Integrated Resource Plan

Technical Appendix - Load Forecast

Volume 1

EAST KENTUCKY
POWER COOPERATIVE
A Touchstone Energy® Cooperative

EAST KENTUCKY POWER COOPERATIVE

A Touchstone Energy® Cooperative

2010 Load Forecast

Prepared by: Load Forecasting Department

December 2010

TABLE OF CONTENTS

SEPARATE APPENDICES
(CD available upon request)

APPENDIX	DESCRIPTION
A	**Member System Load Forecast Reports, Form 341s, and board resolutions**
B	**Regional Model Results** **Sales and Customer Forecasts – Definitions, Assumptions, Models Specifications, and Results**

SECTION 1.0

EXECUTIVE SUMMARY

Blank Page

Section 1.0
Executive Summary

East Kentucky Power Cooperative Inc. (EKPC) is a generation and transmission electric cooperative located in Winchester, Kentucky. EKPC is owned by 16 member distribution cooperatives who serve approximately 520,000 retail meters. Member distribution cooperatives served by EKPC include:

Big Sandy RECC	Jackson Energy Cooperative
Blue Grass Energy Coop. Corp.	Licking Valley RECC
Clark Energy Cooperative, Inc.	Nolin RECC
Cumberland Valley Electric	Owen Electric Cooperative
Farmers RECC	Salt River Electric Cooperative
Fleming-Mason Energy Cooperative	Shelby Energy Cooperative, Inc.
Grayson RECC	South Kentucky RECC
Inter-County Energy Coop. Corp.	Taylor County RECC

EKPC's load forecast is prepared every two years in accordance with EKPC's Rural Utilities Service (RUS) approved Work Plan. The Work Plan details the methodology used in preparing the projections. EKPC prepares the load forecast by working jointly with each member system to prepare their load forecast. Member projections are then summed to determine EKPC's forecast for the 20-year period. Member cooperatives use their load forecasts in developing construction work plans, long range work plans, and financial forecasts. EKPC uses the load forecast in such areas as demand-side management analyses, marketing analyses, transmission planning, power supply planning, and financial forecasting.

EKPC's load forecast indicates that total energy requirements are projected to increase by 1.6 percent per year over the 2010 through 2030 period. Net winter peak demand will increase by approximately 1,000 MW, and net summer peak demand will increase by approximately 800 MW. Annual load factor projections are remaining steady at approximately 50 percent. Historical and projected total energy requirements, seasonal peak demands, and annual load factor for the EKPC system are presented in Table 1-1 (page 5). Peak demands are based on coincident hourly-integrated demand intervals. Load Factor is calculated using net peak demand and energy requirements.

Energy projections for the residential, small commercial, and large commercial classifications indicate that during the 2010 through 2030 period, sales to the residential class will increase by 1.4 percent per year, and total commercial and industrial sales will increase by 2.3 percent per year. Class sales are presented in Table 1-5. One member system serves a thin-slab steel mill. This large load is on an interruptible rate and the forecast assumes 360 hours of interruption each year.

Energy Sales and Peak Demands Growth Rates

	2010-2015	2010-2020	2010-2030
Total Net Energy Requirements	1.1%	1.4%	1.6%
Residential Sales	0.7%	1.2%	1.4%
Total Commercial and Industrial Sales (Excluding steel milll)	2.7%	2.5%	2.3%
Net Winter Peak Demand	2.8%	2.2%	2.0%
Net Summer Peak Demand	0.2%	0.9%	1.4%

Factors considered in preparing the forecast include national, regional, and local economic performance, population and housing trends, service area industrial development, electric price, household income, appliance saturations and efficiencies, demand-side management programs, and weather. A demand-side impacted load forecast is presented in Table 1-1. Descriptions of the demand-side management programs are provided in Section 8 of this report.

Table 1-1

Peak Demands and Total Requirements
~Historical and Projected~

Season	Net Winter Peak Demand (MW)	Year	Net Summer Peak Demand (MW)	Year	Total Net Requirements (MWh)	Load Factor (%)
1989 - 90	1,449	1990	1,079	1990	5,489,092	43%
1990 - 91	1,306	1991	1,164	1991	5,958,422	52%
1991 - 92	1,383	1992	1,131	1992	6,099,308	50%
1992 - 93	1,473	1993	1,309	1993	6,860,902	53%
1993 - 94	1,788	1994	1,314	1994	6,917,414	44%
1994 - 95	1,621	1995	1,466	1995	7,761,980	55%
1995 - 96	1,915	1996	1,452	1996	8,505,621	51%
1996 - 97	1,953	1997	1,549	1997	8,850,394	52%
1997 - 98	1,696	1998	1,671	1998	9,073,950	61%
1998 - 99	1,988	1999	1,750	1999	9,825,866	56%
1999 - 00	2,157	2000	1,855	2000	10,521,400	56%
2000 - 01	2,295	2001	1,864	2001	10,750,900	53%
2001 - 02	2,109	2002	2,001	2002	11,456,830	62%
2002 - 03	2,459	2003	1,871	2003	11,568,314	54%
2003 - 04	2,513	2004	1,955	2004	11,865,797	54%
2004 - 05	2,622	2005	2,180	2005	12,527,829	55%
2005 - 06	2,492	2006	2,196	2006	12,331,272	56%
2006 - 07	2,757	2007	2,354	2007	13,080,367	54%
2007 - 08	2,964	2008	2,102	2008	12,948,091	50%
2008 - 09	3,126	2009	2,089	2009	12,380,972	45%
2009 - 10	2,739	2010	2,313	2010	12,781,011	53%
2010 - 11	3,006	2011	2,238	2011	12,855,553	49%
2011 - 12	3,033	2012	2,263	2012	13,024,858	49%
2012 - 13	3,059	2013	2,282	2013	13,124,067	49%
2013 - 14	3,101	2014	2,309	2014	13,318,597	49%
2014 - 15	3,147	2015	2,334	2015	13,516,766	49%
2015- 16	3,189	2016	2,359	2016	13,739,363	49%
2016 - 17	3,245	2017	2,402	2017	13,942,214	49%
2017 - 18	3,305	2018	2,449	2018	14,197,087	49%
2018 - 19	3,366	2019	2,497	2019	14,455,338	49%
2019 - 20	3,414	2020	2,535	2020	14,708,052	49%
2020 - 21	3,489	2021	2,593	2021	14,985,721	49%
2021 - 22	3,547	2022	2,640	2022	15,245,494	49%
2022 - 23	3,613	2023	2,693	2023	15,535,729	49%
2023 - 24	3,666	2024	2,736	2024	15,822,155	49%
2024 - 25	3,737	2025	2,792	2025	16,090,554	49%
2025 - 26	3,801	2026	2,844	2026	16,376,707	49%
2026 - 27	3,862	2027	2,895	2027	16,655,371	49%
2027 - 28	3,906	2028	2,932	2028	16,909,157	49%
2028 - 29	3,973	2029	2,988	2029	17,167,095	49%
2029 - 30	4,053	2030	3,050	2030	17,464,640	49%

Impacts of demand side management and interruptible contracts have been subtracted.

Table 1-2

Historical and Projected Winter Peak Demand

	Unadjusted Peak Demand (MW)	DSM Impact (MW)	Adjusted Peak Demand (MW)
1989 - 90	1,449	0	1,449
1990 - 91	1,306	0	1,306
1991 - 92	1,383	0	1,383
1992 - 93	1,473	0	1,473
1993 - 94	1,788	0	1,788
1994 - 95	1,621	0	1,621
1995 - 96	1,990	75	1,915
1996 - 97	2,004	51	1,953
1997 - 98	1,789	107	1,682
1998 - 99	2,096	125	1,971
1999 - 00	2,169	29	2,140
2000 - 01	2,322	44	2,278
2001 - 02	2,238	146	2,092
2002 - 03	2,568	133	2,435
2003 - 04	2,610	123	2,487
2004 - 05	2,719	104	2,615
2005 - 06	2,599	122	2,477
2006 - 07	2,840	91	2,749
2007 - 08	3,051	95	2,956
2008 - 09	3,152	49	3,103
2009 - 10	2,868	138	2,730
2010 - 11	3,154	148	3,006
2011 - 12	3,189	155	3,033
2012 - 13	3,223	164	3,059
2013 - 14	3,273	172	3,101
2014 - 15	3,327	180	3,147
2015- 16	3,377	189	3,189
2016 - 17	3,440	195	3,245
2017 - 18	3,505	200	3,305
2018 - 19	3,571	206	3,366
2019-20	3,622	208	3,414
2020-21	3,699	210	3,489
2021-22	3,759	212	3,547
2022-23	3,827	214	3,613
2023-24	3,881	216	3,666
2024-25	3,954	217	3,737
2025-26	4,019	218	3,801
2026-27	4,082	220	3,862
2027-28	4,127	222	3,906
2028-29	4,196	223	3,973
2029-30	4,260	207	4,053

Impacts from interruptible contracts have been subtracted.

Table 1-3

Historical and Projected Summer Peak Demand

	Unadjusted Peak Demand (MW)	DSM Impact (MW)	Adjusted Peak Demand (MW)
1990	1,079	0	1,079
1991	1,164	0	1,164
1992	1,131	0	1,131
1993	1,309	0	1,309
1994	1,314	0	1,314
1995	1,518	52	1,466
1996	1,540	88	1,452
1997	1,650	101	1,549
1998	1,675	21	1,654
1999	1,754	16	1,738
2000	1,941	109	1,832
2001	1,980	139	1,841
2002	2,120	142	1,978
2003	1,996	151	1,845
2004	2,052	104	1,948
2005	2,220	10	2,210
2006	2,332	144	2,188
2007	2,481	135	2,346
2008	2,243	149	2,094
2009	2,195	114	2,081
2010	2,443	146	2,297
2011	2,395	157	2,238
2012	2,430	167	2,263
2013	2,461	179	2,282
2014	2,499	190	2,309
2015	2,535	202	2,334
2016	2,572	213	2,359
2017	2,620	219	2,402
2018	2,670	221	2,449
2019	2,721	224	2,497
2020	2,759	224	2,535
2021	2,818	224	2,593
2022	2,865	225	2,640
2023	2,917	225	2,693
2024	2,961	225	2,736
2025	3,017	224	2,792
2026	3,067	224	2,844
2027	3,119	224	2,895
2028	3,157	224	2,932
2029	3,213	225	2,988
2030	3,264	214	3,050

Impacts from interruptible contracts have been subtracted.

Table 1-4
Historical and Projected Total Requirements

	Unadjusted Energy (MWh)	Estimated DSM Impact (MWh)	Total Requirements (MWh)
1990	5,489,092	0	5,489,092
1991	5,958,422	0	5,958,422
1992	6,099,308	0	6,099,308
1993	6,860,902	0	6,860,902
1994	6,917,414	0	6,917,414
1995	7,796,980	35,000	7,761,980
1996	8,540,621	35,000	8,505,621
1997	8,885,394	35,000	8,850,394
1998	9,108,950	35,000	9,073,950
1999	9,860,866	35,000	9,825,866
2000	10,556,400	35,000	10,521,400
2001	10,785,900	35,000	10,750,900
2002	11,491,830	35,000	11,456,830
2003	11,603,314	35,000	11,568,314
2004	11,900,797	35,000	11,865,797
2005	12,569,829	42,000	12,527,829
2006	12,373,272	42,000	12,331,272
2007	13,122,367	42,000	13,080,367
2008	12,990,091	42,000	12,948,091
2009	12,422,972	42,000	12,380,972
2010	12,838,995	57,984	12,781,011
2011	12,933,784	78,231	12,855,553
2012	13,123,079	98,220	13,024,858
2013	13,248,916	124,850	13,124,067
2014	13,469,609	151,011	13,318,597
2015	13,695,339	178,573	13,516,766
2016	13,945,172	205,809	13,739,363
2017	14,168,260	226,047	13,942,214
2018	14,440,867	243,780	14,197,087
2019	14,717,117	261,779	14,455,338
2020	14,968,552	260,500	14,708,052
2021	15,242,854	257,133	14,985,721
2022	15,499,459	253,965	15,245,494
2023	15,784,559	248,830	15,535,729
2024	16,066,805	244,650	15,822,155
2025	16,329,096	238,542	16,090,554
2026	16,609,551	232,844	16,376,707
2027	16,889,740	234,369	16,655,371
2028	17,144,635	235,477	16,909,157
2029	17,402,612	235,517	17,167,095
2030	17,680,570	215,930	17,464,640

Impacts from interruptible contracts have been subtracted.
Historical energy impacts for DSM and interruptible loads are not directly metered and therefore are estimated.

Blank Page

Table 1-5

Class sales shown are before the impacts of DSM

Year	Residential Sales (MWh)	Seasonal Sales (MWh)	Small Comm. Sales (MWh)	Public Buildings (MWh)	Large Comm. Sales (MWh)	Public Street And Highway Lighting Sales (MWh)	Total Retail Sales (MWh)
1990	3,497,574	9,094	813,371	9,096	653,502	3,737	4,986,373
1991	3,770,962	9,423	868,031	9,871	725,419	4,029	5,387,735
1992	3,813,577	9,756	913,599	11,586	776,268	4,304	5,529,089
1993	4,230,486	10,144	980,301	13,779	968,345	5,081	6,208,135
1994	4,285,099	10,280	1,014,549	14,240	1,026,927	4,156	6,355,251
1995	4,592,909	11,066	1,097,729	15,889	1,414,196	5,042	7,136,833
1996	4,875,662	12,342	1,138,469	16,785	1,829,516	5,555	7,878,329
1997	4,901,058	11,888	1,163,683	16,272	2,012,108	5,663	8,110,671
1998	5,109,002	11,476	1,230,450	17,315	2,041,910	5,601	8,415,754
1999	5,320,858	11,496	1,336,957	17,765	2,316,814	5,756	9,009,646
2000	5,626,500	12,479	1,446,958	18,280	2,409,695	6,160	9,520,072
2001	5,797,895	12,769	1,505,480	18,865	2,658,579	6,545	10,000,133
2002	6,166,723	14,076	1,577,590	20,453	2,803,844	7,107	10,589,793
2003	6,205,364	13,445	1,550,248	21,754	2,881,780	7,447	10,680,038
2004	6,337,737	13,846	1,598,111	22,974	3,037,246	7,498	11,017,413
2005	6,751,547	14,501	1,733,390	22,530	3,013,699	7,713	11,543,379
2006	6,548,160	13,882	1,777,897	22,196	3,057,184	8,236	11,427,556
2007	6,998,554	14,679	1,861,952	26,427	3,124,043	8,457	12,034,113
2008	7,055,277	14,531	1,872,811	34,074	3,083,589	9,477	12,069,760
2009	6,789,142	13,080	1,787,112	35,507	2,831,935	9,065	11,465,842
2010	6,916,947	13,434	1,820,349	35,741	3,035,175	9,217	11,830,863
2011	6,919,599	13,419	1,846,959	36,195	3,092,314	9,505	11,917,991
2012	6,944,934	13,455	1,877,310	36,596	3,210,477	9,711	12,092,483
2013	6,957,738	13,333	1,917,456	37,314	3,272,546	9,937	12,208,323
2014	7,055,893	13,570	1,959,197	38,037	3,335,403	10,160	12,412,259
2015	7,159,616	13,790	2,001,631	38,752	3,395,326	10,382	12,619,498
2016	7,281,181	14,097	2,044,932	39,450	3,459,446	10,601	12,849,707
2017	7,391,828	14,359	2,089,551	40,127	3,508,475	10,820	13,055,162
2018	7,523,977	14,682	2,134,733	40,784	3,581,071	11,039	13,306,286
2019	7,661,291	15,007	2,180,098	41,444	3,651,747	11,256	13,560,843
2020	7,788,470	15,389	2,225,634	42,105	3,709,435	11,475	13,792,507
2021	7,923,044	15,831	2,271,700	42,768	3,780,129	11,693	14,045,165
2022	8,056,599	16,290	2,317,291	43,396	3,836,002	11,908	14,281,486
2023	8,203,953	16,774	2,362,531	44,026	3,904,812	12,124	14,544,221
2024	8,351,660	17,235	2,407,717	44,669	3,970,782	12,339	14,804,401
2025	8,482,142	17,589	2,453,143	45,327	4,035,146	12,556	15,045,903
2026	8,625,165	18,070	2,499,227	45,986	4,103,086	12,774	15,304,309
2027	8,764,282	18,593	2,545,021	46,621	4,174,930	12,989	15,562,437
2028	8,893,234	18,928	2,590,457	47,232	4,234,283	13,203	15,797,336
2029	9,010,609	19,163	2,635,782	47,870	4,308,104	13,418	16,034,945
2030	9,163,386	19,694	2,681,368	48,548	4,367,000	13,631	16,293,627

Impacts of interruptible contracts have been subtracted.

Totals may not equal sum of components due to independent rounding.

Table 1-5 continued

Year	Total Retail Sales (MWh)	Office Use (MWh)	% Loss	EKPC Sales to Members (MWh)	EKPC Office Use (MWh)	Transmission Loss (%)	Unadjusted Total Requirements (MWh)	Additional DSM Impact (MWh)	Adjusted Total Requirements (MWh)
1990	4,986,373	5,087	5.7	5,295,459	6,287	3.5	5,489,092		
1991	5,387,735	5,333	6.3	5,755,588	6,798	3.4	5,958,422		
1992	5,529,089	5,242	6.2	5,903,267	7,559	3.2	6,099,308		
1993	6,208,135	5,552	6.0	6,612,688	8,026	3.6	6,860,902		
1994	6,355,251	5,614	5.5	6,727,959	8,541	2.7	6,917,414		
1995	7,136,833	5,711	5.5	7,558,452	9,197	2.6	7,761,980		
1996	7,878,329	6,167	5.0	8,301,379	8,856	2.4	8,505,621		
1997	8,110,671	6,349	5.2	8,559,022	8,505	3.3	8,850,394		
1998	8,415,754	6,121	4.5	8,821,630	7,236	2.8	9,073,950		
1999	9,009,646	6,040	4.8	9,468,916	8,157	3.7	9,825,866		
2000	9,520,072	6,606	5.0	10,027,205	7,862	4.8	10,521,400		
2001	10,000,133	6,793	4.0	10,426,995	8,205	3.0	10,750,900		
2002	10,589,793	7,562	4.3	11,071,862	8,818	3.4	11,456,830		
2003	10,680,038	7,681	4.5	11,190,870	9,123	3.3	11,568,314		
2004	11,017,413	8,289	4.4	11,537,505	9,106	2.8	11,865,797		
2005	11,543,379	8,617	4.2	12,060,460	8,902	3.8	12,527,829		
2006	11,427,556	8,924	3.8	11,892,304	7,568	3.6	12,331,272		
2007	12,034,113	10,291	4.3	12,582,260	7,491	3.9	13,080,367		
2008	12,069,760	10,431	4.5	12,646,146	7,912	2.3	12,948,091		
2009	11,465,842	10,116	4.2	11,981,909	8,247	3.3	12,380,972		
2010	11,830,863	10,225	4.2	12,365,949	8,297	3.3	12,796,531	15,520	12,781,011
2011	11,917,991	10,225	4.2	12,457,380	8,330	3.3	12,891,117	35,564	12,855,553
2012	12,092,483	10,225	4.3	12,640,470	8,417	3.3	13,080,545	55,687	13,024,858
2013	12,208,323	10,225	4.3	12,762,031	8,436	3.3	13,206,274	82,208	13,124,067
2014	12,412,259	10,225	4.3	12,975,995	8,478	3.3	13,427,584	108,986	13,318,597
2015	12,619,498	10,225	4.3	13,193,494	8,521	3.3	13,652,549	135,783	13,516,766
2016	12,849,707	10,225	4.3	13,435,050	8,563	3.3	13,902,392	163,029	13,739,363
2017	13,055,162	10,225	4.3	13,650,646	8,606	3.3	14,125,390	183,176	13,942,214
2018	13,306,286	10,225	4.3	13,914,159	8,649	3.3	14,397,940	200,853	14,197,087
2019	13,560,843	10,225	4.3	14,181,268	8,693	3.3	14,674,210	218,871	14,455,338
2020	13,792,507	10,225	4.3	14,424,359	8,736	3.3	14,925,642	217,589	14,708,052
2021	14,045,165	10,225	4.3	14,689,483	8,780	3.3	15,199,858	214,137	14,985,721
2022	14,281,486	10,225	4.3	14,937,462	8,824	3.3	15,456,345	210,852	15,245,494
2023	14,544,221	10,225	4.3	15,213,154	8,868	3.3	15,741,491	205,762	15,535,729
2024	14,804,401	10,225	4.3	15,486,159	8,912	3.3	16,023,858	201,703	15,822,155
2025	15,045,903	10,225	4.3	15,739,582	8,957	3.3	16,285,976	195,422	16,090,554
2026	15,304,309	10,225	4.3	16,010,733	9,001	3.3	16,566,426	189,719	16,376,707
2027	15,562,437	10,225	4.4	16,281,592	9,046	3.3	16,846,575	191,204	16,655,371
2028	15,797,336	10,225	4.4	16,528,072	9,092	3.3	17,101,514	192,356	16,909,157
2029	16,034,945	10,225	4.4	16,777,406	9,137	3.3	17,359,403	192,309	17,167,095
2030	16,293,627	10,225	4.4	17,048,845	9,183	3.3	17,640,153	175,513	17,464,640

Impacts of interruptible contracts have been subtracted.

Totals may not equal sum of components due to independent rounding.

Blank Page

SECTION 2.0

LOAD FORECAST METHODOLOGY

Blank Page

Section 2.0
Load Forecast Methodology

2.1 Coordination with Member Systems

EKPC prepares a load forecast by working jointly with its member systems in preparing their individual load forecasts. These individual forecasts are included in Appendix A. Member system projections are then summed to determine EKPC's forecast for the 20-year period. Factors considered in preparing the forecasts include national, regional, and local economic performance, appliance saturations and efficiencies, population and housing trends, service area industrial development, electric price, household income, and weather. Each member system reviews the preliminary forecast for reasonability. Final projections reflect analysis of historical data combined with the experience and judgment of the member system President/CEO and staff. In recognition of the uncertainty present in long-term forecasting, both high and low case projections are also prepared (see Section 8).

The general steps followed by EKPC in developing its load forecast are summarized as follows:

1. EKPC subscribes to IHS Global Insight, Inc., in order to analyze regional economic performance. IHS Global Insight provides EKPC projections for population, employment, and income as well as other variables. Details are provided in Section 4.0.
2. EKPC prepares a preliminary forecast for each of its member systems for each classification as reported on the Rural Utilities Services (RUS) Form 7, which contains publicly available retail sales data for member systems. These include: residential, seasonal, small commercial, public buildings, large commercial, and public street and highway lighting. EKPC's sales to member systems are then determined by adding distribution losses to total retail sales. EKPC's total requirements are estimated by adding transmission losses to total member system sales. Seasonal peak demands are determined by applying load factors for heating, cooling, and water heating to energy. The same methodology is used in developing each of the 16 member system forecasts.

3. EKPC meets with each member system to discuss their preliminary forecast. Member system staff at these meetings includes the President/CEO and other key individuals.

4. The preliminary forecast is usually revised based on mutual agreement of EKPC staff and member system's President/CEO and staff. This final forecast is approved by the board of directors of each member system.

5. The EKPC forecast is the summation of the forecasts of its 16 members.

There is close collaboration and coordination between EKPC and its member systems in this process. This working relationship is essential since EKPC has no retail members. Input from member systems relating to industrial development, subdivision growth, and other specific service area information is crucial to the preparation of accurate forecasts. Review meetings provide opportunities to critique the assumptions and the overall results of the preliminary forecast. The resulting load forecast reflects a combination of EKPC's structured forecast methodology tempered by the judgment and experience of the member system staff. Over the years, this forecasting process has resulted in projections useful to both EKPC and its members. Member cooperatives use their load forecast in developing two, three and four-year work plans, long-range work plans, and financial forecasts. EKPC uses the load forecast in such areas as demand-side management analyses, marketing analyses, transmission planning, resource planning, and financial forecasting.

2.2 Forecast Model Summary

Models are used to develop the load forecast for each member system. A brief overview of each is given in this section. Specifics regarding the models and resulting forecasts are presented in Sections 4 through 8 of this report.

2.2.1 Regional Economic Model

EKPC has divided its members' service area into seven economic regions with economic activity projected for each. Regional forecasts for population, income and employment are developed and used as inputs to residential customer and small commercial customer

and energy forecasts. Therefore, EKPC's economic assumptions regarding its load forecast are consistent.

2.2.2 Residential Sales

This class of energy sales is forecasted using regression analysis. At the member system level, residential energy use per customer is projected using a statistically adjusted end-use model. Variables such as electric price, economic activity, appliance saturations and efficiencies are drivers. The number of residential customers is also projected with regression analysis using economic variables such as population. The member system results are summed to determine total residential customers and total class sales. System residential energy use per customer is calculated by dividing the forecasted number of customers into the energy sales forecast.

2.2.3 Small Commercial Sales

Small commercial energy sales forecast results from regression analysis. The number of small commercial customers is forecasted by means of regression analysis on various regional economic data in addition to the resulting residential customer forecast described above. Exogenous variables include real electric price and economic activity. Energy use per customer is calculated by dividing the forecasted number of customers into the energy sales forecast.

2.2.4 Large Commercial Sales

This class is projected by member systems and EKPC. Member systems project usage for existing large loads. EKPC projects new large loads based on historical development, the presence of industrial parks, and the economy of the service territory.

2.2.5 Seasonal Sales

Seasonal sales are sales to customers with seasonal residences such as vacation homes and weekend retreats. Seasonal sales are relatively small and are reported by only one of EKPC's member systems.

2.2.6 Public Building Sales

Public Building sales include sales to accounts such as government buildings and libraries. The sales are relatively small and are reported by only two of EKPC's member systems.

2.2.7 Public Street and Highway Lighting Sales

The 'Public Street and Highway Lighting' class is relatively small and is usually projected as a function of residential sales. There are 11 member systems that report this class.

2.2.8 Demand-Side Management

For over 20 years, EKPC and its 16 member systems have promoted the cost-effective use of energy by offering conservation and other marketing programs to the retail customer. These programs were designed to meet the needs of the customer, and to delay the need for additional generating capacity. EKPC considers the programs as part of its overall supply portfolio. To incorporate into the 2010 long term load forecast, a demand-side management plan was developed. The plan includes programs that are currently in existence and offered by EKPC's member systems to its customers as well as new programs.

2.2.9 Peak Demand Forecast and Scenarios

Seasonal peak demands are projected using the summation of monthly energy usages and load factors for the various classes of customers. Residential energy usage components include heating, cooling, water heating, and other usage. Using load factors, demand is calculated for each component and then summed to obtain the residential portion of the seasonal peak. Small commercial and large commercial classes use load factors on the class usage to obtain the class contribution to the seasonal peak. High and low case projections have been constructed around the base case forecast. Weather, customer growth and electric price assumptions are significant inputs to the high and low cases.

SECTION 3.0

LOAD FORECAST DISCUSSION

Blank Page

Section 3.0
Load Forecast Discussion

3.1 Introduction

Key assumptions and trends used in the preparation of the load forecast are described in this section along with a discussion of the EKPC service area. Projected peak demand, annual energy requirements, and growth rates are summarized. Differences between the 2008 and 2010 load forecasts are discussed.

