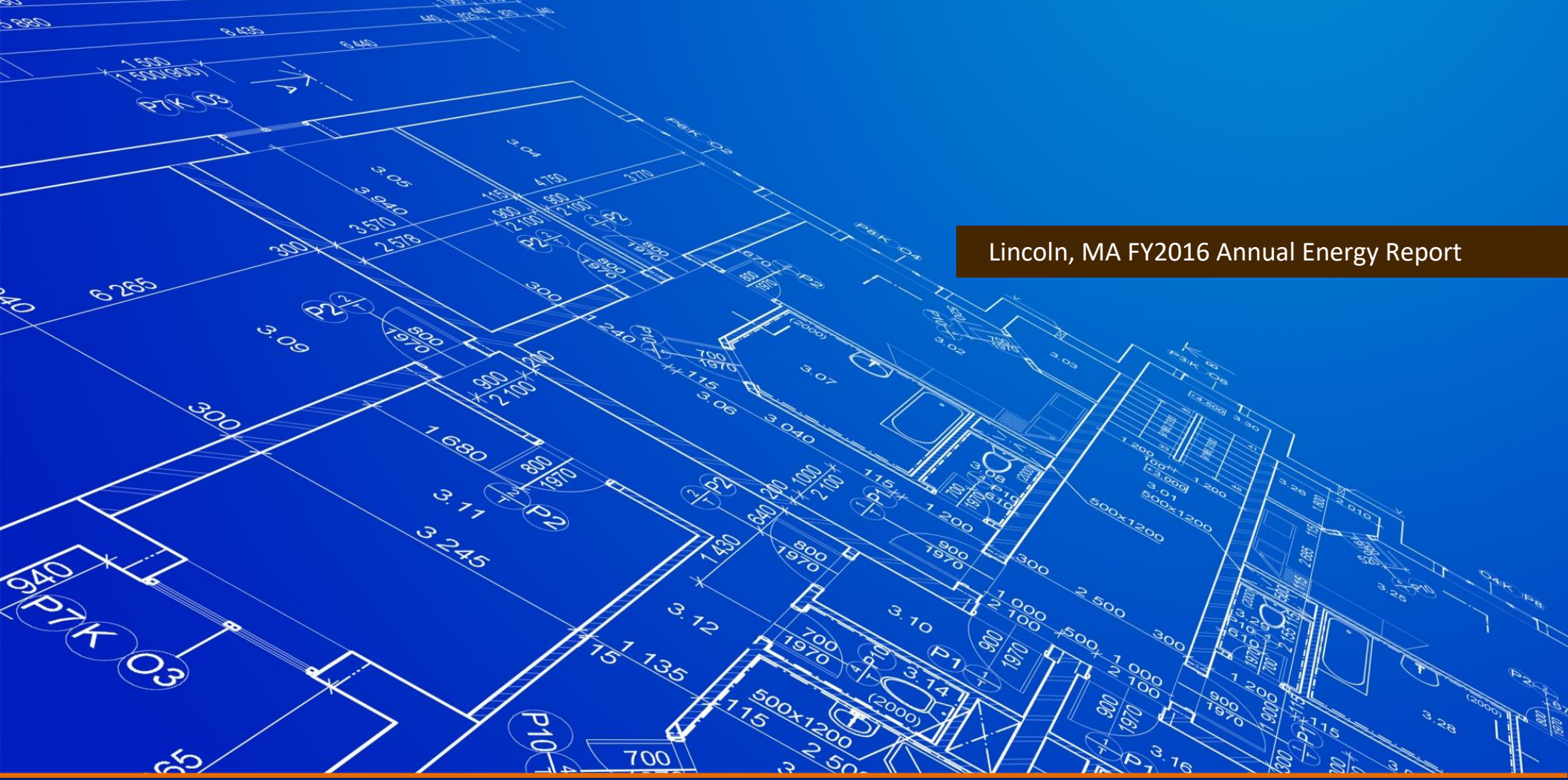

Lincoln, MA FY2016 Annual Energy Report

BLUEPRINT

for Better Building Performance

PEREGRINE FOCUS

ANNUAL ENERGY REPORT

March 1, 2017

Lincoln, Massachusetts Annual Energy Report: Fiscal Year 2016

INTRODUCTION

Lincoln, Massachusetts applied for and received Green Community designation in 2010. As part of its application and designation, the town agreed to try and reduce total energy use in our town-owned facilities and vehicles 20%. Please refer to Appendix B for our original proposed energy use reduction targets. This report compares the town's energy use in fiscal year 2016 (FY2016) to the town's energy use in its base year in fiscal year 2009 (FY2009). In addition, the report includes the energy use intensity (EUI) for electricity and gas and proposed target reduction goals that would meet the State's 2008 Global Warming Solutions Act goals of a 25% reduction by 2020 and 80% reduction by 2050 compared to a 1990 base year. Lincoln has not voted on whether or not to adopt the State's Global Warming Solutions Act goals. However, we've included these goals as an example of potential long term targets that the Town could set. The report includes detailed electricity and gas consumption reports for each town building in Appendix A.

SUMMARY

Total FY2016 energy use in Lincoln was about 1,367,912 kWh for electricity and about 119,254 therms for natural gas. This is **a 9% reduction in total electricity** use and a **26% reduction in natural gas**[1] use since FY2009 for a combined **total net energy use reduction (in Btus) of about 17%**. Bemis Hall, the Library, and Pierce House have achieved the highest percent savings with all other buildings show similar but slightly lower energy savings. Highlights from the energy savings efforts to date include new high efficiency boilers and lighting, new building management system controls, and robust efforts to improve building operation procedures.

[1] Total gas use decreased 26% in FY2016. However, the average winter temperature in FY2016 was 17% warmer than it was in FY2009 for a net weather adjusted savings of about 13%.

ENERGY USE TARGETS

In 2010 as part of its Green Community application, Lincoln commitment to try and reduce its municipal energy use 20% in 5 years. In addition, Massachusetts approved the Global Warming Solutions Act in 2008. This act committed the State to reduce greenhouse gas emissions 25% by 2020 and 80% by 2050[2]. The following three pages summarize the Town's progress to date to meet its Green Community application energy use reduction target and where we stand compared to the State's greenhouse gas emissions reduction targets for it's major town buildings.

Page 3 includes Lincoln's total energy use targets. As the graph and supporting data indicate, Lincoln is close to its Green Community 20% energy use reduction target for FY2016. Lincoln is also close and may even be slightly ahead of the State's 25% greenhouse gas reduction by 2020 target. Meeting the State's greenhouse gas emissions reduction target assumes that Lincoln can produce and/or buy 100% of its electricity from renewable energy sources and replace the Library's gas heating with a high efficiency heat pump heating and cooling system in the near future.

It currently looks like Lincoln will fall short of the State's 80% greenhouse gas reduction by 2050 target. The major unknown factor with the 2050 target forecast is the fuel source and projected energy use of any potential school construction project. The school is Lincoln's single largest energy user. Our forecast assumes that Lincoln will install a gas heating system and will make enough energy upgrades to reduce the school's gas consumption by 50%. Lincoln could meet the 2050 greenhouse gas reduction target if the school installed a high efficiency all-electric HVAC system and produced or bought 100% of its electricity from renewable energy sources.

Page 4 includes Lincoln's electricity use targets. The electricity use targets are complicated because electricity use may actually increase over time if the Town shifts its thermal (heat and domestic hot water) energy use from fossil fuels to renewable energy. Fossil fuel thermal loads are difficult to replace with stand-alone renewable energy systems. Lincoln may need to switch these thermal loads from fossil fuel systems to high efficiency electric systems and renewable electricity generation.

