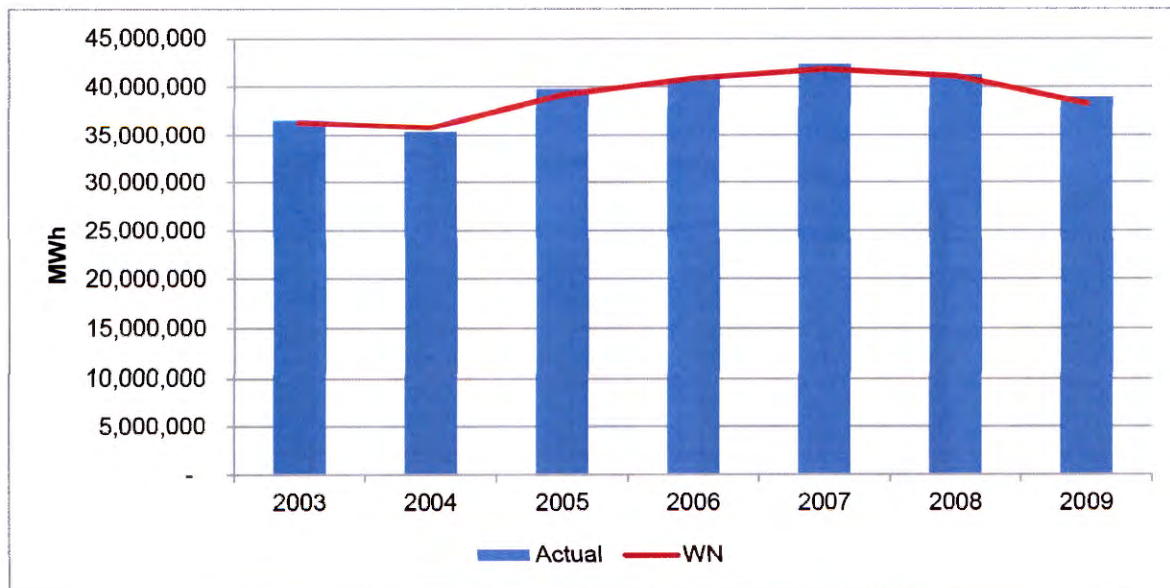
Historical Actual and Weather Normalized Summer and Non-Summer Net System Energy (MWh)



Historical Actual and Weather Normalized Summer and Non-Summer Net System Energy (MWh)

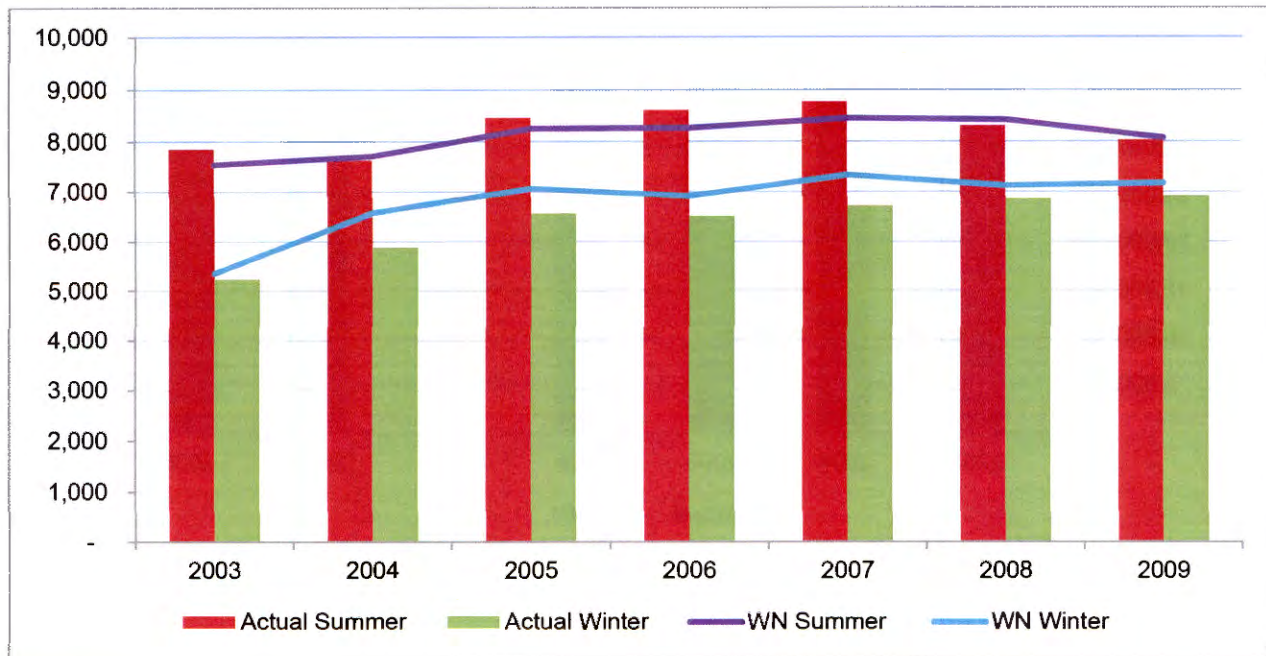
Year	Summer Actual	Summer Normal	Non-Summer Actual	Non-Summer Normal
2003	13,330,300	12,900,028	23,255,843	23,466,458
2004	12,818,012	12,612,492	22,551,491	23,203,135
2005	15,882,006	15,078,677	23,887,724	24,062,084
2006	15,291,183	14,748,826	25,574,514	26,102,261
2007	15,845,771	15,098,676	26,518,318	26,742,337
2008	14,835,590	14,631,631	26,450,230	26,473,431
2009	13,930,058	13,502,583	25,017,244	24,721,619

¹¹ 4 CSR 240-22.030(8)(D), 4 CSR 240-22.030(8)(D)1, 4 CSR 240-22.030(8)(D)3

Annual Actual and Weather Normalized Net System Energy (MWh)**Annual Actual and Weather Normalized Net System Energy (MWh)**

	Actual	WN
2003	36,586,143	36,349,242
2004	35,369,503	35,815,626
2005	39,769,730	39,140,761
2006	40,865,697	40,851,087
2007	42,364,089	41,841,013
2008	41,285,819	41,105,062
2009	38,947,301	38,224,202

Historical Actual and Weather Normalized Summer and Winter System Peak Demand (MW)

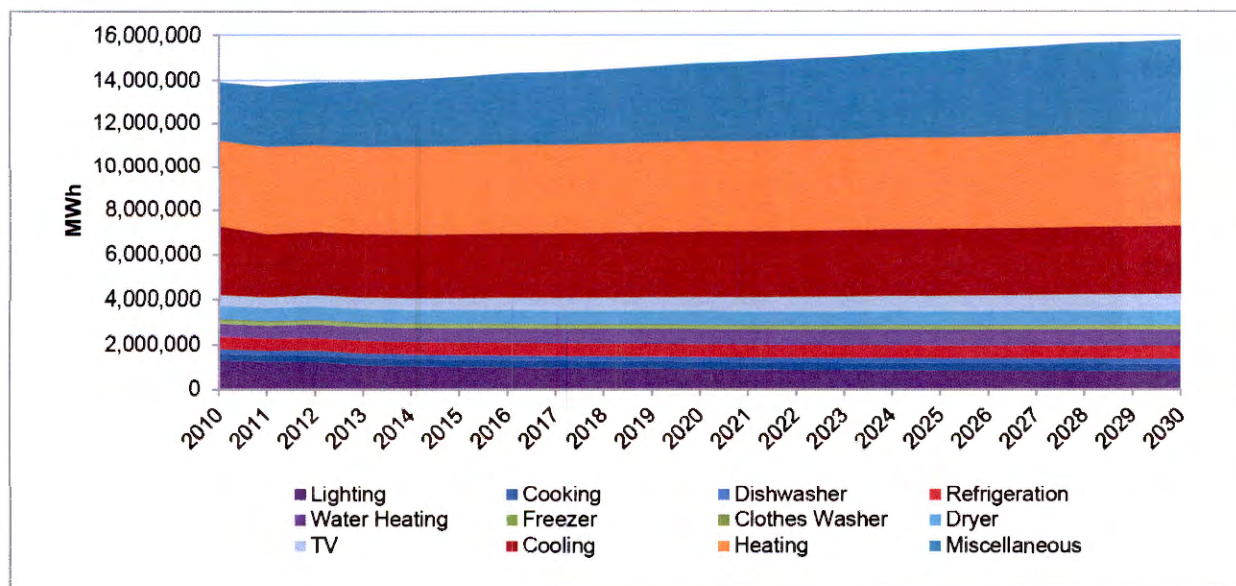


Actual System Peak: Actual and Weather Normalized (MW)

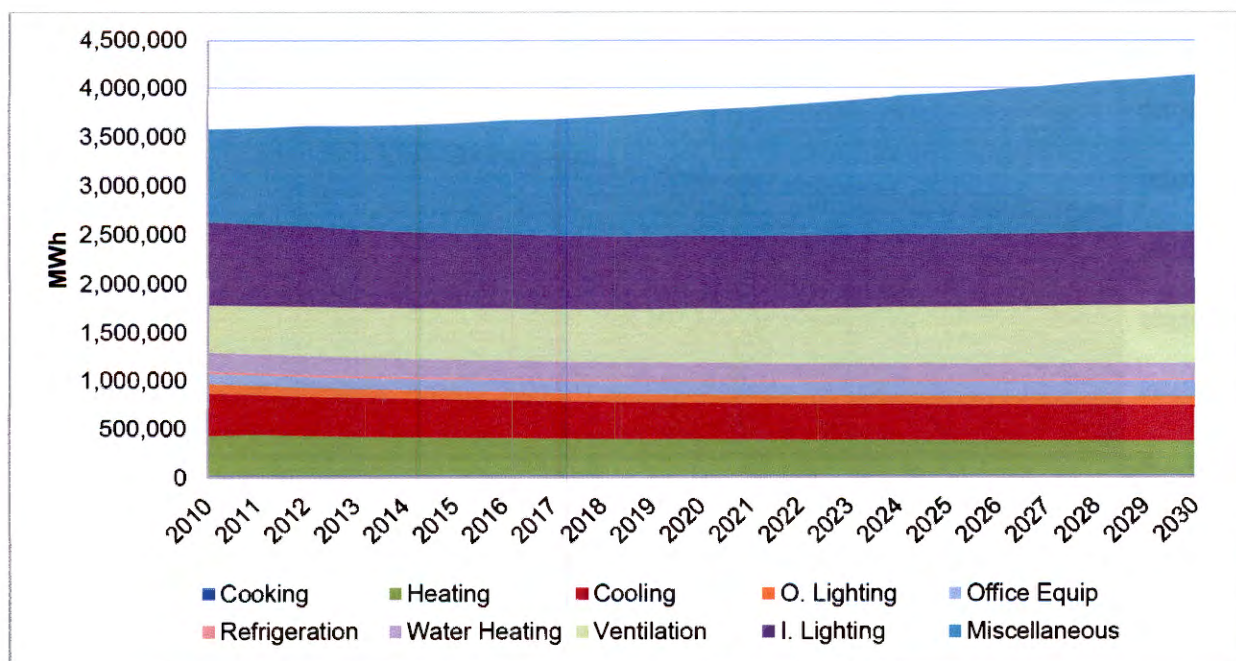
Year	Actual Summer	Actual Winter	WN Summer	WN Winter
2003	7,856	5,240	7,541	5,356
2004	7,634	5,886	7,709	6,573
2005	8,463	6,571	8,250	7,064
2006	8,605	6,510	8,261	6,908
2007	8,772	6,719	8,453	7,335
2008	8,307	6,861	8,418	7,124
2009	8,029	6,920	8,069	7,172