3.2 Input Assumptions

Key forecast assumptions used in developing the EKPC and member system load forecasts are:

1. Regional population projections are based upon forecasts provided by IHS Global Insight.

2. EKPC's member systems will add approximately 153,000 residential accounts by 2030. This represents an increase of 1.4 percent per year.

3. EKPC uses an economic model to develop its load forecast. The model uses data for 87 Kentucky counties in seven geographic regions. The economy of these counties will experience modest growth over the next 20 years. The average unemployment rate rose to over 11 percent during 2010 and projections indicate it may take 10 years to recover to pre-recession levels. Nonmanufacturing employment will rise by 390,000 jobs. Regional population will grow from approximately 3.6 million people in 2010 to 4.2 million people in 2030, an average growth of 0.8 percent per year.

4. From 2010 through 2030, approximately 78 percent of all new homes, those constructed within the last five years, will have electric heat. Eighty-seven percent of all new households will have electric water heating. Nearly all new homes will have electric air conditioning, either central or room.

5. Over the forecast period, naturally occurring appliance efficiency improvements will decrease residential retail sales. In addition to lighting, appliances particularly affected are heating, cooling and water heating.

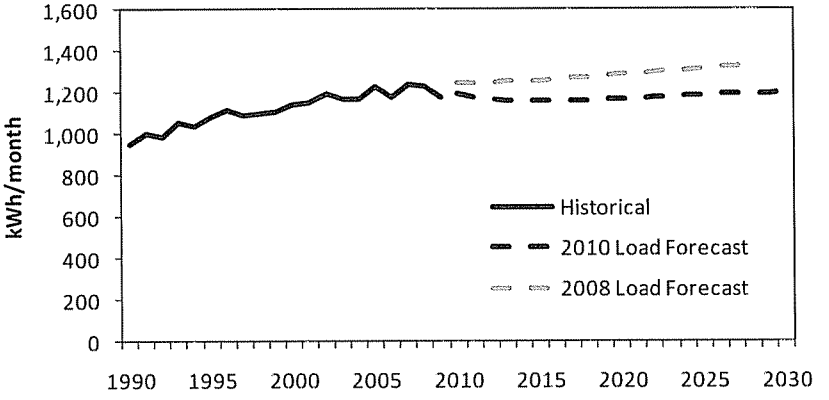
6. Residential customer growth and local area economic activity will be the major determinants of small commercial growth.

7. Forecasted load growth is based on the assumption of normal weather, as defined by the National Oceanic and Atmospheric Administration, occurring over the next 20 years. Seven different stations are used depending on geographic location of the member system.

3.3 Discussion of Service Area

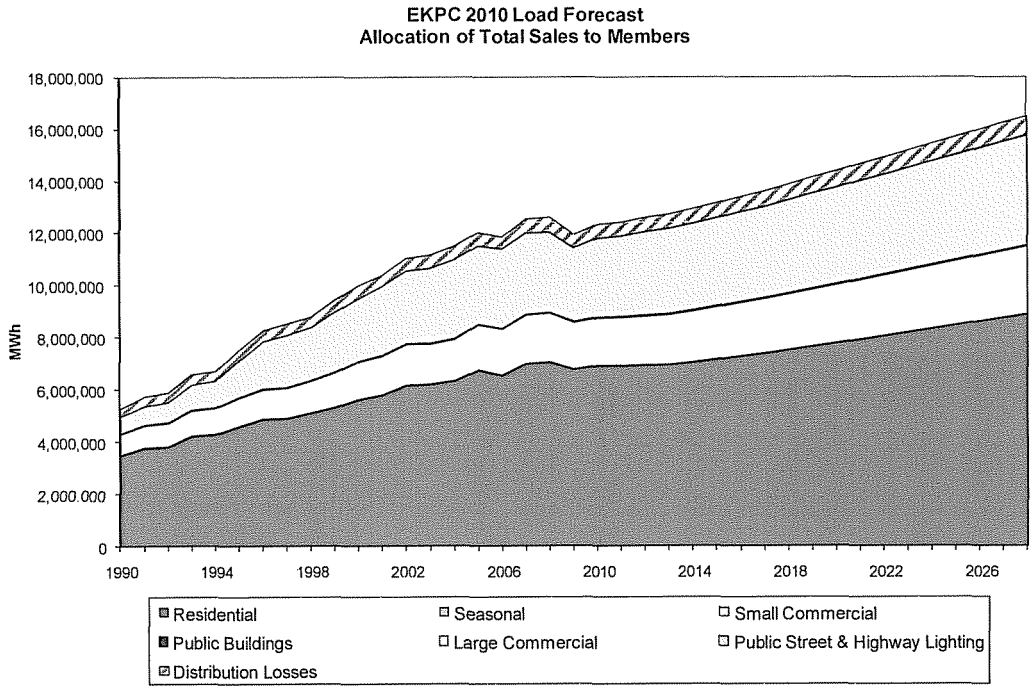
In EKPC's service area, electricity is the primary method for water heating and home heating. Around 87 percent of all homes have electric water heating, and about 60 percent have electric heat. In 2009, 59 percent of EKPC's member retail sales were to the residential class and residential customer use averaged 1,178 kWh per month. As shown in Figure 3-1, appliance efficiency improvements, the economy, and the increasing electricity prices in the forecast period are having a negative impact on future use per customer.

Figure 3-1
Historical Load Forecast Studies
Average Monthly Use Per Residential Customer



While EKPC's load is primarily residential in nature, Figure 3-2 illustrates that commercial/industrial customers make up an increasingly larger share of total retail sales.

Figure 3-2



The economy of EKPC's service area is quite varied. Areas around Lexington and Louisville have a significant amount of manufacturing industry, although that has declined in recent years due to the recession. The region around Cincinnati contains a growing number of retail trade and service jobs while the eastern and southeastern portions of EKPC's service area are dominated by the mining industry. Tourism is an important aspect of EKPC's southern and southwestern service area, with Lake Cumberland and Mammoth Cave National Park contributing to jobs in the service and retail trade industries. This area has also suffered during the recession.

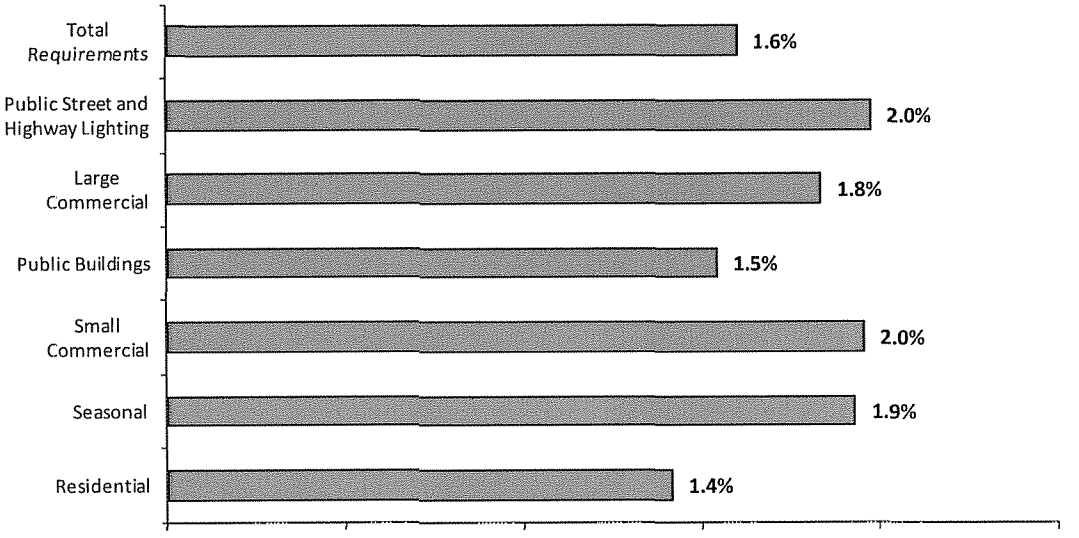
3.4 Summary of Results

The forecast indicates that for the period 2010 through 2030, total energy requirements will increase by 1.6 percent per year. Winter and summer net peak demand will increase by 2.0 percent and 1.4 percent, respectively. Annual load factor is projected to remain relatively flat at around 50 percent. Sales to the residential class are projected to increase by 1.4 percent per year, total commercial sales are projected to increase by 2.3 percent per year. Table 3-1 summarizes demand and total requirements. Figure 3-3 summarizes class growth rates.

Table 3-1
Projected Energy and Peak Demand Growth
Compound Annual Rates of Change

	Historical Growth Rates			2010 Forecast Growth Rates		
	2004-2009	1999-2009	1989-2009	2010-2015	2010-2020	2010-2030
Total Energy Requirements	0.9%	2.3%	4.3%	1.1%	1.4%	1.6%
Net Winter Peak Demand	4.5%	4.6%	5.3%	2.8%	2.2%	2.0%
Net Summer Peak Demand	1.3%	1.8%	3.7%	0.2%	0.9%	1.4%

Figure 3-3
Average Annual Growth in Sales
2010 - 2030



The resulting load forecast is for annual energy requirements to increase from 12,781,011 MWh in 2010 to 17,464,640 MWh in 2030. Annual net winter peak demand increases from 3,006 MW to 4,053 MW for the forecast period. Figures 3-4, 3-5, and 3-6 illustrate actual and projected total energy requirements, seasonal peak demands, and annual load factor for the years 1990 through 2030.

Figure 3-4
Total Requirements

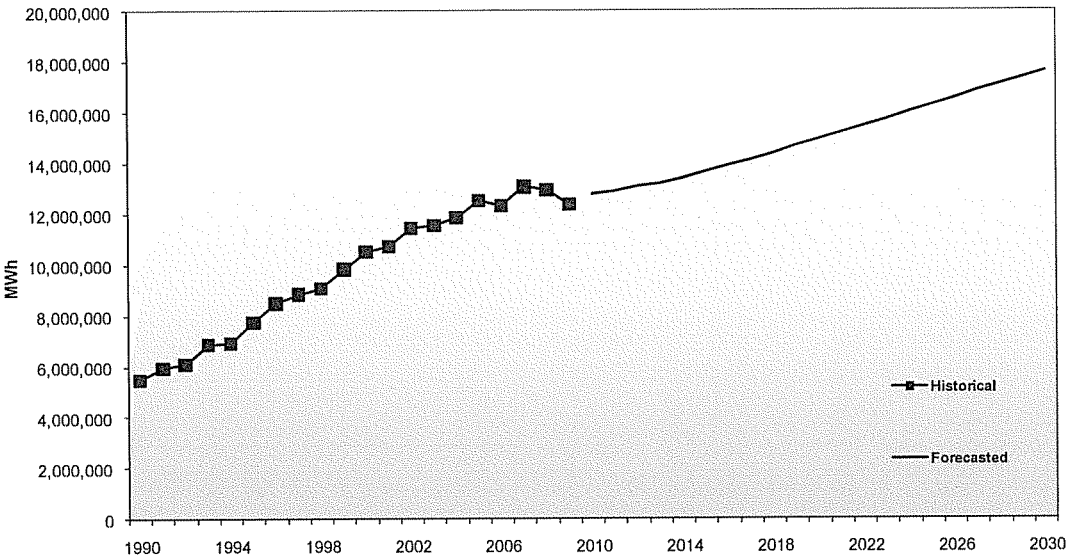


Figure 3-5
Net Peak Demands

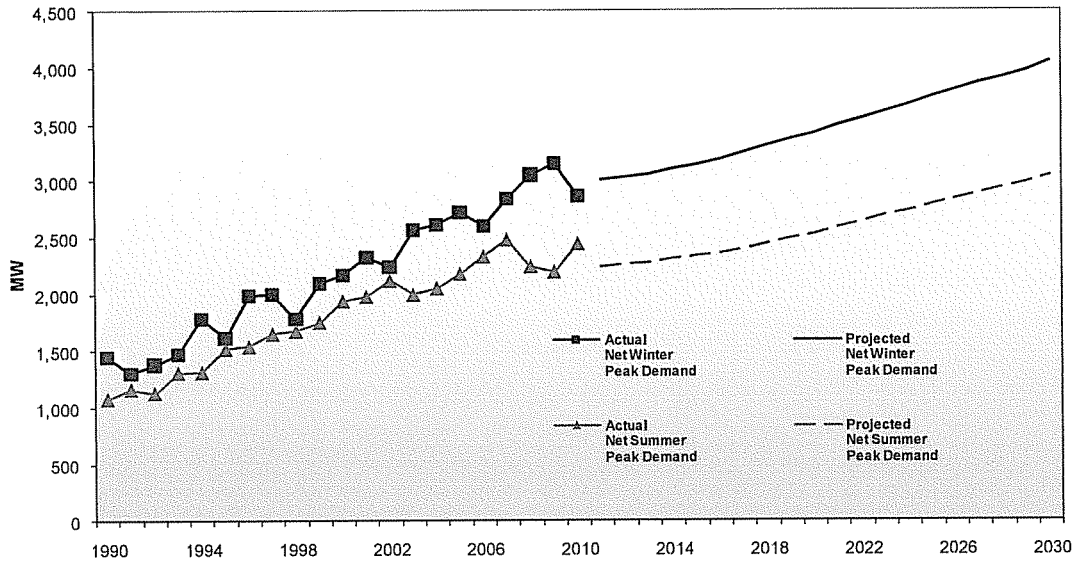
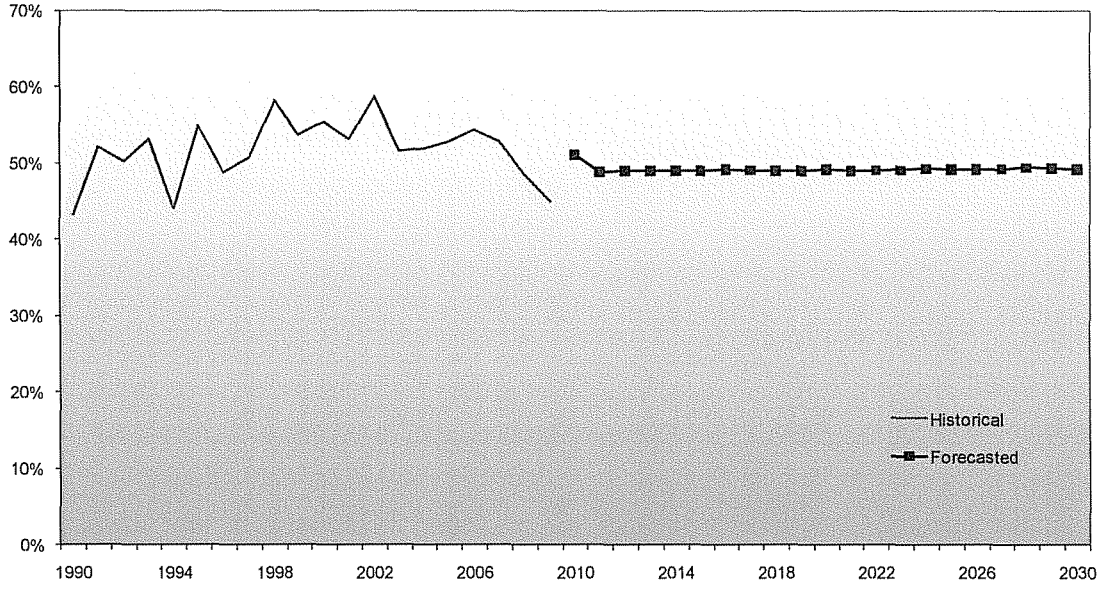


Figure 3-6
Annual System Load Factor



Customer class growth rates, 5, 10, and 20-year average annual energy growth rates, are reported in Tables 3-2, 3-3 and 3-4. Forecasted monthly sales for the first two years of the forecast are presented by class in Table 3-5. Figure 3-7 reports the growth in the winter peak for each member system.

Figure 3-7
Winter Peak Demand
MW Growth 2010 - 2020

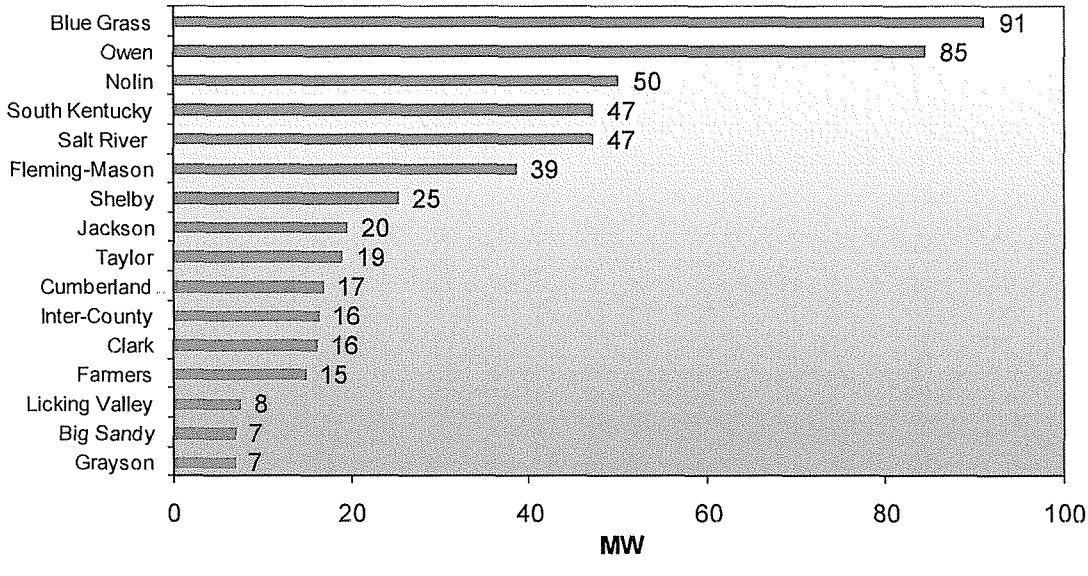


Table 3-2
Average Annual Energy Growth Rates
2010 – 2015

Member Cooperative	Residential Sales %	Seasonal Sales %	Small Commercial Sales %	Public Buildings Sales %	Large Commercial Sales %	Public Street/Highway Lighting Sales %	Total Sales %
Big Sandy	0.0%	N/A	1.3%	N/A	0.0%	N/A	0.3%
Blue Grass	1.7%	N/A	3.3%	N/A	4.5%	3.1%	2.5%
Clark	0.4%	N/A	1.7%	N/A	0.7%	0.1%	0.6%
Cumberland Valley	0.1%	N/A	1.4%	N/A	1.7%	N/A	0.7%
Farmers	0.5%	N/A	1.4%	N/A	0.4%	1.1%	0.6%
Fleming-Mason	0.3%	0.5%	2.1%	N/A	2.8%	0.6%	2.0%
Grayson	0.0%	N/A	1.3%	N/A	0.7%	1.7%	0.4%
Inter-County	0.4%	N/A	2.7%	N/A	0.9%	N/A	0.8%
Jackson Energy	0.1%	N/A	0.6%	N/A	2.7%	N/A	0.4%
Licking Valley	0.4%	N/A	1.5%	N/A	0.7%	N/A	0.6%
Nolin	1.1%	N/A	3.8%	N/A	5.3%	1.9%	2.4%
Owen	1.1%	N/A	2.7%	2.1%	1.5%	0.0%	1.5%
Salt River	1.5%	N/A	2.3%	N/A	1.9%	4.7%	1.7%
Shelby	1.2%	N/A	2.8%	N/A	2.4%	2.1%	1.8%
South Kentucky	0.6%	N/A	0.6%	0.6%	2.7%	0.6%	0.8%
Taylor County	0.7%	N/A	1.8%	N/A	1.0%	2.3%	1.0%
East Kentucky Power	0.7%	0.5%	1.9%	1.6%	2.3%	2.4%	1.3%

Table 3-3
Average Annual Energy Growth Rates
2010 – 2020

Member Cooperative	Residential Sales %	Seasonal Sales %	Small Commercial Sales %	Public Buildings Sales %	Large Commercial Sales %	Public Street/Highway Lighting Sales %	Total Sales %
Big Sandy	0.7%	N/A	1.3%	N/A	0.0%	N/A	0.8%
Blue Grass	2.1%	N/A	3.4%	N/A	3.4%	2.8%	2.6%
Clark	0.9%	N/A	1.5%	N/A	0.7%	0.1%	1.0%
Cumberland Valley	0.7%	N/A	1.5%	N/A	1.7%	N/A	1.1%
Farmers	1.1%	N/A	1.7%	N/A	0.4%	0.9%	1.1%
Fleming-Mason	1.0%	1.4%	2.2%	N/A	2.3%	0.6%	1.9%
Grayson	0.6%	N/A	1.6%	N/A	0.6%	1.7%	0.8%
Inter-County	1.0%	N/A	2.5%	N/A	0.8%	N/A	1.2%
Jackson Energy	0.6%	N/A	0.5%	N/A	2.7%	N/A	0.8%
Licking Valley	0.9%	N/A	1.6%	N/A	0.7%	N/A	1.0%
Nolin	1.5%	N/A	3.5%	N/A	5.0%	1.8%	2.6%
Owen	1.6%	N/A	2.8%	1.9%	1.2%	0.0%	1.5%
Salt River	2.0%	N/A	2.2%	N/A	1.8%	3.9%	2.0%
Shelby	1.8%	N/A	2.6%	N/A	2.3%	2.1%	2.1%
South Kentucky	1.0%	N/A	1.3%	1.0%	3.3%	1.0%	1.4%
Taylor County	0.9%	N/A	1.8%	N/A	1.5%	2.3%	1.2%
East Kentucky Power	1.2%	1.4%	2.0%	1.7%	2.0%	2.2%	1.5%

Table 3-4
Average Annual Energy Growth Rates
2010 - 2030

Member Cooperative	Residential Sales %	Seasonal Sales %	Small Commercial Sales %	Public Buildings Sales %	Large Commercial Sales %	Public Street/Highway Lighting Sales %	Total Sales %
Big Sandy	1.0%	N/A	1.3%	N/A	4.5%	N/A	1.2%
Blue Grass	2.2%	N/A	3.1%	N/A	2.5%	2.5%	2.4%
Clark	1.2%	N/A	1.3%	N/A	2.9%	0.0%	1.3%
Cumberland Valley	1.0%	N/A	1.4%	N/A	1.4%	N/A	1.2%
Farmers	1.3%	N/A	1.7%	N/A	0.8%	0.7%	1.3%
Fleming-Mason	1.4%	1.9%	2.3%	N/A	2.2%	0.6%	2.0%
Grayson	0.9%	N/A	1.6%	N/A	2.3%	1.7%	1.2%
Inter-County	1.3%	N/A	2.1%	N/A	2.1%	N/A	1.5%
Jackson Energy	0.8%	N/A	0.5%	N/A	1.5%	N/A	0.8%
Licking Valley	1.1%	N/A	1.6%	N/A	2.8%	N/A	1.3%
Nolin	1.7%	N/A	3.1%	N/A	3.9%	1.7%	2.4%
Owen	1.9%	N/A	2.8%	1.7%	1.1%	0.0%	1.6%
Salt River	2.1%	N/A	1.9%	N/A	1.6%	3.2%	2.0%
Shelby	2.0%	N/A	2.4%	N/A	2.3%	1.9%	2.2%
South Kentucky	1.1%	N/A	1.4%	1.0%	3.4%	1.1%	1.5%
Taylor County	1.0%	N/A	1.7%	N/A	0.9%	2.1%	1.2%
East Kentucky Power	1.4%	1.9%	2.0%	1.5%	1.8%	2.0%	1.6%

Table 3-5
Monthly Class Energy Sales Forecasts
2010, 2011, 2012

Year	Month	Residential Sales (MWh)	Seasonal Sales (MWh)	Small Comm. Sales (MWh)	Public Buildings Sales (MWh)	Large Comm. Sales (MWh)	Public Street and Highway Lighting Sales (MWh)	Total Retail Sales (MWh)
2010	1	786,779	1,423	152,973	3,450	245,354	748	1,190,727
	2	739,667	1,344	152,470	3,758	240,820	762	1,138,821
	3	630,452	1,258	146,608	3,306	253,583	760	1,035,967
	4	516,909	1,040	145,309	2,916	253,135	760	920,068
	5	455,682	847	144,450	2,641	255,594	760	859,974
	6	478,199	1,036	155,147	2,621	255,088	762	892,854
	7	553,252	2,346	159,555	2,909	257,341	764	976,167
	8	551,182	-164	161,073	2,940	259,760	769	975,560
	9	491,228	1,079	159,219	2,858	247,352	776	902,513
	10	456,878	775	149,346	2,660	262,318	780	872,759
	11	544,652	1,039	145,900	2,689	256,631	786	951,698
	12	712,066	1,410	148,298	2,992	248,198	790	1,113,754
Total		6,916,947	13,434	1,820,349	35,741	3,035,175	9,217	11,830,863
2011	1	784,563	1,423	152,813	3,522	251,201	788	1,194,310
	2	741,809	1,346	153,684	3,806	247,083	791	1,148,519
	3	636,161	1,260	149,371	3,350	259,302	787	1,050,231
	4	523,454	1,041	148,047	2,959	258,377	785	934,663
	5	458,842	846	147,913	2,681	260,912	784	871,978
	6	476,603	1,032	157,884	2,658	259,775	785	898,736
	7	543,961	2,333	161,535	2,939	261,925	786	973,479
	8	544,566	-161	162,494	2,969	263,498	790	974,155
	9	489,243	1,074	161,308	2,887	251,868	796	907,177
	10	460,616	774	151,716	2,690	265,627	800	882,223
	11	549,054	1,039	149,222	2,719	259,802	805	962,641
	12	710,727	1,412	150,973	3,016	252,943	808	1,119,879
Total		6,919,599	13,419	1,846,959	36,195	3,092,314	9,505	11,917,992
2012	1	786,572	1,433	154,243	3,551	260,488	807	1,207,095
	2	745,460	1,355	155,815	3,832	258,516	808	1,165,787
	3	641,831	1,267	152,053	3,381	269,525	805	1,068,863
	4	529,315	1,047	150,802	2,993	268,097	803	953,058
	5	461,945	852	150,890	2,717	270,659	801	887,864
	6	477,743	1,035	160,643	2,694	270,714	802	913,631
	7	540,866	2,326	164,034	2,973	272,069	803	983,070
	8	542,467	-155	164,736	3,003	273,470	807	984,327
	9	489,584	1,073	163,802	2,922	262,025	813	920,218
	10	464,662	775	154,341	2,726	274,706	816	898,027
	11	552,943	1,038	152,225	2,754	269,430	821	979,212
	12	711,546	1,408	153,724	3,049	260,779	824	1,131,330
Total		6,944,934	13,455	1,877,310	36,596	3,210,477	9,711	12,092,483

Totals may not equal sum of components due to independent rounding.

3.5 Major Differences Between EKPC's 2010 and 2008 Load Forecasts

The significant changes include the following:

1.) Economy: EKPC purchases county level projections of economic and demographic variables from IHS Global Insight, a consulting firm with expertise in economic modeling. In 2007, when the 2008 forecast was developed, the majority of the member systems had begun to see declines in housing starts and development in their service. The 2010 load forecast does have the full impacts of the recession. Most notably, unemployment reached an all time high and is not expected to reach prerecession levels for nearly 10 years. Related, personal income levels are also projected to be lower than the previous assumptions. Therefore, the 20 year projections developed in 2010 for customer growth and energy usage are lower than those in 2008. Lastly, the automotive industry experienced sharp declines in response to (1) the national economic downturn and (2) in Kentucky due to various Toyota recalls which resulted in lower sales and interruptions in manufacturing the automobiles. EKPC member systems' serve many satellite industrial and commercial customers that produce parts for Toyota, and as a result of the aforementioned circumstances, were negatively impacted.