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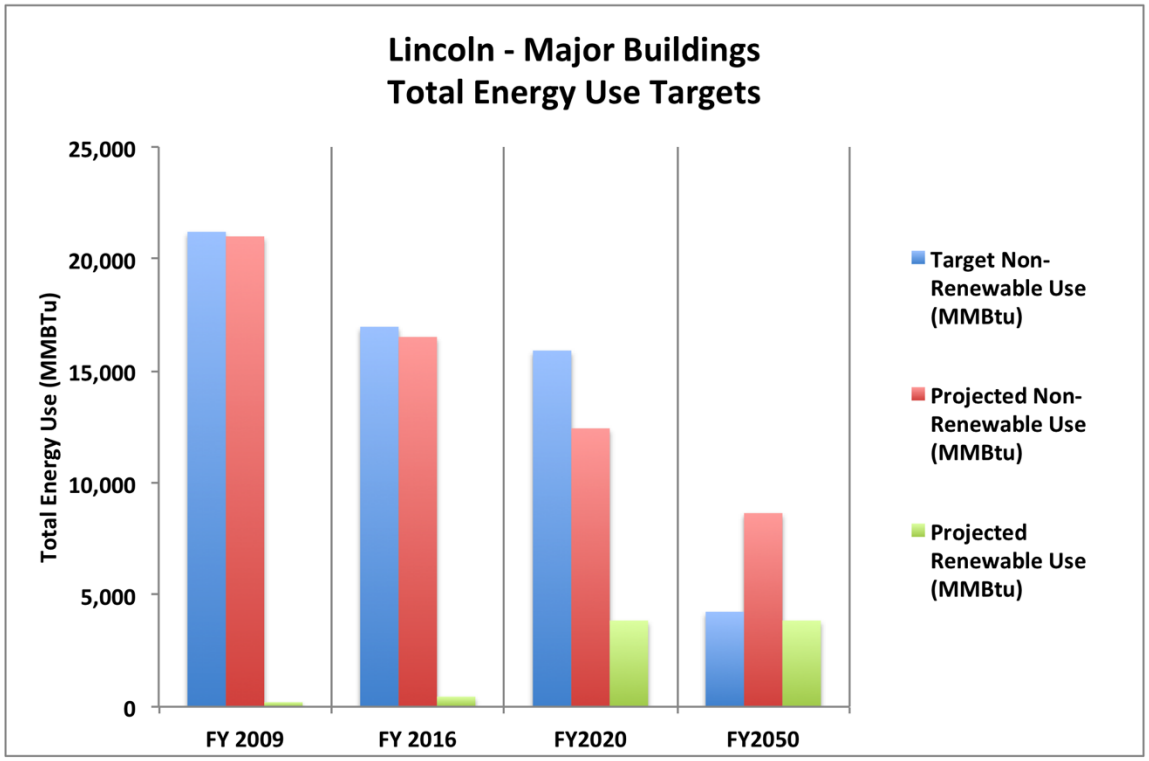
[2] Lincoln has not voted whether or not to officially adopt the State's GWSA greenhouse gas emission reduction targets.

Page 5 includes Lincoln's natural gas use targets. Last year's warm weather helped the town reduce its FY2016 gas consumption 20% below our baseline FY2009 gas consumption. However, adjusting for weather (FY2016 winter weather was 17% warmer than FY2009 winter weather) Lincoln more accurately reduced it gas consumption about 14%. Meeting the town's gas consumption targets will hinge on decisions that the school administration and voters make regarding the heating and domestic hot water energy sources for the school.

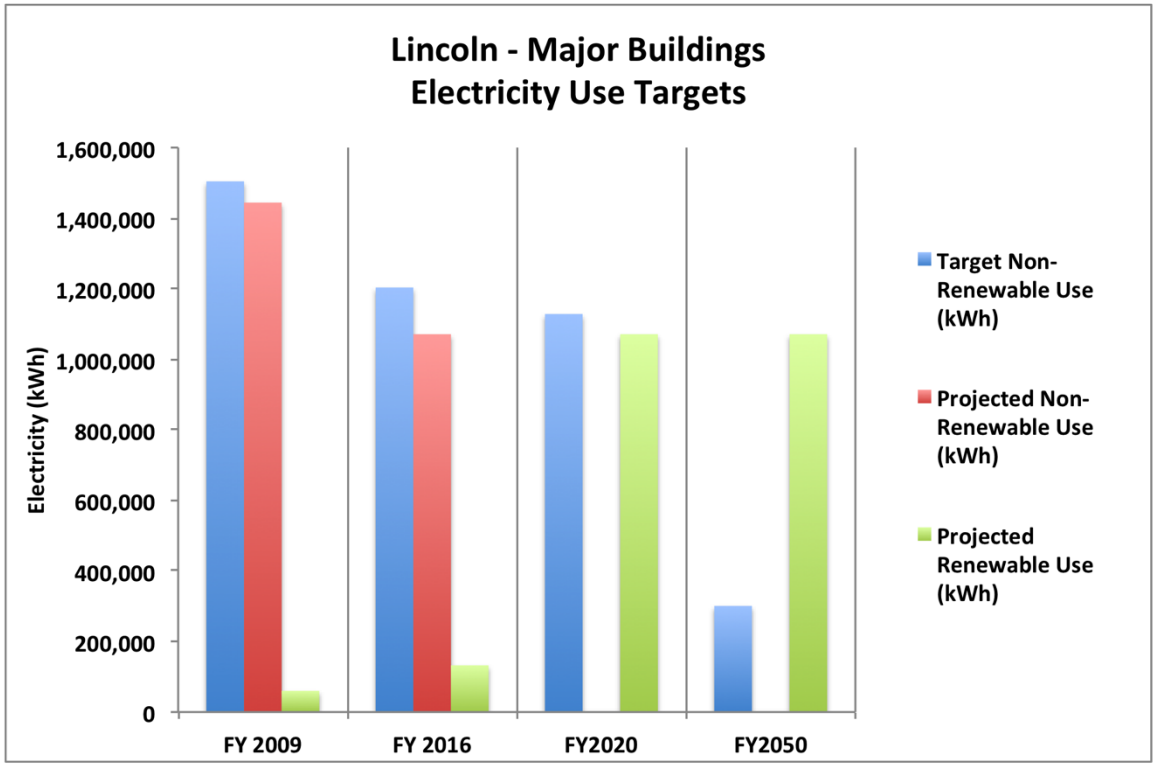
In addition to these energy use and greenhouse gas emissions reduction targets, the Town Offices renovation project had its own set of energy use targets associated with its LEED designation application. Target electricity use for the building was 73,600 kWh per year and target gas use for the building was 4,922 therms per year. FY2016 electricity use was 167,320 kWh or about 123% higher than the target electricity use. FY2016 gas use was 3,280 therms or about 33% lower than the target gas use. Electrical sub meters have identified equipment that is running more than the design engineers anticipated.