Annual Energy Forecast by End Use Component of Major Classes¹²

Residential Annual Energy Sales Forecast by End Use (MWh)

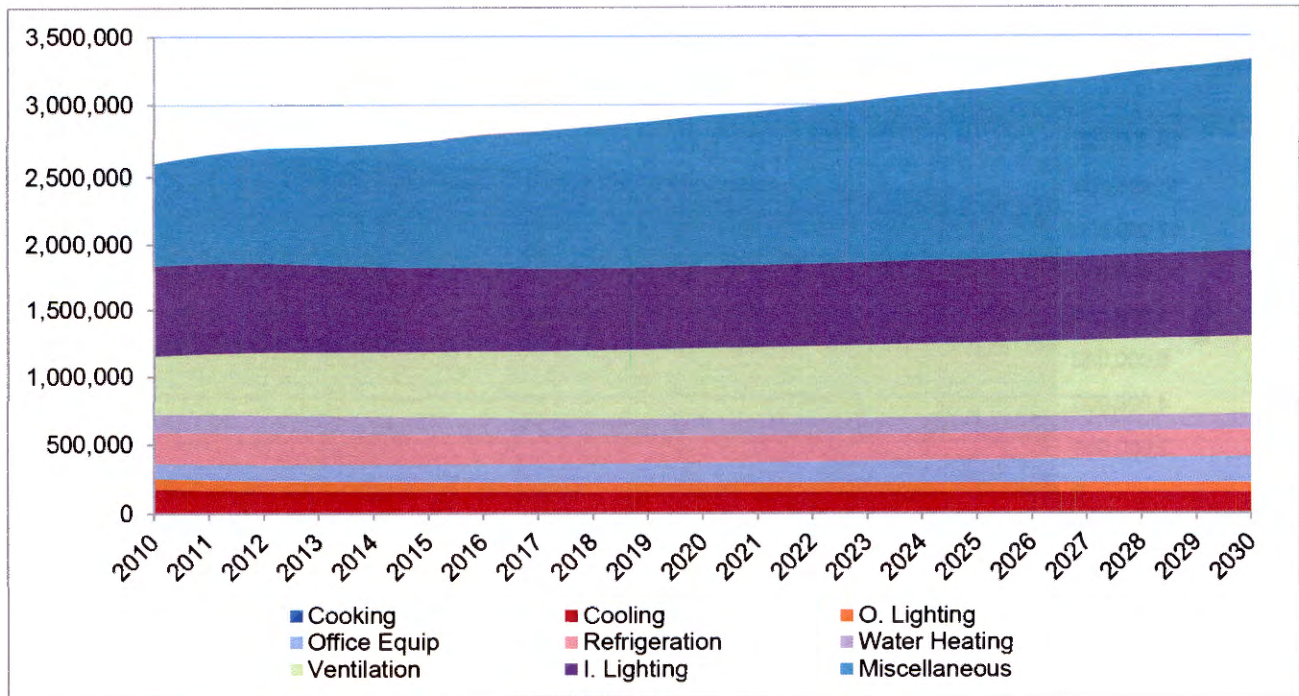


Commercial SGS Annual Energy Sales Forecast by End Use (MWh)

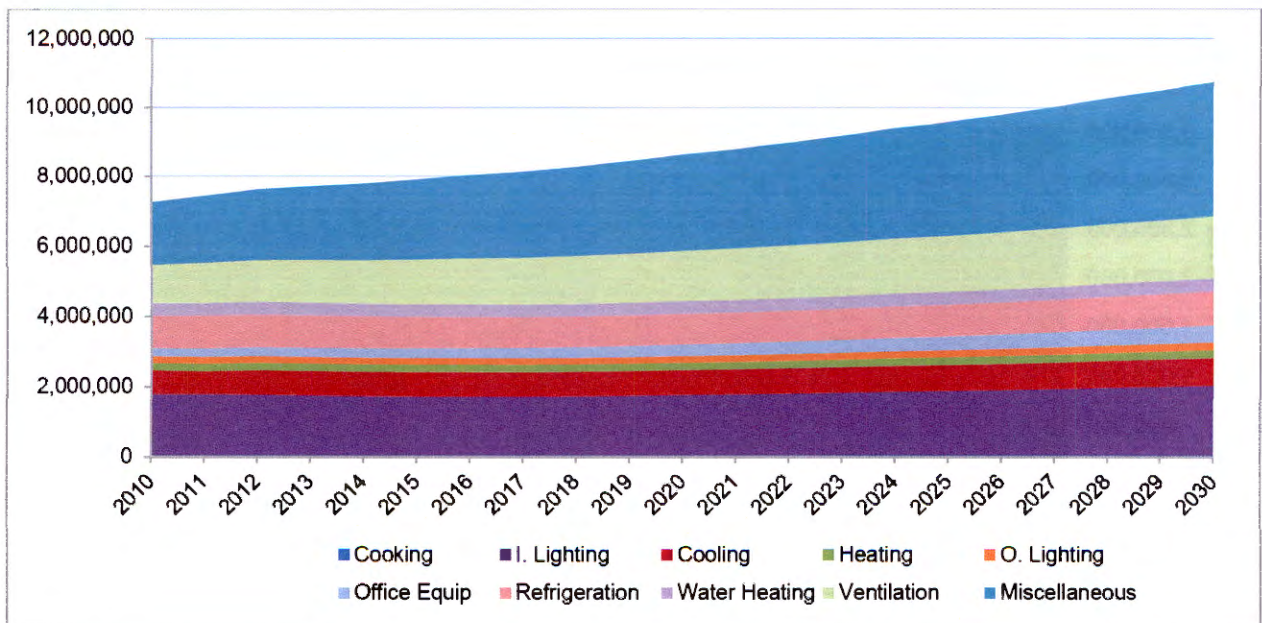


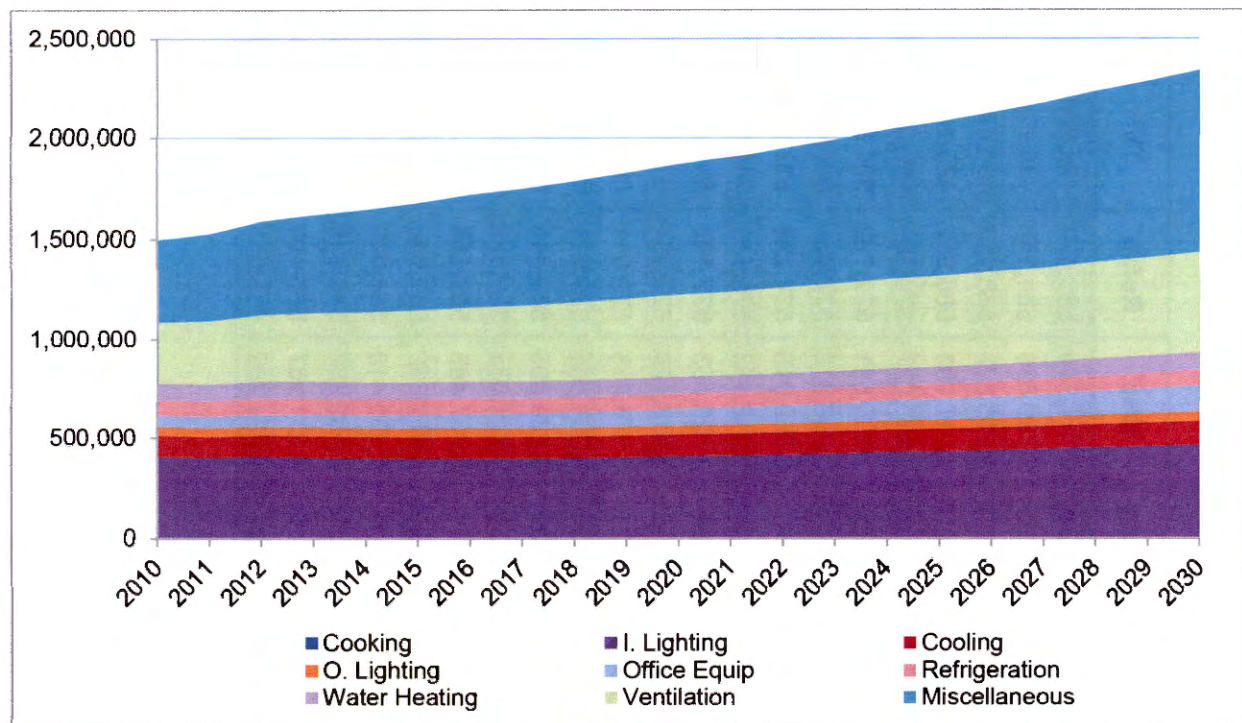
¹² 4 CSR 240-22.030(8)(A)2.B

Commercial SPS Annual Energy Sales Forecast by End Use (MWh)



Commercial LGS Annual Energy Sales Forecast by End Use (MWh)



Commercial LPS Annual Energy Sales Forecast by End Use (MWh)

Residential Annual Energy Sales Forecast by End Use (MWh)