2.) Price: The load forecast does incorporate future electricity prices and customers response to fluctuations in price. The forecast uses the most recent Board approved Twenty-year Financial Forecast. The 2010 long term projections are significantly higher than the ones used in the 2008. These increases are due to costs to build a scrubber on Cooper 2, assumptions about future environmental issues such as carbon legislation, and future supply resources.

3.) EKPC attains data regarding future appliance efficiency improvements from the Department of Energy (DOE) Energy Information Administration (EIA). According to the 2009 update, there are more improvements in HVAC and water heating than previously assumed. These efficiency improvements will result in lower sales as consumers replace older less efficient appliances with newer ones. This impact will occur gradually over time. In addition, there are new lighting standards to take effect in 2012.

4.) The 2008 and 2010 load forecasts do incorporate the impacts of a direct load control program that began implementation in 2008. The program is a voluntary

program whereby customers agree to have their water heater(s) and/or air conditioner(s) controlled during peak hours. The goal is to clip 15 MW off the winter peak and 60 MW off the summer peak.

Table 3-6

Forecast Comparison				
		2010	2008	2010 vs 2008
Residential Sales, MWh	2010	6,916,947	7,374,611	-6.2%
	2011	6,919,599	7,493,203	-7.7%
	2012	6,944,934	7,646,800	-9.2%
	2015	7,159,616	8,059,377	-11.2%
	2020	7,788,470	8,899,636	-12.5%
Total Commercial and Industrial Sales, MWh	2010	4,855,524	5,472,156	-11.3%
	2011	4,939,273	5,589,967	-11.6%
	2012	5,087,787	5,706,525	-10.8%
	2015	5,396,957	6,049,352	-10.8%
	2020	5,935,069	6,602,791	-10.1%
Residential Customers	2010	483,501	494,659	-2.3%
	2011	488,709	502,357	-2.7%
	2012	494,637	510,202	-3.1%
	2015	516,244	534,254	-3.4%
	2020	555,378	575,837	-3.6%

Forecast Comparison				
		2010	2008	2010 vs 2008
Net Winter Peak MW	2011	3,006	3,087	-2.6%
	2012	3,033	3,143	-3.5%
	2015	3,147	3,345	-5.9%
	2020	3,414	3,408	0.2%
Net Summer Peak MW	2011	2,238	2,442	-8.4%
	2012	2,263	2,475	-8.6%
	2015	2,334	2,630	-11.3%
	2020	2,535	2,680	-5.4%
Winter Peak DSM/DLC Impacts	2011	148		
	2012	155		
	2015	180		
	2020	208		
Summer Peak DSM/DLC Impacts	2011	157		
	2012	167		
	2015	202		
	2020	224		

Figure 3-8
Historical Load Forecast Studies
Winter Peak Demand Projections

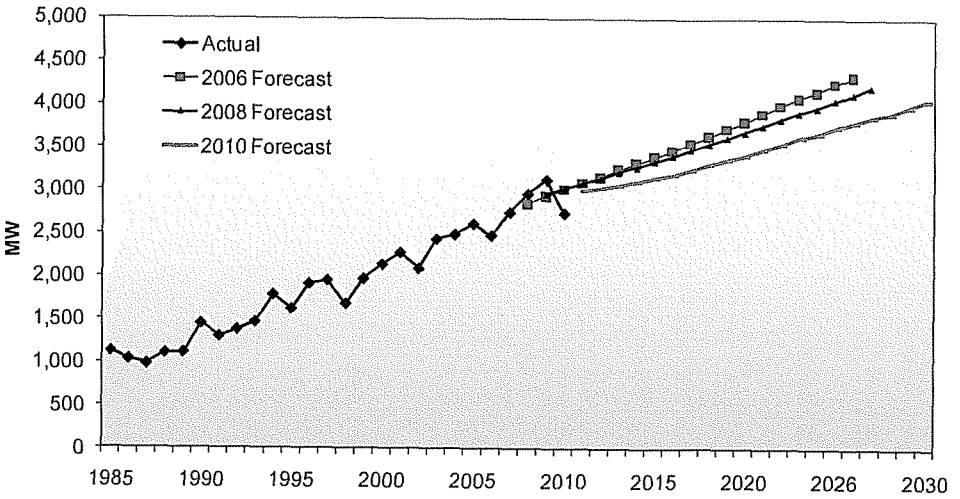
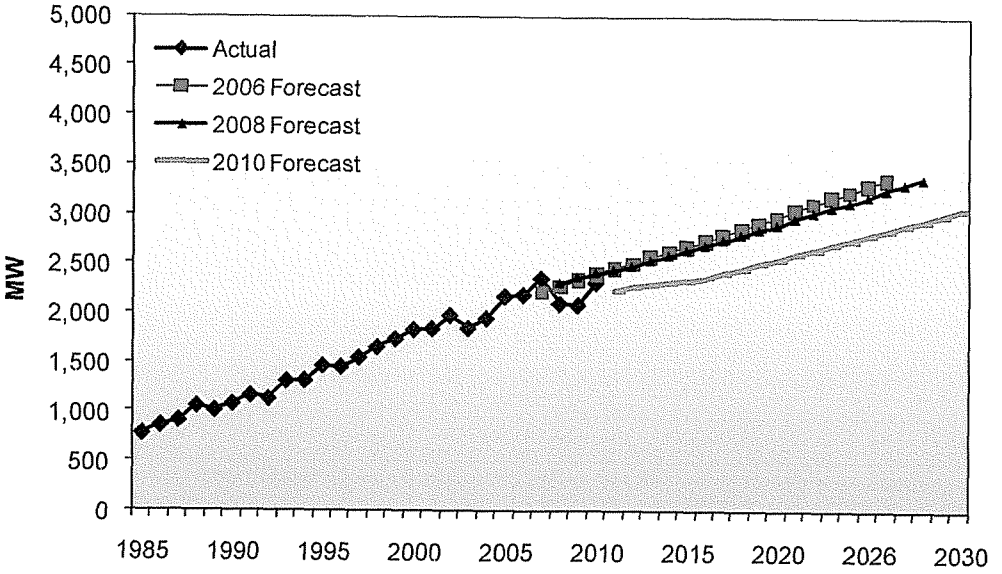


Figure 3-9
Historical Load Forecast Studies
Summer Peak Demand



Blank Page

SECTION 4.0

REGIONAL ECONOMIC MODEL

Blank Page

Section 4.0
Regional Economic Model

Part of EKPC's load forecast methodology includes regional economic modeling. EKPC subscribes to IHS Global Insight, Inc., for analysis regarding regional economic performance. IHS Global Insight, Inc., is a widely used consulting firm with expertise in economic analyses. They collect and monitor data, provide forecasts and analyses, and offer consulting advice to clients in business, financial, and government organizations. IHS Global Insight collects historical Kentucky county level data for many economic variables, develops forecasting models based on the data, and provides the resulting forecasts to EKPC. Consistent regional forecasts are developed. County level historical and projected data provided to EKPC include:

- Employment (NAICS)
  - Total Non-farm, Non-Manufacturing, Service Providing Private, Construction, Natural Resources and Mining, Manufacturing, Transportation, Trade & Utilities, Information, Financial Activities, Professional & Business Services, Educational & Health Services, Leisure & Hospitality, Other Services, Government, Federal Government , State & Local Government, Military
- Unemployment Rate
- Labor Force
- Personal Income
- Wage Disbursements, Total Non-farm
- Non-wage Income
- Average Annual Wage, Non-Farm Employment
- Per Capita Personal Income
- Average Household Income
- Real Personal Income
- Real Wage Disbursements, Total Non-farm
- Real Non-wage Income
- Real Per Capita Personal Income
- Population, Total and By Age Group
- Heads of Households, Total and By Age Group

These county level projections are combined into regional economic activity. EKPC converts IHS Global Insight's quarterly county-level projections to monthly values to use in the load forecasting models.

EKPC has divided its members' service areas into seven economic regions based on the member system service territorial boundaries. Some natural regions exist within the EKPC territory. For example, the Central Economic Region defined by EKPC fits closely within the Lexington Standard Metropolitan Statistical Area ("SMSA"). The BEA defines SMSA's as areas of interrelated economic activity that go beyond a single county's boundaries. The Northern Region includes Kentucky counties that border Cincinnati. A list of regions and counties that impact the service area is provided in Table 4-1.

Table 4-1
Regional Economic Model, Counties by Region

Central South	Central North	South	Central	North	North East	East
Allen	Bullitt	Adair	Anderson	Boone	Bath	Bell
Barren	Hardin	Boyle	Bourbon	Bracken	Boyd	Breathitt
Butler	Henry	Casey	Clark	Campbell	Carter	Clay
Cumberland	Jefferson	Garrard	Fayette	Carroll	Elliott	Estill
Edmonson	Larue	Green	Franklin	Gallatin	Fleming	Floyd
Grayson	Meade	Lincoln	Harrison	Grant	Greenup	Harlan
Hart	Nelson	Marion	Jessamine	Kenton	Lawrence	Jackson
Metcalfe	Oldham	McCreary	Madison	Owen	Lewis	Johnson
Monroe	Shelby	Pulaski	Mercer	Pendleton	Mason	Knott
Simpson	Spencer	Russell	Scott		Menifee	Knox
Warren	Trimble	Taylor	Woodford		Montgomery	Laurel
	Washington	Wayne			Nicholas	Lee
					Powell	Leslie
					Robertson	Letcher
					Rowan	Magoffin
						Martin
						Morgan
						Owsley
						Perry
						Pike
						Rockcastle
						Whitley
						Wolfe

Economic models for these seven economic regions provide EKPC with a way of linking the electricity needs of a service area to the rest of the service area's economy in a consistent and reasonable manner. Projections of regional economic activity enhance the sales forecasting and strategic planning of EKPC because changes in regional employment and income are important

determinants of customer and sales growth. Tables 4-3 through 4-9 on pages 42 through 48 report regional economic summaries.

Overview of Key Variables

Changes in regional employment and income are important determinants of customer and sales growth. Population forecasts, shown in Table 4-2, are used to project residential class customers; regional household income is used to project residential sales; and regional economic activity is used to project small commercial sales. The spreadsheets with the county level data from IHS Global Insight are provided in Appendix B.

Table 4-2
Key Load Forecast Variables
Annual Average Growth Rate

Year	1990-2000	2000-2010	2010-2020	2020-2030
Population	1.0%	0.8%	0.8%	0.6%
Nonfarm Employment	2.2%	-0.3%	1.5%	0.8%
Real Personal Income Per Capita	2.1%	-0.1%	2.2%	2.0%

An important variable that impacts the load forecast is regional population. Historical population grew rapidly during the seventies and slowed during the second half of the eighties. The growth increased during the late nineties and early two-thousands and presently, has slowed down. Given the decline the economy is currently exhibiting, population growth is expected to be low for the next several years.

Figure 4-1
Total Population, All Regions

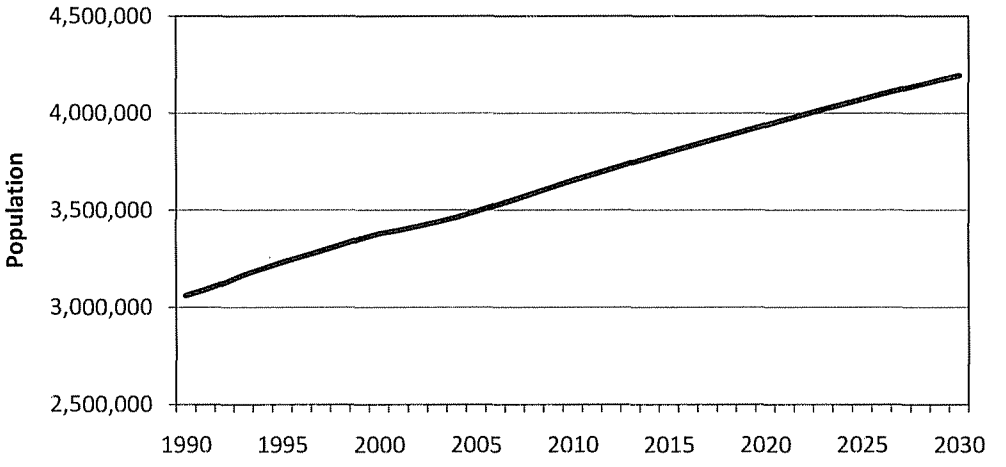
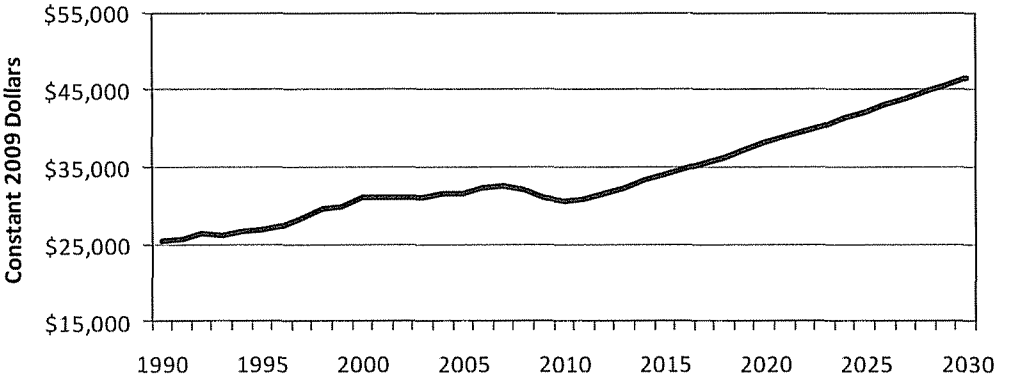


Figure 4-2 illustrates the cyclical nature of income growth, and the sensitivity to the national economy exhibited by EKPC's service area. Whenever employment levels decrease or wage levels fall, personal income will be adversely affected. EKPC's forecast of total regional income is for moderate but steady growth. This variable is important to the load forecast because of its strong effect on appliance purchases and electric usage. Per Capita Income (PCY) is defined as personal income divided by total population. In 2009, regional PCY was $31,000. EKPC projects this to increase to $47,000 in 2009 constant dollars by 2030.

Figure 4-2
Real Per Capita Income, All Regions



Total regional employment is tied closely to the national economy. The early eighties was a period of depressed job growth. From the mid 80s to the early 2000s, however, total employment grew strongly. During the recent economic downturn, employment fell. The unemployment rate reached an all time high, however, it is expected to recover slowly over the next decade.

Figure 4-3
Total Nonfarm Employment, All Regions

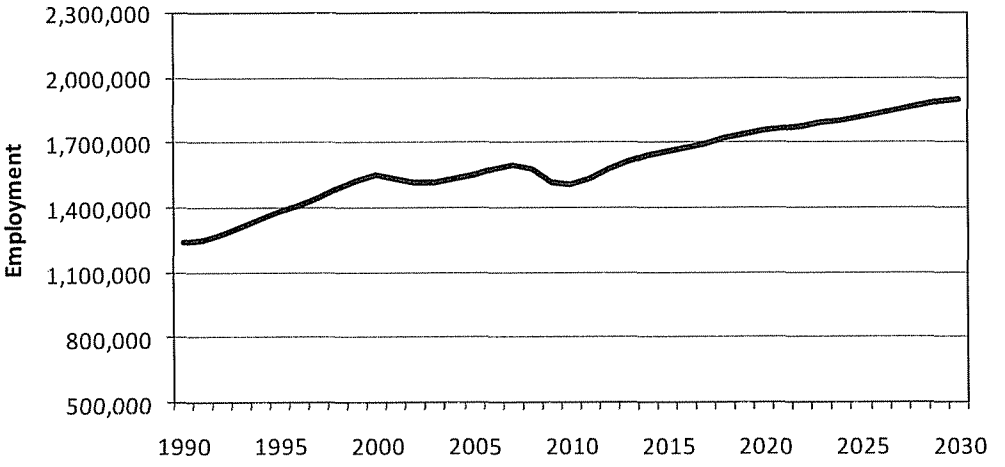


Figure 4-4 shows historical and projected households. As is shown, household growth did flatten during the recent recession but it is expected to grow moderately over the 20 year forecast period.

Figure 4-4
Total Number of Households, All Regions

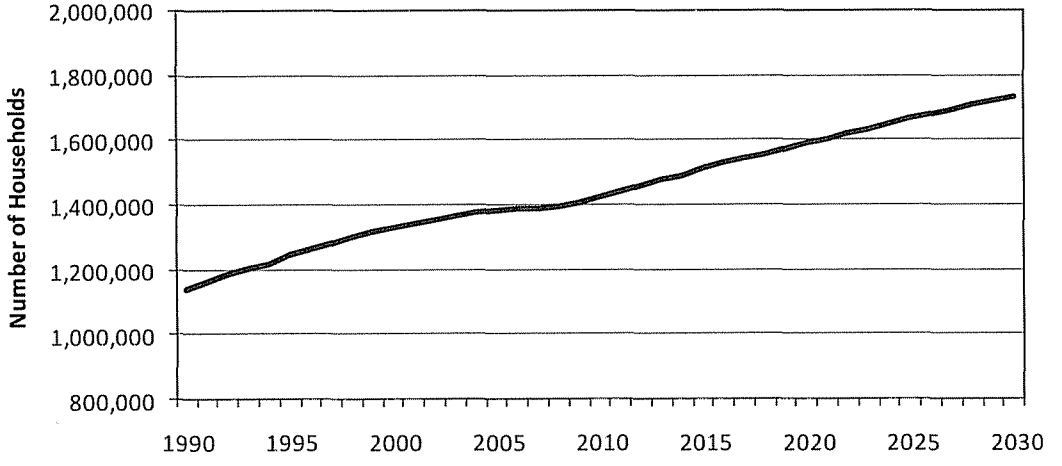


Table 4-3
Southern Economic Region History and Forecast Summary

	Population		Households		Total Employment		Unemployment Rate		Regional Total Income	
		(%) Change		(%) Change		(%) Change		(%) Change		(%) Change
1990	233,779		88,268		73,839		8.5%		$4,616	
1991	236,684	1.2%	90,417	2.4%	76,454	3.5%	8.1%	-5.2%	$4,898	6.1%
1992	240,048	1.4%	92,179	1.9%	78,547	2.7%	7.7%	-4.5%	$5,108	4.3%
1993	243,265	1.3%	93,299	1.2%	80,654	2.7%	6.9%	-10.0%	$5,150	0.8%
1994	246,640	1.4%	94,855	1.7%	83,022	2.9%	5.6%	-19.7%	$5,250	1.9%
1995	250,038	1.4%	97,144	2.4%	84,473	1.7%	6.4%	15.1%	$5,256	0.1%
1996	252,882	1.1%	98,946	1.9%	84,230	-0.3%	7.0%	9.2%	$5,487	4.4%
1997	255,296	1.0%	100,158	1.2%	85,221	1.2%	7.9%	13.4%	$5,748	4.8%
1998	257,602	0.9%	101,375	1.2%	86,272	1.2%	9.7%	22.7%	$5,926	3.1%
1999	259,993	0.9%	102,837	1.4%	90,927	5.4%	5.5%	-43.3%	$6,015	1.5%
2000	261,660	0.6%	103,953	1.1%	95,650	5.2%	4.6%	-15.8%	$6,321	5.1%
2001	263,280	0.6%	105,044	1.0%	93,422	-2.3%	6.9%	49.4%	$6,342	0.3%
2002	265,124	0.7%	106,224	1.1%	93,516	0.1%	6.7%	-2.9%	$6,411	1.1%
2003	266,934	0.7%	107,027	0.8%	92,450	-1.1%	6.7%	-0.3%	$6,467	0.9%
2004	269,141	0.8%	107,900	0.8%	93,443	1.1%	5.7%	-15.4%	$6,591	1.9%
2005	271,261	0.8%	108,346	0.4%	94,837	1.5%	6.7%	17.3%	$6,561	-0.5%
2006	273,133	0.7%	108,332	0.0%	96,566	1.8%	6.3%	-6.2%	$6,784	3.4%
2007	275,005	0.7%	108,536	0.2%	96,534	0.0%	6.1%	-2.5%	$6,713	-1.0%
2008	276,799	0.7%	108,459	-0.1%	94,166	-2.5%	8.0%	31.6%	$6,699	-0.2%
2009	278,845	0.7%	109,041	0.5%	88,917	-5.6%	12.4%	55.1%	$6,437	-3.9%
2010	281,060	0.8%	110,567	1.4%	89,325	0.5%	11.7%	-6.0%	$6,450	0.2%
2011	283,301	0.8%	111,693	1.0%	91,347	2.3%	10.6%	-9.2%	$6,548	1.5%
2012	285,520	0.8%	112,426	0.7%	93,789	2.7%	9.8%	-7.9%	$6,795	3.8%
2013	287,957	0.9%	113,700	1.1%	95,789	2.1%	9.3%	-4.6%	$7,017	3.3%
2014	290,136	0.8%	114,440	0.7%	97,140	1.4%	8.9%	-4.5%	$7,230	3.0%
2019	301,044	0.6%	121,572	0.9%	102,651	0.8%	6.3%	-4.8%	$8,275	1.9%
2029	319,166	0.6%	131,617	0.8%	112,466	0.9%	5.7%	-0.9%	$10,687	2.6%

Notes: *Regional Income is reported in millions of 2009 dollars. Growth rates are average annual changes.*

Table 4-4
Eastern Economic Region History and Forecast Summary

	Population		Households		Total Employment		Unemployment Rate		Regional Total Income	
		(%) Change		(%) Change		(%) Change		(%) Change		(%) Change
1990	539,631		194,258		142,660		9.9%		$9,758	
1991	543,334	0.7%	194,560	0.2%	145,122	1.7%	12.2%	23.7%	$10,175	4.3%
1992	546,601	0.6%	196,476	1.0%	146,459	0.9%	11.2%	-8.4%	$10,472	2.9%
1993	549,171	0.5%	199,580	1.6%	149,216	1.9%	8.8%	-21.8%	$10,521	0.5%
1994	551,088	0.3%	201,819	1.1%	153,552	2.9%	8.8%	0.4%	$10,656	1.3%
1995	551,633	0.1%	203,937	1.0%	155,711	1.4%	9.6%	8.6%	$10,615	-0.4%
1996	550,919	-0.1%	206,296	1.2%	155,841	0.1%	10.2%	6.5%	$10,862	2.3%
1997	550,432	-0.1%	208,702	1.2%	158,474	1.7%	7.3%	-28.6%	$11,245	3.5%
1998	549,924	-0.1%	210,316	0.8%	162,171	2.3%	6.9%	-5.3%	$11,623	3.4%
1999	549,294	-0.1%	211,631	0.6%	166,775	2.8%	7.1%	3.3%	$11,752	1.1%
2000	547,108	-0.4%	212,958	0.6%	169,738	1.8%	6.2%	-12.7%	$12,127	3.2%
2001	545,768	-0.2%	214,037	0.5%	168,320	-0.8%	6.9%	10.6%	$12,220	0.8%
2002	545,836	0.0%	215,060	0.5%	167,157	-0.7%	7.8%	14.4%	$12,221	0.0%
2003	544,582	-0.2%	215,880	0.4%	164,668	-1.5%	8.0%	2.1%	$12,282	0.5%
2004	543,726	-0.2%	216,469	0.3%	166,805	1.3%	6.5%	-18.4%	$12,554	2.2%
2005	543,748	0.0%	216,621	0.1%	167,814	0.6%	7.4%	13.3%	$12,512	-0.3%
2006	544,426	0.1%	216,253	-0.2%	168,909	0.7%	7.0%	-5.3%	$12,913	3.2%
2007	545,358	0.2%	215,882	-0.2%	168,687	-0.1%	6.9%	-1.7%	$12,798	-0.9%
2008	546,181	0.2%	215,161	-0.3%	167,171	-0.9%	7.9%	14.6%	$12,799	0.0%
2009	547,035	0.2%	214,784	-0.2%	157,593	-5.7%	13.1%	65.3%	$12,246	-4.3%
2010	548,142	0.2%	214,845	0.0%	158,311	0.5%	12.3%	-5.6%	$12,206	-0.3%
2011	549,225	0.2%	215,713	0.4%	161,341	1.9%	11.2%	-9.0%	$12,315	0.9%
2012	550,193	0.2%	216,886	0.5%	165,355	2.5%	10.2%	-9.1%	$12,704	3.2%
2013	551,526	0.2%	218,146	0.6%	168,385	1.8%	9.6%	-5.8%	$13,044	2.7%
2014	552,302	0.1%	219,042	0.4%	170,304	1.1%	9.0%	-6.0%	$13,368	2.5%
2019	555,716	0.1%	225,410	0.4%	177,444	0.6%	6.1%	-5.5%	$14,915	1.6%
2029	555,644	0.0%	233,455	0.4%	188,220	0.6%	5.5%	-0.9%	$18,186	2.0%

Notes: *Regional Income is reported in millions of 2009 dollars. Growth rates are average annual changes.*

Table 4-5
North Eastern Economic Region History and Forecast Summary

	Population		Households		Total Employment		Unemployment Rate		Regional Total Income	
		(%) Change		(%) Change		(%) Change		(%) Change		(%) Change
1990	250,788		92,830		77,738		8.8%		$5,277	
1991	252,745	0.8%	94,569	1.9%	78,126	0.5%	10.1%	14.6%	$5,492	4.1%
1992	254,920	0.9%	96,003	1.5%	80,058	2.5%	10.9%	8.8%	$5,628	2.5%
1993	256,441	0.6%	96,719	0.7%	79,845	-0.3%	9.8%	-10.2%	$5,614	-0.2%
1994	257,720	0.5%	97,700	1.0%	82,255	3.0%	7.8%	-20.7%	$5,697	1.5%
1995	258,925	0.5%	99,283	1.6%	83,948	2.1%	7.6%	-2.2%	$5,676	-0.4%
1996	260,247	0.5%	100,666	1.4%	85,549	1.9%	7.4%	-3.1%	$5,872	3.4%
1997	261,862	0.6%	101,690	1.0%	87,562	2.4%	6.8%	-7.7%	$6,091	3.7%
1998	263,275	0.5%	102,613	0.9%	89,551	2.3%	6.1%	-11.0%	$6,272	3.0%
1999	264,619	0.5%	103,509	0.9%	90,361	0.9%	5.6%	-7.0%	$6,307	0.6%
2000	265,547	0.4%	104,079	0.6%	91,558	1.3%	5.6%	-0.3%	$6,527	3.5%
2001	266,241	0.3%	104,779	0.7%	91,513	0.0%	7.4%	31.1%	$6,522	-0.1%
2002	266,830	0.2%	105,281	0.5%	93,393	2.1%	6.4%	-12.8%	$6,641	1.8%
2003	267,339	0.2%	105,816	0.5%	93,711	0.3%	7.0%	9.6%	$6,706	1.0%
2004	268,032	0.3%	106,358	0.5%	94,350	0.7%	6.5%	-8.3%	$6,766	0.9%
2005	269,409	0.5%	106,532	0.2%	95,244	0.9%	6.7%	4.2%	$6,695	-1.1%
2006	270,792	0.5%	106,412	-0.1%	94,755	-0.5%	6.1%	-9.9%	$6,955	3.9%
2007	271,990	0.4%	106,409	0.0%	95,905	1.2%	5.9%	-3.3%	$6,913	-0.6%
2008	273,498	0.6%	106,319	-0.1%	93,556	-2.4%	7.8%	34.0%	$6,901	-0.2%
2009	275,118	0.6%	106,792	0.4%	89,461	-4.4%	11.8%	50.2%	$6,651	-3.6%
2010	276,922	0.7%	108,136	1.3%	90,046	0.7%	11.2%	-5.3%	$6,650	0.0%
2011	278,724	0.7%	109,066	0.9%	92,167	2.4%	10.0%	-10.2%	$6,751	1.5%
2012	280,423	0.6%	109,541	0.4%	94,674	2.7%	9.1%	-9.7%	$7,004	3.7%
2013	282,363	0.7%	110,574	0.9%	96,601	2.0%	8.6%	-5.1%	$7,215	3.0%
2014	284,092	0.6%	111,117	0.5%	98,085	1.5%	8.2%	-4.8%	$7,405	2.6%
2019	292,208	0.5%	116,913	0.7%	104,077	0.9%	5.6%	-5.2%	$8,363	1.8%
2029	303,507	0.4%	123,619	0.6%	111,477	0.7%	5.5%	-0.2%	$10,375	2.2%