TOTAL ENERGY USE TARGETS



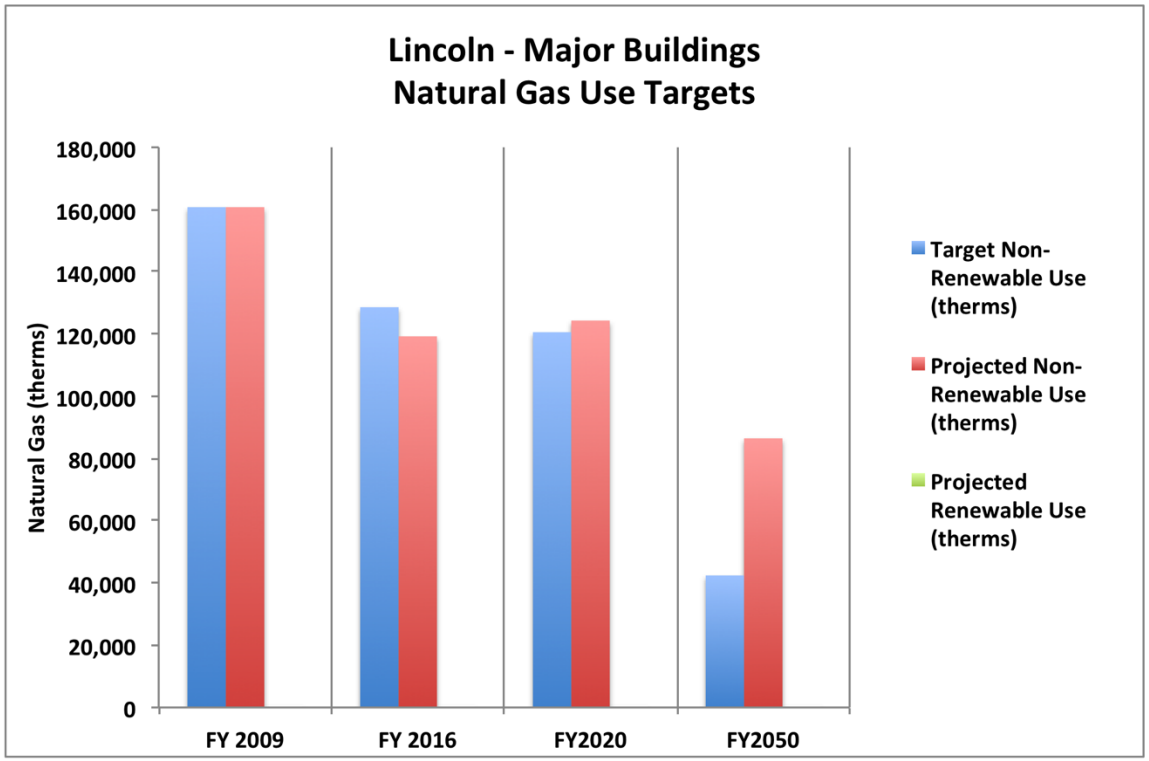
Total MMBTU	Year	Target Non-Renewable Use (MMBtu)	Projected Non-Renewable Use (MMBtu)	Projected Renewable Use (MMBtu)	Notes
Base Year	FY 2009	21,210	21,005	205	
Current Year	FY 2016	16,968	16,516	452	Warm winter
Target (-25%)	FY2020	15,908	12,432	3,850	100% renewable electricty
Target (-80%)	FY2050	4,242	8,648	3,850	100% renewable electricity

ELECTRICITY USE TARGETS



Electricity	Year	Target Non-Renewable Use (kWh)	Projected Non-Renewable Use (kWh)	Projected Renewable Use (kWh)	Notes
Base Year	FY 2009	1,504,194	1,444,026	60,168	
Current Year	FY 2016	1,203,355	1,070,986	132,369	Target - 20% savings
Target (-25%)	FY2020	1,128,146	0	1,070,986	Library - heat pump
Target (-80%)	FY2050	300,839	0	1,070,986	New school

NATURAL GAS USE TARGETS



Natural Gas	Year	Target Non-Renewable Use (therms)	Projected Non-Renewable Use (therms)	Projected Renewable Use (therms)	Notes
Base Year	FY 2009	160,765	160,765	0	
Current Year	FY 2016	128,612	119,254	0	Target - 20% savings
Target (-25%)	FY2020	120,574	124,324	0	Library - heat pump
Target (-80%)	FY2050	42,421	86,482	0	New school

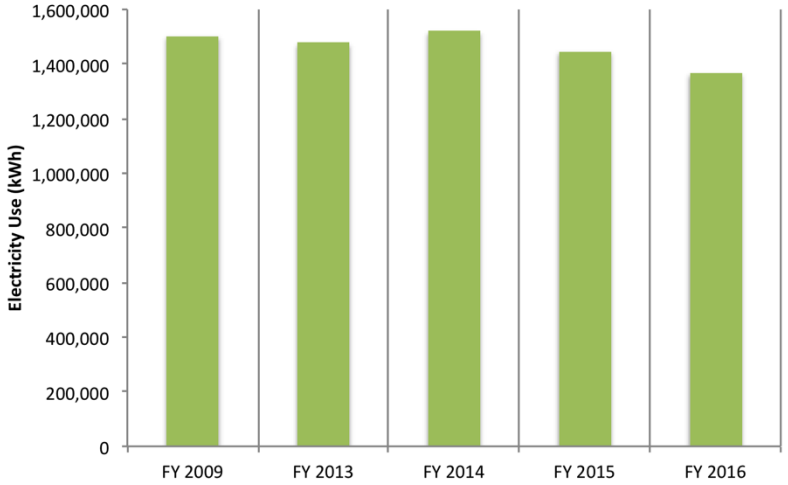
ELECTRICITY AND GAS USE AND ENERGY USE INTENSITY

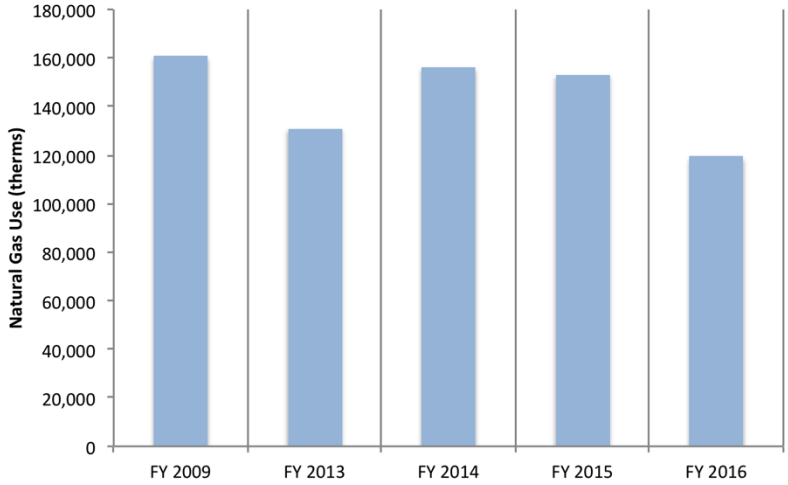
The following two pages summarize the electricity and gas use in Lincoln's major buildings. Page 7 includes the total electricity and natural gas use for the Green Communities designation base year FY2009 and the four most recent fiscal years. Page 8 includes the electricity and natural gas energy use intensity (EUI) for the Green Communities designation base year FY2009 and the four most recent fiscal years. Electricity and natural gas energy use intensity is measured in terms of electricity and gas use converted to kBtus per building square foot per year. This conversion allows building managers to compare the performance of similar buildings[3] with different sizes, types, and fuel mixtures (e.g. a higher percent of electricity or natural gas). Buildings with low EUIs provide energy performance benchmarks for buildings with high EUIs. Buildings with high EUIs indicate that there are opportunities for future energy efficiency actions or investments.

- Electricity use has decreased at Hartwell (-27%), the Library (-18%), and the School (-11%). Electricity use has increased at Town Offices (87%), Bemis Hall (34%), and Pierce House (12%).
- Non weather-adjusted gas use has decreased in all the buildings including Town Offices (-62%), the Library (-40%), Bemis Hall (-35%), Pierce House (-35%), Public Safety (-24%), and Hartwell (-21%).
- Bemis Hall (53), the Library (54), and Town Offices (55) have the lowest EUIs. Public Safety (119) and Pierce House (91) have the highest EUIs.
- Bemis Hall (8) and the School (11) have the lowest electricity EUIs. Public Safety (50) and Town Offices (35) have the highest electricity EUIs. Town Offices (20) and the Library (25) have the lowest natural gas EUIs and Pierce House (74) and Public Safety (70) have the highest natural gas EUIs.

[3] EUI comparisons are most useful for buildings in similar categories like office buildings and schools.

