Part 1 – Appendix J
KCP&L-Greater Missouri Operation Company (GMOC)

Missouri 4 CSR 240-22.030 (8) Reporting Requirements
Load Analysis and Forecasting

(8)(C) For the forecast of class energy and peak demand, the utility shall provide a summary of the sensitivity analysis required by section (6) of this rule that shows how changes in the driver variables affect the forecast.

Compliance: See the following documentation for GMOC forecast report designed to comply with section (8)(C) reporting requirements.

Work Files:

All files are located in the GMO LongTerm\analysis

Roos.SPS
RoosByClass.SPS
Sensitivity analysis.NDM
Sensitivity analysis4ND.xls
Sensitivity analysis.xls

To perform a sensitivity analysis, we are using a method that was suggested by the Missouri Public Service Commission Staff for KCPL's IRP. For each customer class, mwh sales is regressed on important driver variables and degree days and the standardized variables are used to show the relative importance of each explanatory variable. We also show the elasticity for each driver variable as measured by the statistical regression.

Table 1 displays the results for MPS residential customers. Among the driving variables, the number of households in the KC metro area has the largest standardized coefficient, followed by the inflation adjusted price of electricity and the inflation adjusted price of gas for MGE's residential customers. The energy price variables were a one-year moving average. The elasticity for total households was close to 1, 0.86, meaning that a one percent increase in households causes a 0.86% increase in mwh sales. The elasticity for electric price was -0.38, and for the price of gas, 0.11. The regression periods used in this appendix are monthly from 1996 to 2008.

Table 1 MPS Residential

VARIABLE	Standardized Coefficient	t-Statistic	Elasticity
DAYS	-237	-0.3	
Total_Households	6,658	5.9	0.86
RealPriceElec	-5,348	-4.4	-0.38
realPriceGas	4,683	2.1	0.11
cdd80_cust	-6,573	-4.5	
cdd65_cust	70,260	30.3	
hdd55_cust	58,385	10.1	
hdd45_cust	-18,753	-3.8	
Jan-2005	3,384	4.8	

Table 2 provides the results for SJLP residential customers. In order of relative importance, the drivers were the number of households in the St. Joseph MSA, the price of electricity and the price of gas. The elasticities for these variables were 0.88, -.30 and 0.04, respectively. The price of gas was not statistically significant but was left in the regression to show its relative importance.

Table 2 SJLP Residential

VARIABLE	Standardized Coefficient	t-Statistic	Elasticity
DAYS	-162	-0.6	
Total_Households	2,045	5.5	0.88
RealPriceElec	-1,020	-3.0	-0.30
realPriceGas	465	0.7	0.04
cdd80_cust	-1,211	-2.4	
cdd65_cust	15,878	19.6	
hdd55_cust	22,766	11.0	
hdd45_cust	-7,243	-4.1	
Jan-2005	1,030	4.1	

Table 3 shows the results for the Small General Service customers of MPS. The driver variables in order of importance are non-manufacturing employment in the KC metro area, the price of electricity and the price of gas. The elasticities are 0.80, -0.35 and 0.04.

Table 3 MPS Small General Service

VARIABLE	Standardized Coefficient	t-Statistic	Elasticity
DAYS	894	5.4	
Employment_NonManufacturing	1,720	9.3	0.80
RealPriceElec	-1,442	-7.6	-0.35
realPriceGas	634	1.9	0.04
cdd70_cust	-5,294	-3.8	
cdd65_cust	15,233	10.0	
hdd50_cust	4,467	14.9	
Jan-2005	682	4.1	
FebMar02	674	4.8	

Table 4 shows the results for the Small General Service customers of SJLP. The driver variables in order of importance are the non-manufacturing gross product for the St. Joseph MSA the price of electricity and the price of natural gas for MGE's non residential customers. Gross product is adjusted for inflation.

Table 4 SJLP Small General Service

VARIABLE	Standardized Coefficient	t-Statistic	Elasticity
DAYS	96	3.7	
Gross_Product_Non_Manufacturing	341	4.6	0.48
RealPriceElec	-2.7	-0.1	-0.01
realPriceGas	0.7	0.0	0.00
hdd55_cust	1,198	22.5	
cdd65_cust	1,284	25.8	

Table 5 reports the results for the Large Power customers of MPS. The most important driver variable was non-manufacturing employment for the KC metro area, followed by the price of electricity. The elasticities for these variables are 1.65 and -0.80.

Table 5 MPS Large General Service

VARIABLE	Standardized Coefficient	t-Statistic	Elasticity
DAYS	18	0.1	
Employment_NonManufacturing	3,631	15.0	1.65
RealPriceElec	-3,505	-10.5	-0.80
cdd55_cust	8,044	18.3	
hdd45_cust	2,824	7.7	
MarApr2000	-443	-2.4	
FebMar2002	-659	-3.6	

Table 6 displays the results for the Large General Service Customers of SJLP. The driver variable in order of importance are non-manufacturing employment in the St. Joseph MSA, the price of electricity and the price of natural gas for MGE's non-residential customers. The elasticities of these variables are 1.11, -0.45 and 0.01.

Table 6 SJLP Large General Service

VARIABLE	Standardized Coefficient	t-Statistic	Elasticity
DAYS	277	3.4	
Employment_NonManufacturing	1,145	13.7	1.11
RealPriceElec	-744	-13.5	-0.45
realPriceGas	72	0.6	0.01
cdd65_cust	2,851	24.4	
hdd45_cust	1,483	12.2	

Table 7 reports the results for MPS Large Power customers. In order of importance, the driver variables are non-manufacturing gross product, manufacturing gross product and the price of electricity. The elasticities are 1.27, 0.16 and -0.04.

Table 7 MPS Large Power

VARIABLE	Standardized Coefficient	t-Statistic	Elasticity
DAYS	-1,198	-4.4	
Gross_Product_Non_Manufacturing	10,867	18.5	1.27
Gross_Product_Manufacturing	598	1.2	0.16
RealPriceElec	-248	-1.0	-0.04
cdd55_cust	9,179	17.3	
hdd35_cust	1,015	1.8	
Feb-2001	-2,114	-4.4	

Table 8 shows the results for SJLP Large Power Customers. Non-manufacturing gross product and the electric price are the two drivers. The elasticities for these variables are 1.43 and -0.06.

Table 8 SJLP Large Power

VARIABLE	Standardized Coefficient	t-Statistic	Elasticity
DAYS	-767	-2.5	
Gross_Product_Non_Manufacturing	6,648	11.0	1.43
RealPriceElec	-224	-0.6	-0.06
cdd55_cust	3,135	4.6	