Year	Washer	Dryer	Cooking	Cooling	Dish-washer	Freezer	Heating	Lighting	Misc	Refrig	TV	Water Heating
2010	64,828	592,837	295,069	3,109,541	217,196	149,056	3,913,132	1,295,249	2,715,295	566,400	429,908	575,841
2011	61,563	581,061	291,408	2,842,189	211,729	144,405	3,996,909	1,233,589	2,790,688	554,550	435,276	575,172
2012	61,171	595,779	301,927	2,846,559	216,187	146,555	3,974,633	1,233,926	2,910,864	568,120	460,484	601,929
2013	59,449	596,564	303,676	2,856,213	215,853	145,605	3,983,832	1,098,713	3,017,703	568,957	475,143	614,157
2014	57,961	597,748	306,280	2,864,069	215,880	145,061	4,009,093	1,047,421	3,115,027	570,424	490,029	626,552
2015	56,698	598,815	308,843	2,875,223	216,046	144,810	4,032,879	1,017,258	3,205,561	572,132	504,800	638,469
2016	55,818	600,920	312,647	2,886,840	216,754	145,059	4,077,002	1,000,450	3,298,010	574,961	520,422	651,507
2017	54,869	598,913	312,487	2,897,819	216,090	144,581	4,066,514	975,891	3,366,015	574,225	532,366	658,891
2018	54,377	598,718	313,985	2,911,587	216,131	144,660	4,078,356	960,885	3,442,183	575,141	545,683	667,777
2019	54,220	599,707	315,948	2,934,460	216,593	145,093	4,096,335	950,364	3,523,053	577,102	559,805	677,113
2020	54,345	602,212	319,342	2,947,719	217,544	145,860	4,136,733	919,232	3,610,494	579,554	575,033	687,658
2021	54,266	601,670	319,194	2,962,065	217,306	145,877	4,125,860	895,471	3,676,815	579,011	586,919	693,181
2022	54,383	603,152	320,682	2,976,602	217,747	146,259	4,139,762	881,395	3,751,865	579,911	600,260	700,474
2023	54,502	604,851	322,028	2,990,452	218,284	146,585	4,153,806	870,429	3,824,865	580,648	613,348	707,093
2024	54,771	608,537	325,102	3,003,985	219,614	147,264	4,192,386	866,656	3,907,438	582,879	628,073	715,538
2025	54,735	609,143	324,532	3,016,492	219,948	147,168	4,180,063	854,067	3,967,465	582,158	639,300	718,942
2026	54,848	611,615	325,697	3,028,359	221,062	147,444	4,191,196	847,621	4,037,239	583,018	652,267	724,335
2027	54,961	614,224	326,814	3,040,086	222,306	147,721	4,201,395	841,506	4,105,410	584,010	665,321	729,584
2028	55,234	618,670	329,671	3,052,062	224,263	148,400	4,236,004	840,188	4,182,289	586,648	680,433	737,198
2029	55,219	619,922	328,905	3,065,403	225,083	148,360	4,221,162	828,710	4,231,267	586,490	692,112	740,137
2030	55,374	623,069	330,040	3,080,674	226,605	148,752	4,233,134	822,885	4,281,432	588,055	705,978	745,550

Commercial SGS Annual Energy Sales Forecast by End Use (MWh)

Year	Cooking	Cooling	Heating	Indoor Lighting	Misc	Outdoor Lighting	Office Equip	Refrigeration	Ventilation	Water Heating
2010	25,263	442,840	403,155	856,992	943,322	95,221	103,845	24,736	484,861	198,931
2011	25,141	413,479	417,093	836,383	980,963	92,931	106,770	24,286	494,422	197,749
2012	25,180	407,309	402,896	821,506	1,023,888	91,278	110,481	23,998	507,407	197,806
2013	24,900	405,086	394,344	800,527	1,054,530	88,947	112,843	23,407	512,589	195,196
2014	24,670	401,250	389,316	782,568	1,088,970	86,952	115,359	22,838	517,761	192,813
2015	24,470	397,501	383,977	769,613	1,123,855	85,513	117,932	22,295	525,431	190,415
2016	24,334	393,500	380,831	761,779	1,162,061	84,642	120,823	21,881	533,705	188,453
2017	24,072	389,661	373,930	752,216	1,190,566	83,580	123,060	21,400	538,424	185,486
2018	23,910	386,874	369,776	746,814	1,221,896	82,979	125,818	21,048	544,848	183,228
2019	23,771	383,473	366,758	745,017	1,253,472	82,780	128,724	20,757	551,278	181,139
2020	23,704	380,698	366,157	745,781	1,287,145	82,865	132,067	20,568	558,960	179,550
2021	23,526	378,800	361,863	743,207	1,314,903	82,579	134,848	20,318	563,634	177,097
2022	23,424	377,254	360,029	743,503	1,344,861	82,611	138,131	20,166	569,719	175,316
2023	23,330	376,083	358,271	744,357	1,376,208	82,706	141,535	20,051	574,702	173,574
2024	23,309	375,161	358,543	747,463	1,411,427	83,051	145,458	20,022	580,821	172,330
2025	23,161	374,327	354,714	746,098	1,439,887	82,900	148,675	19,896	583,456	170,055
2026	23,086	373,749	353,208	747,004	1,471,928	83,000	152,417	19,852	587,224	168,282
2027	23,019	373,418	351,922	748,266	1,503,826	83,141	156,294	19,833	590,878	166,534
2028	23,023	373,370	352,537	752,048	1,539,956	83,561	160,760	19,894	596,396	165,279
2029	22,909	373,126	349,100	752,080	1,567,130	83,564	164,490	19,869	598,665	163,150
2030	23,024	372,933	347,904	754,321	1,598,067	83,813	168,744	19,871	602,424	163,963

Commercial SPS Annual Energy Sales Forecast by End Use (MWh)

Year	Cooking	Cooling	Heating	Indoor Lighting	Miscellaneous	Outdoor Lighting	Office Equip	Refrigeration	Ventilation	Water Heating
2010	8,140	170,248	-	689,156	756,294	76,573	108,764	227,177	429,663	133,166
2011	8,292	159,755	-	688,448	805,025	76,494	114,465	228,313	448,471	135,497
2012	8,355	152,754	-	680,340	845,392	75,593	119,169	226,985	463,064	136,365
2013	8,286	152,330	-	664,847	873,161	73,872	122,061	222,017	469,121	134,947
2014	8,227	151,192	-	651,295	903,570	72,366	125,045	217,077	474,847	133,580
2015	8,176	150,072	-	641,772	934,349	71,308	128,086	212,329	482,829	132,178
2016	8,146	148,839	-	636,435	967,930	70,715	131,472	208,785	491,355	131,062
2017	8,073	147,653	-	629,603	993,500	69,956	134,153	204,566	496,612	129,236
2018	8,035	146,902	-	626,374	1,021,752	69,597	137,443	201,622	503,577	127,927
2019	8,006	145,929	-	626,228	1,050,439	69,581	140,924	199,266	510,630	126,743
2020	8,000	145,173	-	628,187	1,080,924	69,799	144,888	197,865	518,833	125,896
2021	7,957	144,762	-	627,373	1,106,624	69,708	148,259	195,888	524,304	124,445
2022	7,940	144,485	-	628,995	1,134,311	69,888	152,200	194,845	531,123	123,462
2023	7,926	144,354	-	631,114	1,163,323	70,124	156,296	194,163	536,955	122,507
2024	7,936	144,324	-	635,170	1,195,772	70,574	160,990	194,319	543,890	121,902
2025	7,903	144,315	-	635,399	1,222,556	70,600	164,911	193,513	547,555	120,556
2026	7,896	144,417	-	637,604	1,252,577	70,845	169,442	193,520	552,333	119,567
2027	7,891	144,623	-	640,166	1,282,697	71,130	174,156	193,791	557,062	118,600
2028	7,911	144,948	-	644,933	1,316,641	71,659	179,558	194,851	563,603	117,987
2029	7,891	145,203	-	646,518	1,343,109	71,835	184,169	195,072	567,113	116,748
2030	7,949	145,463	-	649,951	1,372,806	72,217	189,370	195,544	571,999	117,603

Commercial LGS Annual Energy Sales Forecast by End Use (MWh)

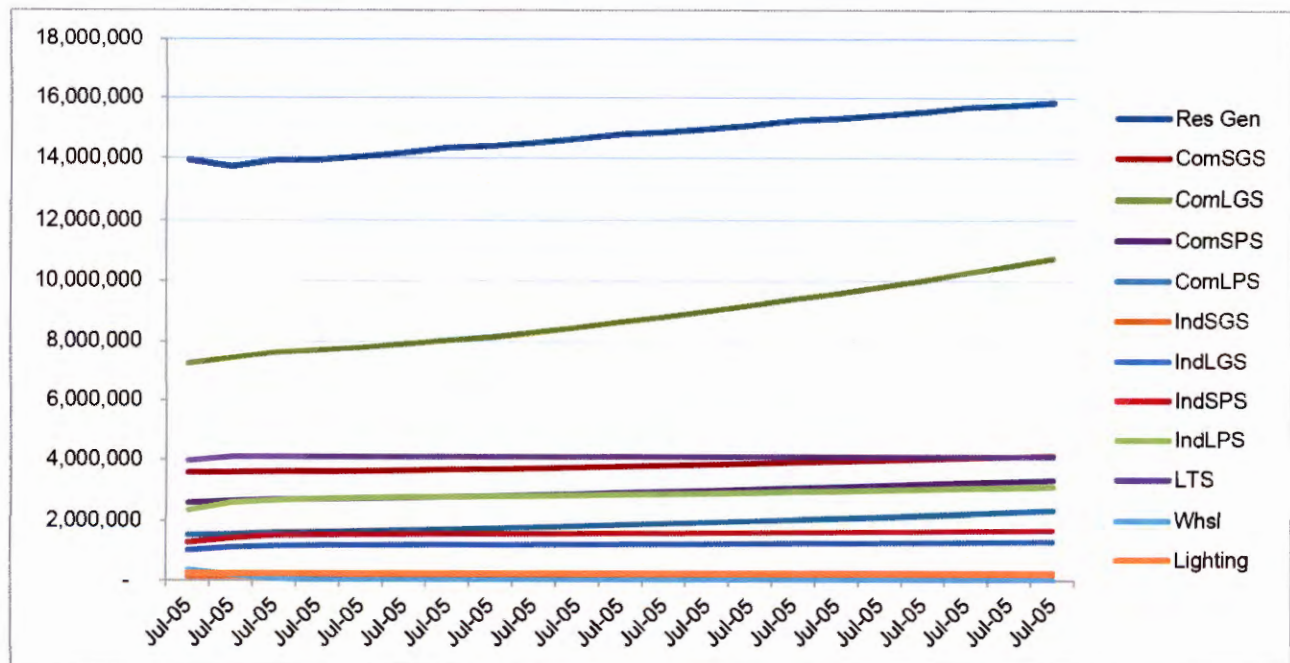
Year	Cooking	Cooling	Heating	Indoor Lighting	Miscellaneous	Outdoor Lighting	Office Equip	Refrigeration	Ventilation	Water Heating
2010	41,989	691,189	204,878	1,744,510	1,783,437	193,834	228,611	919,037	1,100,844	346,336
2011	42,875	656,716	216,977	1,746,857	1,902,858	194,095	241,165	925,825	1,151,760	353,235
2012	43,437	698,783	210,600	1,735,632	2,009,095	192,848	252,435	925,422	1,195,679	357,424
2013	43,496	702,948	210,142	1,712,616	2,095,290	190,291	261,079	913,978	1,223,109	357,151
2014	43,530	702,930	209,639	1,691,119	2,185,593	187,902	269,600	900,788	1,247,937	356,358
2015	43,647	703,849	208,905	1,681,269	2,280,219	186,808	278,620	888,950	1,280,242	355,766
2016	43,829	703,426	207,997	1,680,416	2,380,772	186,713	288,238	880,996	1,313,109	355,541
2017	43,808	703,586	207,600	1,676,576	2,464,536	186,286	296,627	870,564	1,338,493	353,582
2018	44,018	706,540	207,674	1,683,871	2,558,774	187,097	306,799	866,213	1,370,199	353,334
2019	44,312	709,026	208,591	1,700,882	2,657,810	188,987	317,821	864,941	1,403,750	353,685
2020	44,725	712,193	209,602	1,723,405	2,762,513	191,489	330,054	867,517	1,440,680	354,861
2021	44,945	717,361	210,986	1,738,885	2,857,302	193,209	341,210	867,690	1,470,855	354,381
2022	45,307	723,179	212,582	1,761,269	2,958,840	195,697	353,874	871,924	1,505,273	355,191
2023	45,696	729,905	214,303	1,785,582	3,066,081	198,398	367,177	877,910	1,537,632	356,107
2024	46,230	737,136	216,003	1,815,677	3,184,260	201,742	382,122	887,721	1,573,629	358,020
2025	46,499	744,299	217,503	1,834,493	3,288,135	203,833	395,342	892,876	1,600,071	357,608
2026	46,945	752,606	219,396	1,860,351	3,404,546	206,706	410,508	902,361	1,631,124	358,431
2027	47,433	761,812	221,616	1,888,430	3,524,874	209,826	426,581	913,596	1,663,237	359,455
2028	48,117	772,355	223,912	1,924,926	3,660,818	213,881	445,000	929,425	1,702,609	361,812
2029	48,568	782,920	226,233	1,952,776	3,779,152	216,975	461,895	941,628	1,733,738	362,303
2030	49,488	793,116	228,620	1,985,684	3,907,058	220,632	480,394	954,743	1,768,754	369,146