ELECTRICITY AND GAS USE

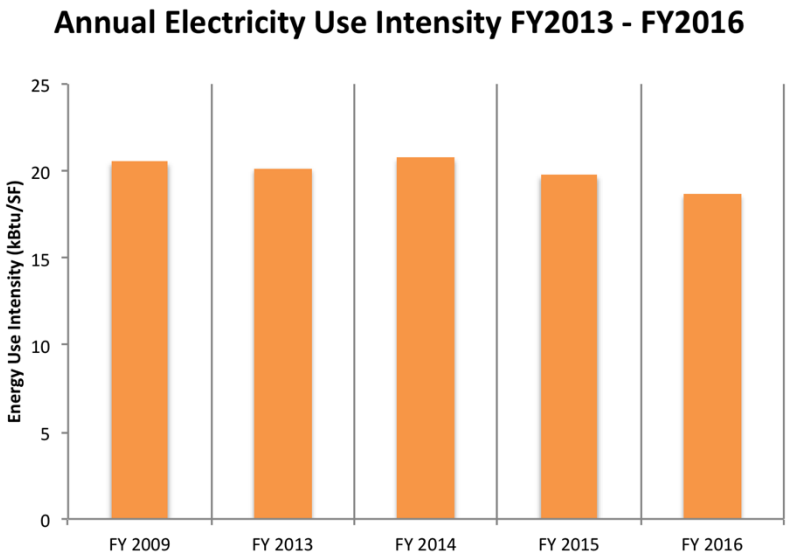


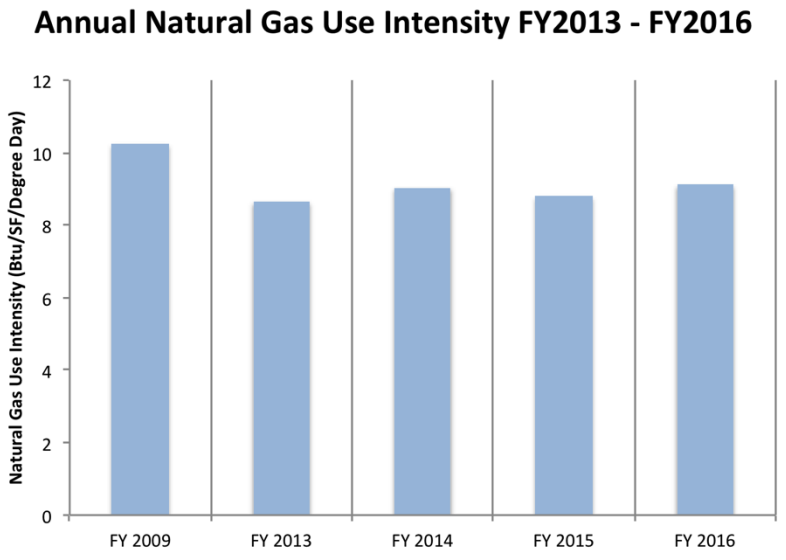


#	Facility	Floor Area (SF)	Heating Degree Days FY 2009	Heating Degree Days FY 2016	% Change	Electricity (kWh) FY 2009	Electricity (kWh) FY 2016	% Change	Natural Gas (therms) FY 2009	Natural Gas (therms) FY 2016	% Change
1	**Lincoln School**	143,868				538,320	479,320	-11%	97,223	76,043	-22%
2	**Hartwell**	45,114				473,686	343,668	-27%	23,686	18,692	-21%
3	**Library**	17,214				179,440	147,040	-18%	7,115	4,288	-40%
4	**Town Offices**	16,260				89,321	167,320	87%	8,611	3,280	-62%
5	**Public Safety**	12,360				181,280	179,440	-1%	11,294	8,612	-24%
6	**Bemis Hall**	9,976				18,100	24,251	34%	6,861	4,431	-35%
7	**Pierce House**	5,306				24,047	26,873	12%	5,975	3,908	-35%
	Total	250,098	6,274	5,227	-17%	1,504,194	1,367,912	**-9%**	160,765	119,254	-26%
	Weather adjusted Savings:								160,765	139,155	**-13%**

Lincoln, MA electricity and gas use

ELECTRICITY AND GAS ENERGY USE INTENSITY (EUI)





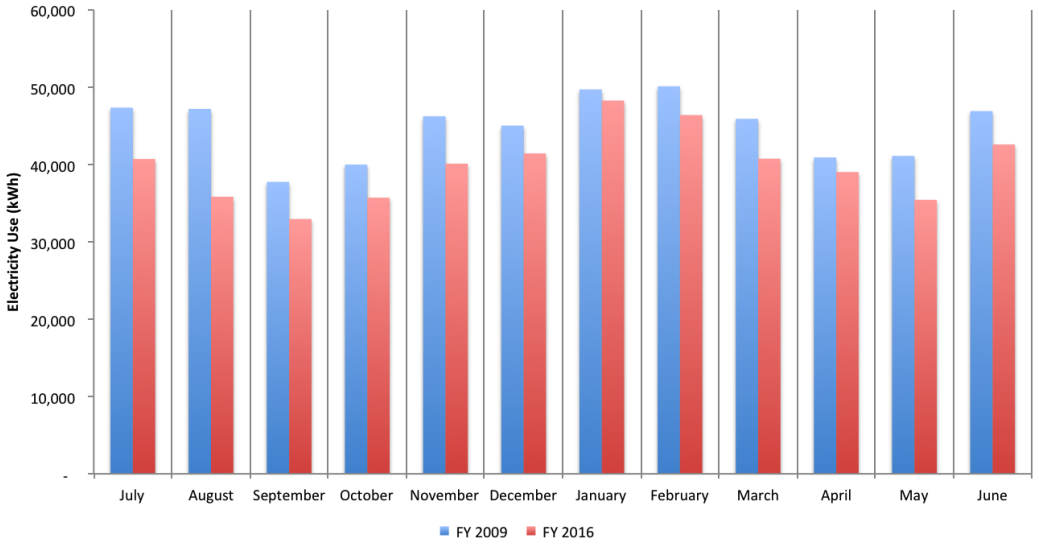
#	Facility	Floor Area (SF)	Total EUI (kBtu/SF) FY 2009	Total EUI (kBtu/SF) FY 2016	% Change	Electricity EUI (kBtu/SF) FY 2009	Electricity EUI (kBtu/SF) FY 2016	% Change	Natural Gas EUI (kBtu/SF) FY 2009	Natural Gas EUI (kBtu/SF) FY 2016	% Change
1	Lincoln School	143,868	80	64	-20%	13	11	-11%	68	53	-22%
2	Hartwell	45,114	88	67	-24%	36	26	-27%	53	41	-21%
3	Library	17,214	77	54	-30%	36	29	-18%	41	25	-40%
4	Town Offices	16,260	106	55	-48%	28	**35**	27%	78	20	-74%
5	Public Safety	12,360	141	**119**	-16%	50	**50**	-1%	91	**70**	-24%
6	Bemis Hall	9,976	75	53	-30%	6	8	34%	69	44	-35%
7	Pierce House	5,306	128	**91**	-29%	15	17	12%	113	**74**	-35%
	Total	250,098	87	66	-24%	21	19	-12%	66	48	-28%
	Weather adjusted Savings:		87	74	-15%				66	56	-16%

Lincoln, MA electricity and gas energy use intensity (EUI)

APPENDIX A: INDIVIDUAL BUILDING ENERGY USE TRENDS

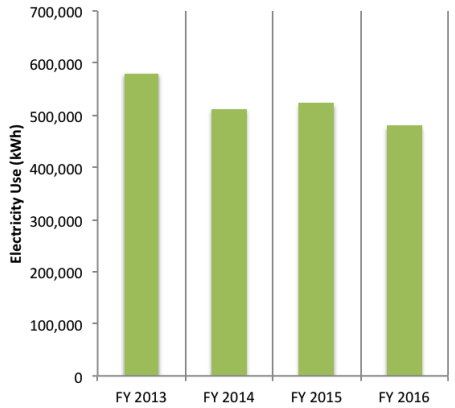
LINCOLN SCHOOL ELECTRICITY

Monthly Electricity Use FY2009 and FY2016

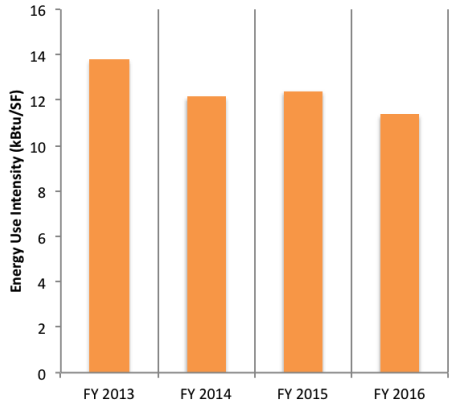


Month of Date	Use (kWh) FY 2009	Use (kWh) FY 2016	Change (%) FY 2016
July	47,360	40,720	-14%
August	47,200	35,840	-24%
September	37,760	32,960	-13%
October	40,000	35,720	-11%
November	46,240	40,120	-13%
December	45,040	41,440	-8%
January	49,720	48,280	-3%
February	50,120	46,400	-7%
March	45,920	40,760	-11%
April	40,920	39,040	-5%
May	41,120	35,440	-14%
June	46,920	42,600	-9%
Grand Total	538,320	479,320	-11%
Energy Intensity			Change
kBtu/ Square Foot	12.8	11.4	-1.4