Notes: *Regional Income is reported in millions of 2009 dollars. Growth rates are average annual changes.*

Table 4-6
Central Southern Economic Region History and Forecast Summary

	Population		Households		Total Employment		Unemployment Rate		Regional Total Income	
		(%) Change		(%) Change		(%) Change		(%) Change		(%) Change
1990	227,961		86,481		86,311		7.3%		$4,837	
1991	230,749	1.2%	88,230	2.0%	90,367	4.7%	7.3%	0.7%	$5,146	6.4%
1992	234,398	1.6%	89,953	2.0%	92,930	2.8%	6.2%	-14.9%	$5,411	5.1%
1993	238,504	1.8%	91,456	1.7%	96,387	3.7%	5.2%	-16.7%	$5,577	3.1%
1994	242,375	1.6%	93,100	1.8%	100,828	4.6%	4.4%	-15.5%	$5,791	3.8%
1995	246,241	1.6%	95,285	2.3%	102,972	2.1%	5.8%	31.2%	$5,812	0.4%
1996	249,661	1.4%	97,125	1.9%	104,874	1.8%	6.9%	19.8%	$6,041	3.9%
1997	253,196	1.4%	98,652	1.6%	107,199	2.2%	5.1%	-26.8%	$6,311	4.5%
1998	256,302	1.2%	99,989	1.4%	110,163	2.8%	4.5%	-11.7%	$6,568	4.1%
1999	259,001	1.1%	101,324	1.3%	113,662	3.2%	4.5%	0.2%	$6,709	2.1%
2000	261,043	0.8%	102,323	1.0%	114,236	0.5%	4.5%	0.4%	$6,915	3.1%
2001	262,472	0.5%	103,073	0.7%	110,733	-3.1%	6.1%	37.0%	$6,799	-1.7%
2002	264,369	0.7%	103,822	0.7%	111,475	0.7%	5.8%	-6.2%	$6,918	1.8%
2003	267,012	1.0%	105,044	1.2%	112,036	0.5%	5.9%	1.8%	$7,096	2.6%
2004	270,079	1.1%	106,321	1.2%	114,308	2.0%	5.0%	-14.6%	$7,291	2.8%
2005	273,665	1.3%	106,995	0.6%	115,842	1.3%	6.1%	21.8%	$7,292	0.0%
2006	276,909	1.2%	107,312	0.3%	116,965	1.0%	5.6%	-8.0%	$7,560	3.7%
2007	279,927	1.1%	107,574	0.2%	118,203	1.1%	5.2%	-7.6%	$7,510	-0.7%
2008	283,242	1.2%	107,588	0.0%	115,536	-2.3%	7.4%	42.7%	$7,509	0.0%
2009	286,637	1.2%	108,180	0.6%	108,597	-6.0%	12.7%	71.9%	$7,165	-4.6%
2010	289,577	1.0%	109,722	1.4%	109,234	0.6%	12.0%	-5.3%	$7,189	0.3%
2011	292,561	1.0%	110,953	1.1%	111,718	2.3%	10.4%	-13.4%	$7,301	1.5%
2012	295,396	1.0%	111,601	0.6%	114,758	2.7%	9.3%	-10.9%	$7,580	3.8%
2013	298,248	1.0%	112,842	1.1%	117,214	2.1%	8.8%	-5.7%	$7,821	3.2%
2014	300,829	0.9%	113,562	0.6%	118,910	1.4%	8.3%	-5.1%	$8,037	2.8%
2019	313,919	0.7%	120,710	0.9%	126,029	0.8%	5.5%	-5.7%	$9,158	1.9%
2029	337,205	0.7%	131,461	0.9%	136,714	0.8%	5.6%	0.1%	$11,451	2.3%

Notes: *Regional Income is reported in millions of 2009 dollars. Growth rates are average annual changes.*

Table 4-7
Central Northern Economic Region History and Forecast Summary

	Population		Households		Total Employment		Unemployment Rate		Regional Total Income	
		(%) Change		(%) Change		(%) Change		(%) Change		(%) Change
1990	965,888		367,775		478,838		5.7%		$28,955	
1991	971,615	0.6%	373,499	1.6%	472,286	-1.4%	6.2%	9.6%	$29,989	3.6%
1992	983,068	1.2%	379,785	1.7%	482,171	2.1%	5.7%	-8.9%	$30,994	3.4%
1993	995,613	1.3%	384,632	1.3%	499,323	3.6%	4.4%	-21.6%	$31,297	1.0%
1994	1,005,242	1.0%	389,684	1.3%	513,449	2.8%	4.4%	-1.5%	$32,081	2.5%
1995	1,012,893	0.8%	396,529	1.8%	523,122	1.9%	4.6%	4.7%	$32,449	1.1%
1996	1,020,012	0.7%	401,897	1.4%	536,488	2.6%	5.0%	9.4%	$33,339	2.7%
1997	1,028,526	0.8%	406,223	1.1%	545,760	1.7%	3.9%	-22.4%	$34,686	4.0%
1998	1,038,354	1.0%	410,773	1.1%	557,370	2.1%	3.7%	-5.1%	$36,797	6.1%
1999	1,049,229	1.0%	415,642	1.2%	565,701	1.5%	4.1%	10.6%	$37,509	1.9%
2000	1,057,318	0.8%	419,191	0.9%	567,751	0.4%	3.9%	-4.6%	$39,105	4.3%
2001	1,063,817	0.6%	422,802	0.9%	552,912	-2.6%	5.7%	45.8%	$39,645	1.4%
2002	1,071,095	0.7%	426,202	0.8%	550,248	-0.5%	5.6%	-1.5%	$40,164	1.3%
2003	1,078,984	0.7%	430,005	0.9%	550,828	0.1%	6.1%	8.5%	$40,551	1.0%
2004	1,087,216	0.8%	433,606	0.8%	557,057	1.1%	5.1%	-15.4%	$41,390	2.1%
2005	1,095,982	0.8%	434,887	0.3%	563,831	1.2%	6.3%	21.9%	$41,418	0.1%
2006	1,106,649	1.0%	435,487	0.1%	570,067	1.1%	5.7%	-9.5%	$43,591	5.2%
2007	1,117,935	1.0%	436,989	0.3%	578,102	1.4%	5.5%	-2.7%	$43,675	0.2%
2008	1,128,275	0.9%	441,520	1.0%	566,899	-1.9%	7.4%	33.4%	$43,952	0.6%
2009	1,138,597	0.9%	445,314	0.9%	551,193	-2.8%	11.3%	53.0%	$42,220	-3.9%
2010	1,148,544	0.9%	453,444	1.8%	554,037	0.5%	11.0%	-2.4%	$42,764	1.3%
2011	1,157,426	0.8%	459,585	1.4%	567,622	2.5%	9.9%	-10.1%	$43,512	1.7%
2012	1,167,172	0.8%	464,248	1.0%	581,667	2.5%	9.0%	-8.8%	$45,147	3.8%
2013	1,175,234	0.7%	469,917	1.2%	592,795	1.9%	8.6%	-4.5%	$46,797	3.7%
2014	1,184,518	0.8%	474,113	0.9%	599,820	1.2%	8.3%	-4.0%	$48,571	3.8%
2019	1,227,427	0.6%	503,645	0.9%	630,330	0.7%	6.2%	-3.9%	$56,722	2.2%
2029	1,316,363	0.7%	552,469	0.9%	668,112	0.6%	5.7%	-0.9%	$74,678	2.8%

Notes: *Regional Income is reported in millions of 2009 dollars. Growth rates are average annual changes.*

Table 4-8
Central Economic Region History and Forecast Summary

	Population		Households		Total Employment		Unemployment Rate		Regional Total Income	
		(%) Change		(%) Change		(%) Change		(%) Change		(%) Change
1990	505,897		192,949		261,835		4.2%		$14,724	
1991	514,596	1.7%	198,344	2.8%	265,692	1.5%	4.2%	-0.4%	$15,302	3.9%
1992	524,323	1.9%	203,138	2.4%	272,004	2.4%	4.2%	-0.6%	$15,841	3.5%
1993	533,045	1.7%	206,781	1.8%	280,184	3.0%	3.6%	-14.7%	$15,990	0.9%
1994	540,583	1.4%	210,503	1.8%	288,478	3.0%	3.3%	-8.0%	$16,381	2.4%
1995	548,600	1.5%	215,120	2.2%	297,872	3.3%	2.9%	-10.4%	$16,795	2.5%
1996	556,676	1.5%	219,487	2.0%	303,710	2.0%	3.2%	8.1%	$17,511	4.3%
1997	564,879	1.5%	223,375	1.8%	314,215	3.5%	2.5%	-22.8%	$18,388	5.0%
1998	573,962	1.6%	227,805	2.0%	324,422	3.2%	2.4%	-2.3%	$19,541	6.3%
1999	582,545	1.5%	232,222	1.9%	332,907	2.6%	2.2%	-7.9%	$20,054	2.6%
2000	589,532	1.2%	235,587	1.4%	336,449	1.1%	3.3%	49.2%	$20,592	2.7%
2001	594,787	0.9%	238,189	1.1%	325,276	-3.3%	4.8%	44.5%	$20,357	-1.1%
2002	600,502	1.0%	240,951	1.2%	324,527	-0.2%	4.7%	-2.2%	$20,509	0.7%
2003	607,482	1.2%	243,863	1.2%	324,705	0.1%	4.8%	2.5%	$20,793	1.4%
2004	615,013	1.2%	246,751	1.2%	327,051	0.7%	4.3%	-9.2%	$21,247	2.2%
2005	623,970	1.5%	248,731	0.8%	334,189	2.2%	5.0%	15.6%	$21,444	0.9%
2006	632,948	1.4%	249,811	0.4%	340,502	1.9%	4.5%	-10.0%	$22,632	5.5%
2007	641,582	1.4%	251,177	0.5%	341,708	0.4%	4.4%	-1.9%	$22,741	0.5%
2008	650,968	1.5%	253,938	1.1%	334,644	-2.1%	5.9%	33.2%	$22,908	0.7%
2009	659,515	1.3%	256,620	1.1%	322,289	-3.7%	9.3%	57.3%	$22,004	-3.9%
2010	667,080	1.1%	261,800	2.0%	323,991	0.5%	9.1%	-1.4%	$22,301	1.3%
2011	674,783	1.2%	266,066	1.6%	331,026	2.2%	8.2%	-10.5%	$22,794	2.2%
2012	682,137	1.1%	269,105	1.1%	339,817	2.7%	7.4%	-9.4%	$23,693	3.9%
2013	689,564	1.1%	273,231	1.5%	346,958	2.1%	7.0%	-4.8%	$24,608	3.9%
2014	696,665	1.0%	276,157	1.1%	352,148	1.5%	6.8%	-3.7%	$25,590	4.0%
2019	731,952	0.8%	296,942	1.0%	372,700	0.8%	5.1%	-4.1%	$30,000	2.3%
2029	801,711	0.9%	331,511	1.1%	404,973	0.8%	4.8%	-0.6%	$39,917	2.9%

Notes: *Regional Income is reported in millions of 2009 dollars. Growth rates are average annual changes.*

Table 4-9
Northern Economic Region History and Forecast Summary

	Population		Households		Total Employment		Unemployment Rate		Regional Total Income	
		(%) Change		(%) Change		(%) Change		(%) Change		(%) Change
1990	346,742		126,781		125,272		4.2%		$9,167	
1991	351,976	1.5%	129,687	2.3%	126,775	1.2%	5.8%	38.6%	$9,552	4.2%
1992	357,590	1.6%	132,664	2.3%	130,709	3.1%	6.3%	9.5%	$9,921	3.9%
1993	363,207	1.6%	134,841	1.6%	135,367	3.6%	4.9%	-21.8%	$10,152	2.3%
1994	368,629	1.5%	137,448	1.9%	143,822	6.2%	4.6%	-6.4%	$10,530	3.7%
1995	374,007	1.5%	140,973	2.6%	147,542	2.6%	4.3%	-6.2%	$10,775	2.3%
1996	379,924	1.6%	144,201	2.3%	155,557	5.4%	4.4%	0.9%	$11,343	5.3%
1997	386,372	1.7%	147,044	2.0%	160,532	3.2%	3.3%	-23.9%	$11,943	5.3%
1998	392,354	1.5%	149,623	1.8%	167,605	4.4%	3.3%	-1.5%	$12,659	6.0%
1999	398,369	1.5%	152,170	1.7%	174,797	4.3%	3.4%	2.8%	$13,160	4.0%
2000	403,466	1.3%	154,230	1.4%	177,459	1.5%	3.4%	2.4%	$13,721	4.3%
2001	407,282	0.9%	156,176	1.3%	177,228	-0.1%	4.7%	36.5%	$13,707	-0.1%
2002	410,965	0.9%	158,047	1.2%	180,662	1.9%	4.5%	-4.9%	$13,983	2.0%
2003	415,370	1.1%	160,069	1.3%	182,913	1.2%	5.1%	13.4%	$14,230	1.8%
2004	420,571	1.3%	162,280	1.4%	186,964	2.2%	4.5%	-10.9%	$14,658	3.0%
2005	426,062	1.3%	163,861	1.0%	190,713	2.0%	5.5%	21.5%	$14,676	0.1%
2006	431,444	1.3%	164,905	0.6%	191,949	0.6%	4.9%	-11.0%	$15,290	4.2%
2007	436,650	1.2%	166,135	0.7%	196,553	2.4%	5.1%	3.6%	$15,377	0.6%
2008	441,634	1.1%	167,622	0.9%	194,309	-1.1%	7.1%	39.7%	$15,494	0.8%
2009	446,993	1.2%	169,672	1.2%	185,905	-4.3%	10.9%	54.1%	$14,699	-5.1%
2010	452,588	1.3%	173,425	2.2%	188,294	1.3%	10.6%	-3.2%	$14,869	1.2%
2011	458,229	1.2%	176,563	1.8%	194,169	3.1%	9.3%	-11.9%	$15,088	1.5%
2012	463,514	1.2%	178,825	1.3%	200,735	3.4%	8.3%	-10.4%	$15,672	3.9%
2013	468,675	1.1%	181,722	1.6%	205,879	2.6%	7.8%	-6.2%	$16,228	3.5%
2014	473,632	1.1%	183,813	1.2%	210,309	2.2%	7.4%	-5.6%	$16,861	3.9%
2019	497,513	0.8%	197,626	1.0%	229,445	1.3%	5.0%	-5.4%	$19,784	2.3%
2029	545,803	0.9%	221,088	1.1%	269,462	1.6%	4.9%	-0.2%	$26,732	3.1%

Notes: *Regional Income is reported in millions of 2009 dollars. Growth rates are average annual changes.*

SECTION 5.0

RESIDENTIAL CUSTOMER FORECAST

Blank Page

Section 5.0
Residential Customer Forecast

5.1 Introduction

Nearly 60 percent of EKPC's member system retail sales are to the residential class, therefore, the forecast of residential customers has a large impact on the overall load forecast. It is developed as follows:

1. Forecasts of regional households are prepared by modeling population growth and changes in household size.

2. Within each geographic region, there are many electric utilities that serve those customers. The portion of those customers that the member system serves is modeled in a 'share' variable. Historical values of share are calculated from data provided by the member systems. Forecasts of share are made based on historical trends and knowledge about service area development.

3. The regional population and household variables are combined with the share variable to represent the growth for a specific member system instead of the entire economic region.

   Population Share = (Regional Population * Share)

   $$\text{Regional Households} = \frac{\text{Regional Population}}{\text{People Per Household}}$$

   Household Share = (Regional Households * Share)

   These variables are used in a regression equation to produce a forecast of residential customers for each member system. Other economic variables from EKPC's Regional Economic Model, such as total employment, or household income, may be used in the equations where appropriate.

4. The variables in the previous equations and their sources are listed below:

Variable	Historical Source	Forecast Source
Population	IHS Global Insight, Inc.	IHS Global Insight, Inc.
Household Size	IHS Global Insight, Inc., EKPC Appliance Saturation Surveys	IHS Global Insight, Inc., EKPC End-Use Surveys
Share-The percent of regional households served by Member Systems	RUS Form 7	Trend Growth

5. The EKPC system residential customer forecast is the summation of the 16 member system forecasts.

5.2 Residential Customer Forecast Results

The average number of residential customers served by EKPC is expected to increase from a total of approximately 480,000 in 2009 to 636,000 in 2030. Population growth is projected to increase at lower levels than historical trends. Overall customer changes are projected to grow at slower rates in the future. A summary of the system residential customer projections is shown in Figure 5-1 and Table 5-1. Individual member system customer forecasts are reported in Appendix A. Model specifics are provided in Appendix B.

Figure 5-1
Residential Accounts
Historical and Forecasted

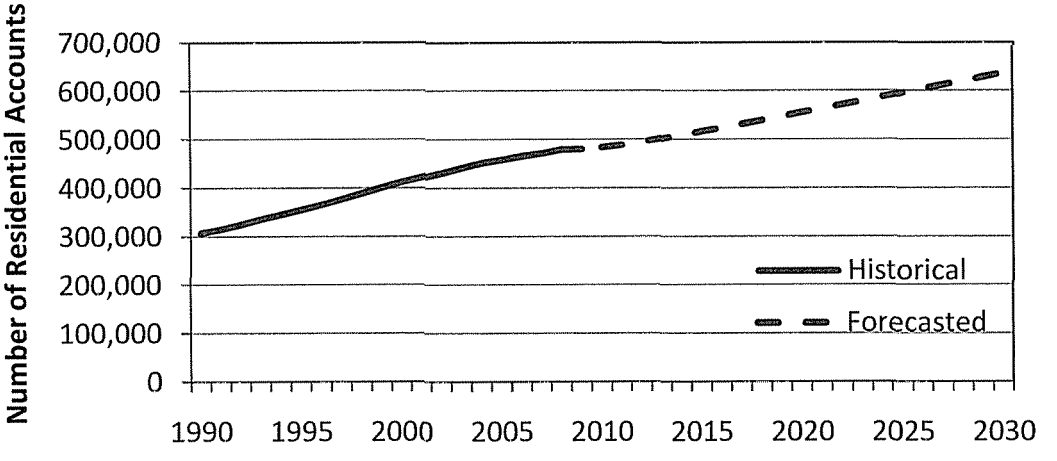


Table 5-1
Residential Class
Customer History and Forecast

Year	Annual Average	Annual Change	% Change
1990	306,357		
1991	314,436	8,079	2.6%
1992	323,880	9,444	3.0%
1993	334,731	10,850	3.4%
1994	344,196	9,466	2.8%
1995	354,272	10,076	2.9%
1996	364,429	10,157	2.9%
1997	375,952	11,523	3.2%
1998	387,899	11,947	3.2%
1999	399,771	11,872	3.1%
2000	411,253	11,481	2.9%
2001	421,032	9,780	2.4%
2002	430,808	9,775	2.3%
2003	441,253	10,445	2.4%
2004	451,267	10,015	2.3%
2005	458,186	6,919	1.5%
2006	465,297	7,111	1.6%
2007	471,291	5,994	1.3%
2008	478,659	7,368	1.6%
2009	480,123	1,464	0.3%
2010	483,501	3,378	0.7%
2011	488,709	5,207	1.1%
2012	494,637	5,929	1.2%
2013	501,334	6,697	1.4%
2014	508,699	7,365	1.5%
2015	516,244	7,545	1.5%
2016	523,922	7,677	1.5%
2017	531,698	7,776	1.5%
2018	539,513	7,815	1.5%
2019	547,333	7,821	1.4%
2020	555,378	8,045	1.5%
2021	563,436	8,058	1.5%
2022	571,361	7,925	1.4%
2023	579,406	8,045	1.4%
2024	587,408	8,002	1.4%
2025	595,591	8,183	1.4%
2026	603,827	8,236	1.4%
2027	611,871	8,044	1.3%
2028	619,933	8,062	1.3%
2029	628,158	8,225	1.3%
2030	636,274	8,116	1.3%

Beginning in 2008, the City of Monticello became part of South Kentucky RECC, increasing customer count by approximately 3000.

Blank Page

SECTION 6.0

RESIDENTIAL SALES FORECAST

Blank Page

Section 6.0
Residential Sales Forecast

6.1 Methodology

EKPC uses statistically adjusted end-use (SAE) models to forecast residential sales. This method of modeling incorporates end-use forecasts and is used to separate the monthly and annual forecasts into end-use components. SAE models offer the structure of end-use models while also using the strength of time-series analysis.

This method, like end-use modeling, requires detailed information about appliance saturation, appliance use, appliance efficiencies, household characteristics, weather characteristics, and demographic and economic data. The SAE approach segments the average household use into end-use components as follows:

$$Use_{y,m} = Heat_{y,m} + Cool_{y,m} + Water\ Heat_{y,m} + Other_{y,m}$$

Where, y=year
m=month

Each component is defined in terms of its end-use structure. For example, the cool index may be defined as a function of appliance saturation, efficiency of the appliance, and usage of the appliance. Annual end-use indices and a usage variable are constructed and used to develop a variable to be used in least squares regression in the model. These variables are constructed for heating, cooling, water heating, and an 'Other' variable, which includes lighting and other miscellaneous usages.

$$CoolIndex_y = \sum_{Type} Wgt^{Type} * \left(\frac{CoolShare_y^{Type} / Eff_y^{Type}}{CoolShare_{98}^{Type} / Eff_{98}^{Type}} \right)$$

$$CoolUse_{y,m} = \left(\frac{CDD_{y,m}}{NormCDD} \right) * \left(\frac{HHSize_y}{HHSize_{by}} \right) * \left(\frac{Income_y}{Income_{by}} \right) * \left(\frac{Price_{y,m}}{Price_{by}} \right)^{-.30}$$

Where, by=base year

$$Cool_{y,m} = CoolIndex_y * CoolUse_{y,m}$$

The Cool, Heat, Water Heat, and Other variables are then used in a least squares regression which results in estimates for annual and monthly use per household.

Features of EKPC's SAE model are as follows:

1. Over twenty years of End-use Survey historical data are used to forecast saturation of appliances.

2. Appliance efficiencies due to government standards have been accounted for in the model. Indices pertaining to appliance efficiency trends and usage are used to construct energy models based on heating, cooling, water heating and other energy for the residential class. Source: Energy Information Administration Annual Energy Outlook, East South Central region representing Kentucky.

3. Various demographic and socioeconomic factors that affect appliance choice and appliance use are present in the methodology. These include the changing shares of urban and rural customers relative to total customers, number of people living in the household, as well as square footage of the house and the thermal integrity of the house.

4. Future electricity rates are based upon EKPC's 20 year financial forecast.

Model details of residential sales are provided in Table 6-1. Details by member system are provided in Appendix B.

Table 6-1
Residential Sales Forecast - Appliance Usage Projections

Dependent Variable: Appliance Usage	
Model Inputs	***Source***
Residential Customers	Historical customers are taken from Form 7. Future customers are projected by EKPC and member systems.
Average Real Price of Electricity	Historical price is taken from Form 7. Future prices are projected by EKPC's Pricing Department and member systems.
Appliance Efficiency Improvements and Appliance Lifetimes	Energy Information Administration Annual Energy Outlook
Household Size (People Per Household)	IHS Global Insight, Inc., Trend Growth, EKPC End-Use Survey
Real Household Income	EKPC Regional Economic Model

6.2 Appliance Saturation Projections

Every two years since 1981, EKPC has surveyed the member systems' residential customers. The most recent survey was conducted in 2009. EKPC gathers appliance, insulation, heating and cooling, economic, and demographic data. Appliance holdings of survey respondents are analyzed in order to better understand their electricity consumption and to project future appliance saturations.

EKPC's analysis and forecast of appliance saturations and appliance usage is econometric in nature. The decision made by customers to purchase an appliance can often be understood by examining customer income levels, fuel price, and household characteristics. The choice to purchase an appliance is modeled separately from the decision to use the appliance. This is because these actions are separate and subject to different driving forces.

Residential appliance saturation projections are shown in Table 6-2.