Commercial LPS Annual Energy Sales Forecast by End Use (MWh)

Year	Cooking	Cooling	Heating	Indoor Lighting	Miscellaneous	Outdoor Lighting	Office Equip	Refrigeration	Ventilation	Water Heating
2010	5,694	108,518	-	399,541	407,725	44,393	60,337	76,399	310,491	82,878
2011	5,764	103,668	-	396,668	431,317	44,074	63,108	76,307	322,082	83,809
2012	5,929	107,186	-	400,153	462,370	44,461	67,069	77,442	339,483	86,101
2013	5,965	108,280	-	396,702	484,473	44,078	69,691	76,844	348,903	86,439
2014	5,975	108,353	-	392,048	505,772	43,561	72,025	75,797	356,280	86,319
2015	6,000	108,711	-	390,364	528,481	43,374	74,550	74,916	366,066	86,308
2016	6,042	108,974	-	391,247	553,316	43,472	77,337	74,452	376,504	86,492
2017	6,048	109,178	-	390,928	573,627	43,436	79,705	73,679	384,348	86,143
2018	6,081	109,735	-	392,904	595,979	43,656	82,496	73,362	393,728	86,143
2019	6,124	110,190	-	397,013	619,263	44,113	85,490	73,280	403,510	86,258
2020	6,178	110,666	-	402,088	643,367	44,676	88,740	73,465	413,938	86,506
2021	6,200	111,319	-	405,125	664,500	45,014	91,610	73,375	422,010	86,267
2022	6,242	112,108	-	409,818	687,239	45,535	94,889	73,640	431,336	86,354
2023	6,286	113,007	-	414,870	711,109	46,097	98,312	74,037	439,966	86,450
2024	6,349	113,975	-	421,186	737,335	46,798	102,150	74,745	449,544	86,776
2025	6,376	114,913	-	424,883	760,193	47,209	105,518	75,061	456,380	86,540
2026	6,430	116,090	-	430,368	786,186	47,819	109,438	75,769	464,693	86,637
2027	6,489	117,399	-	436,364	813,041	48,485	113,593	76,625	473,300	86,785
2028	6,578	118,979	-	444,477	843,789	49,386	118,412	77,896	484,155	87,292
2029	6,638	120,595	-	450,780	870,817	50,087	122,873	78,897	492,867	87,385
2030	6,761	122,139	-	458,183	899,910	50,909	127,740	79,962	502,609	88,998

Total Annual Classwise Energy Usage Forecast for Planning (Base Case Scenario)¹³

Annual Energy Sales Forecast (MWh)



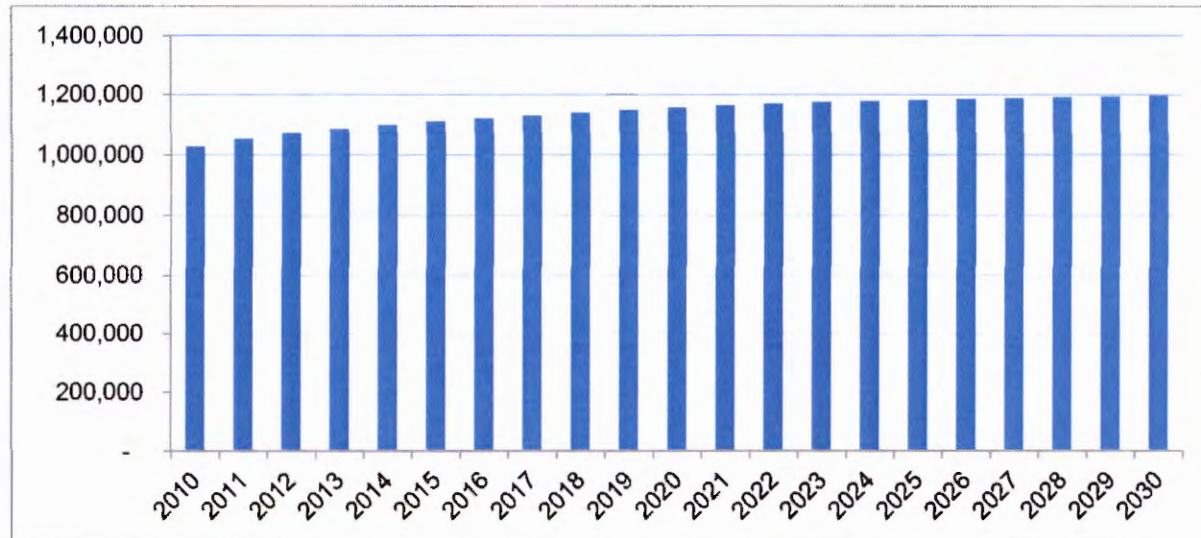
¹³ 4 CSR 240-22.030(8)(A)2.B

Annual Energy Sales Forecast by Rate Class (MWh)

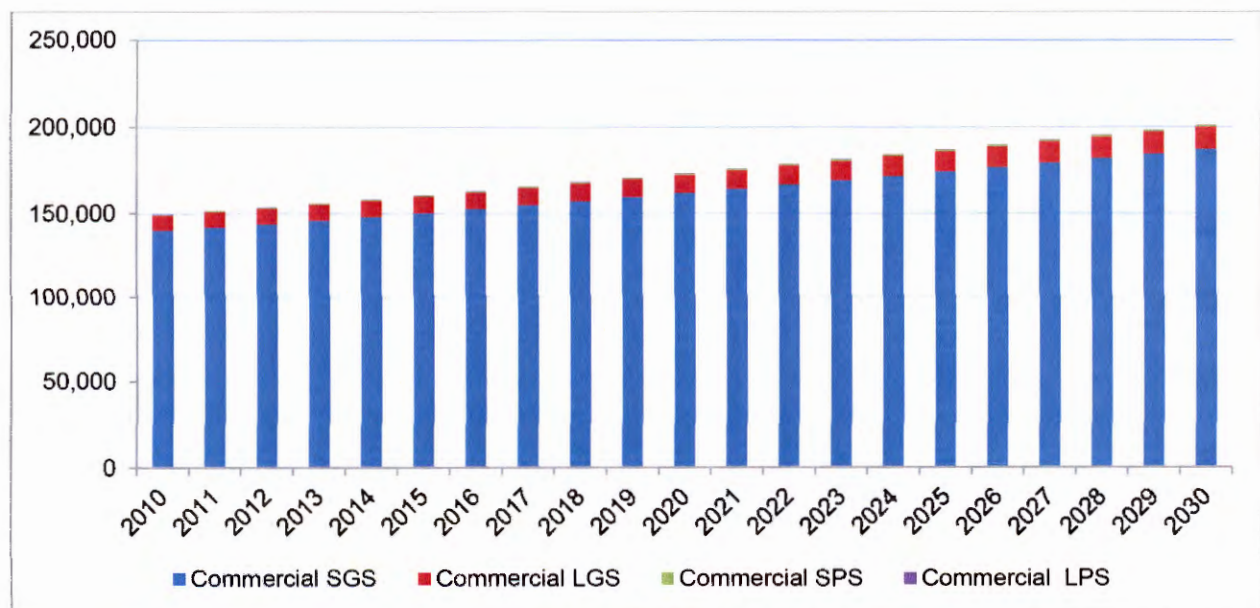
Year	Res Gen	Com SGS	Com LGS	Com SPS	Com LPS	Ind SGS	Ind LGS	Ind SPS	Ind LPS	LTS	Wholesale	Lighting
2010	13,924,351	3,579,165	7,254,665	2,599,181	1,495,977	126,332	992,684	1,246,649	2,345,810	3,969,269	341,297	234,185
2011	13,718,539	3,589,218	7,432,363	2,664,760	1,526,797	135,511	1,089,169	1,390,850	2,602,926	4,091,716	203,785	234,610
2012	13,918,135	3,611,750	7,621,355	2,708,018	1,590,194	140,178	1,128,067	1,484,368	2,676,712	4,103,018	56,769	235,452
2013	13,935,864	3,612,369	7,710,098	2,720,641	1,621,376	142,215	1,149,853	1,512,397	2,730,368	4,091,716	14,940	235,391
2014	14,045,545	3,622,498	7,795,396	2,737,200	1,646,131	143,064	1,158,907	1,524,074	2,758,163	4,091,716		235,794
2015	14,171,534	3,641,002	7,908,273	2,761,099	1,678,770	143,531	1,163,870	1,530,499	2,776,552	4,091,716		236,244
2016	14,340,389	3,672,009	8,041,038	2,794,739	1,717,836	144,094	1,169,893	1,538,288	2,796,912	4,103,018		237,183
2017	14,398,661	3,682,395	8,141,659	2,813,352	1,747,093	144,037	1,169,255	1,537,515	2,798,557	4,091,716		237,246
2018	14,509,486	3,707,191	8,284,518	2,843,230	1,784,083	144,364	1,172,720	1,542,013	2,812,535	4,091,716		237,725
2019	14,649,791	3,737,169	8,449,805	2,877,746	1,825,241	144,860	1,177,994	1,548,835	2,830,654	4,091,716		238,194
2020	14,795,726	3,777,495	8,637,040	2,919,564	1,869,625	145,690	1,186,850	1,560,259	2,858,141	4,103,018		239,081
2021	14,857,635	3,800,777	8,796,824	2,949,320	1,905,419	146,009	1,190,236	1,564,649	2,870,363	4,091,716		239,101
2022	14,972,491	3,835,015	8,983,136	2,987,250	1,947,161	146,625	1,196,799	1,573,122	2,891,728	4,091,716		239,558
2023	15,086,890	3,870,817	9,178,791	3,026,762	1,990,134	147,277	1,203,754	1,582,097	2,914,155	4,091,716		239,989
2024	15,252,243	3,917,585	9,402,542	3,074,877	2,038,859	148,354	1,215,262	1,596,922	2,948,055	4,103,018		240,861
2025	15,314,013	3,943,168	9,580,658	3,107,307	2,077,073	148,906	1,221,145	1,604,517	2,965,836	4,091,716		240,837
2026	15,424,701	3,979,751	9,792,973	3,148,201	2,123,431	149,858	1,231,316	1,617,628	2,994,946	4,091,716		241,263
2027	15,533,340	4,017,130	10,016,859	3,190,115	2,172,080	150,863	1,242,049	1,631,461	3,025,393	4,091,716		241,689
2028	15,691,059	4,066,823	10,282,855	3,242,092	2,230,966	152,068	1,254,914	1,648,028	3,061,719	4,103,018		242,543
2029	15,742,771	4,094,083	10,506,188	3,277,658	2,280,938	152,527	1,259,815	1,654,356	3,076,625	4,091,716		242,513
2030	15,841,548	4,135,066	10,757,634	3,322,902	2,337,210	153,408	1,269,220	1,666,474	3,104,882	4,091,716		242,916

