

Part 1 - Appendix 3B
GMOC Reports

Missouri 4 CSR 240-22.030 (7)(A)(6) Reporting Requirements
Load Analysis and Forecasting

(7)(A)(6) For each major class specified pursuant to subsection (2)(A), the utility shall provide plots of class monthly energy and coincident peak demand at the time of summer and winter system peaks. The plots shall cover the historical database period and the forecast period of at least (20) years. The plots of coincident peak demands for the historical period shall include both actual and weather-normalized peak demands at the time of peak of summer and winter system peaks. The plots of coincident peak demand for the forecast period shall show the class coincident demands for the base-case forecast at the time of summer and winter systems peaks.

Compliance: See Plots 3B-1 through 3B-8 for base-case GMOC forecast reports designed to comply with section (7)(A)(6) reporting requirements.

Linked Files:**Work Files**

WN PeakSumWin.xls

Act PeakSumWin.xls

IRP_7.1.6_GMO_Peaks

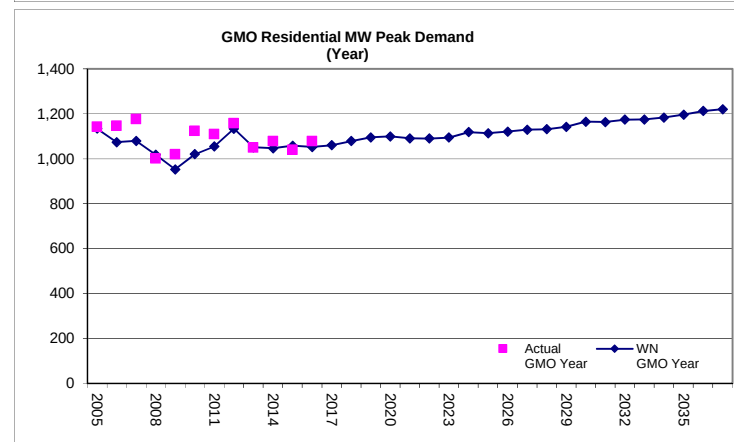
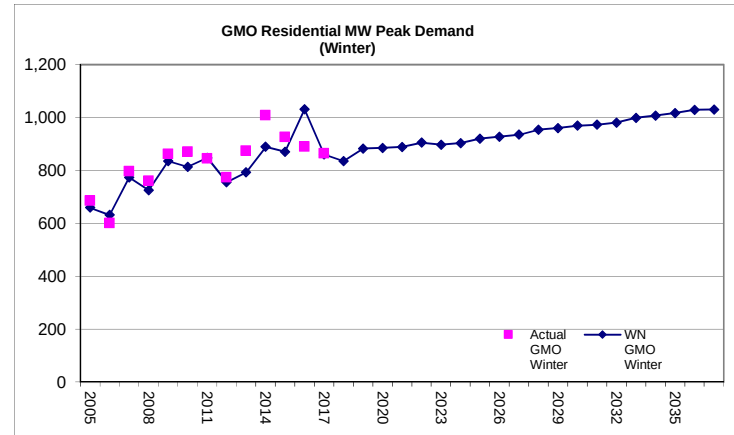
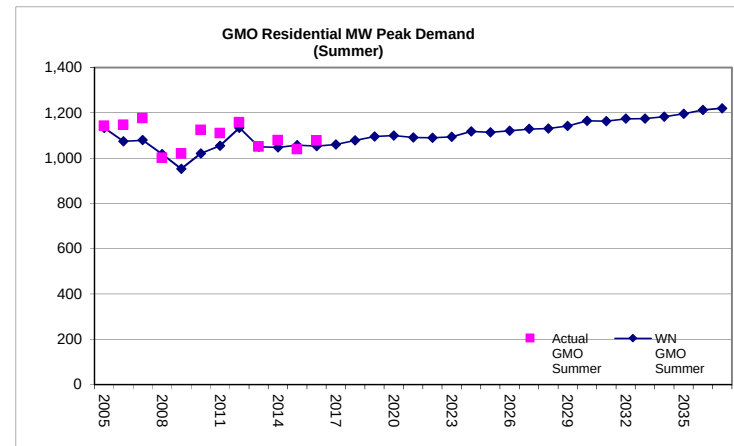
IRP_7.1.6_GMO_MWh

**Plot 3B-1 GMO Residential MW Peak Demand
(Actual vs. Weather Normalized)**

Year	Actual GMO Summer	WN GMO Summer	Actual GMO Winter	WN GMO Winter	Actual GMO Year	WN GMO Year
2005	1,142.4	1,134.0	684.8	658.8	1,142.4	1,134.0
2006	1,146.1	1,073.8	600.3	631.0	1,146.1	1,073.8
2007	1,175.6	1,079.2	796.3	773.1	1,175.6	1,079.2
2008	1,000.5	1,018.1	759.8	725.2	1,000.5	1,018.1
2009	1,019.1	953.0	861.8	835.3	1,019.1	953.0
2010	1,123.4	1,020.2	870.4	813.6	1,123.4	1,020.2
2011	1,109.2	1,054.6	845.0	846.9	1,109.2	1,054.6
2012	1,157.0	1,133.7	772.9	754.6	1,157.0	1,133.7
2013	1,049.8	1,050.5	874.0	792.3	1,049.8	1,050.5
2014	1,077.9	1,047.1	1,008.3	888.8	1,077.9	1,047.1
2015	1,039.3	1,057.5	925.1	870.1	1,039.3	1,057.5
2016	1,077.3	1,052.7	889.4	1,030.9	1,077.3	1,052.7
2017		1,060.1	864.1	860.8		1,060.1
2018		1,078.4		834.9		1,078.4
2019		1,095.2		882.0		1,095.2
2020		1,099.2		884.8		1,099.2
2021		1,090.9		888.2		1,090.9
2022		1,090.0		904.4		1,090.0
2023		1,094.2		896.4		1,094.2
2024		1,118.4		903.1		1,118.4
2025		1,113.8		920.0		1,113.8
2026		1,120.9		926.9		1,120.9
2027		1,128.7		934.7		1,128.7
2028		1,131.1		953.1		1,131.1
2029		1,141.6		959.2		1,141.6
2030		1,164.6		968.7		1,164.6
2031		1,163.8		972.2		1,163.8
2032		1,174.0		980.2		1,174.0
2033		1,174.8		998.3		1,174.8
2034		1,182.9		1,006.8		1,182.9
2035		1,196.0		1,016.0		1,196.0
2036		1,212.3		1,028.3		1,212.3
2037		1,220.2		1,029.8		1,220.2

'12-'17	-100.0%	-1.3%	2.3%	2.7%	-100.0%	-1.3%
'15-'20		0.8%		0.3%		0.8%
'20-'25		0.3%		0.8%		0.3%
'25-'30		0.9%		1.0%		0.9%
'30-'35		0.5%		1.0%		0.5%
'17-'37		0.7%		0.9%		0.7%

* 2016 winter peak spike is due to peak occurring on a Sunday with an average dry bulb temp of -1. This was the coldest weekend day temperature since 1996.
Weather normalized and actual peaks occur on different days.