Annual Electricity Use FY2013 - FY2016



Annual Electricity Use Intensity FY2013 - FY2016

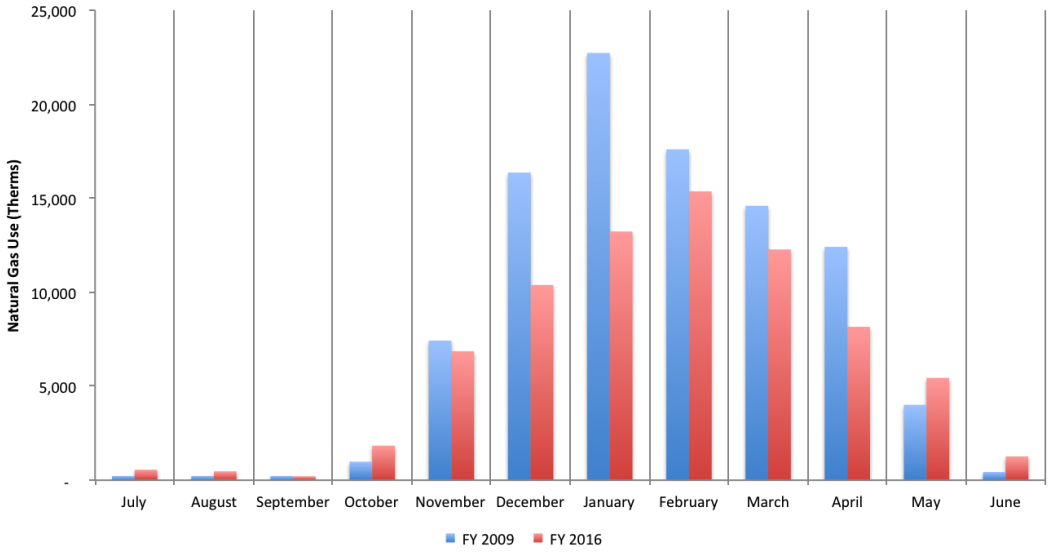


Year	Use (kWh)	Change (%)	Cooling Degree Days
FY 2013	580,920		720
FY 2014	512,440	-12%	569
FY 2015	522,760	-10%	529
FY 2016	479,320	-17%	710

Year	EUI (kBtu/ SF)	EUI Change (%)
FY 2013	14	
FY 2014	12	-12%
FY 2015	12	-10%
FY 2016	11	-17%

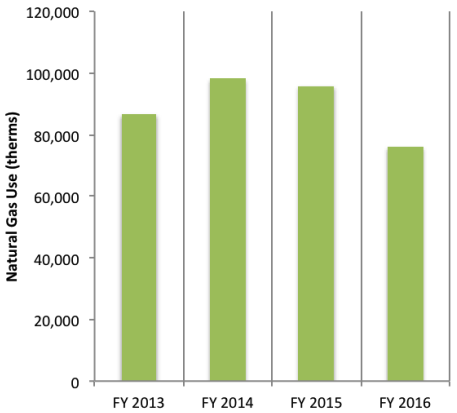
LINCOLN SCHOOL NATURAL GAS

Monthly Natural Gas Use FY2009 and FY2016

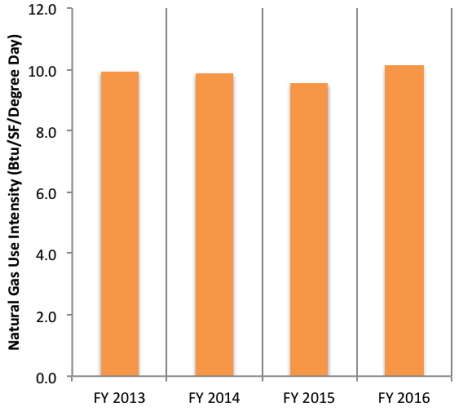


Month of Date	Use (therms) FY 2009	Use (therms) FY 2016	Change (%) FY 2016
July	223	557	150%
August	224	473	111%
September	225	207	-8%
October	984	1,835	86%
November	7,427	6,860	-8%
December	16,361	10,382	-37%
January	22,725	13,229	-42%
February	17,597	15,362	-13%
March	14,597	12,273	-16%
April	12,413	8,160	-34%
May	4,009	5,441	36%
June	438	1,264	189%
Grand Total	97,223	76,043	-22%
Energy Intensity			
kBtu/ Square Foot	67.6	52.9	-14.7
Weather Adjusted Energy Performance			
Heating Deg Days	6,274	5,227	
BTU/SF/Deg Day	10.8	10.1	-6%

Annual Natural Gas Use FY2013 - FY2016



Annual Natural Gas Use Intensity FY2013 - FY2016

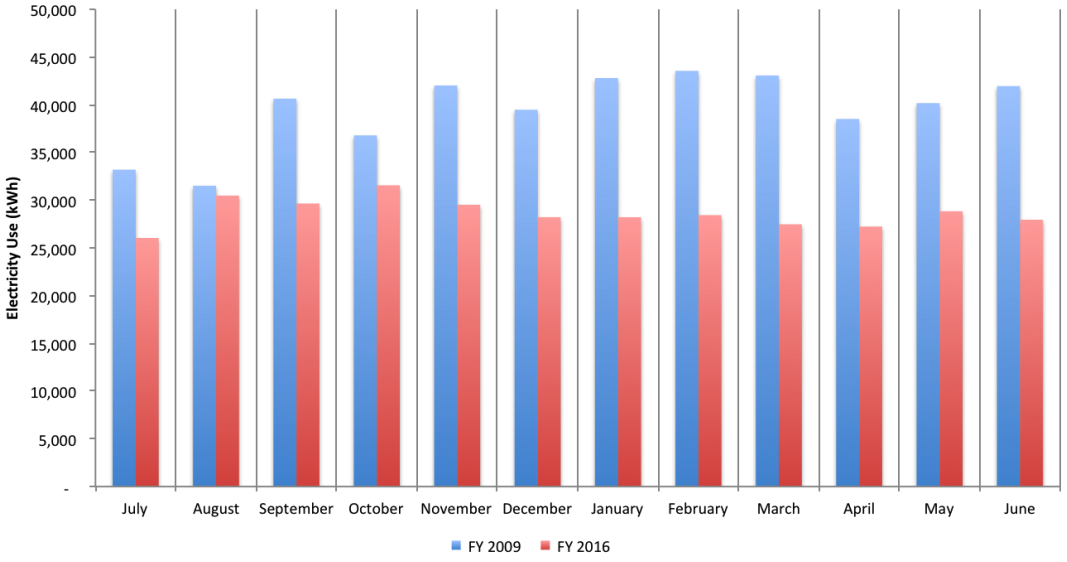


Year	Use (therms)	Change (%)	Heating Degree Days
FY 2013	86,695		6,055
FY 2014	98,094	13%	6,904
FY 2015	95,866	11%	6,965
FY 2016	76,043	-12%	5,227