Forecast Customer Count¹⁴

Forecast of Residential Class Customer Count

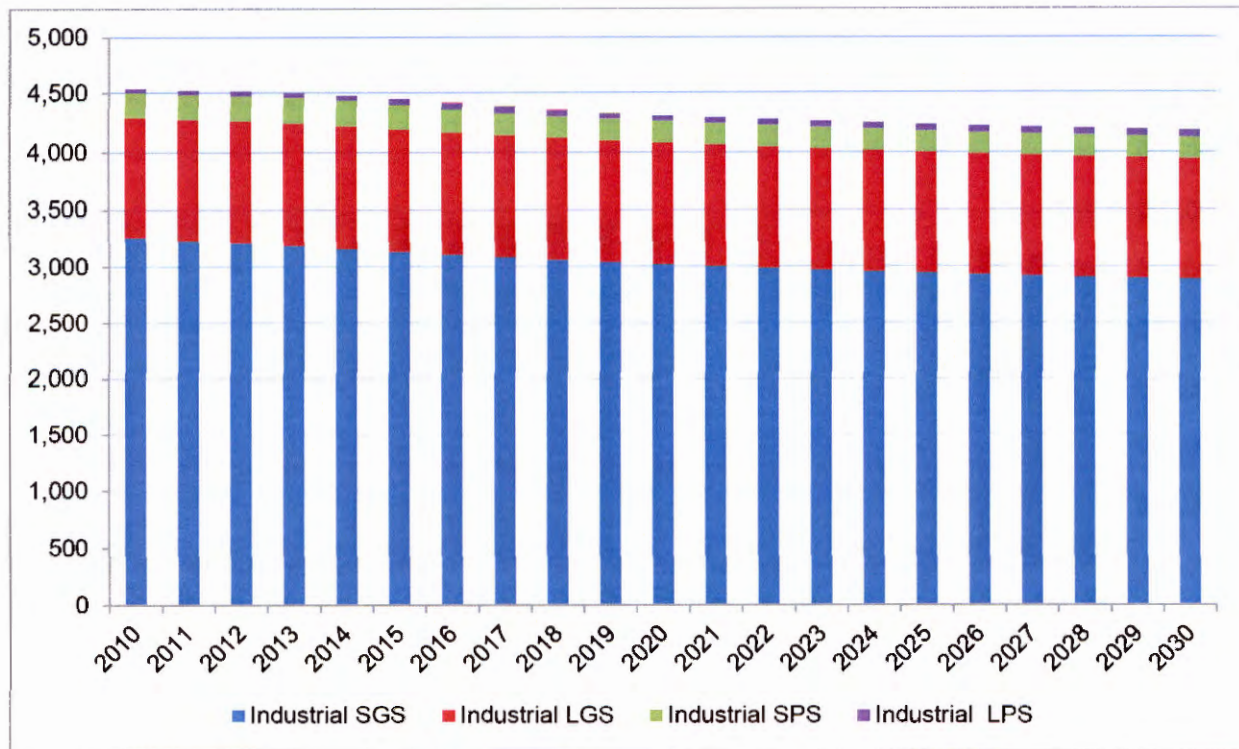


Forecast of Commercial Class Customer Count

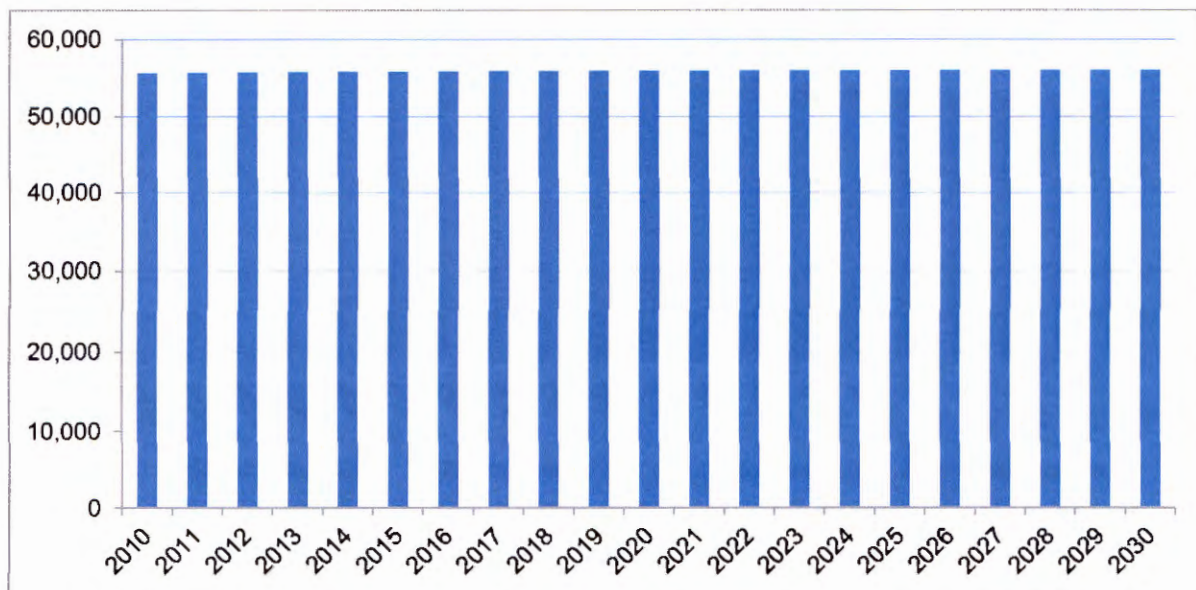


¹⁴ 4 CSR 240-22.030(8)(A)2.B

Forecast of Industrial Class Customer Count

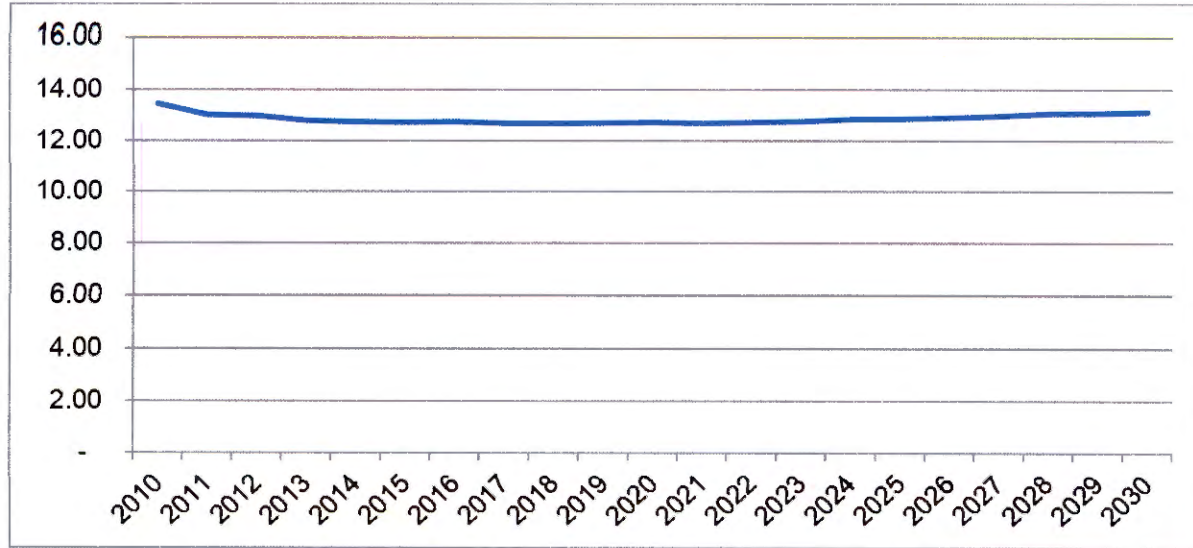
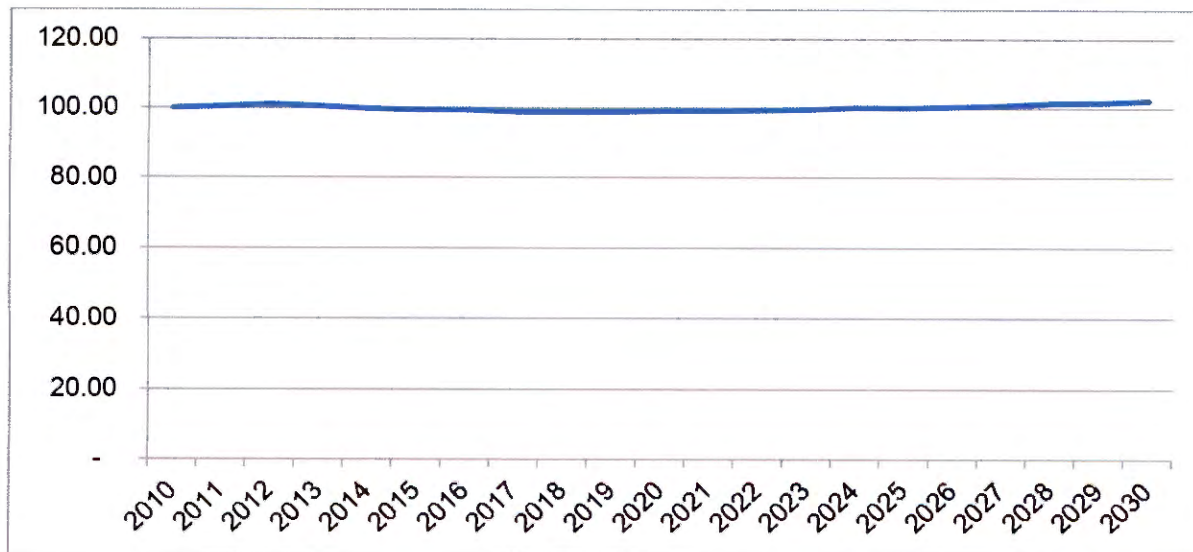