Table 6-2
Appliance Saturations ~ Residential Class
Historical Years are Actual Survey Data

Year	Heat Pump Heating	Electric Furnace	Electric Resistance	Central Air	Heat Pump Cooling	Room Air	Electric Water Heating
1991	14.7%	13.7%	10.8%	25.0%	14.7%	43.0%	85.2%
1993	16.3%	13.9%	10.9%	29.0%	16.3%	41.3%	85.0%
1995	17.4%	14.0%	11.0%	28.1%	17.4%	38.8%	87.0%
1998	21.4%	14.3%	10.4%	33.4%	21.1%	34.0%	86.3%
2001	24.4%	14.8%	9.9%	39.4%	24.4%	30.1%	85.1%
2003	25.2%	18.3%	11.9%	40.1%	25.2%	29.5%	85.2%
2005	29.7%	16.4%	8.4%	41.9%	29.7%	24.2%	87.0%
2007	30.0%	16.9%	8.3%	42.1%	30.0%	23.4%	86.9%
2009	33.8%	17.2%	8.0%	41.1%	33.8%	21.8%	87.1%
2010	34.3%	17.3%	8.1%	40.7%	34.3%	20.0%	87.4%
2011	34.5%	17.4%	8.0%	40.8%	34.5%	19.8%	87.4%
2012	34.7%	17.4%	8.0%	40.8%	34.7%	19.5%	87.4%
2013	34.9%	17.5%	7.9%	40.8%	34.9%	19.3%	87.4%
2014	35.1%	17.6%	7.8%	40.9%	35.1%	19.1%	87.4%
2015	35.4%	17.6%	7.7%	40.9%	35.4%	18.8%	87.4%
2016	35.6%	17.7%	7.7%	41.0%	35.6%	18.6%	87.4%
2017	35.8%	17.7%	7.6%	41.0%	35.8%	18.4%	87.4%
2018	36.0%	17.8%	7.6%	41.0%	36.0%	18.2%	87.4%
2019	36.2%	17.9%	7.5%	41.1%	36.2%	17.9%	87.4%
2020	36.4%	17.9%	7.4%	41.1%	36.4%	17.7%	87.4%
2021	36.6%	18.0%	7.4%	41.2%	36.6%	17.5%	87.4%
2022	36.9%	18.1%	7.3%	41.2%	36.9%	17.3%	87.4%
2023	37.1%	18.1%	7.2%	41.2%	37.1%	17.1%	87.4%
2024	37.3%	18.2%	7.2%	41.3%	37.3%	16.9%	87.4%
2025	37.5%	18.2%	7.1%	41.3%	37.5%	16.7%	87.4%
2026	37.8%	18.3%	7.0%	41.4%	37.8%	16.5%	87.4%
2027	38.0%	18.4%	7.0%	41.4%	38.0%	16.3%	87.4%
2028	38.2%	18.4%	6.9%	41.5%	38.2%	16.1%	87.4%
2029	38.4%	18.5%	6.9%	41.5%	38.4%	15.9%	87.4%
2030	38.7%	18.6%	6.8%	41.5%	38.7%	15.7%	87.4%

Table 6-2 Continued
Appliance Saturations ~ Residential Class
Historical Years are Actual Survey Data

Year	Automatic Defrost Refrigerator	Freezer	Clothes Washer	Electric Clothes Dryer	Electric Range	Color TV	Microwave	Dishwasher
1991	73.4%	61.1%	81.4%	69.3%	80.1%	103.0%	73.6%	22.2%
1993	85.7%	64.6%	83.0%	76.1%	84.7%	128.9%	82.8%	27.0%
1995	92.2%	62.8%	86.7%	74.9%	86.1%	139.5%	68.2%	20.0%
1998	100.2%	66.9%	96.0%	89.8%	85.2%	163.2%	84.2%	38.1%
2001	101.9%	67.1%	97.1%	90.3%	86.1%	174.4%	85.0%	39.7%
2003	102.1%	66.9%	97.4%	90.7%	86.6%	174.7%	85.5%	40.2%
2005	109.1%	62.8%	95.2%	94.8%	89.6%	183.7%	94.2%	55.2%
2007	109.4%	63.1%	95.3%	94.9%	89.7%	185.7%	94.3%	55.8%
2009	112.1%	57.4%	98.4%	97.5%	95.6%	259.1%	98.6%	57.5%
2010	112.1%	57.4%	98.4%	97.6%	95.7%	259.5%	98.6%	57.6%
2011	112.2%	57.4%	98.4%	97.6%	95.7%	260.0%	98.6%	57.9%
2012	112.2%	57.3%	98.4%	97.6%	95.7%	260.5%	98.6%	58.2%
2013	112.2%	57.3%	98.4%	97.6%	95.7%	261.0%	98.6%	58.4%
2014	112.2%	57.2%	98.4%	97.6%	95.7%	261.5%	98.6%	58.7%
2015	112.3%	57.2%	98.4%	97.6%	95.7%	262.0%	98.6%	59.0%
2016	112.3%	57.2%	98.4%	97.6%	95.8%	262.5%	98.7%	59.3%
2017	112.3%	57.1%	98.4%	97.6%	95.8%	263.0%	98.7%	59.6%
2018	112.4%	57.1%	98.4%	97.6%	95.8%	263.6%	98.7%	59.9%
2019	112.4%	57.0%	98.4%	97.7%	95.8%	264.1%	98.7%	60.2%
2020	112.4%	57.0%	98.5%	97.7%	95.8%	264.6%	98.7%	60.5%
2021	112.5%	57.0%	98.5%	97.7%	95.8%	265.1%	98.7%	60.8%
2022	112.5%	56.9%	98.5%	97.7%	95.8%	265.6%	98.7%	61.1%
2023	112.5%	56.9%	98.5%	97.7%	95.9%	266.1%	98.7%	61.4%
2024	112.5%	56.8%	98.5%	97.7%	95.9%	266.6%	98.7%	61.7%
2025	112.6%	56.8%	98.5%	97.7%	95.9%	267.1%	98.7%	62.0%
2026	112.6%	56.8%	98.5%	97.7%	95.9%	267.6%	98.7%	62.3%
2027	112.6%	56.7%	98.5%	97.7%	95.9%	268.1%	98.7%	62.6%
2028	112.7%	56.7%	98.5%	97.8%	95.9%	268.6%	98.7%	62.9%
2029	112.7%	56.6%	98.5%	97.8%	95.9%	269.2%	98.8%	63.2%
2030	112.8%	56.6%	98.5%	97.8%	95.9%	269.7%	98.8%	63.5%

6.3 Residential Class Sales Forecast Results

Sales to the Residential Class are expected to grow 1.4% over the next 20 years. Electric use per customer is decreasing. Due to the economic decline, increasing appliance efficiencies, and rising electricity prices, the projection is more modest than in the 2008 forecast as is shown in Figure 6-1.

Figure 6-1
Historical Load Forecast Studies
Average Monthly Use Per Residential Customer

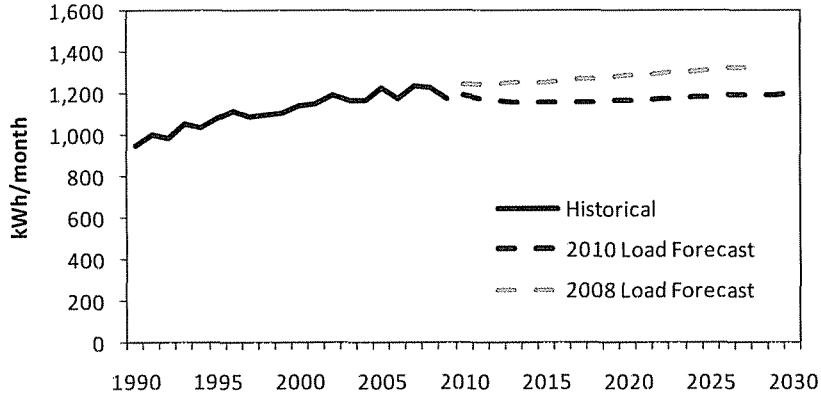


Table 6-3 reports historical and projected use per customer and class sales.

Table 6-3
Residential Class
Customers and Sales

	Customers								
	Annual Average	Annual Change	% Change	Monthly Average (kWh)	Change (kWh)	% Change	Total (MWh)	Annual Change (MWh)	% Change
1990	306,357			951			3,497,574		
1991	314,436	8,079	2.6%	999	48	5.0%	3,770,962	273,388	7.8%
1992	323,880	9,444	3.0%	981	-18	-1.8%	3,813,577	42,615	1.1%
1993	334,731	10,850	3.4%	1,053	72	7.3%	4,230,486	416,909	10.9%
1994	344,196	9,466	2.8%	1,037	-16	-1.5%	4,285,099	54,614	1.3%
1995	354,272	10,076	2.9%	1,080	43	4.1%	4,592,909	307,810	7.2%
1996	364,429	10,157	2.9%	1,115	35	3.2%	4,875,662	282,753	6.2%
1997	375,952	11,523	3.2%	1,086	-29	-2.6%	4,901,058	25,396	0.5%
1998	387,899	11,947	3.2%	1,098	11	1.0%	5,109,002	207,944	4.2%
1999	399,771	11,872	3.1%	1,109	12	1.1%	5,320,858	211,857	4.1%
2000	411,253	11,481	2.9%	1,140	31	2.8%	5,626,500	305,642	5.7%
2001	421,032	9,780	2.4%	1,148	7	0.7%	5,797,895	171,395	3.0%
2002	430,808	9,775	2.3%	1,193	45	3.9%	6,166,723	368,828	6.4%
2003	441,253	10,445	2.4%	1,172	-21	-1.8%	6,205,364	38,641	0.6%
2004	451,267	10,015	2.3%	1,170	-2	-0.1%	6,337,737	132,372	2.1%
2005	458,186	6,919	1.5%	1,228	58	4.9%	6,751,547	413,810	6.5%
2006	465,297	7,111	1.6%	1,173	-55	-4.5%	6,548,160	-203,386	-3.0%
2007	471,291	5,994	1.3%	1,237	65	5.5%	6,998,554	450,394	6.9%
2008	478,659	7,368	1.6%	1,228	-9	-0.7%	7,055,277	56,723	0.8%
2009	480,123	1,464	0.3%	1,178	-50	-4.1%	6,789,142	-266,135	-3.8%
2010	483,501	3,378	0.7%	1,192	14	1.2%	6,916,947	127,805	1.9%
2011	488,709	5,207	1.1%	1,180	-12	-1.0%	6,919,599	2,652	0.0%
2012	494,637	5,929	1.2%	1,170	-10	-0.8%	6,944,934	25,335	0.4%
2013	501,334	6,697	1.4%	1,157	-14	-1.2%	6,957,738	12,804	0.2%
2014	508,699	7,365	1.5%	1,156	-1	-0.1%	7,055,893	98,155	1.4%
2015	516,244	7,545	1.5%	1,156	0	0.0%	7,159,616	103,723	1.5%
2016	523,922	7,677	1.5%	1,158	2	0.2%	7,281,181	121,564	1.7%
2017	531,698	7,776	1.5%	1,159	0	0.0%	7,391,828	110,648	1.5%
2018	539,513	7,815	1.5%	1,162	4	0.3%	7,523,977	132,149	1.8%
2019	547,333	7,821	1.4%	1,166	4	0.4%	7,661,291	137,314	1.8%
2020	555,378	8,045	1.5%	1,169	2	0.2%	7,788,470	127,179	1.7%
2021	563,436	8,058	1.5%	1,172	3	0.3%	7,923,044	134,575	1.7%
2022	571,361	7,925	1.4%	1,175	3	0.3%	8,056,599	133,554	1.7%
2023	579,406	8,045	1.4%	1,180	5	0.4%	8,203,953	147,355	1.8%
2024	587,408	8,002	1.4%	1,185	5	0.4%	8,351,660	147,706	1.8%
2025	595,591	8,183	1.4%	1,187	2	0.2%	8,482,142	130,482	1.6%
2026	603,827	8,236	1.4%	1,190	4	0.3%	8,625,165	143,024	1.7%
2027	611,871	8,044	1.3%	1,194	3	0.3%	8,764,282	139,117	1.6%
2028	619,933	8,062	1.3%	1,195	2	0.2%	8,893,234	128,952	1.5%
2029	628,158	8,225	1.3%	1,195	0	0.0%	9,010,609	117,375	1.3%
2030	636,274	8,116	1.3%	1,200	5	0.4%	9,163,386	152,777	1.7%

Totals may not equal sum of components due to rounding.

Blank Page

SECTION 7.0

COMMERCIAL AND OTHER SALES FORECAST

Blank Page

Section 7.0
Commercial and Other Sales Forecast

The small and commercial classes have been significantly impacted by the recent economic downturn. This is reflected in the last two years of actual data as well as the forecast years. The 2010 load forecast does reflect the full impact of the recession. Most notably, unemployment reached an all time high and is not expected to reach prerecession levels for nearly 10 years. The automotive industry experienced sharp declines in response to the national economic downturn and in Kentucky due to various Toyota recalls which resulted in lower sales and interruptions in manufacturing the automobiles. EKPC member systems' serve many of the satellite industrial and commercial customers that produce parts for Toyota and as a result of the aforementioned circumstances were negatively impacted.

7.1 Small Commercial Sales Forecast

Member system cooperatives classify commercial and industrial accounts into two groups. Customers whose annual peak demand is less than 1 MW are classified as small commercial customers and customers whose annual peak demand is greater than or equal to 1 MW are classified as large commercial/industrial customers. Most commercial customers are accounted for in the small commercial classification. In 2009, there were more than 32,000 small commercial customers on the system. Customers are projected to grow to approximately 44,000 by 2030.

EKPC projects class sales by member system through regression analysis of historical data. Typical regressions include small commercial customers as a function of residential customers, unemployment rate, and other economic variables. The sales regression usually includes customers, electric price, and other economic measures as explanatory variables. Historical and projected small commercial sales for EKPC are reported in Table 7-1. Member system regression equations are in Appendix B.

7.2 Large Commercial Sales Forecast

In 2009, there were 138 retail customers classified as large commercial customers. The total annual usage was greater than the annual usage of the small commercial class. This class experienced substantial growth from 1995 to 2004; however for the last two years, sales have

declined due to the conditions noted above. Approximately half of EKPC's large commercial customers are manufacturing plants.

The Large Commercial Class is forecasted using input from member systems as well as a modeling approach. New industrial customers that member systems expect in the next few years are explicitly input into the models. To estimate total new large loads at the system level, a regression approach is used. A probabilistic model is then used to distribute these customers among the 16 member systems. A prototype load of 1.5 MW and 60% load factor is assumed for these new loads. This methodology for forecasting new large commercial customers and energy provides a robust and defensible projection at the member system level as well as the system level. Table 7-2 reports historical and projected large commercial customers and sales. Member systems are in regular contact with large commercial customers in order to remain current with production and facility expansion plans. Member systems communicate with local industrial development groups, which keeps them aware of the status of new large commercial customers. EKPC's members are working hard to contribute to local efforts to attract industry.

One member system serves a thin-slab steel mill. This large load is on an interruptible rate and the forecast assumes 360 hours of interruption each year.

7.3 Seasonal Sales Forecast

Seasonal sales are sales to customers with seasonal residences such as vacation and weekend homes. Seasonal sales are relatively small and are reported by only one of EKPC's member systems. Table 7-3 reports historical and projected seasonal sales.

7.4 Public Building Sales Forecast

Public Building sales include sales to accounts such as government buildings and libraries. The sales are relatively small and are reported by only two of EKPC's member systems. Table 7-4 reports historical and projected public building sales for EKPC.

7.5 Public Street and Highway Lighting Sales Forecast

Public Street and Highway Lighting sales refer mainly to street lighting. Table 7-5 reports historical and projected retail sales for this class. This class is reported by 11 member systems.

Table 7-1
Small Commercial Class Customers and Sales
Historical and Projected

	Customers								
	Annual Average	Annual Change	% Change	Annual Average (MWh)	Annual Change (MWh)	% Change	Total (MWh)	Annual Change (MWh)	% Change
1990	16,974			48			813,371		
1991	17,512	539	3.2%	50	2	3.4%	868,031	54,660	6.7%
1992	18,055	542	3.1%	51	1	2.1%	913,599	45,567	5.2%
1993	18,561	507	2.8%	53	2	4.4%	980,301	66,702	7.3%
1994	19,092	531	2.9%	53	0	0.6%	1,014,549	34,248	3.5%
1995	19,669	576	3.0%	56	3	5.0%	1,097,729	83,180	8.2%
1996	20,399	731	3.7%	56	0	0.0%	1,138,469	40,740	3.7%
1997	21,084	685	3.4%	55	-1	-1.1%	1,163,683	25,214	2.2%
1998	21,834	750	3.6%	56	1	2.1%	1,230,450	66,767	5.7%
1999	22,813	979	4.5%	59	2	4.0%	1,336,957	106,506	8.7%
2000	23,730	918	4.0%	61	2	4.0%	1,446,958	110,001	8.2%
2001	25,129	1,399	5.9%	60	-1	-1.7%	1,505,480	58,522	4.0%
2002	27,074	1,945	7.7%	58	-2	-2.7%	1,577,590	72,110	4.8%
2003	26,661	-414	-1.5%	58	0	-0.2%	1,550,248	-27,342	-1.7%
2004	28,125	1,464	5.5%	57	-1	-2.3%	1,598,111	47,864	3.1%
2005	30,594	2,469	8.8%	57	0	-0.3%	1,733,390	135,278	8.5%
2006	30,194	-400	-1.3%	59	2	3.9%	1,777,897	44,507	2.6%
2007	30,981	787	2.6%	60	1	2.1%	1,861,952	84,055	4.7%
2008	32,035	1,054	3.4%	58	-2	-2.7%	1,872,811	10,859	0.6%
2009	32,382	347	1.1%	55	-3	-5.6%	1,787,112	-85,699	-4.6%
2010	32,733	350	1.1%	56	0	0.8%	1,820,349	33,236	1.9%
2011	33,142	410	1.3%	56	0	0.2%	1,846,959	26,611	1.5%
2012	33,595	452	1.4%	56	0	0.3%	1,877,310	30,350	1.6%
2013	34,102	507	1.5%	56	0	0.6%	1,917,456	40,146	2.1%
2014	34,683	581	1.7%	56	0	0.5%	1,959,197	41,742	2.2%
2015	35,270	588	1.7%	57	0	0.5%	2,001,631	42,433	2.2%
2016	35,860	590	1.7%	57	0	0.5%	2,044,932	43,302	2.2%
2017	36,454	594	1.7%	57	0	0.5%	2,089,551	44,619	2.2%
2018	37,053	598	1.6%	58	0	0.5%	2,134,733	45,182	2.2%
2019	37,649	597	1.6%	58	0	0.5%	2,180,098	45,364	2.1%
2020	38,250	600	1.6%	58	0	0.5%	2,225,634	45,536	2.1%
2021	38,858	608	1.6%	58	0	0.5%	2,271,700	46,066	2.1%
2022	39,455	597	1.5%	59	0	0.5%	2,317,291	45,591	2.0%
2023	40,047	592	1.5%	59	0	0.4%	2,362,531	45,240	2.0%
2024	40,634	587	1.5%	59	0	0.4%	2,407,717	45,185	1.9%
2025	41,230	597	1.5%	59	0	0.4%	2,453,143	45,427	1.9%
2026	41,841	611	1.5%	60	0	0.4%	2,499,227	46,084	1.9%
2027	42,441	600	1.4%	60	0	0.4%	2,545,021	45,794	1.8%
2028	43,033	593	1.4%	60	0	0.4%	2,590,457	45,436	1.8%
2029	43,627	594	1.4%	60	0	0.4%	2,635,782	45,325	1.7%
2030	44,221	594	1.4%	61	0	0.4%	2,681,368	45,586	1.7%

Totals may not equal sum of components due to rounding.

Table 7-2
Large Commercial Class Customers and Sales
Historical and Projected

	Customers								
	Annual Average	Annual Change	% Change	Annual Average (MWh)	Annual Change (MWh)	% Change	Total (MWh)	Annual Change (MWh)	% Change
1990	60			10,953			653,502		
1991	67	7	12.3%	10,827	-125	-1.1%	725,419	71,917	11.0%
1992	65	-2	-2.5%	11,882	1,054	9.7%	776,268	50,848	7.0%
1993	69	3	4.8%	14,136	2,255	19.0%	968,345	192,078	24.7%
1994	73	4	6.2%	14,116	-21	-0.1%	1,026,927	58,582	6.0%
1995	72	-1	-1.6%	19,756	5,640	40.0%	1,414,196	387,270	37.7%
1996	79	8	10.7%	23,085	3,329	16.9%	1,829,516	415,320	29.4%
1997	87	8	9.7%	23,150	64	0.3%	2,012,108	182,591	10.0%
1998	96	9	10.3%	21,307	-1,843	-8.0%	2,041,910	29,803	1.5%
1999	102	6	6.0%	22,807	1,500	7.0%	2,316,814	274,904	13.5%
2000	104	3	2.5%	23,133	326	1.4%	2,409,695	92,881	4.0%
2001	113	8	8.0%	23,632	499	2.2%	2,658,579	248,884	10.3%
2002	112	-1	-0.4%	25,034	1,403	5.9%	2,803,844	145,265	5.5%
2003	134	22	19.3%	21,573	-3,461	-13.8%	2,881,780	77,936	2.8%
2004	137	4	2.6%	22,156	583	2.7%	3,037,246	155,466	5.4%
2005	139	2	1.1%	21,746	-410	-1.8%	3,013,699	-23,547	-0.8%
2006	135	-4	-2.6%	22,646	899	4.1%	3,057,184	43,485	1.4%
2007	122	-13	-9.6%	25,607	2,961	13.1%	3,124,043	66,859	2.2%
2008	132	10	8.2%	23,361	-2,246	-8.8%	3,083,589	-40,454	-1.3%
2009	138	6	4.7%	20,497	-2,864	-12.3%	2,831,935	-251,654	-8.2%
2010	143	5	3.6%	21,213	716	3.5%	3,035,175	203,241	7.2%
2011	144	1	0.6%	21,474	262	1.2%	3,092,314	57,139	1.9%
2012	148	4	2.8%	21,692	218	1.0%	3,210,477	118,163	3.8%
2013	151	3	2.0%	21,672	-20	-0.1%	3,272,546	62,069	1.9%
2014	155	4	2.6%	21,519	-154	-0.7%	3,335,403	62,857	1.9%
2015	157	2	1.3%	21,626	108	0.5%	3,395,326	59,923	1.8%
2016	160	3	1.9%	21,622	-5	0.0%	3,459,446	64,120	1.9%
2017	161	1	0.6%	21,792	170	0.8%	3,508,475	49,029	1.4%
2018	164	3	1.9%	21,836	44	0.2%	3,581,071	72,596	2.1%
2019	167	3	1.8%	21,867	31	0.1%	3,651,747	70,676	2.0%
2020	169	2	1.2%	21,949	83	0.4%	3,709,435	57,688	1.6%
2021	172	3	1.8%	21,977	28	0.1%	3,780,129	70,694	1.9%
2022	174	2	1.2%	22,046	68	0.3%	3,836,002	55,873	1.5%
2023	177	3	1.7%	22,061	15	0.1%	3,904,812	68,811	1.8%
2024	180	3	1.7%	22,060	-1	0.0%	3,970,782	65,969	1.7%
2025	182	2	1.1%	22,171	111	0.5%	4,035,146	64,364	1.6%
2026	185	3	1.6%	22,179	8	0.0%	4,103,086	67,941	1.7%
2027	189	4	2.2%	22,090	-89	-0.4%	4,174,930	71,843	1.8%
2028	191	2	1.1%	22,169	79	0.4%	4,234,283	59,353	1.4%
2029	193	2	1.0%	22,322	153	0.7%	4,308,104	73,822	1.7%
2030	195	2	1.0%	22,395	73	0.3%	4,367,000	58,896	1.4%

Totals may not equal sum of components due to rounding.

Table 7-3
Seasonal Class Customers and Sales
Historical and Projected

	Customers								
	Annual Average	Annual Change	% Change	Monthly Average (kWh)	Change (kWh)	% Change	Total (MWh)	Annual Change (MWh)	% Change
1990	3,020			251			9,094		
1991	3,133	113	3.7%	251	0	-0.1%	9,423	329	3.6%
1992	3,288	156	5.0%	247	-3	-1.4%	9,756	333	3.5%
1993	2,693	-596	-18.1%	314	67	27.0%	10,144	389	4.0%
1994	2,817	124	4.6%	304	-10	-3.1%	10,280	136	1.3%
1995	2,936	120	4.2%	314	10	3.3%	11,066	786	7.6%
1996	3,119	183	6.2%	330	16	5.0%	12,342	1,276	11.5%
1997	2,996	-123	-4.0%	331	1	0.3%	11,888	-454	-3.7%
1998	3,417	421	14.0%	280	-51	-15.4%	11,476	-412	-3.5%
1999	3,563	146	4.3%	269	-11	-3.9%	11,496	20	0.2%
2000	3,713	151	4.2%	280	11	4.2%	12,479	983	8.6%
2001	3,799	85	2.3%	280	0	0.0%	12,769	290	2.3%
2002	3,956	157	4.1%	297	16	5.8%	14,076	1,307	10.2%
2003	4,046	90	2.3%	277	-20	-6.6%	13,445	-631	-4.5%
2004	4,162	116	2.9%	277	0	0.1%	13,846	402	3.0%
2005	4,297	135	3.2%	281	4	1.4%	14,501	655	4.7%
2006	4,371	74	1.7%	265	-17	-5.9%	13,882	-619	-4.3%
2007	4,459	88	2.0%	274	10	3.7%	14,679	797	5.7%
2008	4,463	4	0.1%	271	-3	-1.1%	14,531	-149	-1.0%
2009	4,420	-43	-1.0%	247	-25	-9.1%	13,080	-1,451	-10.0%
2010	4,478	58	1.3%	250	3	1.4%	13,434	354	2.7%
2011	4,519	40	0.9%	247	-3	-1.0%	13,419	-15	-0.1%
2012	4,561	42	0.9%	246	-2	-0.7%	13,455	36	0.3%
2013	4,604	43	0.9%	241	-5	-1.8%	13,333	-122	-0.9%
2014	4,649	46	1.0%	243	2	0.8%	13,570	237	1.8%
2015	4,697	47	1.0%	245	1	0.6%	13,790	220	1.6%
2016	4,747	50	1.1%	247	3	1.2%	14,097	307	2.2%
2017	4,799	52	1.1%	249	2	0.7%	14,359	262	1.9%
2018	4,853	54	1.1%	252	3	1.1%	14,682	322	2.2%
2019	4,912	58	1.2%	255	3	1.0%	15,007	325	2.2%
2020	4,971	60	1.2%	258	3	1.3%	15,389	382	2.5%
2021	5,035	64	1.3%	262	4	1.6%	15,831	442	2.9%
2022	5,100	65	1.3%	266	4	1.6%	16,290	459	2.9%
2023	5,168	68	1.3%	270	4	1.6%	16,774	484	3.0%
2024	5,238	70	1.4%	274	4	1.4%	17,235	461	2.7%
2025	5,311	73	1.4%	276	2	0.6%	17,589	354	2.1%
2026	5,387	76	1.4%	280	4	1.3%	18,070	481	2.7%
2027	5,465	78	1.5%	284	4	1.4%	18,593	523	2.9%
2028	5,546	81	1.5%	284	1	0.3%	18,928	334	1.8%
2029	5,629	83	1.5%	284	-1	-0.3%	19,163	235	1.2%
2030	5,714	85	1.5%	287	4	1.2%	19,694	531	2.8%

Totals may not equal sum of components due to rounding.