Year	EUI (kBtu/ SF)	EUI (BTU/SF/ Degree Day)	EUI (BTU/SF/ Change (%)
FY 2013	60	10.0	
FY 2014	68	9.9	-1%
FY 2015	67	9.6	-4%
FY 2016	53	10.1	2%

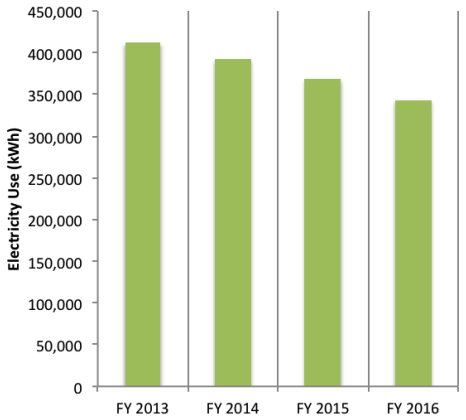
HARTWELL ELECTRICITY

Monthly Electricity Use FY2009 and FY2016

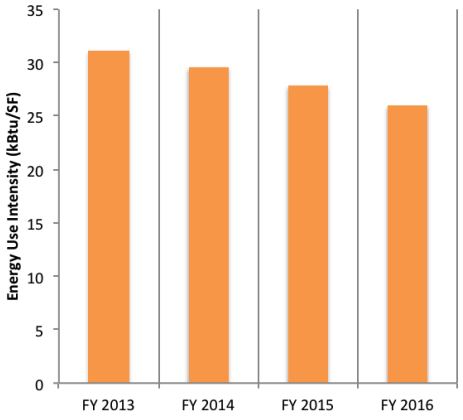


Month of Date	Use (kWh) FY 2009	Use (kWh) FY 2016	Change (%) FY 2016
July	33,197	26,047	-22%
August	31,518	30,486	-3%
September	40,637	29,655	-27%
October	36,791	31,561	-14%
November	42,018	29,525	-30%
December	39,480	28,223	-29%
January	42,795	28,220	-34%
February	43,550	28,436	-35%
March	43,066	27,479	-36%
April	38,509	27,240	-29%
May	40,173	28,842	-28%
June	41,952	27,954	-33%
Grand Total	473,686	343,668	-27%
Energy Intensity kBtu/ Square Foot	35.8	26.0	Change -9.8

Annual Electricity Use FY2013 - FY2016



Annual Electricity Use Intensity FY2013 - FY2016

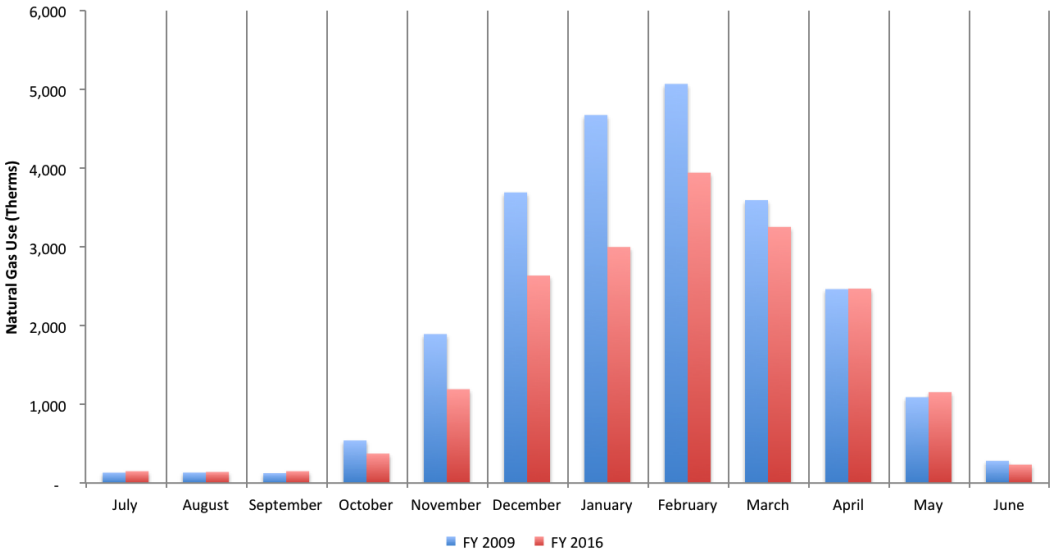


Year	Use (kWh)	Change (%)	Cooling Degree Days
FY 2013	411,880		720
FY 2014	391,680	-5%	569
FY 2015	368,618	-11%	529
FY 2016	343,668	-17%	710

Year	EUI (kBtu/ SF)	EUI Change (%)
FY 2013	31	
FY 2014	30	-5%
FY 2015	28	-10%
FY 2016	26	-17%

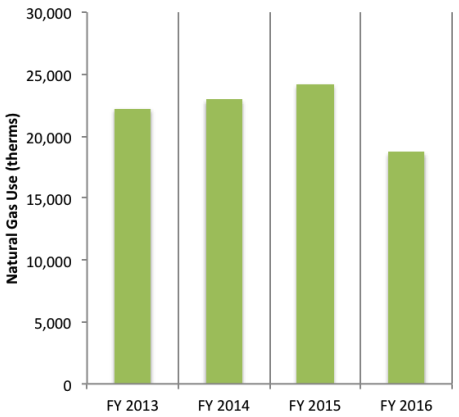
HARTWELL NATURAL GAS

Monthly Natural Gas Use FY2009 and FY2016

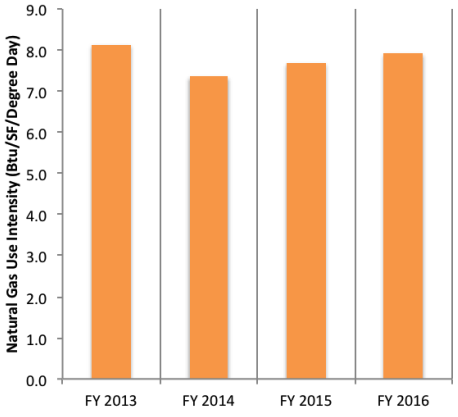


Month of Date	Use (therms) FY 2009	Use (therms) FY 2016	Change (%) FY 2016
July	132	150	14%
August	133	141	6%
September	126	150	19%
October	541	374	-31%
November	1,892	1,192	-37%
December	3,691	2,635	-29%
January	4,674	2,998	-36%
February	5,069	3,942	-22%
March	3,593	3,253	-9%
April	2,463	2,469	0%
May	1,090	1,154	6%
June	282	234	-17%
Grand Total	23,686	18,692	-21%
Energy Intensity			
kBtu/ Square Foot	52.5	41.4	-11.1
Weather Adjusted Energy Performance			
Heating Deg Days	6,274	5,227	
BTU/SF/Deg Day	8.4	7.9	-5%

Annual Natural Gas Use FY2013 - FY2016



Annual Natural Gas Use Intensity FY2013 - FY2016

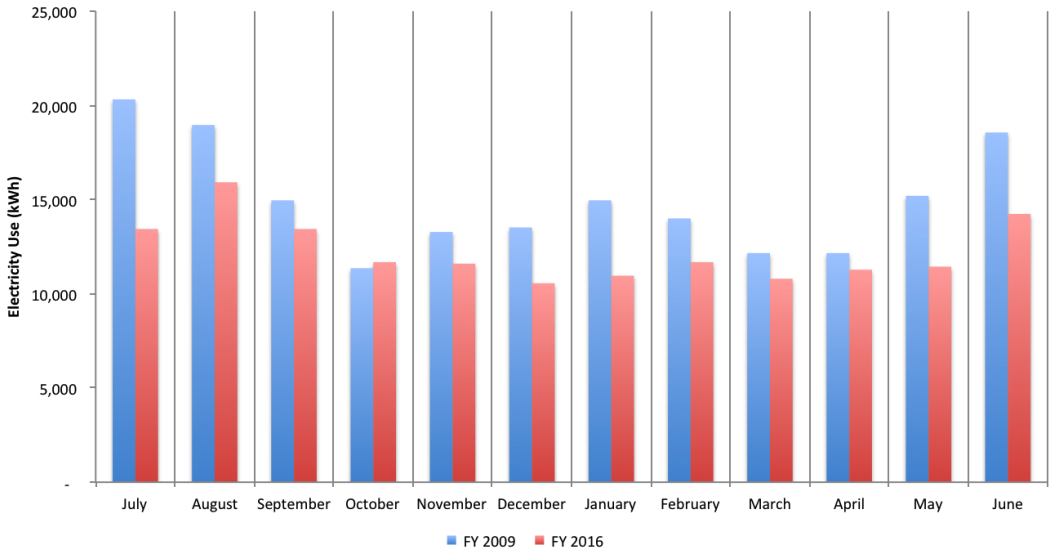


Year	Use (therms)	Change (%)	Heating Degree Days
FY 2013	22,234		6,055
FY 2014	22,934	3%	6,904
FY 2015	24,182	9%	6,965
FY 2016	18,692	-16%	5,227