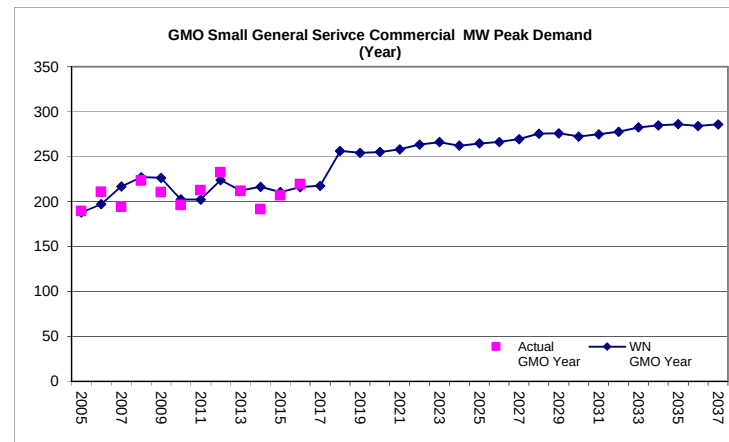
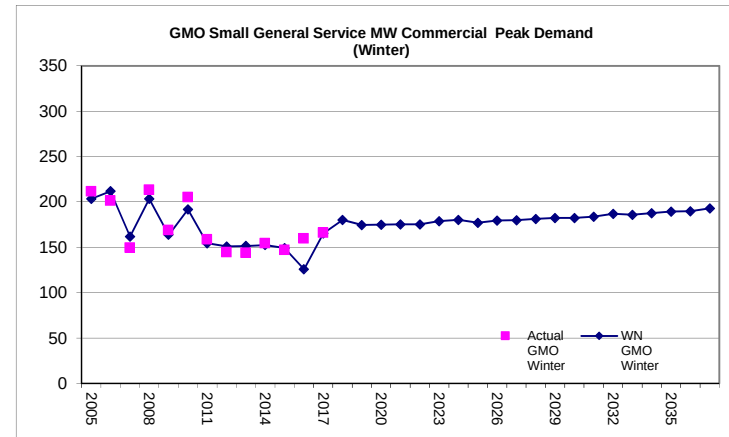
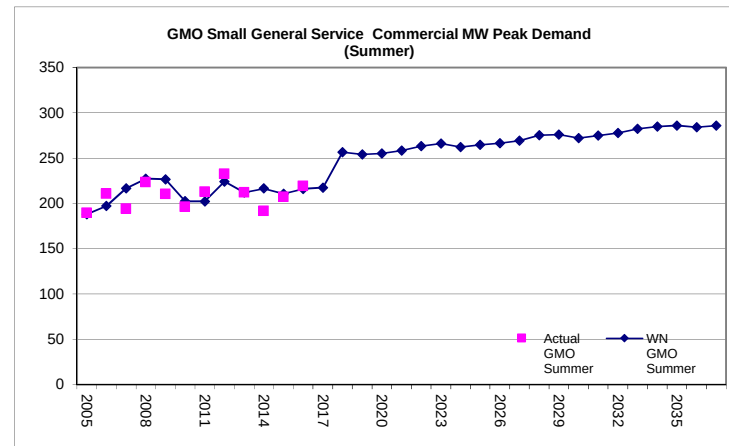


**Plot 3B-2 GMO Small Commercial MW Peak Demand
(Actual vs. Weather Normalized)**

Year	Actual GMO Summer	WN GMO Summer	Actual GMO Winter	WN GMO Winter	Actual GMO Year	WN GMO Year
2005	189.3	187.9	211.3	203.3	189.3	187.9
2006	210.5	197.3	201.3	211.6	210.5	197.3
2007	194.0	216.8	149.2	161.7	194.0	216.8
2008	223.3	227.2	213.1	203.4	223.3	227.2
2009	210.4	226.4	168.8	163.6	210.4	226.4
2010	196.1	202.3	205.0	191.6	196.1	202.3
2011	212.6	202.2	158.6	154.2	212.6	202.2
2012	232.5	224.0	144.2	150.9	232.5	224.0
2013	211.9	212.0	143.7	151.3	211.9	212.0
2014	191.6	216.5	154.4	152.3	191.6	216.5
2015	207.0	210.6	146.9	148.9	207.0	210.6
2016	219.1	216.0	159.6	125.7	219.1	216.0
2017		217.5	165.7	165.1		217.5
2018		256.4		180.1		256.4
2019		254.1		174.4		254.1
2020		255.0		174.8		255.0
2021		258.2		175.0		258.2
2022		263.4		175.2		263.4
2023		266.1		178.7		266.1
2024		262.1		180.0		262.1
2025		264.7		176.9		264.7
2026		266.4		179.3		266.4
2027		269.4		179.6		269.4
2028		275.4		180.9		275.4
2029		276.0		182.1		276.0
2030		272.2		182.0		272.2
2031		274.8		183.5		274.8
2032		277.7		186.6		277.7
2033		282.5		185.8		282.5
2034		284.9		187.3		284.9
2035		286.0		189.0		286.0
2036		284.1		189.7		284.1
2037		286.0		192.8		286.0

'12-'17	-100.0%	-0.6%	2.8%	1.8%	-100.0%	-0.6%
'15-'20		3.9%		3.3%		3.9%
'20-'25		0.7%		0.2%		0.7%
'25-'30		0.6%		0.6%		0.6%
'30-'35		1.0%		0.8%		1.0%
'17-'37		1.4%		0.8%		1.4%