Forecast of Lighting Class Customer Count

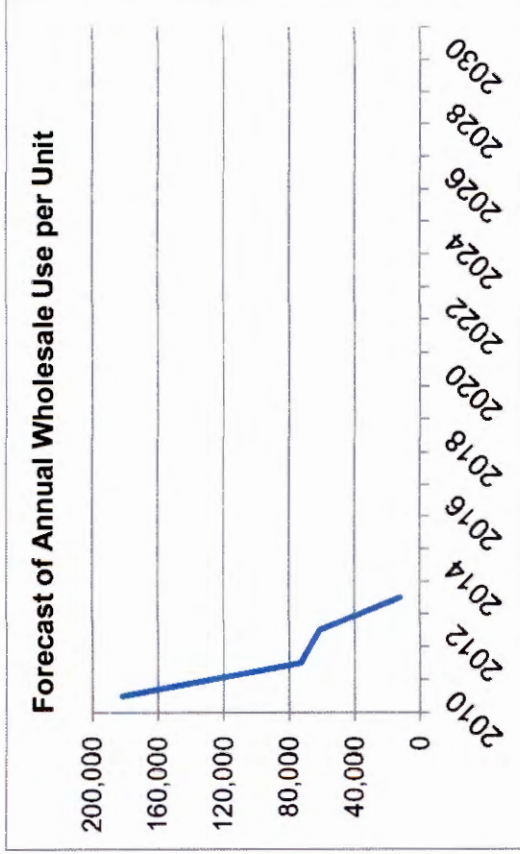
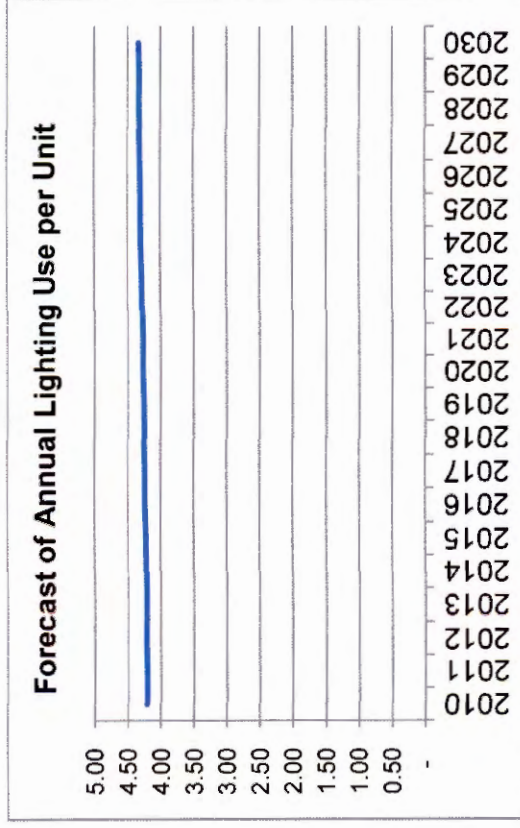
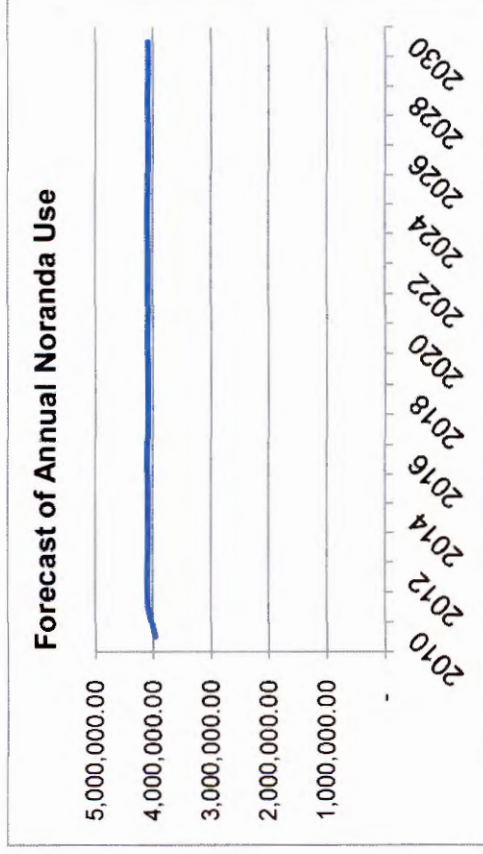
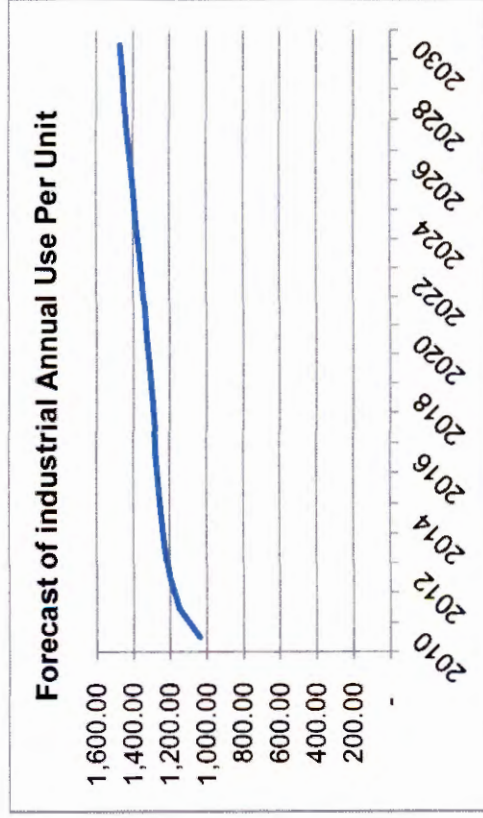


Forecast of Ameren Missouri's Customer Counts

Year	Residential	Com SGS	Com LGS	Com SPS	Com LPS	Ind SGS	Ind LGS	Ind SPS	Ind LPS	SLPA and DTD
2010	1,027,660	139,862	9,014	467	33	3,260	1,052	188	39	55,632
2011	1,051,877	141,798	9,159	500	36	3,234	1,059	191	41	55,704
2012	1,070,485	143,751	9,299	539	39	3,211	1,066	197	43	55,759
2013	1,086,450	145,852	9,464	566	41	3,187	1,071	200	45	55,802
2014	1,098,881	148,053	9,641	586	42	3,160	1,072	200	46	55,837
2015	1,110,994	150,299	9,822	606	44	3,133	1,071	198	47	55,867
2016	1,121,637	152,586	10,006	626	46	3,107	1,069	196	48	55,894
2017	1,131,082	154,910	10,194	646	47	3,084	1,068	195	49	55,917
2018	1,140,392	157,237	10,380	669	49	3,061	1,067	194	50	55,936
2019	1,149,350	159,581	10,567	694	51	3,041	1,066	192	51	55,954
2020	1,157,689	161,965	10,758	719	53	3,021	1,065	191	52	55,969
2021	1,164,602	164,372	10,952	746	54	3,003	1,064	190	54	55,983
2022	1,170,472	166,805	11,148	774	56	2,987	1,063	189	55	55,995
2023	1,175,244	169,263	11,347	803	58	2,971	1,062	188	56	56,007
2024	1,179,214	171,745	11,548	833	60	2,956	1,061	187	57	56,017
2025	1,182,642	174,267	11,755	863	62	2,943	1,061	187	59	56,027
2026	1,185,870	176,807	11,961	896	64	2,930	1,060	186	60	56,036
2027	1,188,855	179,364	12,169	931	66	2,918	1,059	185	62	56,045
2028	1,191,667	181,936	12,375	969	68	2,908	1,059	185	63	56,053
2029	1,194,439	184,529	12,583	1,010	71	2,898	1,058	184	65	56,061
2030	1,197,195	187,167	12,796	1,050	74	2,888	1,058	184	66	56,068

Annual Classwise Energy Usage Forecast per Unit¹⁵**Forecast of Residential Annual Use per Unit****Forecast of Commercial Annual Use per Unit**

¹⁵ 4 CSR 240-22.030(8)(A)2.B

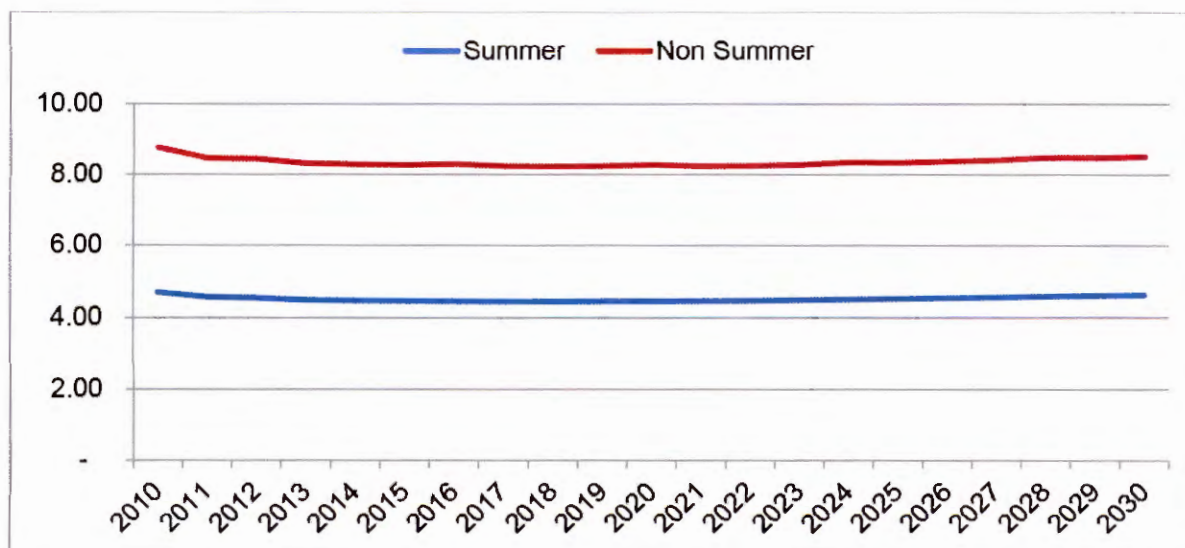


Forecast of Annual Energy Use per Unit by Revenue Class (MWh/Unit)