Table 7-4
Public Buildings Class Customers and Sales
Historical and Projected

	Customers								
	Annual Average	Annual Change	% Change	Monthly Average (kWh)	Change (kWh)	% Change	Total (MWh)	Annual Change (MWh)	% Change
1990	678			1,118			9,096		
1991	692	14	2.0%	1,189	71	6.4%	9,871	776	8.5%
1992	706	14	2.0%	1,368	179	15.0%	11,586	1,715	17.4%
1993	723	17	2.4%	1,589	221	16.2%	13,779	2,193	18.9%
1994	741	18	2.5%	1,602	13	0.8%	14,240	461	3.3%
1995	763	23	3.1%	1,734	132	8.3%	15,889	1,649	11.6%
1996	769	6	0.8%	1,818	84	4.8%	16,785	896	5.6%
1997	788	19	2.5%	1,720	-98	-5.4%	16,272	-513	-3.1%
1998	818	29	3.7%	1,765	45	2.6%	17,315	1,043	6.4%
1999	825	8	0.9%	1,794	29	1.7%	17,765	450	2.6%
2000	839	14	1.6%	1,816	22	1.2%	18,280	515	2.9%
2001	865	26	3.1%	1,818	2	0.1%	18,865	584	3.2%
2002	889	24	2.8%	1,918	100	5.5%	20,453	1,588	8.4%
2003	907	19	2.1%	1,998	80	4.2%	21,754	1,301	6.4%
2004	916	9	1.0%	2,090	92	4.6%	22,974	1,220	5.6%
2005	910	-6	-0.7%	2,063	-27	-1.3%	22,530	-444	-1.9%
2006	931	21	2.3%	1,987	-76	-3.7%	22,196	-334	-1.5%
2007	969	38	4.1%	2,273	286	14.4%	26,427	4,231	19.1%
2008	993	24	2.5%	2,860	587	25.8%	34,074	7,647	28.9%
2009	998	5	0.5%	2,965	105	3.7%	35,507	1,433	4.2%
2010	1,004	6	0.6%	2,966	1	0.0%	35,741	234	0.7%
2011	1,012	8	0.8%	2,981	15	0.5%	36,195	454	1.3%
2012	1,020	8	0.8%	2,989	9	0.3%	36,596	401	1.1%
2013	1,029	9	0.8%	3,023	33	1.1%	37,314	718	2.0%
2014	1,037	9	0.8%	3,055	33	1.1%	38,037	722	1.9%
2015	1,047	10	1.0%	3,083	28	0.9%	38,752	716	1.9%
2016	1,058	11	1.0%	3,106	23	0.7%	39,450	697	1.8%
2017	1,070	12	1.1%	3,124	18	0.6%	40,127	678	1.7%
2018	1,083	13	1.2%	3,138	13	0.4%	40,784	657	1.6%
2019	1,096	13	1.2%	3,150	12	0.4%	41,444	659	1.6%
2020	1,110	13	1.2%	3,162	12	0.4%	42,105	661	1.6%
2021	1,123	13	1.2%	3,173	11	0.4%	42,768	663	1.6%
2022	1,136	12	1.1%	3,185	11	0.4%	43,396	628	1.5%
2023	1,148	13	1.1%	3,195	10	0.3%	44,026	630	1.5%
2024	1,161	13	1.1%	3,206	11	0.3%	44,669	643	1.5%
2025	1,174	13	1.1%	3,218	12	0.4%	45,327	657	1.5%
2026	1,187	13	1.1%	3,229	11	0.4%	45,986	659	1.5%
2027	1,200	13	1.1%	3,239	9	0.3%	46,621	635	1.4%
2028	1,211	12	1.0%	3,249	10	0.3%	47,232	611	1.3%
2029	1,223	12	1.0%	3,261	12	0.4%	47,870	638	1.4%
2030	1,236	13	1.0%	3,273	12	0.4%	48,548	679	1.4%

Totals may not equal sum of components due to rounding.

Table 7-5
Public Street and Highway Lighting Class Customers and Sales
Historical and Projected

	Customers								
	Annual Average	Annual Change	% Change	Monthly Average (kWh)	Change (kWh)	% Change	Total (MWh)	Annual Change (MWh)	% Change
1990	207			1,504			3,737		
1991	218	11	5.3%	1,540	36	2.4%	4,029	292	7.8%
1992	228	10	4.6%	1,573	33	2.1%	4,304	275	6.8%
1993	252	24	10.5%	1,680	107	6.8%	5,081	776	18.0%
1994	284	32	12.7%	1,219	-461	-27.4%	4,156	-925	-18.2%
1995	347	63	22.2%	1,211	-8	-0.7%	5,042	887	21.3%
1996	417	70	20.2%	1,110	-101	-8.3%	5,555	513	10.2%
1997	395	-22	-5.3%	1,195	85	7.6%	5,663	108	1.9%
1998	296	-99	-25.1%	1,577	382	32.0%	5,601	-63	-1.1%
1999	315	19	6.4%	1,524	-53	-3.4%	5,756	156	2.8%
2000	316	1	0.4%	1,624	101	6.6%	6,160	404	7.0%
2001	330	14	4.3%	1,655	30	1.9%	6,545	385	6.3%
2002	353	24	7.2%	1,676	21	1.3%	7,107	562	8.6%
2003	366	13	3.6%	1,696	20	1.2%	7,447	340	4.8%
2004	377	11	2.9%	1,659	-36	-2.1%	7,498	51	0.7%
2005	389	12	3.2%	1,654	-5	-0.3%	7,713	214	2.9%
2006	420	32	8.2%	1,632	-22	-1.3%	8,236	523	6.8%
2007	434	14	3.2%	1,624	-8	-0.5%	8,457	221	2.7%
2008	441	7	1.6%	1,791	167	10.3%	9,477	1,020	12.1%
2009	425	-16	-3.7%	1,779	-12	-0.7%	9,065	-412	-4.3%
2010	433	8	1.9%	1,776	-3	-0.2%	9,217	152	1.7%
2011	443	11	2.5%	1,786	10	0.6%	9,505	288	3.1%
2012	454	11	2.5%	1,781	-5	-0.3%	9,711	206	2.2%
2013	465	11	2.4%	1,780	-1	-0.1%	9,937	226	2.3%
2014	478	13	2.8%	1,770	-9	-0.5%	10,160	223	2.2%
2015	489	11	2.3%	1,769	-2	-0.1%	10,382	222	2.2%
2016	500	11	2.2%	1,767	-2	-0.1%	10,601	219	2.1%
2017	511	11	2.2%	1,765	-2	-0.1%	10,820	219	2.1%
2018	523	12	2.3%	1,759	-5	-0.3%	11,039	218	2.0%
2019	534	11	2.1%	1,757	-2	-0.1%	11,256	218	2.0%
2020	545	11	2.0%	1,756	-2	-0.1%	11,475	218	1.9%
2021	556	11	2.0%	1,754	-2	-0.1%	11,693	218	1.9%
2022	566	11	2.0%	1,752	-2	-0.1%	11,908	216	1.8%
2023	577	11	1.9%	1,750	-2	-0.1%	12,124	216	1.8%
2024	589	12	2.1%	1,745	-5	-0.3%	12,339	215	1.8%
2025	600	11	1.9%	1,743	-2	-0.1%	12,556	217	1.8%
2026	611	11	1.8%	1,742	-1	-0.1%	12,774	218	1.7%
2027	622	11	1.8%	1,740	-2	-0.1%	12,989	215	1.7%
2028	633	11	1.8%	1,738	-2	-0.1%	13,203	214	1.6%
2029	645	12	1.9%	1,734	-4	-0.2%	13,418	215	1.6%
2030	656	11	1.7%	1,732	-2	-0.1%	13,631	213	1.6%

Totals may not equal sum of components due to rounding.

Blank Page

SECTION 8.0

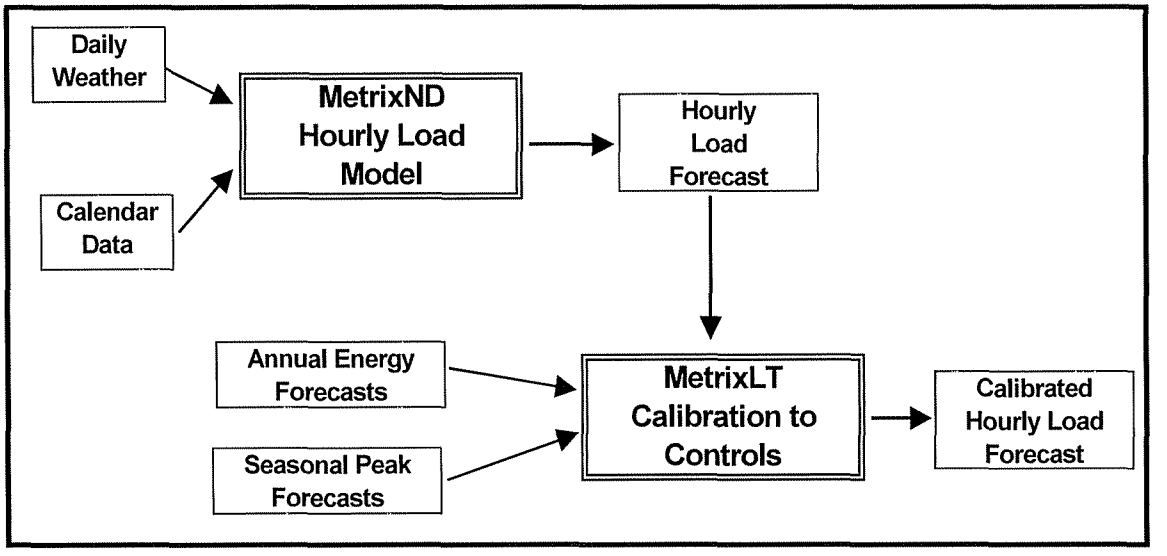
PEAK DEMAND FORECAST
&
SCENARIOS

Blank Page

Section 8.0
Peak Demand Forecast &Scenarios

8.1 Methodology

EKPC uses Metrix products for forecasting. The following illustrates the process flow:



Individual member system forecasts are summed to create an EKPC system forecast. Class energies, as well as winter and summer peak demands, are summed. This is used to create an hourly load model for each of the forecast years. The system load shape is determined from historical load data. This hourly load forecast is then calibrated to the seasonal peak demands and annual energy forecasts to build the hourly load forecast for the EKPC system. The software used is Metrix LT from ITRON.

The data used to forecast seasonal peak demands include:

1. Residential contributions are based on seasonal energy usages for: water heating, air conditioning, heating, and the residual load. Load factors are applied and peak demands are summed to build the class seasonal peak.
2. Small and Large Commercial contributions are based on aggregate class peaks.
3. Normal weather is used for the forecast years.
4. Transmission and distribution losses are accounted for in the model. Table 8-1 shows the historical transmission line losses on the seasonal peak days.

Table 8-1
Historical Transmission Line Losses, Peak Day

Year	Winter Peak Demand			Summer Peak Demand		
	With Transmission Losses (MW)	Without Transmission Losses (MW)	Transmission Losses (%)	With Transmission Losses (MW)	Without Transmission Losses (MW)	Transmission Losses (%)
1986	1,039	1,003	3.6	857	817	4.9
1987	983	951	3.4	906	854	6.1
1988	1,104	1,073	2.9	1,055	1,009	4.6
1989	1,114	1,097	1.5	1,010	984	2.6
1990	1,449	1,402	3.4	1,079	1,027	5.1
1991	1,306	1,266	3.2	1,164	1,107	5.1
1992	1,383	1,339	3.3	1,131	1,103	2.5
1993	1,473	1,410	4.5	1,309	1,269	3.2
1994	1,788	1,729	3.4	1,314	1,251	5.0
1995	1,621	1,572	3.1	1,518	1,453	4.5
1996	1,990	1,894	5.1	1,540	1,469	4.8
1997	2,004	1,903	5.3	1,650	1,551	6.4
1998	1,789	1,756	1.9	1,675	1,595	5.0
1999	2,096	2,018	3.9	1,754	1,734	1.2
2000	2,169	2,065	5.0	1,941	1,843	5.3
2001	2,322	2,207	5.2	1,980	1,892	4.7
2002	2,238	2,109	6.1	2,120	2,043	3.8
2003	2,568	2,479	3.6	1,996	1,936	3.1
2004	2,610	2,546	2.5	2,052	1,994	2.9
2005	2,719	2,626	3.5	2,220	2,115	5.0
2006	2,599	2,518	3.2	2,332	2,243	4.0
2007	2,840	2,726	4.2	2,481	2,369	4.7
2008	3,051	2,886	5.7	2,243	2,153	4.2
2009	3,152	3,012	4.6	2,195	2,106	4.2
2010	2,868	2,745	4.5	2,443	2,319	5.3
	Average Percent Loss		3.9			4.3

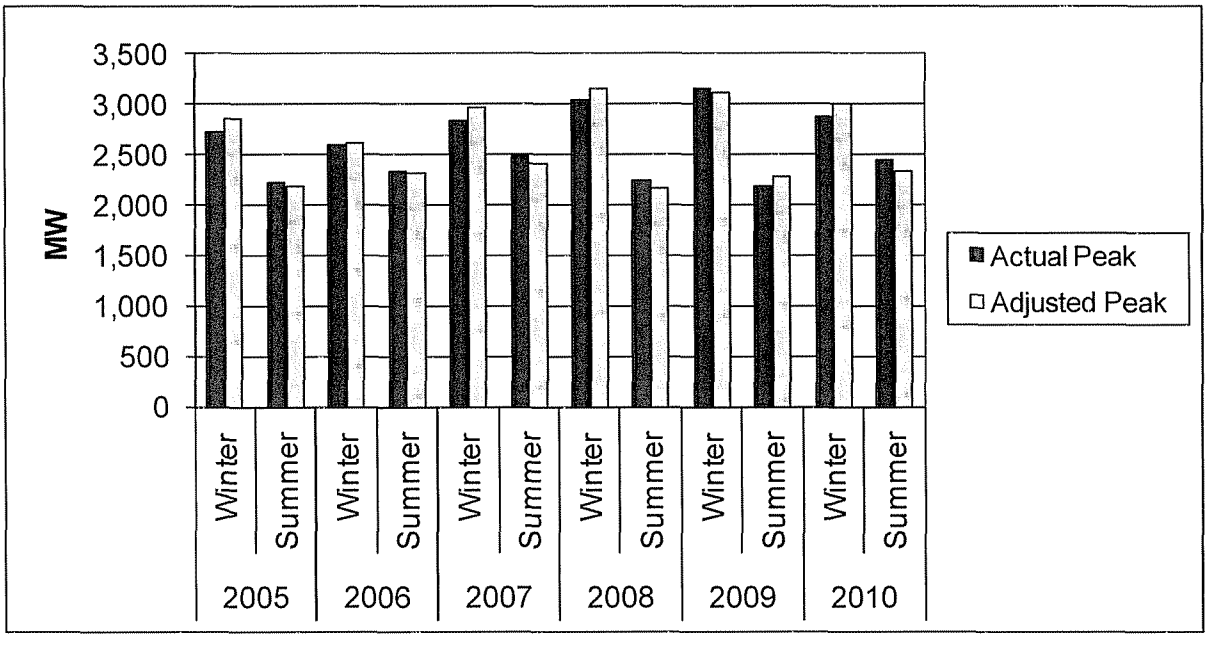
8.2 Weather Normalized Historical Peaks

The weather normalized coincident peak demands for winter and summer are shown in Table 8-2 and in Figure 8-1.

Table 8-2
Weather Normalized Coincident Peak Demands

Year	Season	Actual Peak	Adjusted Peak
		MW	MW
2005	Winter	2,719	2,863
	Summer	2,220	2,198
2006	Winter	2,599	2,624
	Summer	2,332	2,333
2007	Winter	2,840	2,984
	Summer	2,481	2,423
2008	Winter	3,051	3,163
	Summer	2,243	2,172
2009	Winter	3,152	3,125
	Summer	2,195	2,281
2010	Winter	2,868	3,012
	Summer	2,443	2,345

Figure 8-1
Weather Normalized Coincident Peak Demands



8.3 Peak Demand and Scenario Results

In addition to the forecasted peaks, high and low cases around the base case are developed. The same methodology is used, however, the starting summary file is different. Instead of using the sum of the member system files, two new models are built: one reflecting assumptions that result in high usage and one with assumptions that result in low usage. The assumptions that are varied include:

1. Weather: based on historical heating and cooling degree day data, alternate weather projections were developed based upon the 90^{th} and 10^{th} percentile to reflect extreme and mild weather, respectively. The resulting forecasts reflect cases assuming base case HDD +/-12% and CDD +/-20%.

2. Electric price: The general approach is to use price forecasts that are available and use the growth rates from those forecasts to prepare the high and low growth rates around the growth patterns for the base case residential price forecast. The growth rate for the electricity rate was estimated by relying on high and low case forecasts for the producer price index (PPI) for electricity which were developed by IHS Global Insight.

   Therefore, the high scenario for the residential price forecast is constructed to have a 4.3% compound annual growth rate, while the low scenario is constructed to have a 2.7% compound annual growth rate. The adjustments to growth rate are applied to the base case on an annual basis.

3. Residential customers: In the EKPC base case load forecast for 2010 through 2030, the projected number of residential customers increases at a growth rate of 1.4%. The basic approach to preparing high and low case scenarios for the future number of residential customers is to determine the magnitude of variation in the past between long term average growth rates and higher or lower growth rates during shorter periods of time.

   First, the data on the historic monthly household counts for the period from 1986 through 2009 was prepared. Next, the compound annual growth rate for households was calculated for each rolling ten year period beginning. Maximum and minimum values were determined. The highest growth was used to prepare the high case scenario, while the 10 year period that experienced the lowest growth was used to prepare the low case scenario.

   These resulting adjustments were applied to the 20 year compound annual growth rate in the base case customer count forecast (that value is 1.4%) to produce the high case (1.9%) and low case (0.9%) compound annual growth rate forecast scenarios. This relationship was preserved in preparing the monthly customer counts for the high and low case scenarios.

4. Small and Large Commercial customer and energy – Small commercial customer growth is correlated to residential customer growth and the relationship was maintained when developing the high and low cases. Therefore, based upon the resulting high and low residential customer forecasts, the small commercial customers were impacted accordingly. For the large class, given year to year customer change is small, the low case was based upon no new customers for the forecast period. The high case was based on the residential growth. For energy, small and large commercial usage is not as weather sensitive as residential usage, however, price does impact usage. Therefore, the low case assumes the higher prices while the high case assumes the lower prices. Additionally, given the steel mill, which is a non-weather sensitive load, is interruptible, there are no additional impacts on winter or summer peak scenarios. The low case does assume this large load is 50% of the base case assumption to illustrate a poor economic condition assumption.

Adjusting these assumptions leads to different customer forecasts which in turn results in different energy forecasts. The results are shown in Table 8-3 and Figures 8-2 through 8-4 for the following cases:

Low Case - Pessimistic economic assumptions with mild weather causing lower loads
Base Case - Most probable economics assumptions with normal weather (Base Case pre DSM)
High Case - Optimistic economic assumptions with severe weather causing higher loads.

Additionally, a DSM Case was developed based upon most probable economic assumptions with demand and energy decreased due to demand-side management programs. Details are given beginning on page 85.

Table 8-3
Scenarios
Peak Demands and Total Requirements
Pre-DSM

Impacts due to interruptible contracts have been subtracted.

Total Winter Peak Demand (MW)				Total Summer Peak Demand (MW)				Total Requirements (MWh)			
Season	Low Case	Base Case	High Case	Year	Low Case	Base Case	High Case	Year	Low Case	Base Case	High Case
2009-2010*		**2,868**		2010*		**2,443**		2010	12,216,387	**12,796,531**	13,492,128
2010-2011	2,891	**3,018**	3,174	2011	2,129	**2,259**	2,333	2011	12,153,322	**12,891,117**	13,660,364
2011-2012	2,872	**3,053**	3,202	2012	2,117	**2,294**	2,359	2012	12,099,554	**13,080,545**	13,806,940
2012-2013	2,871	**3,087**	3,254	2013	2,116	**2,325**	2,401	2013	12,041,142	**13,206,274**	13,962,232
2013-2014	2,891	**3,137**	3,331	2014	2,125	**2,363**	2,455	2014	12,101,620	**13,427,584**	14,258,591
2014-2015	2,907	**3,191**	3,406	2015	2,134	**2,399**	2,510	2015	12,155,375	**13,652,549**	14,550,739
2015-2016	2,923	**3,241**	3,481	2016	2,142	**2,436**	2,564	2016	12,241,270	**13,902,392**	14,884,173
2016-2017	2,954	**3,304**	3,575	2017	2,161	**2,484**	2,632	2017	12,318,860	**14,125,390**	15,213,003
2017-2018	2,981	**3,369**	3,666	2018	2,177	**2,534**	2,698	2018	12,419,884	**14,397,940**	15,571,998
2018-2019	3,012	**3,435**	3,762	2019	2,195	**2,585**	2,765	2019	12,533,876	**14,674,210**	15,950,215
2019-2020	3,031	**3,486**	3,845	2020	2,205	**2,623**	2,824	2020	12,632,127	**14,925,642**	16,316,910
2020-2021	3,069	**3,563**	3,953	2021	2,228	**2,682**	2,900	2021	12,736,419	**15,199,858**	16,695,374
2021-2022	3,097	**3,623**	4,051	2022	2,246	**2,729**	2,970	2022	12,846,218	**15,456,345**	17,081,299
2022-2023	3,130	**3,691**	4,155	2023	2,266	**2,781**	3,043	2023	12,973,068	**15,741,491**	17,494,554
2023-2024	3,151	**3,745**	4,244	2024	2,279	**2,825**	3,107	2024	13,092,064	**16,023,858**	17,900,972
2024-2025	3,186	**3,818**	4,353	2025	2,302	**2,881**	3,186	2025	13,189,863	**16,285,976**	18,287,859
2025-2026	3,213	**3,883**	4,454	2026	2,320	**2,931**	3,259	2026	13,299,416	**16,566,426**	18,694,004
2026-2027	3,240	**3,946**	4,554	2027	2,338	**2,983**	3,333	2027	13,396,731	**16,846,575**	19,083,835
2027-2028	3,250	**3,991**	4,633	2028	2,346	**3,021**	3,392	2028	13,484,007	**17,101,514**	19,463,377
2028-2029	3,278	**4,060**	4,737	2029	2,366	**3,077**	3,470	2029	13,560,427	**17,359,403**	19,834,942
2029-2030	3,306	**4,124**	4,842	2030	2,385	**3,128**	3,546	2030	13,677,798	**17,640,153**	20,263,701

*Note: 2009-2010 Winter and 2010 Summer are actual peaks.

Figure 8-2
Total Energy Requirements (Pre-DSM)

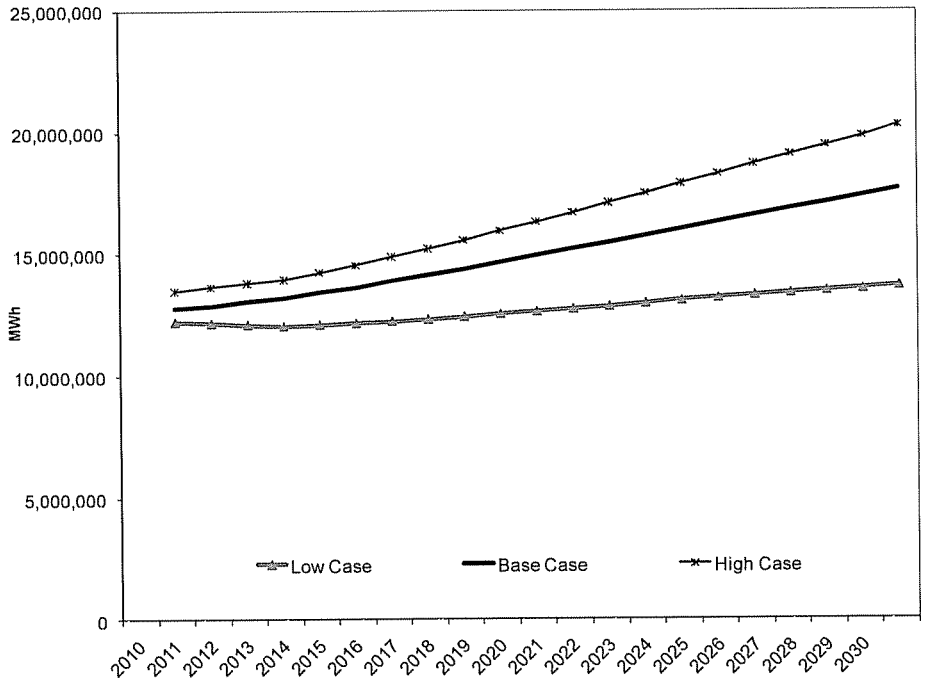


Figure 8-3
Total Winter Peak (Pre-DSM)

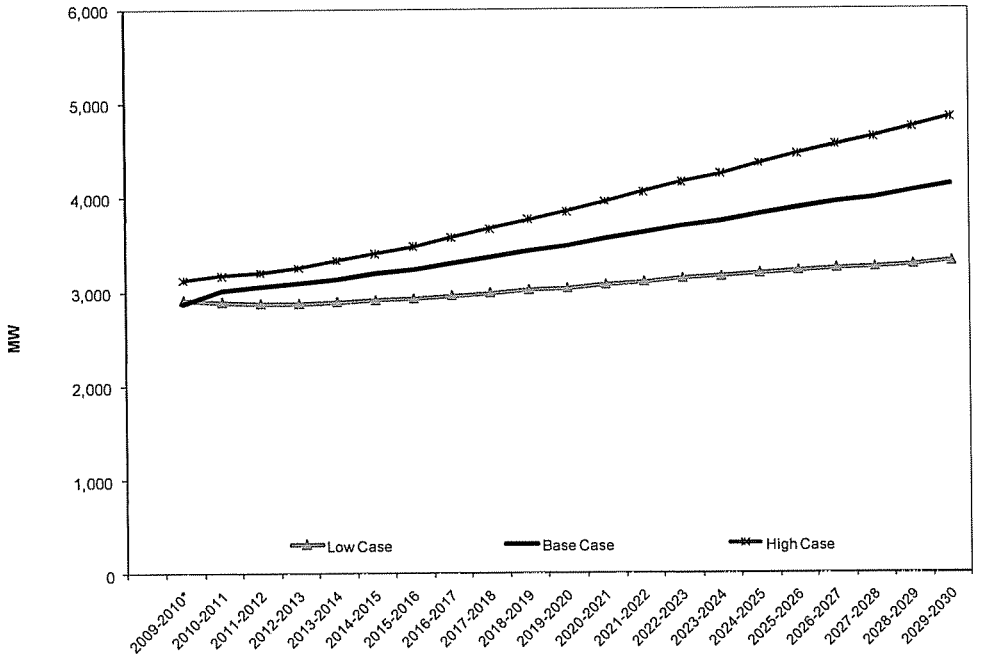
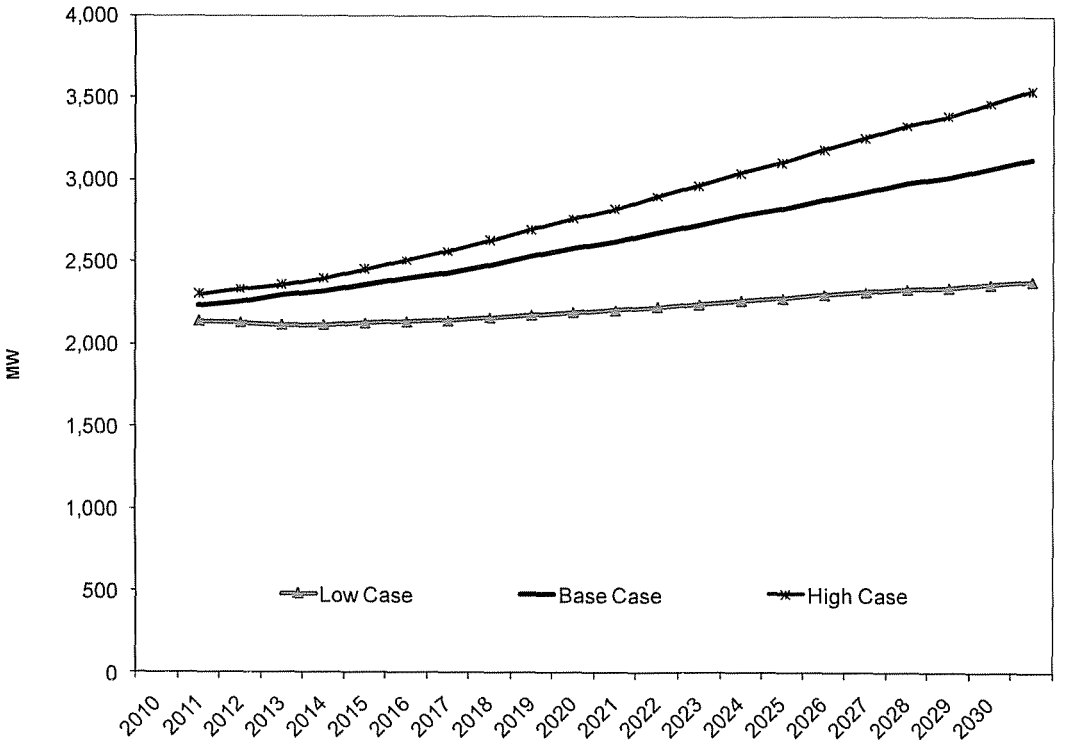


Figure 8-4
Total Summer Peak (Pre-DSM)



Demand-Side Management Case

For over 20 years, EKPC and its 16 member systems have promoted the cost-effective use of energy by offering conservation and other marketing programs to the retail customer. These programs were designed to meet the needs of the customer, and to delay the need for additional generating capacity.