** Jump is due to consolidation.

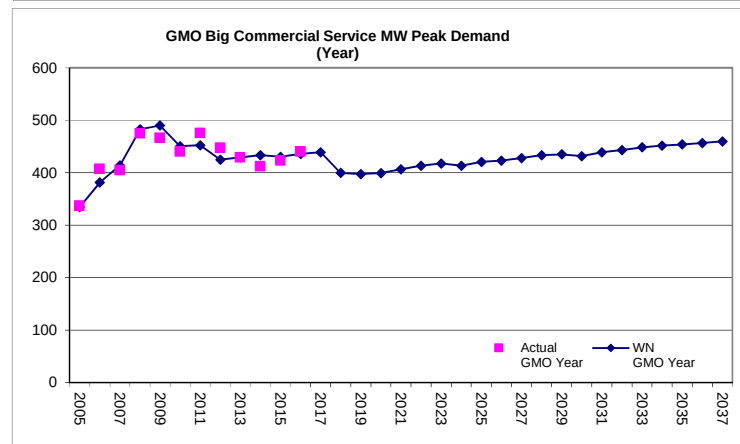
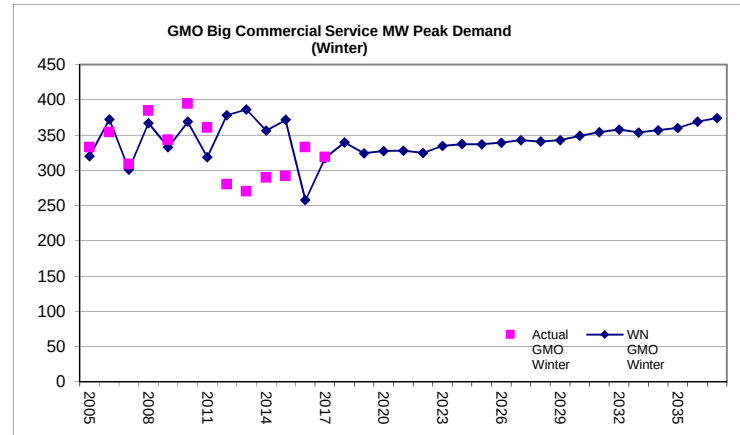
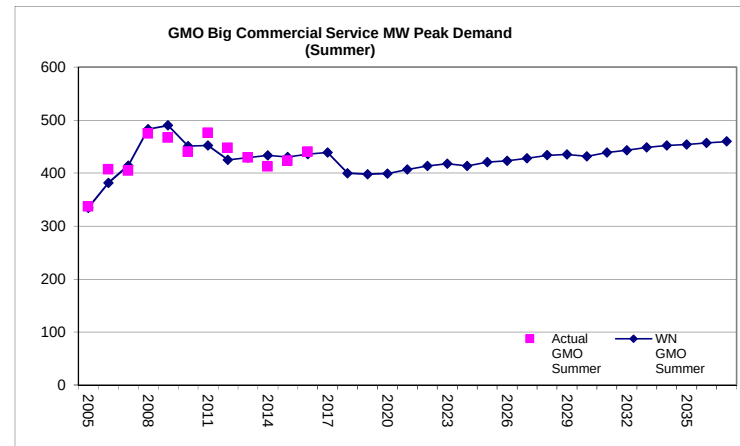


**Plot 3B-3 GMO Big Commercial MW Peak Demand
(Actual vs. Weather Normalized)**

Year	Actual GMO Summer	WN GMO Summer	Actual GMO Winter	WN GMO Winter	Actual GMO Year	WN GMO Year
2005	337.0	334.5	332.4	319.8	337.0	334.5
2006	407.0	381.4	353.8	371.9	407.0	381.4
2007	404.6	414.1	308.4	300.7	404.6	414.1
2008	474.6	483.0	384.3	366.8	474.6	483.0
2009	466.4	490.0	343.1	332.6	466.4	490.0
2010	440.1	450.6	394.4	368.7	440.1	450.6
2011	475.6	452.2	360.2	318.6	475.6	452.2
2012	447.3	424.9	279.8	378.1	447.3	424.9
2013	429.0	429.3	269.8	386.1	429.0	429.3
2014	412.0	433.5	289.3	356.2	412.0	433.5
2015	423.0	430.4	291.6	371.4	423.0	430.4
2016	440.2	436.0	332.6	257.6	440.2	436.0
2017		439.1	318.3	317.1		439.1
2018		399.6		339.6		399.6
2019		397.6		324.1		397.6
2020		399.1		327.2		399.1
2021		406.9		327.7		406.9
2022		413.3		324.3		413.3
2023		417.7		334.4		417.7
2024		413.3		336.9		413.3
2025		420.5		336.7		420.5
2026		423.2		339.1		423.2
2027		427.8		342.6		427.8
2028		433.7		340.5		433.7
2029		434.9		342.7		434.9
2030		431.5		348.7		431.5
2031		439.0		353.9		439.0
2032		443.3		357.7		443.3
2033		448.4		353.5		448.4
2034		451.8		356.6		451.8
2035		454.0		359.8		454.0
2036		456.7		368.9		456.7
2037		459.7		373.9		459.7

'12-'17	-100.0%	0.7%	2.6%	-3.5%	-100.0%	0.7%
'15-'20		-1.5%		-2.5%		-1.5%
'20-'25		1.1%		0.6%		1.1%
'25-'30		0.5%		0.7%		0.5%
'30-'35		1.0%		0.6%		1.0%
'17-'37		0.2%		0.8%		0.2%