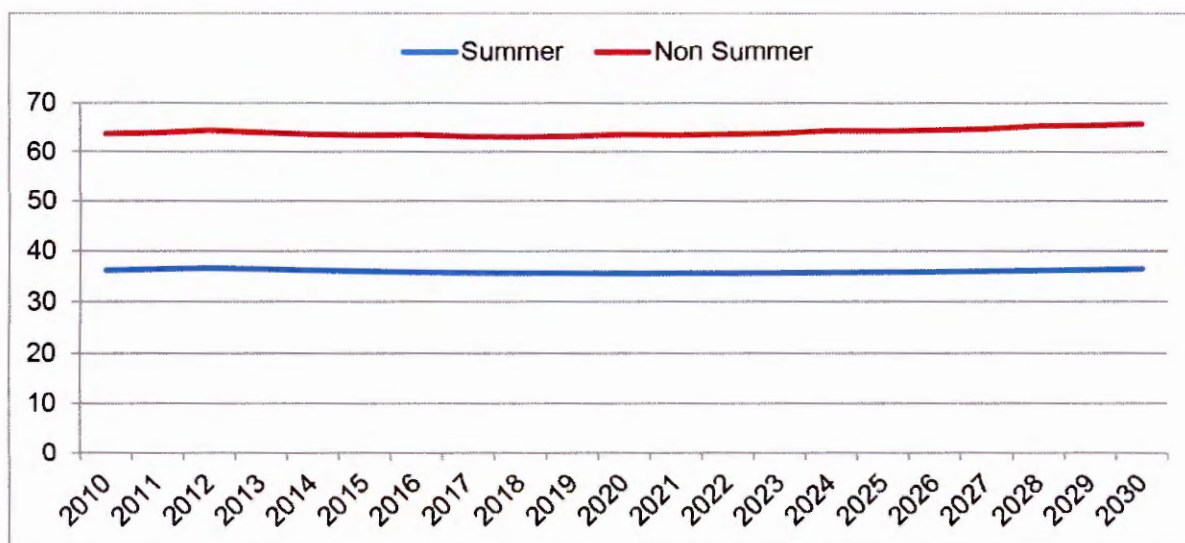
Forecast Year	Residential	Commercial	Industrial	Noranda	Lighting	Wholesale
2010	13.45	99.9	1,038	3,969,269	4.21	181,747
2011	13.02	100.4	1,153	4,091,716	4.21	72,799
2012	12.97	101.1	1,201	4,103,018	4.22	61,345
2013	12.79	100.5	1,228	4,091,716	4.22	11,967
2014	12.75	99.8	1,246	4,091,716	4.22	
2015	12.72	99.5	1,261	4,091,716	4.23	
2016	12.74	99.4	1,276	4,103,018	4.24	
2017	12.68	98.8	1,283	4,091,716	4.24	
2018	12.67	98.7	1,295	4,091,716	4.25	
2019	12.69	98.8	1,309	4,091,716	4.26	
2020	12.72	99.2	1,326	4,103,018	4.27	
2021	12.69	99.1	1,336	4,091,716	4.27	
2022	12.71	99.3	1,350	4,091,716	4.28	
2023	12.75	99.6	1,364	4,091,716	4.29	
2024	12.84	100.1	1,383	4,103,018	4.30	
2025	12.85	100.1	1,395	4,091,716	4.30	
2026	12.91	100.4	1,412	4,091,716	4.31	
2027	12.96	100.8	1,429	4,091,716	4.31	
2028	13.06	101.5	1,448	4,103,018	4.33	
2029	13.08	101.7	1,457	4,091,716	4.33	
2030	13.13	102.2	1,472	4,091,716	4.33	

Classwise Energy Usage Forecast per Unit for Summer and Non Summer Months¹⁶

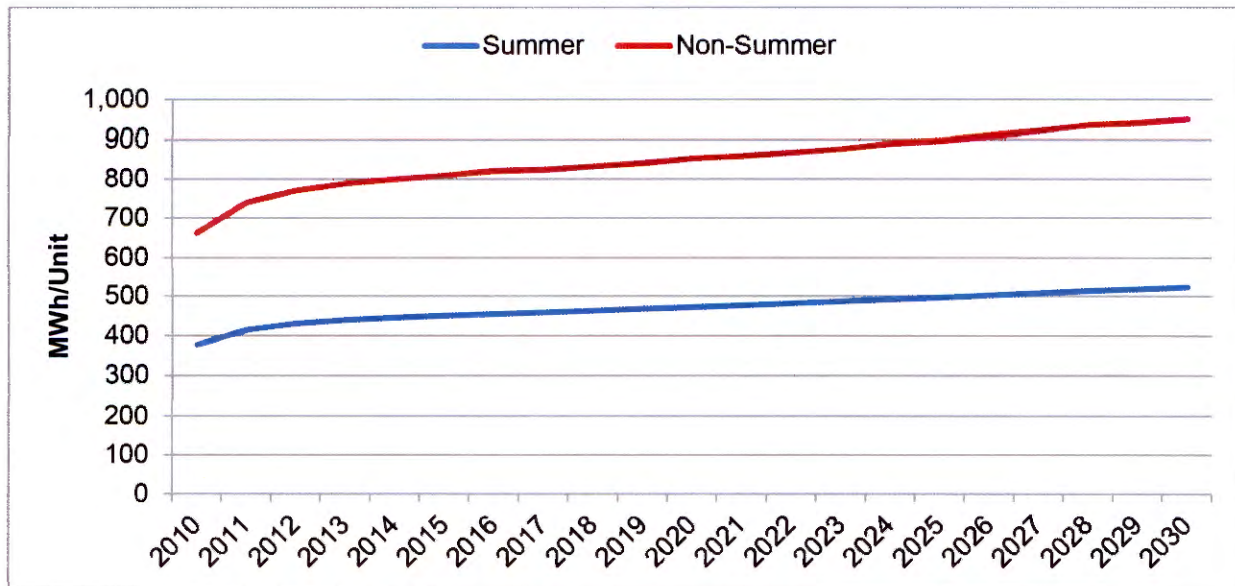
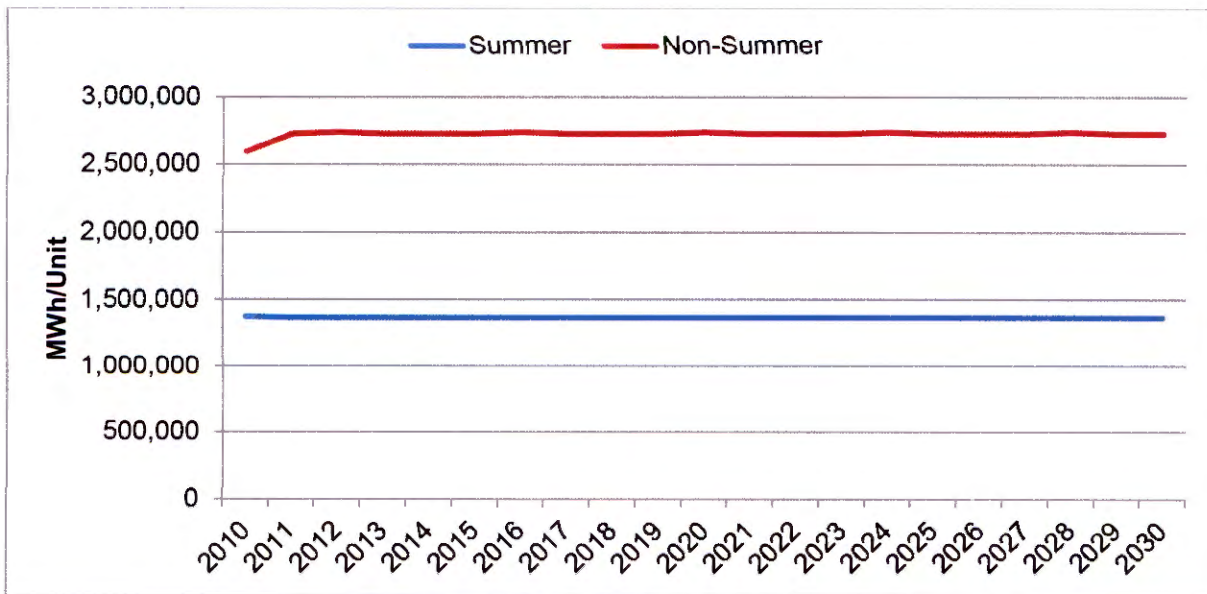
Forecast of Residential Energy Use per Unit by Revenue Class (MWh/Unit)

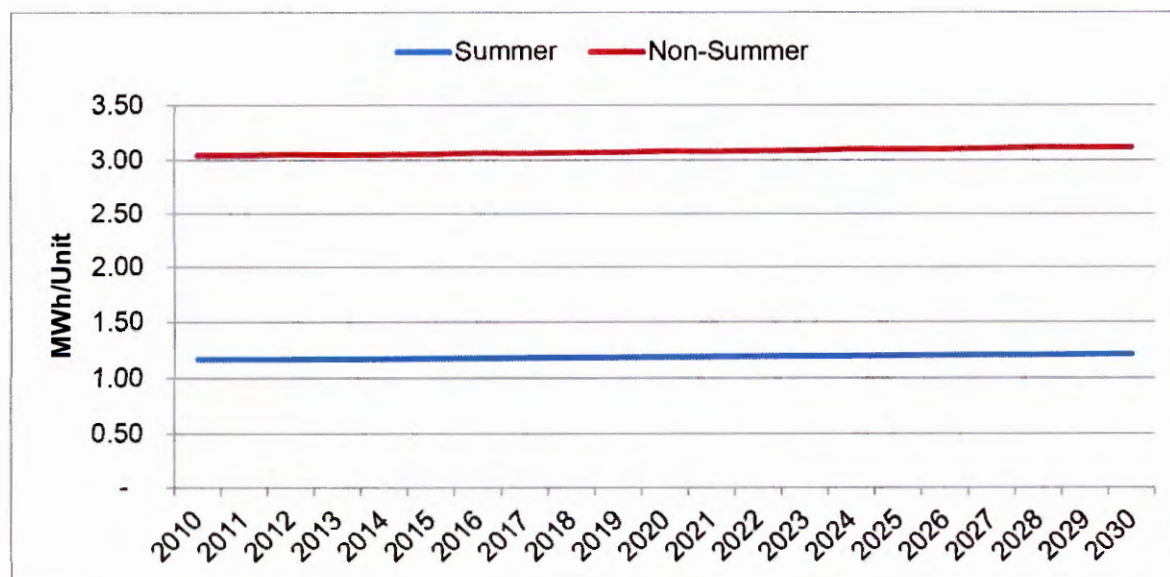
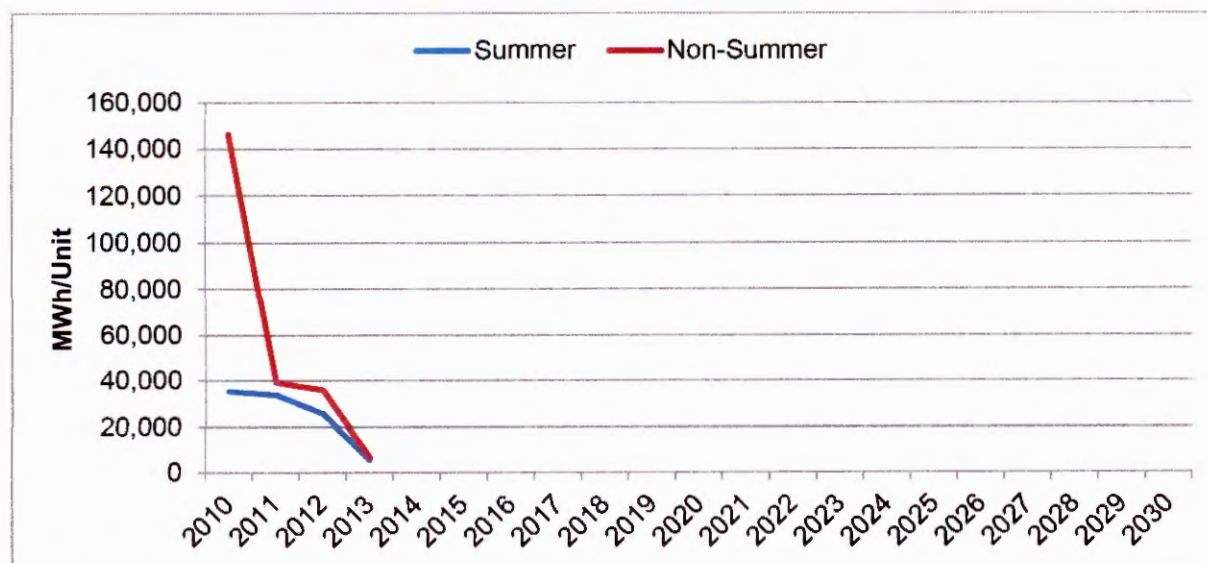