These programs are implemented and administered by the member distribution systems. EKPC supports the member systems with analysis, promotional material, incentives, and other services. EKPC considers the programs as part of its overall supply portfolio, with the understanding that the programs benefit EKPC indirectly, through its member systems.

To incorporate into the 2010 long term load forecast, a demand side management plan was developed. The plan includes programs that are currently in existence and offered by EKPC's member systems to its customers as well as new programs.

Existing programs include:

- Electric Thermal Storage Incentive Program
- Tune-Up HVAC Maintenance Program
- Button-up Weatherization Program
- Touchstone Energy Home Program
- Touchstone Energy Manufactured Home Program
- Compact Fluorescent Lighting Program
- Commercial Advanced Lighting
- Interruptible rates for industrial customers

New Programs include:

- Button-up Weatherization with Air Sealing Program
- Air Source Heat Pump replacing resistance heat
- Dual Fuel
- Industrial Compressed Air
- Direct Load Control of Air Conditioners and Water Heaters

Estimated demand and energy impacts are shown in Table 8-4, Figures 8-5 and 8-6. Descriptions of the programs are shown on the following pages.

Program Descriptions

- Electric Thermal Storage Incentive Program: Provides retail members with a cost-efficient means of using electricity for space heating. A discounted rate for ETS energy encourages retail members to use electricity for heating during off peak hours. This improves the utility's load factor, reduces energy costs for the retail member, and delays the need for new peak load capacity expenses.

- Tune-Up HVAC Maintenance Program: This program offers cleaning indoor and outdoor heat exchanger coils, checking filters, measuring the temperature differential across the indoor coil to determine proper compressor operation, checking the thermostat to verify operation and proper staging, measuring air flow to ensure proper conditioned air distribution, sealing the ductwork, either through traditional mastic sealers or with the Aeroseal duct-sealing program. Duct losses are to be reduced to 10% or less.

- Button-Up Weatherization Program / Button-Up Weatherization with Air Sealing Program: The program requires the installation of insulation materials or the use of other weatherization techniques to reduce heat loss in the home. Any retail member who resides in a stick-built or manufactured home that is at least two years old and uses electricity as the primary source for space heat is eligible. In addition to the current program, EKPC is adding an option to also seal the envelope of the home.

- Touchstone New Construction Program (Heat Pump and Geothermal): This program builds upon the existing Touchstone Energy Home program by introducing new measures and approaches. If implemented, this program would replace the existing Touchstone Energy Home program. The enhancements include thermal sealing/thermal bypass, and R-38 attic insulation. The program is designed to encourage new homes to be built to higher standards for thermal integrity and equipment efficiency, as well as to choose geothermal or an air source heat pump (SEER 13 HSPF 8.0) rather than less efficient forms of heating. The program is modeled after the ENERGY STAR for New Homes program. Homes built to Touchstone Energy Home Standards typically use 30% less energy than the same home built to typical construction standards.

- Touchstone Energy Manufactured Home: The Touchstone Energy Manufactured Home is an all-electric manufactured home that is built to Energy Star® specifications. A manufactured home that is built to these standards typically uses 30% less energy. The Touchstone Energy Home includes a sealed duct system, energy efficient double-pane windows, added insulation in the roof and wall, and an improved gasket that seals the halves of the home together.

- Compact Fluorescent Lighting Program: This program provides compact fluorescent bulbs to retail members at the annual meetings held by the distribution cooperatives every year. Each registered member receives a two-pack of compact fluorescent bulbs that replace 2 incandescent light bulbs.

- Commercial Advanced Lighting including LED Program: This program offers incentives to commercial and industrial customers to install high efficiency lamps and ballasts in their facilities. LED exit signs, T-5 fluorescent fixtures, and advanced controls are examples of eligible technologies. This program is designed as an enhanced version of the existing commercial lighting program that will replace that program when implemented.

- Interruptible Rates for Industrial Customers: Industrial customers may agree to accept a lesser rate upon agreement to allow EKPC to interrupt load during peak hours.

- Air Source Heat Pump Program (Replacing resistance heat -10 years or older): This program provides incentives for residential customers to install a high efficiency air source heat pump instead of an electric resistance furnace and/or central air conditioner in the home. The furnace must be 10 years or older to qualify for incentives.

- Dual Fuel: This program will provide incentives for residential customers to replace an existing resistance heat furnace with a combination heat pump/gas heat furnace (Dual Fuel). This program will provided added energy savings while allowing fuel switching to gas at temperatures less than 30 degrees.

- Industrial Compressed Air Program: This program is designed to reduce electricity consumption through a comprehensive approach to efficient production and delivery of compressed air in industrial facilities. The program includes (1) training of plant staff; (2) a detailed system assessment of the plant's compressed air system including written findings and recommendations, and (3) incentives for capital-intensive improvements.

- Direct Load Control of Residential Air Conditioners and Water Heaters Program: This program is currently being implemented. The objective of the program is to reduce peak demand and energy usage through the installation of load control devices on residential air conditioners and electric water heaters. Peak demand reduction is accomplished by cycling equipment on and off according to a predetermined control strategy. Central air conditioning and heat pump units are cycled on and off, while water heater loads are curtailed. Participating customers receive an annual bill credit incentive.

Table 8-4
DSM Reductions for 2010 Load Forecast

	Current Programs			DLC			Planned Programs			GRAND TOTAL		
		Summer	Winter		Summer	Winter		Summer	Winter		Summer	Winter
	Annual	Peak	Peak	Annual	Peak	Peak	Annual	Peak	Peak	Annual	Peak	Peak
	MWh	kW	kW	MWh	kW	kW	MWh	kW	kW	MWh	kW	kW
2010	51,662	137,544	138,605	158	7,714	1,989	6,164	492	676	57,984	145,750	141,270
2011	63,182	139,779	141,741	316	15,427	3,978	14,733	1,144	2,331	78,231	156,350	148,050
2012	74,442	141,914	144,897	475	23,141	5,967	23,303	1,795	3,986	98,220	166,850	154,850
2013	89,443	144,825	149,098	630	30,856	7,957	34,777	2,669	6,195	124,850	178,350	163,250
2014	103,970	147,837	153,301	789	38,569	9,946	46,252	3,544	8,403	151,011	189,950	171,650
2015	119,899	150,747	157,505	946	46,284	11,934	57,728	4,419	10,611	178,573	201,450	180,050
2016	135,502	153,658	161,707	1,105	53,998	13,923	69,202	5,294	12,820	205,809	212,950	188,450
2017	146,017	155,908	165,327	1,151	56,371	14,536	78,879	5,971	14,887	226,047	218,250	194,750
2018	155,544	157,888	168,678	1,151	56,371	14,536	87,085	6,491	16,836	243,780	220,750	200,050
2019	165,338	159,967	172,027	1,151	56,371	14,536	95,290	7,012	18,787	261,779	223,350	205,350
2020	163,122	160,090	173,615	1,151	56,371	14,536	96,227	7,289	19,499	260,500	223,750	207,650
2021	158,818	160,213	175,004	1,151	56,371	14,536	97,164	7,566	20,210	257,133	224,150	209,750
2022	154,713	160,137	176,392	1,151	56,371	14,536	98,101	7,842	20,922	253,965	224,350	211,850
2023	148,641	159,860	177,480	1,151	56,371	14,536	99,038	8,119	21,634	248,830	224,350	213,650
2024	143,524	159,483	178,569	1,151	56,371	14,536	99,975	8,396	22,345	244,650	224,250	215,450
2025	137,181	159,114	179,391	1,151	56,371	14,536	100,210	8,465	22,523	238,542	223,950	216,450
2026	131,249	158,645	180,213	1,151	56,371	14,536	100,444	8,534	22,701	232,844	223,550	217,450
2027	132,540	158,876	182,135	1,151	56,371	14,536	100,678	8,603	22,879	234,369	223,850	219,550
2028	133,648	159,176	183,935	1,151	56,371	14,536	100,678	8,603	22,879	235,477	224,150	221,350
2029	133,688	159,376	185,735	1,151	56,371	14,536	100,678	8,603	22,879	235,517	224,350	223,150
2030	123,270	157,423	171,884	995	48,658	12,547	91,665	7,669	21,819	215,930	213,750	206,250

Figure 8-5

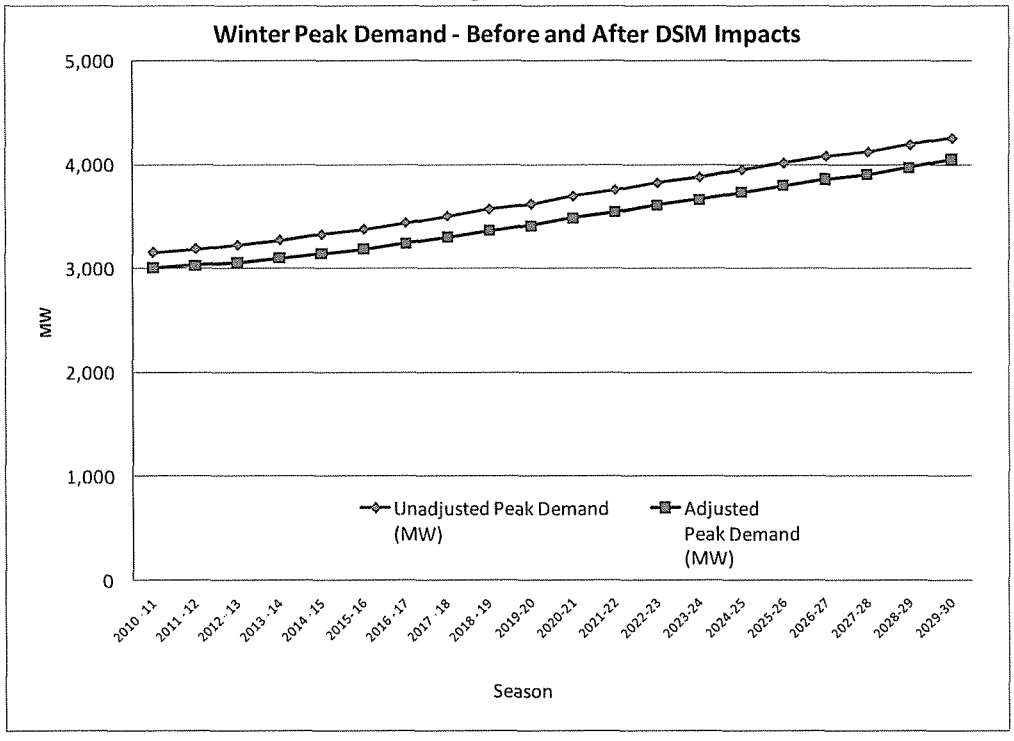
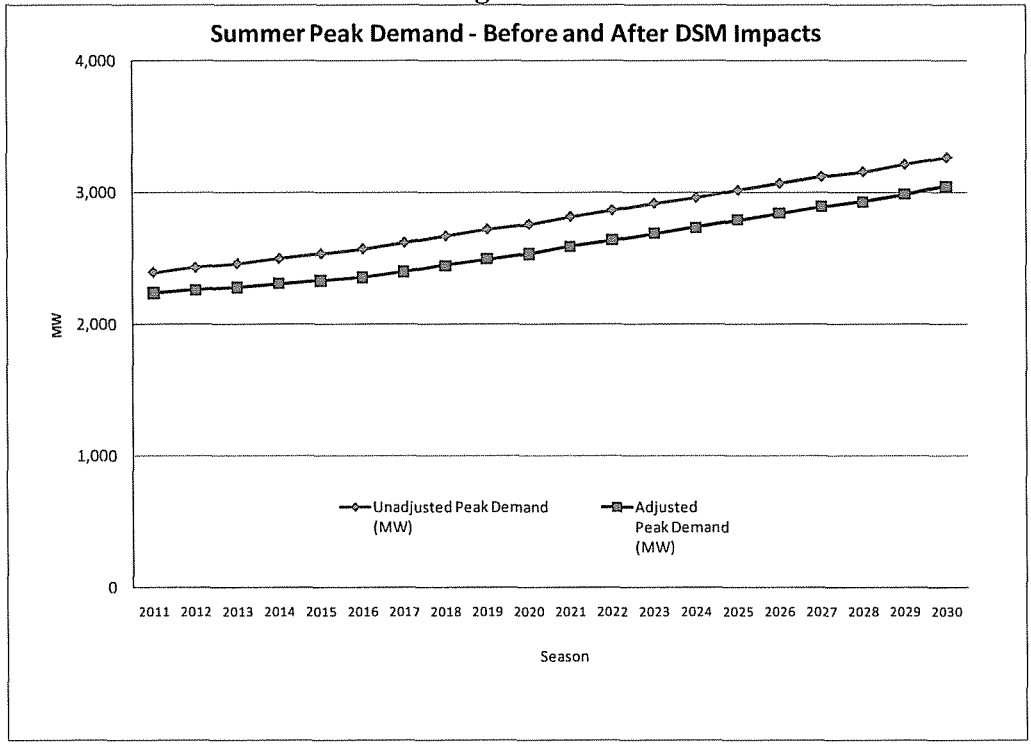


Figure 8-6



2011
Load Forecast
Work Plan

Prepared by:
East Kentucky Power Cooperative
Load Forecasting Department

November 2011

EAST KENTUCKY
POWER COOPERATIVE

TABLE OF CONTENTS

Summary

East Kentucky Power Cooperative Inc. (EKPC) is a generation and transmission electric cooperative headquartered in Winchester, Kentucky. It serves 16 member distribution cooperatives, who in 2010 served approximately 520,000 retail customers in 87 of the state's 120 counties. EKPC's all time peak demand of 3,152 MW occurred on Janurary 16, 2009. Member distribution cooperatives currently served by EKPC are listed below:

Big Sandy RECC	Jackson Energy Cooperative
Blue Grass Energy Coop. Corp.	Licking Valley RECC
Clark Energy Cooperative, Inc.	Nolin RECC
Cumberland Valley Electric	Owen Electric Cooperative, Inc.
Farmers RECC	Salt River Electric Cooperative
Fleming-Mason Energy Cooperative, Inc.	Shelby Energy Cooperative, Inc.
Grayson RECC	South Kentucky RECC
Inter-County Energy Coop. Corp.	Taylor County RECC

This report contains a description of the load forecast process that is currently followed by EKPC and its member systems. The major steps, in general, in developing the load forecasts are:

- EKPC prepares a preliminary load forecast for each member that is based on retail sales forecasts for four classes - residential, small commercial, large commercial, and other. The classifications are taken from the Rural Utilities Service (RUS) Form 7, which contains retail sales data for member systems. In instances where seasonal and public authority classes are reported, these are forecasted separately. Table 1 summarizes the forecast methodology. EKPC's sales to member systems are then determined by adding distribution losses to total retail sales, and EKPC's total requirements are estimated by adding transmission losses to sales to members. Seasonal peak demands are determined by summing individual appliance and class loadshapes based on normal EKPC peak day weather.
- EKPC meets with each member to discuss their preliminary forecast. Member system personnel present at the meetings include the President/CEO and other

key staff members. During the meeting, preliminary projections are reviewed and, if necessary, revised as mutually agreed upon. Member systems often have access to information not available to EKPC, or member systems may elect to use assumptions different from preliminary forecast assumptions.

- EKPC then compiles its forecast, which is the summation of the 16 member system forecasts.

There is close collaboration between EKPC and its members. This working relationship is vital since both EKPC and member systems have significant input into the load forecast process. Input from member systems includes industrial development, subdivision growth, and other specific service area information. The meeting also provides an opportunity for the member system to critique assumptions used and overall results of the preliminary forecast. The resulting forecasts reflect a combination of EKPC's structured forecast methodology tempered by the judgment and experience of member system staff.

Table 1
East Kentucky Power Cooperative
Forecast Model Summary

	Methodology
Residential Sales	Sales for this class are projected as the product of residential customers and residential use per customer. Residential customers are projected by means of regression analysis. Residential use per customer is projected with a statistically-adjusted end-use model.
Small Commercial Sales	Small commercial sales are analyzed and projected with regression analysis. Independent variables include real electric price, economic activity, weather, and residential customer growth. The models vary by member system.
Large Commercial Sales	Sales for this class are projected by both the member systems and EKPC. Member systems project existing large loads. EKPC projects new large loads using a probabilistic approach that is based on historical development, the presence of industrial sites, and the economy of the service territory.
Other Sales	Other sales are projected as a function of residential customers.
Peak Demand	Seasonal peak demands are projected using peak day load factors. Residential load factors are appliance specific. Small and large commercial factors are an aggregate for the class.

Load Forecast Coordination and Communication

Coordination with Member Systems

The 17 load forecasts that are produced within the EKPC system reflect a group effort. EKPC's philosophy of developing load forecasts is that all 17 systems are interrelated. EKPC cannot make accurate energy and peak demand projections for itself without studying the 16 member systems. As a result of this interrelation, EKPC works jointly with members to prepare load forecasts.

Communication with Member Systems

EKPC personnel are in constant contact with member system personnel relating to the load forecast. There is a meeting between EKPC and member systems to discuss the load forecast in order to arrive at a final set of projections. EKPC communicates with members regarding end-use surveys, substation information, billing information, demand-side management programs, marketing programs, and other miscellaneous data. Member systems communicate with EKPC regarding sensitivity analyses, substation load projections, potential industrial loads, end-use survey reports, and other miscellaneous topics.

Dates

EKPC generally begins work on the load forecasts in December of the previous year with planning stages occurring prior to that, as early as October. Normally, by the end of January, year-end retail sales data on customers, sales, and revenue have been collected to allow for retail sales analysis. By the middle of April, EKPC will have prepared a preliminary load forecast for each member system. Individual member system visits occur in May through July. By the end of August, an official EKPC load forecast has been prepared, and is presented to EKPC's Board of Directors, usually in September. Table 2 lists important milestones in the process. Table 3 shows the schedule. A detailed timeline is included in the appendix.

Table 2
Load Forecast Milestones

Regional Economic Modeling Completed	January
December Form 7 Reports Collected	January
Customer Forecast by Class	February
Preliminary Forecast Completed	April
Member System Visits	May – July
Board Approval	September
Final Report	September

Table 3
Load Forecast Schedule

December
Regional Economic Analyses

January
Regional Economic Forecasts Complete
Appliance Saturation Projections Complete

February
Customer Forecast by Class

March
Finalize Year-End Form 7 Data • Finalize Winter Season Peak

April
Sales Forecast by Class • Peak Demand Forecast
Preliminary Load Forecasts Completed • EKPC Review

May / June
Member System Visits • Member System Reports

July / August
Model EKPC System Hourly Load • Prepare Draft EKPC Report

September
Board Approval • Final EKPC Report Complete

Start of Process

EKPC's communication and coordination with member systems starts with a letter from EKPC to member systems. The letter serves to make member systems aware of the process, and also to request pertinent information and input into the load forecast. Specifically, member systems are asked to provide EKPC with individual large commercial customers' (both existing and planned) projected monthly sales and peak demand for three years. Information concerning demand-side management programs is collected, analyzed and used as inputs to the load forecast, specifically, expected participation. EKPC also provides a preliminary rate forecast for small commercial and residential customers. Member systems review and comment. Finally, members are asked to update their narratives for the load forecast report.

Meeting with Member Systems

Once a preliminary forecast is complete, EKPC visits each member system to discuss the results. The meetings take place at each member system's headquarters. Meeting attendees vary by member system and typically include the following:

Table 4

Load Forecast Meeting Attendees

Member System	President/CEO Key Staff from the following departments: Finance Engineering / Operations Member Services Administrative
EKPC	Director, Power Supply Planning Load Forecasting Manager and Team Members

Interaction with RUS's General Field Representative (GFR)

EKPC meets with the GFR to review the member system forecasts. After questions and comments are addressed, the GFR signs the RUS Form 341. The GFR's knowledge of RUS rules and regulations is useful to EKPC and member systems.

Interaction with RUS's Energy Forecasting Branch (EFB)

EKPC strives to maintain regular contact with the EFB, mainly the Senior Load Forecast Officer who has been assigned to EKPC. The EFB has served as a resource for the latest information regarding energy efficiency standards and alternative fuels prices.

EKPC Personnel

The load forecasting function is in EKPC's Load Forecasting Department in the Power Supply Business Unit. Key contributors include:

- David Crews is the Senior Vice President of Power Supply and will maintain executive authority and direction for the load forecast.
- Julie Tucker is the Director of Power Supply Planning, and will provide strategic oversight as well as management support of load forecast development.
- Jamie Hall, Manager of Load Forecasting, will provide overall support for the 2012 Load Forecast.
- Mark Mefford, Analyst in the Load Forecasting Department, will serve as the project manager for the 2012 Load Forecast.
- Sandy Mollenkopf, Analyst in the Load Forecasting Department, will provide support for the load forecast process in areas of data collection, specifically, saturation survey data, load research data, and RUS Form 7 data. The load forecast requires input from many individuals.
- Alma Gentry, Analyst in the Load Forecasting Department, will provide support for the load forecast in areas of Demand Side Management and Direct Load Control impacts.

Resources and Data Management

Computer Resources

EKPC currently uses personal computers for analyses and presentation of the load forecast. The following software packages are used in the process:

Microsoft EXCEL – used for spreadsheet analysis
Microsoft WORD and PowerPoint – used for preparing reports
@RISK – used for risk analysis
SAS – a statistical package used for regressions and data manipulation
MetrixLT – a program used to calibrate the monthly forecasts to hourly forecasts
MetrixND – a forecasting modeling program

Purchased Data Resources

Economic

EKPC uses services from IHS Global Insight, Inc., to analyze regional economic performance. The regions are based on EKPC member systems' service territories. Variables forecasted for each county include:

- EMPLOYMENT [NAICS] by sector
  - Total Non-farm
  - Non-Manufacturing
  - Service Providing Private
  - Construction, Natural Resources, and Mining
  - Manufacturing
  - Transportation, Trade, & Utilities
  - Information
  - Financial Activities
  - Professional & Business Services
  - Educational & Health Services
  - Leisure & Hospitality
  - Other Services
  - Government
  - Federal Government
  - State & Local Government
  - Military

- NOMINAL INCOME
  - Personal Income
  - Wage & Salary Disbursements
  - Non-wage Income
  - Average Annual Wage, Non-farm Employment
  - Per Capita Personal Income
  - Average Household Income

- REAL INCOME
  - Real Personal Income
  - Real Wage & Salary Disbursements
  - Real Non-wage Income
  - Real Per Capita Personal Income

- POPULATION
  Total Resident Population and by Age group

- HOUSEHOLDS
  Heads of Household, Total and by Age group.

In addition, EKPC purchases forecasted information about the U.S. economy including:

1. A long-term economic forecast of the U.S. economy including output, price level, and interest rate projections.

2. Cost and price projections of generation and transmission capital equipment price escalation rates and fuel price forecasts.

3. Miscellaneous data searches and special requests.

The cost of the above services and data is approximately $30,000 annually.

The extensive amount of economic data available relating to load forecasting at EKPC is a valuable resource to other departments at EKPC, as well as member systems, who often make requests for various economic data.

Demographic

EKPC uses forecasts prepared by the Urban Studies Institute, a University of Louisville organization that is the state's official demographer. They prepare forecasts of population and households and disseminate Census Bureau data. EKPC uses these to maintain a Kentucky perspective on how Kentucky is expected to grow.

Weather

EKPC subscribes to a service provided by Telvent DTN (formerly WeatherBank), which provides actual weather data including monthly high and low temperatures, hourly temperatures, humidity, sunshine minutes, wind chill and other variables. EKPC currently maintains seven weather databases for different regions of the state of Kentucky. Each member system's model uses the weather station that most closely reflects the local weather. This service costs $1,500 annually.

Loadshapes

Specific hourly load research data is used when available. EKPC's load research to date includes a sample in the small commercial sector (0-50 kW), a sample of the medium commercial sector (51-350 kW) and a census for the large power sector (>350 kW). The load forecast also uses residential load research data for appliance usage estimation.

Data Management

EKPC deals with a tremendous amount of economic, weather, demographic, retail sales, and end-use data. Maintaining all of this information is challenging. The data is stored on EKPC's network in numerous datasets. Housing the data on a network allows multiple users to be working on this project simultaneously. Most regression analyses are performed in SAS or MetrixND. The resulting regression coefficients are used in developing the load forecasts.

Report Writing

Member System Reports

Once final projections have been calculated following the load forecast meeting at the member system, EKPC prepares a report for each of its member systems. Just as member systems work jointly with EKPC on the preparation of the load forecast, they also contribute to the report's development by providing the narrative for the report.

EKPC Report

EKPC's report consists of a summary report and supporting appendices. The summary report essentially finalizes the load forecast process by combining the 16 individual member system forecasts. Key assumptions and member system growth rates are presented. The forecast methodology is described briefly with energy projections provided for the individual classes of consumers. Seasonal peak demands, load factors, and high and low forecasts are presented. Table 6 summarizes the table of contents from EKPC's Load Forecast report.

Table 6

Load Forecast Report Table of Contents

Section 1.0	Executive Summary
Section 2.0	Load Forecast Methodology
Section 3.0	Load Forecast Discussion
Section 4.0	Regional Economic Model
Section 5.0	Residential Customer Forecast
Section 6.0	Residential Sales Forecast
Section 7.0	Commercial and Other Sales Forecast
Section 8.0	Peak Demand Forecast and High and Low Case Scenarios

Report Appendices

A description of data included in the appendices is in Table 7.

Table 7

Load Forecast Report Appendices

Appendix	Number of Volumes	Contents
A	1	Signed RUS Form 341s Member System Load Forecast Reports
B	1	Regional Model Code and Results Sales Forecast Definitions, Assumptions, and Results Class Model Statistics for each Member System

Model Description

Regional Economic Forecasts

An important part of the load forecast is the regional economic outlook. EKPC has divided its members' service area into seven economic regions based on the member system service territorial boundaries. As stated above, Global Insight collects the historical data, models the data, and provides forecast data to EKPC. Variables include: population, income, employment levels, wages, labor force, and unemployment rate. Consistent regional forecasts for population, income, and employment are developed. Population forecasts are used to project residential class customers; regional household income is used to project residential sales; and regional economic activity is used to project small commercial sales.

Projections of regional economic activity can greatly impact the sales forecasting and strategic planning of EKPC. Changes in regional employment and income are important determinants of customer and sales growth.

Regions are based on natural regions that exist within the EKPC territory. For example, the Central region defined by EKPC fits closely within the Lexington Metropolitan Statistical Area (MSA). The BEA defines MSAs as areas of interrelated economic activity that go beyond a single county's boundaries. The coal mining industry dominates EKPC's East region. The North region includes Kentucky counties that border Cincinnati. The South region is influenced by tourism. The Louisville metropolitan area influences the West Central region. Finally, services and retail trade dominate the North East region.