Year	EUI (kBtu/ SF)	EUI (BTU/SF/ Degree Day)	EUI (BTU/SF/ Change (%)
FY 2013	49	8.1	
FY 2014	51	7.4	-9%
FY 2015	54	7.7	-5%
FY 2016	41	7.9	-3%

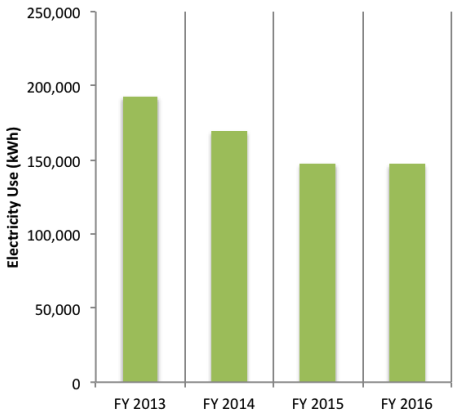
LIBRARY ELECTRICITY

Monthly Electricity Use FY2009 and FY2016

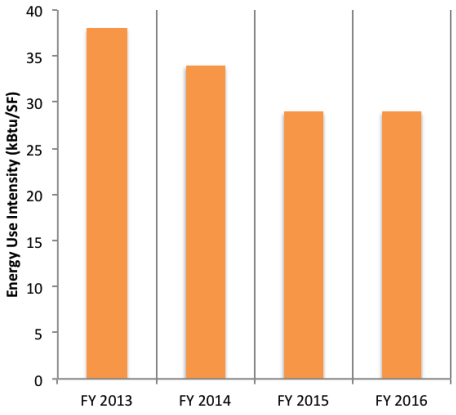


Month of Date	Use (kWh) FY 2009	Use (kWh) FY 2016	Change (%) FY 2016
July	20,320	13,440	-34%
August	18,960	15,920	-16%
September	14,960	13,440	-10%
October	11,360	11,680	3%
November	13,280	11,600	-13%
December	13,520	10,560	-22%
January	14,960	10,960	-27%
February	14,000	11,680	-17%
March	12,160	10,800	-11%
April	12,160	11,280	-7%
May	15,200	11,440	-25%
June	18,560	14,240	-23%
Grand Total	179,440	147,040	-18%
Energy Intensity			Change
kBtu/ Square Foot	35.6	29.2	-6.4

Annual Electricity Use FY2013 - FY2016



Annual Electricity Use Intensity FY2013 - FY2016

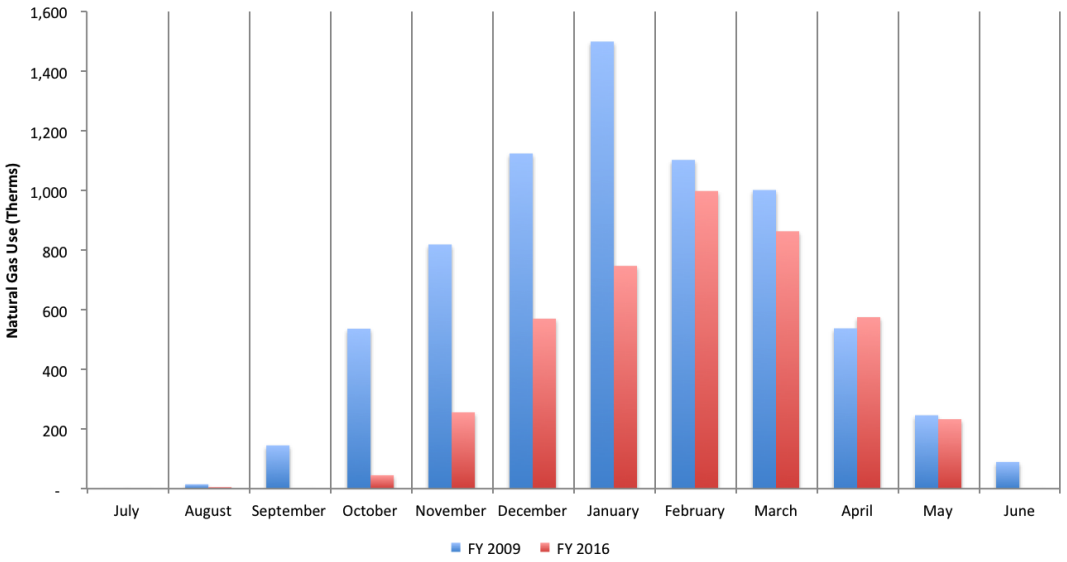


Year	Use (kWh)	Change (%)	Cooling Degree Days
FY 2013	192,720		720
FY 2014	169,440	-12%	569
FY 2015	147,440	-23%	529
FY 2016	147,040	-24%	710

Year	EUI (kBtu/ SF)	EUI Change (%)
FY 2013	38	
FY 2014	34	-11%
FY 2015	29	-24%
FY 2016	29	-24%

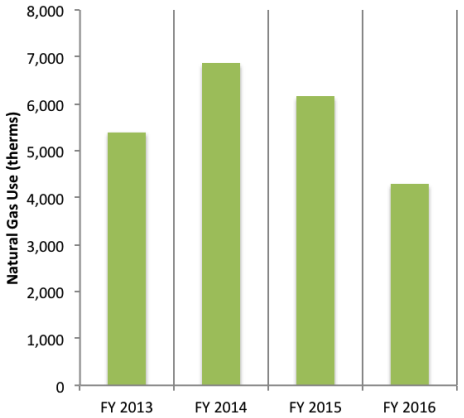
LIBRARY NATURAL GAS

Monthly Natural Gas Use FY2009 and FY2016

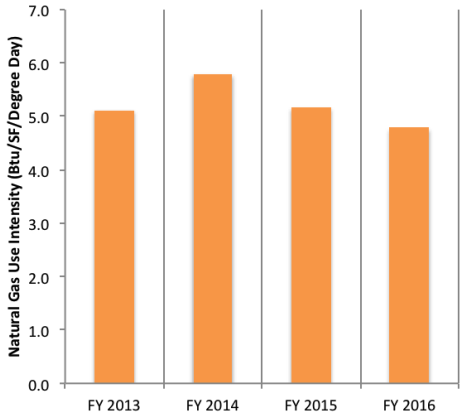


Month of Date	Use (therms) FY 2009	Use (therms) FY 2016	Change (%) FY 2016
July	-	-	
August	15	1	-93%
September	145	-	-100%
October	536	45	-92%
November	819	256	-69%
December	1,124	570	-49%
January	1,499	747	-50%
February	1,102	998	-9%
March	1,001	863	-14%
April	538	575	7%
May	246	233	-5%
June	90	-	-100%
Grand Total	7,115	4,288	-40%
Energy Intensity			
kBtu/ Square Foot	41.3	24.9	-16.4
Weather Adjusted Energy Performance			
Heating Deg Days	6,274	5,227	
BTU/SF/Deg Day	6.6	4.8	-28%