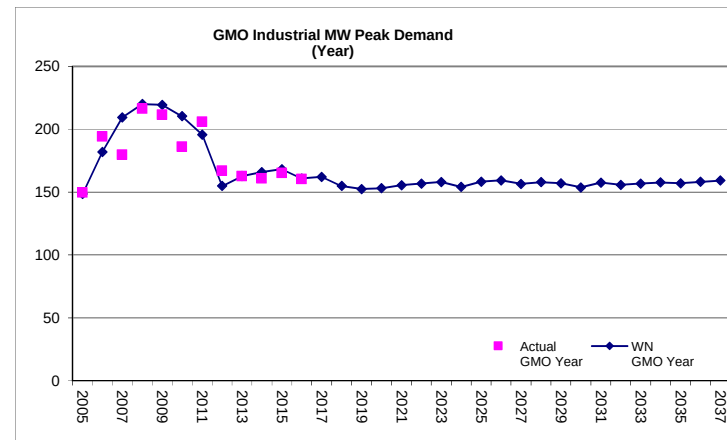
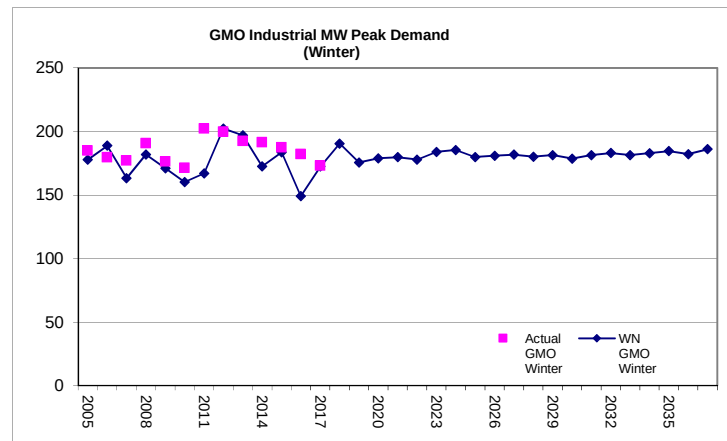
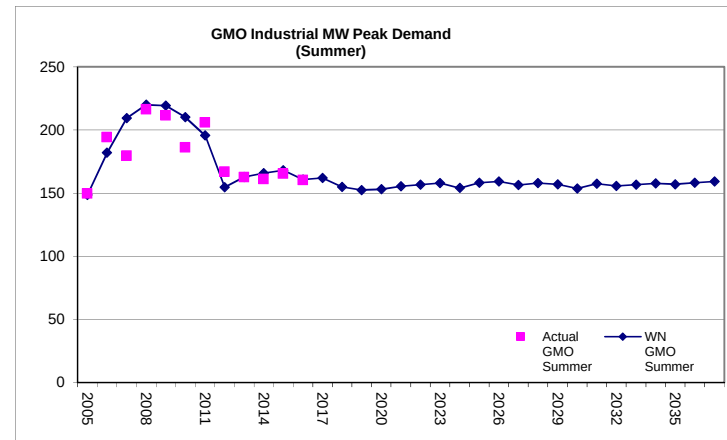
** Drop is due to consolidation.



**Plot 3B-4 GMO Industrial MW Peak Demand
(Actual vs. Weather Normalized)**

Year	Actual GMO Summer	WN GMO Summer	Actual GMO Winter	WN GMO Winter	Actual GMO Year	WN GMO Year
2005	149.6	148.5	184.8	177.8	149.6	148.5
2006	194.2	182.0	179.6	188.8	194.2	182.0
2007	179.5	209.5	177.1	163.1	179.5	209.5
2008	216.2	220.0	190.6	181.9	216.2	220.0
2009	211.4	219.4	176.4	171.0	211.4	219.4
2010	186.0	210.3	171.4	160.2	186.0	210.3
2011	205.9	195.7	202.3	167.0	205.9	195.7
2012	166.8	154.8	199.8	202.3	166.8	154.8
2013	162.6	162.7	192.5	196.9	162.6	162.7
2014	160.9	165.9	191.4	172.5	160.9	165.9
2015	165.3	168.1	187.3	183.5	165.3	168.1
2016	160.4	160.9	182.0	149.0	160.4	160.9
2017		162.1	173.1	172.4		162.1
2018		154.9		190.3		154.9
2019		152.5		175.6		152.5
2020		153.1		178.8		153.1
2021		155.5		179.7		155.5
2022		156.8		177.9		156.8
2023		158.0		183.9		158.0
2024		154.1		185.3		154.1
2025		158.3		179.9		158.3
2026		159.3		180.9		159.3
2027		156.5		181.7		156.5
2028		157.9		180.2		157.9
2029		157.0		181.3		157.0
2030		153.7		178.5		153.7
2031		157.5		181.3		157.5
2032		155.7		183.0		155.7
2033		156.8		181.3		156.8
2034		157.7		182.8		157.7
2035		157.1		184.5		157.1
2036		158.2		182.1		158.2
2037		159.2		186.0		159.2

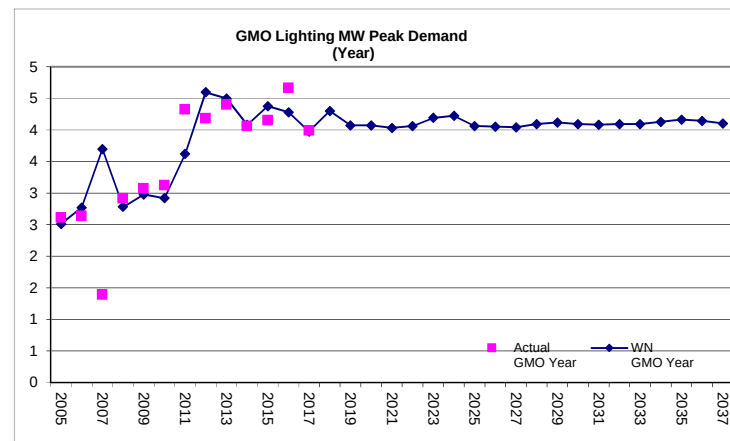
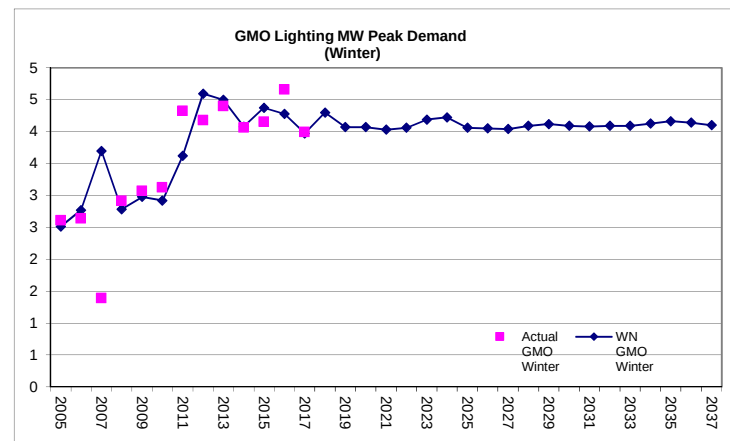
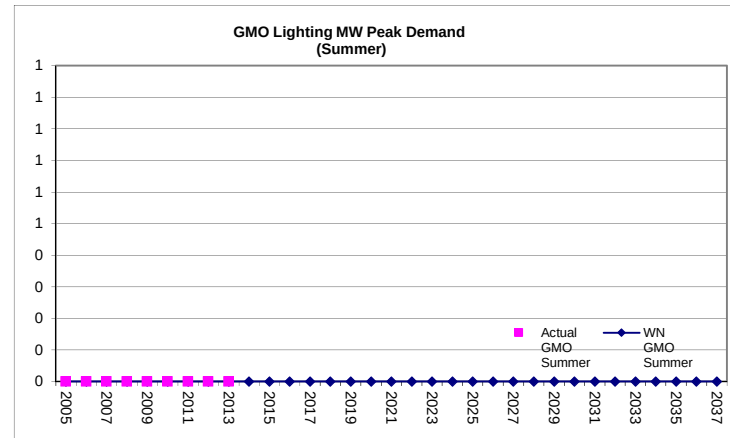
'12-'17	-100.0%	0.9%	-2.8%	-3.1%	-100.0%	0.9%
'15-'20		-1.9%		-0.5%		-1.9%
'20-'25		0.7%		0.1%		0.7%
'25-'30		-0.6%		-0.2%		-0.6%
'30-'35		0.4%		0.7%		0.4%
'17-'37		-0.1%		0.4%		-0.1%