A list of regions and counties is provided in Table 8. Models for these regions provide EKPC with a way of linking the electricity needs of a service area to the rest of the economy in a consistent and reasonable manner.

Table 8

East Kentucky Power Cooperative Regional Definitions
Counties by Region

Central South	Central North	South	Central	North	North East	East
Allen	Bullitt	Adair	Anderson	Boone	Bath	Bell
Barren	Hardin	Boyle	Bourbon	Bracken	Boyd	Breathitt
Butler	Henry	Casey	Clark	Campbell	Carter	Clay
Cumberland	Jefferson	Garrard	Fayette	Carroll	Elliott	Estill
Edmonson	Larue	Green	Franklin	Gallatin	Fleming	Floyd
Grayson	Meade	Lincoln	Harrison	Grant	Greenup	Harlan
Hart	Nelson	Marion	Jessamine	Kenton	Lawrence	Jackson
Metcalfe	Oldham	McCreary	Madison	Owen	Lewis	Johnson
Monroe	Shelby	Pulaski	Mercer	Pendleton	Mason	Knott
Simpson	Spencer	Russell	Scott		Menifee	Knox
Warren	Trimble	Taylor	Woodford		Montgomery	Laurel
	Washington	Wayne			Nicholas	Lee
					Powell	Leslie
					Robertson	Letcher
					Rowan	Magoffin
						Martin
						Morgan
						Owsley
						Perry
						Pike
						Rockcastle
						Whitley
						Wolfe

Customer Model

Residential customers are analyzed by means of regression analysis with resulting coefficients used to prepare customer projections. Regressions for residential customers are typically a function of regional economic and demographic variables. Different explanatory variables are used for member systems in order to account for regional differences in local economies.

Two variables that are very significant for these regressions are the numbers of households by county in each member system's economic region and the percent of total households served by the member system. The number of households by county is forecast by Global Insight. The percent of total households served by the member system is based on RUS Form 7 data and projected by trend growth.

Table 9 provides details of regressions for residential customers.

Table 9

Residential Customer Forecast

Model Inputs	**Source**	
	Historical Source	**Forecast Source**
Population	Global Insight database	Global Insight model results
Households - The number of households by county	Global Insight database	Global Insight model results
Share – The percent of the region's households served by member system	RUS Form 7	Trend Growth
Employment - Regional employment levels by SIC Code	Global Insight database	Global Insight model results
Income – Regional income levels	Global Insight database	Global Insight model results
Model Outputs	**Use of**	
Residential Customers	Residential customers are input into the residential sales model. They are also used to complete RUS Form 341.	

Note: Model inputs vary by member system. Member system equations do not contain every model input listed above.

Residential Sales Model

EKPC uses statistically adjusted end-use (SAE) models to forecast residential sales. This method of modeling incorporates end-use forecasts in the background and can be used to decompose the monthly and annual forecasts into end-use components. SAE models offer the structure of end-use models while also utilizing the strength of time-series analysis.

This method, like end-use modeling, requires detailed information about appliance saturation, appliance use, appliance efficiencies, household characteristics, weather characteristics, and demographic and economic information. The SAE approach segments the average household use into end-use components as follows:

$$Use_{y,m} = Heat_{y,m} + Cool_{y,m} + Water\ Heat_{y,m} + Other_{y,m}$$

Where, y=year
m=month

Each component is defined in terms of its end-use structure. For example, the cool index may be defined as a function of appliance saturation, efficiency of the appliance, and usage of the appliance. Annual end-use indices and a usage variable are constructed and used to develop a variable to be used in least squares regression in the model. These variables are constructed for heating, cooling, water heating, and an 'Other' variable, which includes lighting and other miscellaneous usages.

$$CoolIndex_y = \sum_{Type} Wgt^{Type} * \left(\frac{CoolShare_y^{Type}}{Eff_y^{Type}} \right) \Big/ \left(\frac{CoolShare_{98}^{Type}}{Eff_{98}^{Type}} \right)$$

$$CoolUse_{y,m} = \left(\frac{CDD_{y,m}}{NormCDD} \right) * \left(\frac{HHSize_y}{HHSize_{by}} \right) * \left(\frac{Income_y}{Income_{by}} \right) * \left(\frac{Price_{y,m}}{Price_{by}} \right)^{-.30}$$

Where, by=base year

$$Cool_{y,m} = CoolIndex_y * CoolUse_{y,m}$$

The Cool, Heat, Water Heat, and Other variables are then used in a least squares regression which results in estimates for annual and monthly use per household.

Features of EKPC's SAE model are as follows:

1. Over 20 years of End-use Survey historical data are used to forecast saturation of appliances.

2. Appliance efficiencies due to government regulation have been accounted for in the model using a standard roll-in method, where new households and existing households in the market for new appliances encounter more efficient units. Indices pertaining to appliance efficiency trends and usage are used to construct energy models based on heating, cooling, water heating and other energy for the residential class. Source: Energy Information Administration Annual Energy Outlook, East South Central region representing Kentucky.

3. Various demographic and socioeconomic factors that affect appliance choice and appliance use are present in the methodology. These include the changing shares of urban and rural customers relative to total customers, number of people living in the household, as well as square footage of the house and the thermal integrity of the house.

Every two years since 1981, EKPC has surveyed the member systems' residential customers. The most recent survey was conducted in September and October 2011. EKPC gathers appliance, heating and cooling, economic, and demographic data. Appliance holdings of survey respondents are analyzed in order to project future appliance saturations and to better understand their electricity consumption.

EKPC's analysis and forecast of appliance saturations and appliance usage is econometric in nature. The decision made by customers to purchase an appliance can often be understood by examining customer income levels, fuel price, and household characteristics. The choice to purchase an appliance is modeled separately from the decision to use the appliance. This is because these actions are separate and subject to different driving forces.

Tables 10 and 11 provide modeling details of residential sales.

Table 10
Residential Sales Forecast - Appliance Usage Projections

Dependent Variable: Appliance Saturation	
Model Inputs	**Source**
Residential Customers	Historical number of customers is taken from Form 7 data. Future number of customers is projected by EKPC and member systems.
Average Real Price of Electricity	Historical price is taken from Form 7. Future prices are projected by EKPC's Rates Department and member systems.
Cooling Degree Days & Heating Degree Days	Historical data come from Telvent DTN. Regional weather stations are used to account for the geographical diversity of member systems. Future values are historical averages.
Household Size (People Per Household)	Census Bureau, Trend Growth
Percent of Customers Who Live In Rural, Urban, And Farm Areas	End-Use Surveys, Trend Growth
Real Household Income	Global Insight model results
Model Outputs	**Use of**
Appliance Saturations	The forecast of appliance saturations is combined with the forecast of appliance usages in order to forecast total residential sales.

Table 11

Residential Sales Forecast - Appliance Usage Projections

Dependent Variable: Appliance Usage	
Model Inputs	***Source***
Residential Customers	Historical customers are taken from Form 7. Future customers are projected by EKPC and member systems.
Average Real Price of Electricity	Historical price is taken from Form 7. Future prices are projected by EKPC's Rates Department and member systems.
Appliance Lifetimes	Association Of Home Appliance Manufacturers, EIA Data, U.S. Department of Energy
Appliance Efficiency Improvements	U.S. Department Of Energy, Energy Forecasters Group
Size of Water Heater	End-Use Survey, Trend Growth
Percent of Customers With A Cistern or Well	End-Use Survey, Trend Growth
Household Size (People Per Household)	Census Bureau, Trend Growth
Percent of Customers Who Live In Rural, Urban, And Farm Areas	End-Use Surveys, Trend Growth
Real Household Income	Global Insight model results
Model Outputs	**Use of**
Appliance Usage Levels	The forecast of appliance usages is combined with the forecast of appliance saturations in order to forecast total residential sales.

Small Commercial Sales Model

In 2010, there were over 32,000 total small commercial customers in the EKPC system, with an average annual use per customer of approximately 60 MWh. This class is analyzed by means of regression analysis, and the resulting coefficients are used to prepare sales and customer forecasts. Each member system has two regression equations, which requires 32 regression equations in order to analyze and forecast preliminary small commercial sales. The first regression consists of total small commercial sales as a function of price, weather, and some measure of the local or national economy. The second regression consists of small commercial customers as a function of residential customers, the unemployment rate, or time. Different explanatory variables are used for member systems in order to account for regional differences in local area economies. For example, small commercial sales in some territories are heavily influenced by the oil and gas industry, while other areas are more affected by retail stores.

This class has experienced a fair amount of reclassification over the years. Reclassifications can certainly be accounted for in the regression analysis, but the breaks in the data tend to lower the overall robustness of the regressions. Small commercial analysis and forecasting represent a challenge due to reclassifications and the relative heterogeneity of the data. Customers in this class include small mines, quarries, churches, schools, retail stores, large farm operations, and others, who each respond in different ways to different factors. The tables below provides regression modeling details of the small commercial class.

Table 12

Small Commercial Customer Forecast

Dependent Variable: Small Commercial Customers	
Model Inputs	**Source**
Residential Customers	Historical customers are taken from Form 7. Future customers are projected by EKPC and member systems.
Unemployment Rate	Global Insight model results
Time	
Model Outputs	**Use of**
Total Small Commercial Customers	Used to determine average use per customer. This forecasted variable is used to complete RUS Form 341.

Note: Model inputs vary by member system. Member system equations do not contain every model input listed above.

Table 13
Small Commercial Sales Forecast

Dependent Variable: Small Commercial Sales	
Model Inputs	**Source**
Residential Customers	Historical customers are taken from Form 7. Future customers are projected by EKPC and member systems.
Average Real Price of Electricity	Historical price is taken from Form 7. Future prices are projected by EKPC's Rates Department and member systems.
Cooling Degree Days & Heating Degree Days	Historical data come from NOAA. Regional weather stations are used to account for the geographical diversity of member systems. Future values are historical averages.
Regional Employment Levels by SIC Code	Global Insight model results
Total Regional Income	Global Insight model results
Model Outputs	**Use of**
Total Small Commercial Sales	This retail class is combined with other retail class forecasts in order to project member system purchases and EKPC total requirements.

Note: Model inputs vary by member system. Member system equations do not contain every model input listed above.

Large Commercial Sales Model

In 2010, there was an average of 125 customers in this class with an annual average use per customer of over 20,000 MWh. Unlike the small commercial class, no member system regression equations are used in the analysis and forecast of large commercial sales. Since there are so few large commercial customers, use of regression to study the history would reflect individual plant production decisions and not necessarily responses to economic conditions. EKPC and its members have a two-part method for making projections in this class. First, existing customer forecasts are made, and second, forecasts of new customers are prepared.

Forecasts of Existing Customers

These projections are made directly by member systems since they are in regular contact with the customers. Each member system prepares a three-year projection of each one of their customers whose monthly demand exceeds 1 MW. Load forecasts beyond the three-year horizon for existing large commercial customers are either fixed at the third year level or are adjusted based on information shared at the load forecast meeting.

Forecasts of New Customers

In the short-term, usually for a two or three-year period, both EKPC and member systems are aware of planned large load additions. Due to normal construction lead times, the ability to predict additions in the near term is strong. The only exception to this is with respect to coal mine loads. Coal mine operations can move equipment from place to place in a relatively short time period, making a forecast of their location difficult.

Over the long-term, a regression technique is used to forecast new large commercial customers. Because there are so few customers in this class, analysis is initially done at the EKPC level to forecast total new customers. These new customers are then allocated to the member systems using a probabilistic model which provides an analytical basis for locating large loads on the EKPC system. The model is spreadsheet based using @RISK. The model probabilistically distributes the new large commercial customers to member systems based on their regional economic outlook, share of county served and historical success in attracting new customers.

Once the number of new large commercial customers is determined, energy projections are based on the assumption that all new unknown large commercial customers have the same characteristics as the average of all existing large commercial customers, for example, a peak load of 1.8 MW with a 70 percent load factor. This methodology for forecasting new large commercial customers and energy provides a robust and defensible projection at the member system level.

Table 14

Existing Large Commercial Customer Sales Forecast

Model Inputs	Source
Use per Customer	Historical data are taken from Form 7. Projections are made by member systems based on current trends, and based on knowledge of customer's intentions.
Model Outputs	**Use of**
Large Commercial Sales – Existing Customers	This segment of large commercial sales is combined with new customer sales. The large commercial retail class is combined with other retail class forecasts in order to project member system purchases and EKPC total requirements.

Table 15

New Customer Large Commercial Sales Forecast, Short-Term

Model Inputs	Source
Number of Customers	Number of Service Area Industrial Sites, Chamber of Commerce Efforts, Industrial Recruiting Efforts, EKPC Industrial Development Efforts.
Use per Customer	Type of Customer and Process, NAICS Characteristics, Characteristics of Similar Customers
Model Outputs	**Use of**
Large Commercial Sales - New Customers, Short-Term	This segment of large commercial sales is combined with new customer sales. The large commercial retail class is combined with other retail class forecasts in order to project member system purchases and EKPC total requirements.

Table 16

New Large Commercial Customer Sales Forecast, Long-Term

Model Inputs	Source
Number of Customers	Short-term forecast, trend growth, regional employment trends
Regional Income	Global Insight model results
Regional Employment	Global Insight model results
U.S. GNP	Global Insight model results
Share of County Served	RUS Form 7 and trend growth
Model Outputs	**Use of**
Large Commercial Sales - New Customers, Long-Term	This segment of large commercial sales is combined with new customer sales. The large commercial retail class is combined with other retail class forecasts in order to project member system purchases and EKPC total requirements.

Other Sales Models

Other retail sales vary by member system. Some members do not report consumers in this category. Some members report seasonal sales, street light sales and sales to public authorities. EKPC's approach to this class is the same for each member system. Member system regression equations are developed with resulting coefficients used to forecast the class.

Table 17

Other Sales Forecast

Model Inputs	Source
Residential Customers	Historical customers are taken from Form 7. Future customers are projected by EKPC and member systems.
Model Outputs	**Use of**
Other Sales	This retail class is combined with other retail class forecasts in order to project member system purchases and EKPC total requirements.

Peak Model

EKPC's peak demand forecast is a bottom-up approach, meaning the member system peaks are summed to determine the EKPC peak. Model inputs include annual energy by end-use for the residential class and total energy use for small and large commercial. Model outputs are hourly demand for winter peak day and hourly demand for summer peak day. Weather sensitive appliance demands reflect typical peak day temperature profiles for winter and summer. The resulting peaks are explicitly linked to energy projections. Load factor is an input to the forecast. The load factors used are derived from data collected in the EKPC Load Research Program. The table below lists model inputs and model outputs.

Table 18

Peak Demand Forecast

Model Inputs	**Source**
January Electric Heat Sales	Residential Forecast Model
January and July Electric Water Heater Sales	Residential Forecast Model
July Air Conditioning Sales	Residential Forecast Model
January and July Residential Residual Sales	Residential Forecast Model
January and July Small Commercial Sales	Small Commercial Model
January and July Large Commercial Sales	Large Commercial Model
January Electric Heat Peak Day Load Factors	Load Research
January and July Electric Water Heater Load Factors	Load Research
July Air Conditioning Load Factor	Load Research
January and July Residential Residual Load Factor	Load Research
January and July Small Commercial Load Factor	Load Research
January and July Large Commercial Load Factor	Load Research
Model Outputs	**Use of**
Winter Peak Day Load Profile Summer Peak Day Load Profile	These represent EKPC and member system peak demand forecasts.

Loss Calculations

Transmission and distribution losses make up approximately eight percent of total energy requirements on the EKPC system. For this reason, EKPC analyzes distribution and transmission losses carefully in order to accurately project future values. While there is no formal modeling process in loss analysis, member systems provide excellent input into future distribution loss determination using several decision rules including:

1. Comprehensive right-of-way programs tend to reduce losses.

2. Direct-served large commercial customers, customers with no distribution line, reduce overall distribution losses.

In addition to energy losses, demand losses are also developed. Winter peak day losses are assumed to be one percent greater than average energy losses and summer peak day losses are two percent higher than average energy losses.

Hourly Load Model

EKPC develops a 20 year hourly load forecast using ITRON's MetrixLT program. This program is PC based and runs in a Windows environment. It calculates hourly demands given input load shapes, energies and peak demands. In addition, the model accounts for transmission and distribution losses and allows for reconciliation to an external forecast.

EKPC generates 8,760 hourly demands from annual energy for each year of the 20 year load forecast for the EKPC system. Hourly forecasts for member systems are developed as requested.

Uncertainty Analysis

Probabilistic Forecasting

EKPC brackets its base load forecast with high and low projections by analyzing probability distributions of significant variables that impact the forecast allowing the capture and study of a model's inherent uncertainty. The software @RISK is used for this. For example, price, income, number of customers are all variables that impact residential sales. Each of these can be expressed as a probability distribution. A probabilistic forecast of residential sales for each year in the forecast involves many passes through the residential sales forecasting model with different values of the above variables randomly selected from their corresponding probability distributions. The net result is a distribution of possible outcomes for residential sales for each year. EKPC uses the 50/50 value of the probability distribution as the base case whereas the high and low case represent the 90 percent bounds.

Scenario Forecasting

Scenario forecasts are different from the probabilistic forecasts described above. In scenario forecasting, certain events are modeled in order to examine the effect on the forecast. Consider, for example, the occurrence of an economic depression. Because the chances of such an event are remote, a probabilistic load forecast will not contain the results of such a catastrophe. In scenario forecasting, however, one can assume that an economic depression occurs, without explicit regard to the probability of such an occurrence, in order to study the effects of such an event on the load forecast. Both scenario forecasting and probabilistic forecasting are common techniques in uncertainty analysis.

High and low scenarios are developed using the same methodology as with the base case, however, the starting summary file is different. Instead of using the sum of the member system files, two new models are built: one reflecting assumptions that result in high

usage and one with assumptions that result in low usage. A summary of the assumptions for each case is listed below:

Low Case – Pessimistic economic assumptions with mild weather causing lower loads
Base Case - Most probable economics assumptions with normal weather (Base Case pre DSM)
High Case – Optimistic economic assumptions with severe weather causing higher loads

The assumptions that are varied include:

1. Weather: based on historical heating and cooling degree day data, alternate weather projections are developed based upon the 90^{th} and 10^{th} percentile to reflect extreme and mild weather, respectively.

2. Electric price: The general approach is to use price forecasts that are available and use the growth rates from those forecasts to prepare the high and low growth rates around the growth patterns for the base case residential price forecast. The manner in which the price of electricity will change in the future is primarily a function of how prices change for the underlying fixed and variable components of electricity rates.

3. Residential customers: The basic approach to preparing high and low case scenarios for the future number of residential customers is to determine the magnitude of variation in the past between long term average growth rates and higher or lower growth rates during shorter periods of time.

   First, the data on the historic monthly household counts for the previous 20 year period is prepared. Next, the compound annual growth rate in households is calculated for each rolling ten year. This produced a set of twelve compound annual growth rate values each representing a unique ten year span. Maximum and minimum values are determined. The highest growth is used to prepare the high case scenario, while the 10 year period that experienced the lowest growth is used to prepare the low case scenario.

   These resulting adjustments are applied to the 20 year compound annual growth rate in the base case customer count forecast to produce the high case and low case compound annual growth rate forecast scenarios. This relationship is preserved when preparing the monthly customer counts for the high and low case scenarios.

Adjusting these assumptions leads to different customer forecasts which in turn results in different energy forecasts.

Interaction with Other Areas of EKPC

Load Research

Due of the end-use nature of EKPC's residential sales and peak demand forecast methodology, the load forecast relies on data collected by traditional load research techniques. The information used includes:

1. Winter and summer load factors for the large and small commercial classes.

2. Load factors for winter and summer for the residential class for heating, cooling, water heating, and residual load.

Marketing

More and more, EKPC's load forecasting analysis is becoming a study of why customers choose electricity and in what amounts. Load forecasts are the result of econometric models that attempt to simulate customer behavior regarding energy consumption. Traditional marketing efforts are likewise concerned with understanding customer wants and needs and then responding to unmet conditions. Since both groups at EKPC are interested in similar customer characteristics, there are frequent exchanges of customer data and ideas. Additionally, the Marketing Department is the home of the demand-side management participation data which is needed to account for usage impacts in the forecast. Over the past year, EKPC and the state of Kentucky has become more interested and active in DSM.

Transmission Planning

EKPC provides Transmission Planning with aggregate load forecasts and peak demand forecasts at the substation level.

Resource Planning

An important use of the load forecast is as input into the Integrated Resource Plan (IRP). Every three years, EKPC must file an IRP with the Kentucky Public Service Commission. EKPC's load forecast becomes more detailed as needed to support the IRP. The Commission's order requires a detailed reporting of the load forecast used in developing the IRP. For the sake of consistency, EKPC's load forecast report also doubles as its load forecast contribution to the IRP report.

Rates

EKPC's resource planning cycle functions in the following manner: (1) after a new load forecast is completed, integrated resource planning provides updated information on future capacity needs as well as production cost forecasts, (2) the Rates Department then uses the load forecast to calculate revenue and prepares wholesale power cost forecasts, (3) the resulting rates forecast then becomes an input to the next load forecast, and (4) the cycle repeats.

Finance

The load forecast is provided to the Finance Department to be used in the budget process.

Surveys

EKPC has conducted a residential end-use mail survey every two years since 1981. Questions asked in the survey relate to heating and cooling methods, appliance holdings, and farm equipment. In addition to end-use questions, data on lifestyle, age, demographics, and income are collected. In 2011, 800 surveys per member system were mailed for a total of 12,800. EKPC measures sampled customer kWh usage with population customer kWh usage to determine whether the sample has been a true representation of the population. In general, the sample has been very close to the population.

The end-use survey is the cornerstone of EKPC's residential sales forecasting. The survey provides historical appliance saturation levels and is also used to forecast future appliance saturation levels.

In addition, the end-use survey provides a picture of the retail customer's electricity use, which is extremely important in marketing, DSM, and other applications at EKPC and at the member system.

APPENDIX

2012 EKPC Load forecast
Tasks and Time Line

Task	Projected Completion Date	Julie Tucker David Crews	Jamie Hall	Mark Mefford	Sandy Mollenkopf	Alma Gentry
Take Load Forecast Work Plan to EKPC Board as information item	10/11/2011	X				
Request EKPC Board approval of Load Forecast Work Plan	11/7/2011	X				
Industrial Customer Worksheet - existing customers > 1 MW - provide Mark with 2 years history, KW and kWh, in spreadsheet	11/30/2011				X	
Load Factors - annual, winter, summer - by class - by member system	11/30/2011			X		
Appliance Efficiency data - evaluate and update data from Energy Forecasting Group	11/30/2011			X		
Parameters - analyze current values and update - update models	12/2/2011			X		
Rate Worksheet - set up - Member system provide rates to Mark	12/15/2011			X		
Review NCP winter and summer factors - evaluate by member system	12/15/2011			X		
Economic Model Results	12/31/2011			X		
Economic Data - update database - update models	12/31/2011			X		
Demand Factors - evaluate existing demand factors - update models as necessary	12/31/2011			X		
Member Appliance Saturation Survey - forecast saturations - by member system - EKPC system - heating, cooling, water heating, and other	12/31/2011			X		
Member Appliance Survey Results - by member system, EKPC system - spreadsheet	1/15/2012				X	

Task	Projected Completion Date	Julie Tucker David Crews	Jamie Hall	Mark Mefford	Sandy Mollenkopf	Alma Gentry
Rate Worksheet - send initial set up to member systems - receive and enter data from member systems	1/15/2012			X		
Industrial Customer Worksheet - prepare data from Sandy for existing customers - send to member systems requesting forecast of existing customers and knowledge of new loads coming in next couple of years - receive and enter data	1/15/2012			X	X	
Actual and Forecasted Price - by class - by member system	1/31/2012			X		
Large Commercial - add new loads to spreadsheet - system run to determine # of new > 1 MW loads - @Risk model to allocate new large loads among member systems	2/28/2012			X		
Member System Narratives - prepare for visits	2/28/2012			X		
Board Resolutions - prepare draft to be taken to meetings	2/28/2012			X		
Weather - update database - update models - update normals	2/28/2012			X		
Prices - update database - update models	2/28/2012			X		
Form 7 Data - use and customers	3/31/2012			X		
Form 7 Data - update ForecastManager - update models	3/31/2012			X		

Task	Projected Completion Date	Julie Tucker David Crews	Jamie Hall	Mark Mefford	Sandy Mollenkopf	Alma Gentry
Presentation Materials - economic model results - RUS Form 5, RUS Form 736 data - rate forecast sheet - customer and sales forecast results - comparisons of current and past forecasts - appliance saturation projections - seasonal peak demand forecast	4/30/2012			X		
Usage Models - by member system - by class	4/30/2012		X	X		
Peak Models - by member system - monthly and hourly forecasts	4/30/2012		X	X		
Schedule meetings - with member systems - coordinate with RUS	5/31/2012			X		
Member System Visits	6/30/2012		X	X		
Make necessary adjustments to models based on member system input	7/31/2012			X		
Member System Board Approval	7/31/2012					
DSM/DLC Impacts - Total hourly impacts of all programs for the forecast period - DLC and DSM impacts reported separately	7/31/2012					X
EKPC System Forecast - Energy - Peak	7/31/2012		X	X		
Take Final Load Forecast to EKPC Board as information item	8/14/2012	X				
Prepare Board Agenda item	8/31/2012			X		
EKPC Board approval	9/11/2012	X				
Reports - Member System and EKPC System - copy and bind - distribute to appropriate parties	9/30/2012			X		
Reports - member system specific - EKPC total	9/30/2012			X		

Task	Projected Completion Date	Julie Tucker David Crews	Jamie Hall	Mark Mefford	Sandy Mollenkopf	Alma Gentry
Substation Forecasts - analyze results - prepare preliminary reports for meetings - make changes per member system - send 'final' reports to member systems and internal customers	9/30/2012			X		

FROM THE MINUTE BOOK OF PROCEEDINGS
OF THE BOARD OF DIRECTORS OF
EAST KENTUCKY POWER COOPERATIVE, INC.

At a regular meeting of the Board of Directors of East Kentucky Power Cooperative, Inc. held at the Headquarters Building, 4775 Lexington Road, located in Winchester, Kentucky, on Tuesday, December 6, 2011 at 9:30 a.m., EST, the following business was transacted:

Request for Approval of the Load Forecast Work Plan

After review of the applicable information, a motion to approve the Load Forecast Work Plan was made by Strategic Issues Committee Chairman Lonnie Vice and passed by the full Board to approve the following:

Whereas, The Rural Utilities Service requires East Kentucky Power Cooperative, Inc., ("EKPC") to prepare a Load Forecast Work Plan ("Plan") every two years, and requires that this Plan be approved by the EKPC Board of Directors ("Board");

Whereas, EKPC has prepared a Plan which is attached to the Executive Summary and which describes the methodology to be used in the preparation of the 2012 Load Forecast and corresponding report for EKPC and its 16 member systems; and

Whereas, EKPC Management and the Board's Strategic Issues Committee have recommended approval of this Plan by the Board; now, therefore, be it

Resolved, That the EKPC Board hereby approves the 2011 Load Forecast Work Plan.

The foregoing is a true and exact copy of a resolution passed at a meeting called pursuant to proper notice at which a quorum was present and which now appears in the Minute Book of Proceedings of the Board of Directors of the Cooperative, and said resolution has not been rescinded or modified.

Witness my hand and seal this 6th day of December 2011.

A. L. Rosenberger, Secretary

Corporate Seal