Forecast of Commercial Energy Use per Unit by Revenue Class (MWh/Unit)



¹⁶ 4 CSR 240-22.030(8)(A)2.B

Forecast of Industrial Energy Use per Unit by Revenue Class (MWh/Unit)**Forecast of Noranda Energy Use per Unit by Revenue Class (MWh/Unit)**

Forecast of Lighting Use per Unit by Revenue Class (MWh/Unit)**Forecast of Wholesale Energy per Unit by Revenue Class (MWh/Unit)**

Forecast of Summer Energy Use per Unit by Revenue Class (MWh/Unit)

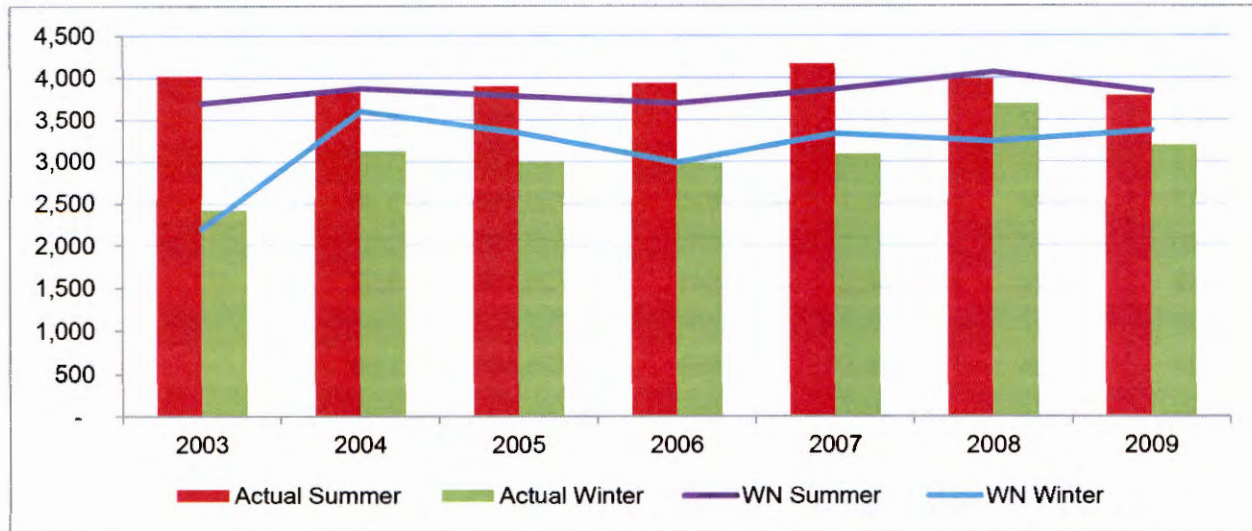
Forecast Year	Residential	Commercial	Industrial	Noranda	Lighting	Wholesale
2010	4.69	36.2	377	1,376,160	1.17	35,259
2011	4.56	36.5	414	1,365,522	1.17	33,703
2012	4.53	36.7	431	1,365,522	1.17	25,554
2013	4.48	36.5	440	1,365,522	1.17	5,403
2014	4.46	36.2	446	1,365,522	1.17	
2015	4.45	36.0	451	1,365,522	1.17	
2016	4.44	35.8	455	1,365,522	1.18	
2017	4.44	35.7	459	1,365,522	1.18	
2018	4.44	35.6	463	1,365,522	1.18	
2019	4.45	35.6	468	1,365,522	1.18	
2020	4.44	35.6	472	1,365,522	1.19	
2021	4.45	35.6	477	1,365,522	1.19	
2022	4.46	35.6	482	1,365,522	1.19	
2023	4.48	35.7	487	1,365,522	1.19	
2024	4.49	35.8	492	1,365,522	1.20	
2025	4.51	35.8	497	1,365,522	1.20	
2026	4.53	35.9	503	1,365,522	1.20	
2027	4.56	36.0	509	1,365,522	1.20	
2028	4.58	36.1	514	1,365,522	1.21	
2029	4.60	36.3	518	1,365,522	1.21	
2030	4.62	36.4	523	1,365,522	1.21	

Forecast of Non-Summer Energy Use per Unit by Revenue Class (MWh/Unit)

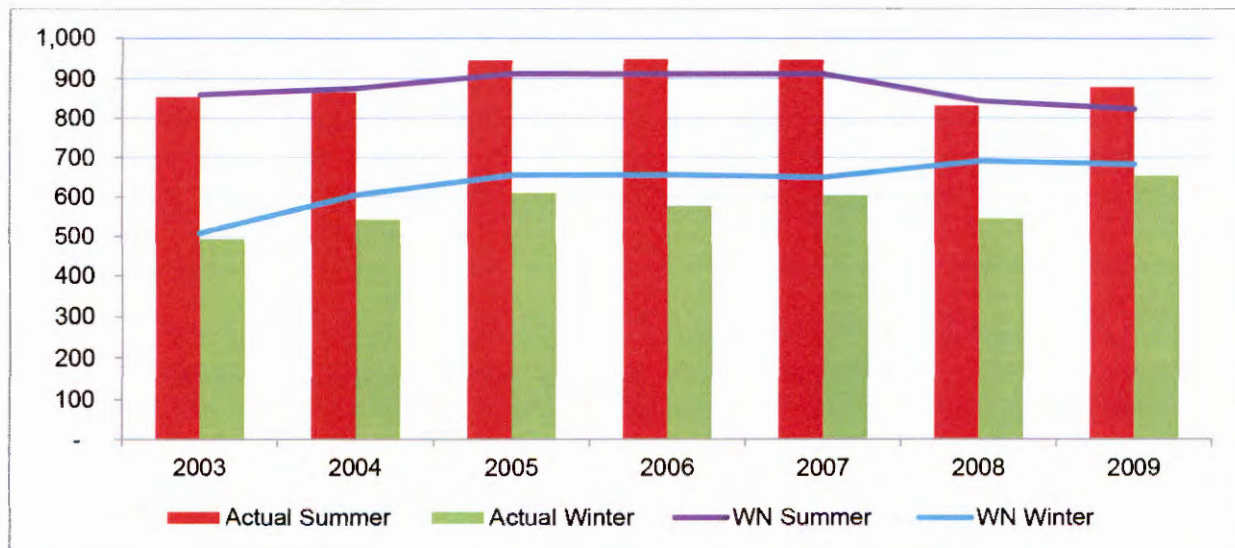
Forecast Year	Residential	Commercial	Industrial	Noranda	Lighting	Wholesale
2010	8.76	63.8	661	2,593,109	3.04	146,488
2011	8.46	64.0	739	2,726,195	3.04	39,096
2012	8.44	64.4	771	2,737,496	3.05	35,791
2013	8.31	64.0	788	2,726,195	3.05	6,564
2014	8.28	63.6	800	2,726,195	3.05	
2015	8.27	63.4	810	2,726,195	3.05	
2016	8.30	63.5	821	2,737,496	3.07	
2017	8.24	63.1	825	2,726,195	3.06	
2018	8.23	63.1	832	2,726,195	3.07	
2019	8.24	63.2	841	2,726,195	3.07	
2020	8.27	63.6	854	2,737,496	3.08	
2021	8.24	63.5	859	2,726,195	3.08	
2022	8.25	63.7	868	2,726,195	3.09	
2023	8.27	63.9	878	2,726,195	3.09	
2024	8.34	64.3	891	2,737,496	3.10	
2025	8.34	64.3	898	2,726,195	3.10	
2026	8.37	64.5	909	2,726,195	3.10	
2027	8.41	64.8	920	2,726,195	3.11	
2028	8.49	65.4	934	2,737,496	3.12	
2029	8.48	65.4	939	2,726,195	3.12	
2030	8.51	65.8	949	2,726,195	3.12	

Class Demand per Unit and Total Demand at the time of Summer and Winter System Peak¹⁷

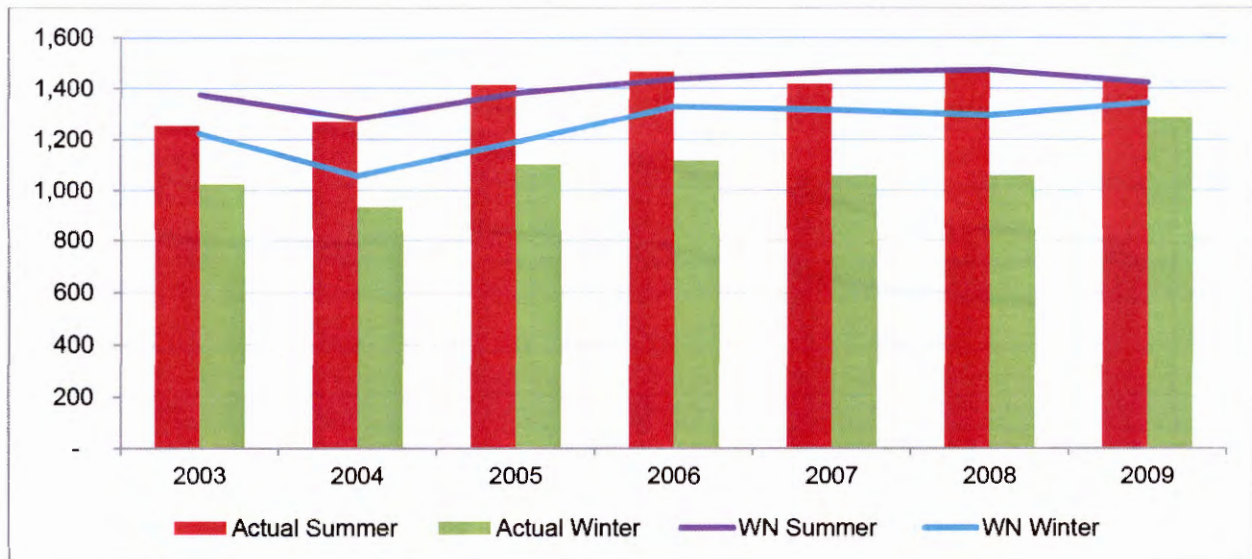
Historical Actual and Weather Normalized Summer and Winter Coincident Peak for Residential Class (MW)



Historical Actual and Weather Normalized Summer and Winter Coincident Peak for Commercial SGS (MW)



¹⁷ 4 CSR 240-22.030(8)(B), 4 CSR 240-22.030(1)(B)1

Historical Actual and Weather Normalized Summer and Winter Coincident Peak for Commercial LGS (MW)**Historical Actual and Weather Normalized Summer and Winter Coincident Peak for Commercial SPS (MW)**