Plot 3B-5 GMO Lighting MW Peak Demand
(Actual vs. Weather Normalized)

Year	Actual GMO Summer	WN GMO Summer	Actual GMO Winter	WN GMO Winter	Actual GMO Year	WN GMO Year
2005	-	-	2.6	2.5	2.6	2.5
2006	-	-	2.6	2.8	2.6	2.8
2007	-	-	1.4	3.7	1.4	3.7
2008	-	-	2.9	2.8	2.9	2.8
2009	-	-	3.1	3.0	3.1	3.0
2010	-	-	3.1	2.9	3.1	2.9
2011	-	-	4.3	3.6	4.3	3.6
2012	-	-	4.2	4.6	4.2	4.6
2013	-	-	4.4	4.5	4.4	4.5
2014	-	-	4.1	4.1	4.1	4.1
2015	-	-	4.1	4.4	4.1	4.4
2016	-	-	4.7	4.3	4.7	4.3
2017	-	-	4.0	4.0	4.0	4.0
2018	-	-		4.3		4.3
2019	-	-		4.1		4.1
2020	-	-		4.1		4.1
2021	-	-		4.0		4.0
2022	-	-		4.1		4.1
2023	-	-		4.2		4.2
2024	-	-		4.2		4.2
2025	-	-		4.1		4.1
2026	-	-		4.1		4.1
2027	-	-		4.0		4.0
2028	-	-		4.1		4.1
2029	-	-		4.1		4.1
2030	-	-		4.1		4.1
2031	-	-		4.1		4.1
2032	-	-		4.1		4.1
2033	-	-		4.1		4.1
2034	-	-		4.1		4.1
2035	-	-		4.2		4.2
2036	-	-		4.1		4.1
2037	-	-		4.1		4.1

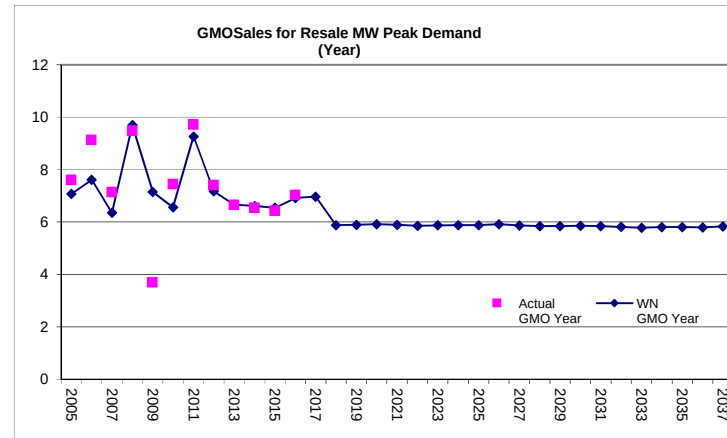
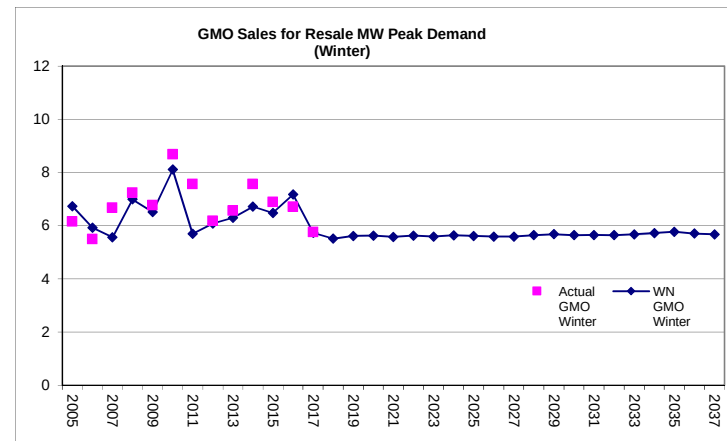
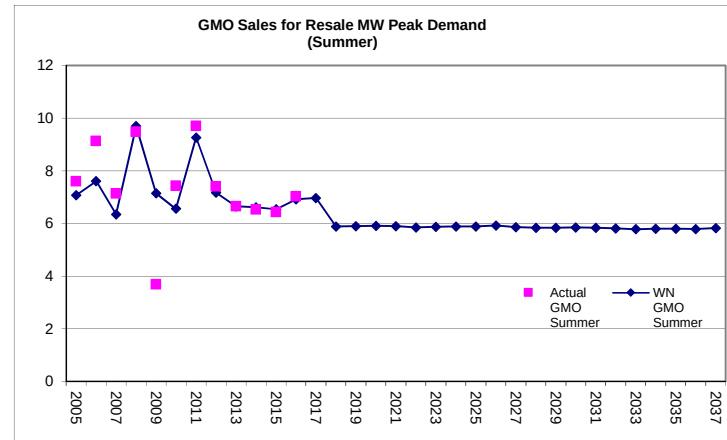
'12-'17	-0.9%	-2.9%	-0.9%	-2.9%
'15-'20		-1.4%		-1.4%
'20-'25		0.0%		0.0%
'25-'30		0.1%		0.1%
'30-'35		0.4%		0.4%
'17-'37		0.2%		0.2%



**Plot 3B-6 GMO Sales for Resale MW Peak Demand
(Actual vs. Weather Normalized)**

Year	Actual GMO Summer	WN GMO Summer	Actual GMO Winter	WN GMO Winter	Actual GMO Year	WN GMO Year
2005	7.6	7.1	6.2	6.7	7.6	7.1
2006	9.1	7.6	5.5	5.9	9.1	7.6
2007	7.1	6.3	6.7	5.6	7.1	6.3
2008	9.5	9.7	7.2	7.0	9.5	9.7
2009	3.7	7.1	6.8	6.5	3.7	7.1
2010	7.4	6.6	8.7	8.1	7.4	6.6
2011	9.7	9.3	7.6	5.7	9.7	9.3
2012	7.4	7.2	6.2	6.1	7.4	7.2
2013	6.7	6.7	6.6	6.3	6.7	6.7
2014	6.5	6.6	7.6	6.7	6.5	6.6
2015	6.4	6.5	6.9	6.5	6.4	6.5
2016	7.0	6.9	6.7	7.2	7.0	6.9
2017		7.0	5.7	5.7		7.0
2018		5.9		5.5		5.9
2019		5.9		5.6		5.9
2020		5.9		5.6		5.9
2021		5.9		5.6		5.9
2022		5.9		5.6		5.9
2023		5.9		5.6		5.9
2024		5.9		5.6		5.9
2025		5.9		5.6		5.9
2026		5.9		5.6		5.9
2027		5.9		5.6		5.9
2028		5.8		5.6		5.8
2029		5.8		5.7		5.8
2030		5.9		5.6		5.9
2031		5.8		5.6		5.8
2032		5.8		5.6		5.8
2033		5.8		5.7		5.8
2034		5.8		5.7		5.8
2035		5.8		5.8		5.8
2036		5.8		5.7		5.8
2037		5.8		5.7		5.8

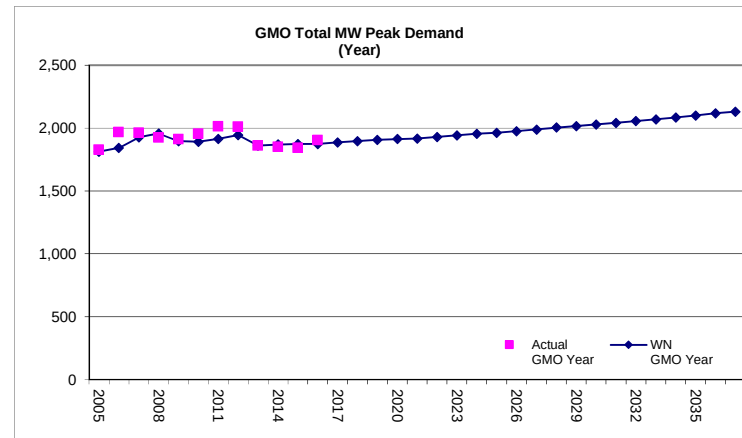
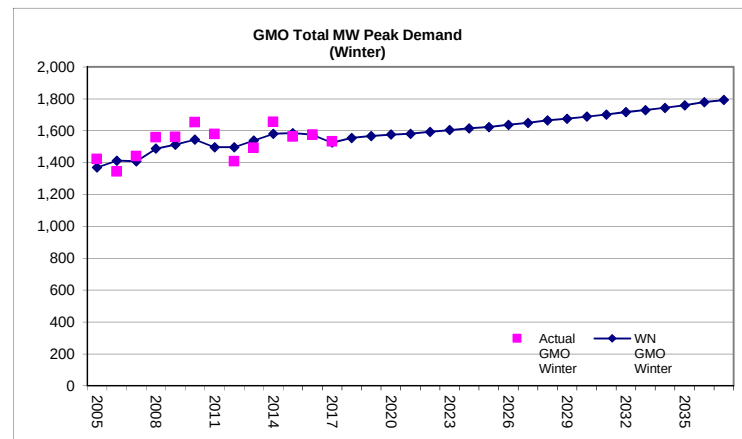
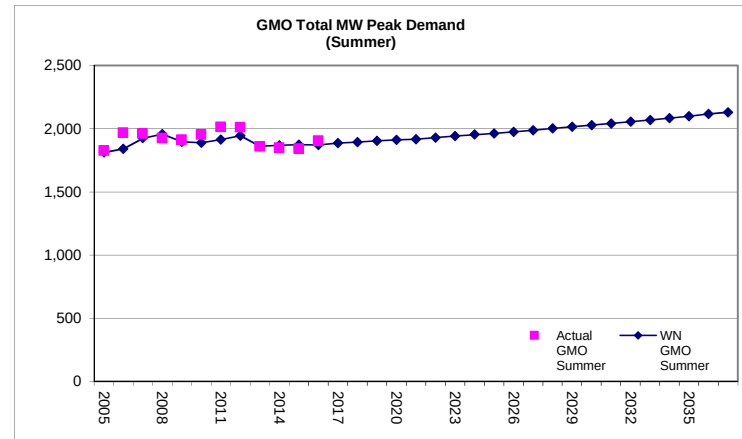
'12-'17	-100.0%	-0.6%	-1.4%	-1.2%	-100.0%	-0.6%
'15-'20		-2.0%		-2.8%		-2.0%
'20-'25		-0.1%		0.0%		-0.1%
'25-'30		-0.1%		0.1%		-0.1%
'30-'35		-0.2%		0.5%		-0.2%
'17-'37		-0.9%		-0.1%		-0.9%



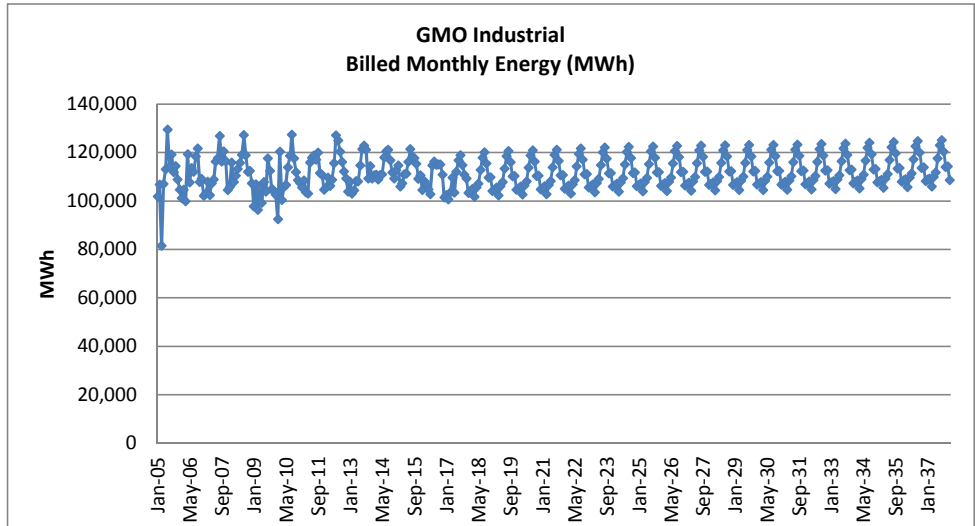
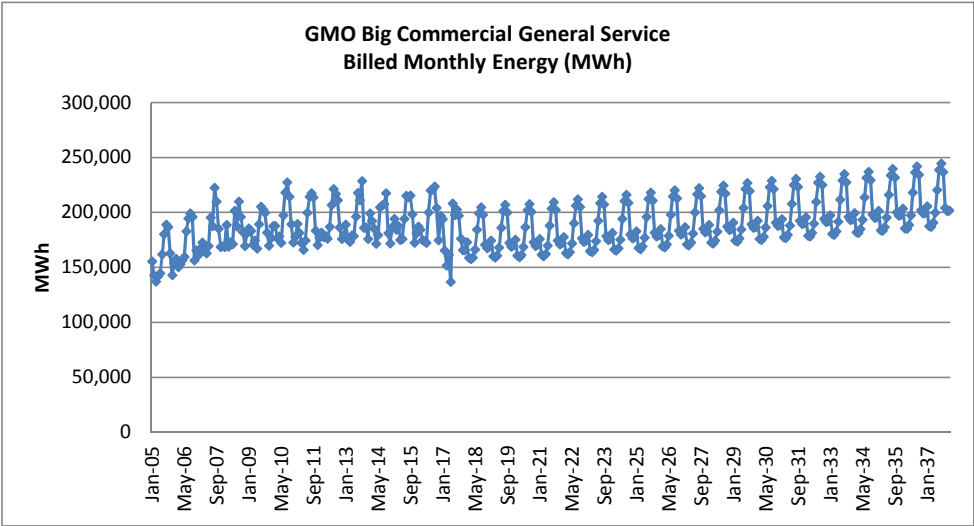
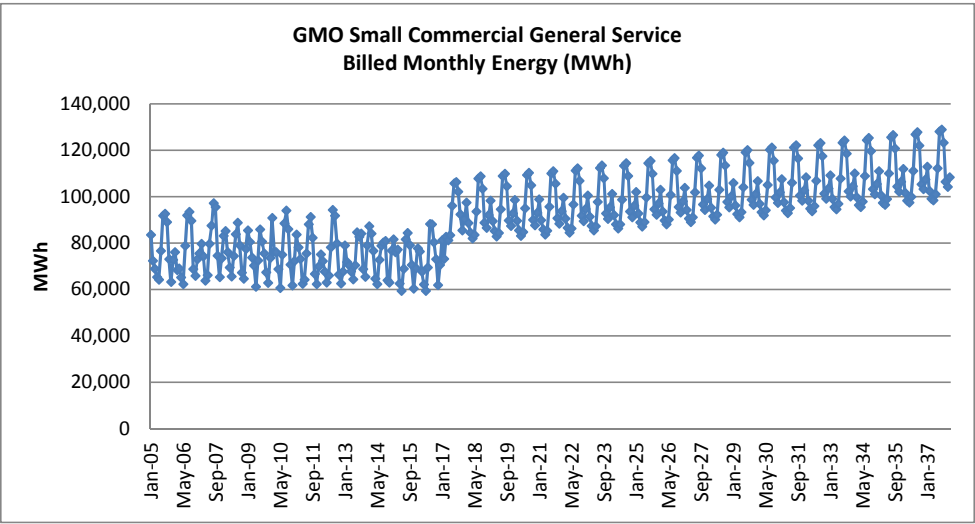
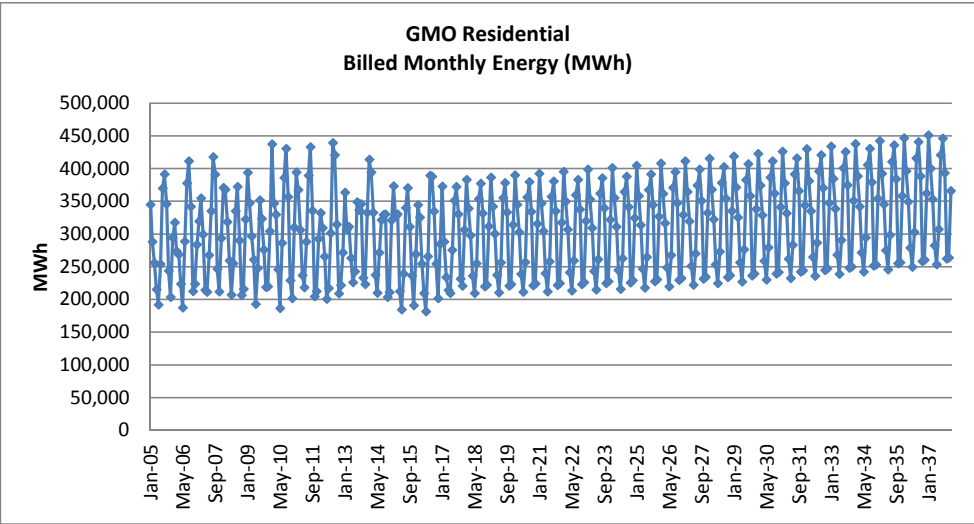
**Plot 3B-7 GMO Total System MW Peak Demand
(Actual vs. Weather Normalized)**

Year	Actual GMO Summer	WN GMO Summer	Actual GMO Winter	WN GMO Winter	Actual GMO Year	WN GMO Year
2005	1,826.0	1,812.0	1,422.0	1,369.0	1,826.0	1,812.0
2006	1,967.0	1,842.0	1,343.0	1,412.0	1,967.0	1,842.0
2007	1,961.0	1,926.0	1,439.0	1,408.0	1,961.0	1,926.0
2008	1,924.0	1,958.0	1,558.0	1,487.0	1,924.0	1,958.0
2009	1,911.0	1,896.0	1,560.0	1,512.0	1,911.0	1,896.0
2010	1,953.0	1,890.0	1,653.0	1,545.0	1,953.0	1,890.0
2011	2,013.0	1,914.0	1,578.0	1,496.0	2,013.0	1,914.0
2012	2,011.0	1,944.6	1,407.0	1,496.5	2,011.0	1,944.6
2013	1,860.0	1,861.2	1,491.0	1,537.4	1,860.0	1,861.2
2014	1,849.0	1,869.6	1,655.0	1,580.6	1,849.0	1,869.6
2015	1,841.0	1,873.1	1,562.0	1,584.7	1,841.0	1,873.1
2016	1,904.0	1,872.5	1,575.0	1,574.6	1,904.0	1,872.5
2017		1,885.7	1,531.0	1,525.0		1,885.7
2018		1,895.2		1,554.7		1,895.2
2019		1,905.4		1,565.8		1,905.4
2020		1,912.4		1,575.3		1,912.4
2021		1,917.3		1,580.2		1,917.3
2022		1,929.3		1,591.5		1,929.3
2023		1,941.8		1,603.3		1,941.8
2024		1,953.8		1,615.2		1,953.8
2025		1,963.1		1,623.2		1,963.1
2026		1,975.7		1,635.9		1,975.7
2027		1,988.2		1,648.3		1,988.2
2028		2,003.9		1,664.5		2,003.9
2029		2,015.3		1,675.0		2,015.3
2030		2,027.8		1,687.6		2,027.8
2031		2,040.9		1,700.7		2,040.9
2032		2,056.5		1,717.3		2,056.5
2033		2,068.2		1,728.6		2,068.2
2034		2,083.1		1,743.4		2,083.1
2035		2,098.8		1,759.3		2,098.8
2036		2,117.1		1,778.8		2,117.1
2037		2,130.9		1,792.3		2,130.9

'12-'17	-100.0%	-0.6%	1.7%	0.4%	-100.0%	-0.6%
'15-'20		0.4%		-0.1%		0.4%
'20-'25		0.5%		0.6%		0.5%
'25-'30		0.7%		0.8%		0.7%
'30-'35		0.7%		0.8%		0.7%
'17-'37		0.6%		0.8%		0.6%



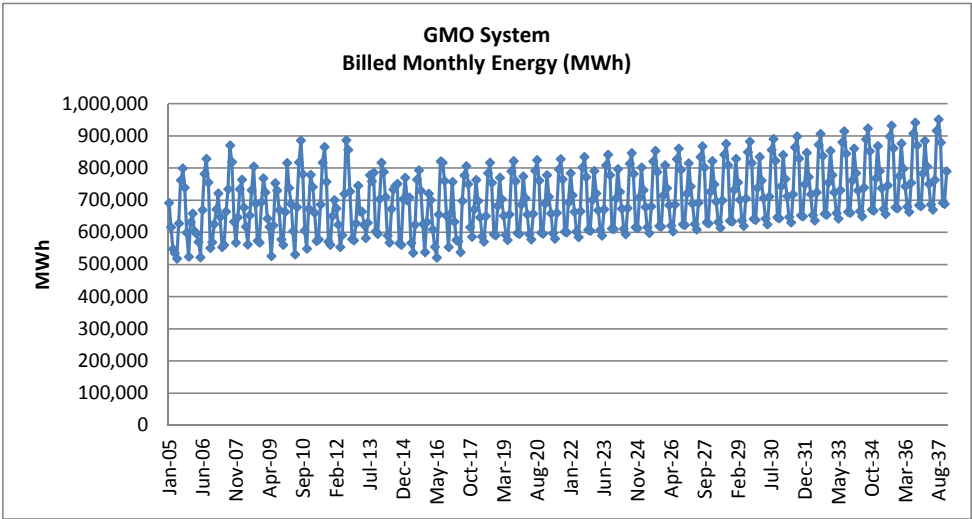
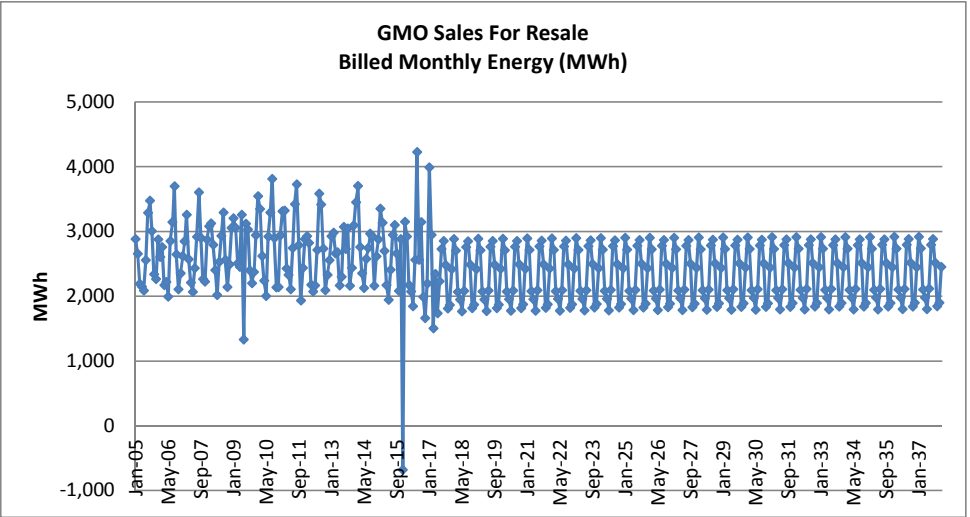
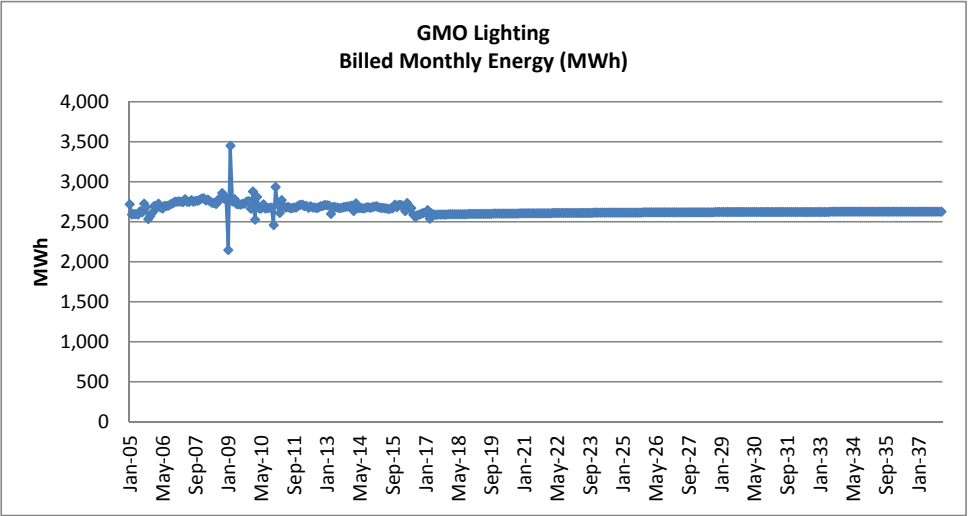
Plot 3B-8 MPS Energy Plots



****Jump in Small commercial and decline in Big Commercial is due to consolidation and rate switchers that occurred in 2017.**

***Errors are due to rate switchers and billing errors. These outlier data points are adjusted for in the models.**

Plot 3B-9 MPS Energy Plots



*Errors are due to rate switchers and billing errors. These outlier data points are adjusted for in the models.