Annual Natural Gas Use FY2013 - FY2016



Annual Natural Gas Use Intensity FY2013 - FY2016

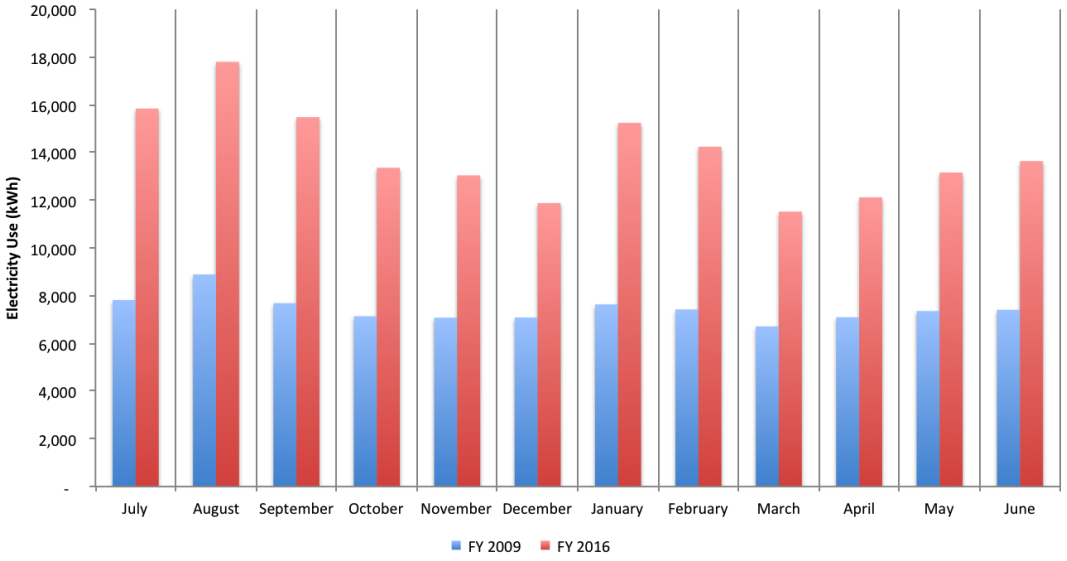


Year	Use (therms)	Change (%)	Heating Degree Days
FY 2013	5,401		6,055
FY 2014	6,857	27%	6,904
FY 2015	6,150	14%	6,965
FY 2016	4,288	-21%	5,227

Year	EUI (kBtu/ SF)	EUI (BTU/SF/ Degree Day)	EUI (BTU/SF/ Change (%)
FY 2013	31	5.1	
FY 2014	40	5.8	13%
FY 2015	36	5.2	1%
FY 2016	25	4.8	-7%

TOWN OFFICES ELECTRICITY

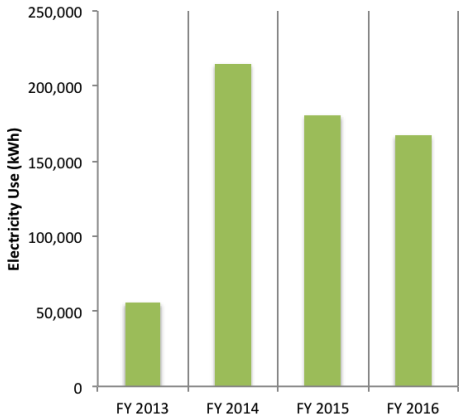
Monthly Electricity Use FY2009 and FY2016



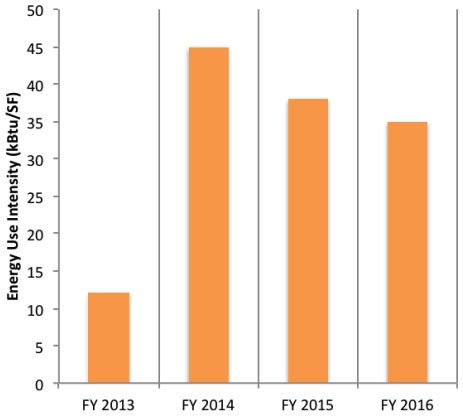
Month of Date	Use (kWh) FY 2009	Use (kWh) FY 2016	Change (%) FY 2016
July	7,818	15,840	103%
August	8,890	17,800	100%
September	7,685	15,480	101%
October	7,138	13,360	87%
November	7,077	13,040	84%
December	7,085	11,880	68%
January	7,634	15,240	100%
February	7,422	14,240	92%
March	6,711	11,520	72%
April	7,097	12,120	71%
May	7,355	13,160	79%
June	7,409	13,640	84%
Grand Total	89,321	167,320	87%

Energy Intensity			Change
kBtu/ Square Foot	27.7	35.1	7.4

Annual Electricity Use FY2013 - FY2016



Annual Electricity Use Intensity FY2013 - FY2016

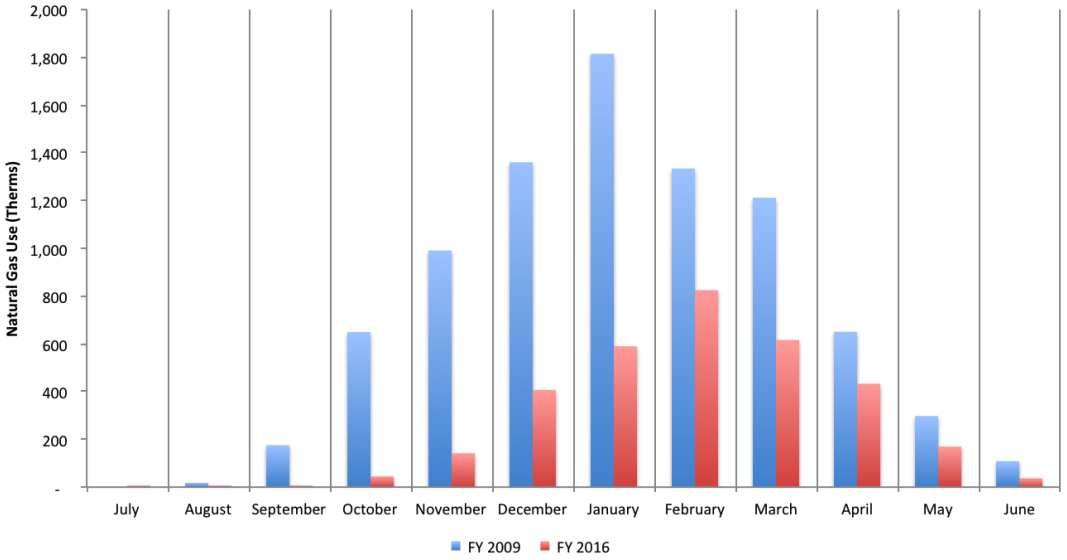


Year	Use (kWh)	Change (%)	Cooling Degree Days
FY 2013	55,878		720
FY 2014	214,920	285%	569
FY 2015	180,640	223%	529
FY 2016	167,320	199%	710

Year	EUI (kBtu/ SF)	EUI Change (%)
FY 2013	12	
FY 2014	45	275%
FY 2015	38	217%
FY 2016	35	192%

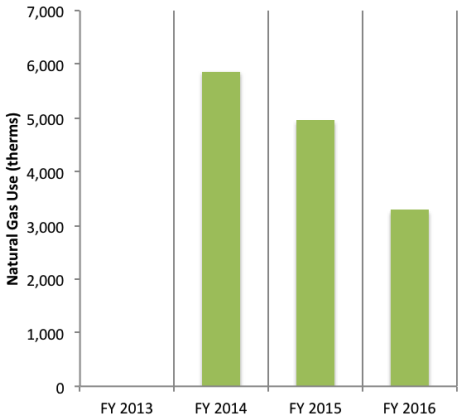
TOWN OFFICES NATURAL GAS

Monthly Natural Gas Use FY2009 and FY2016

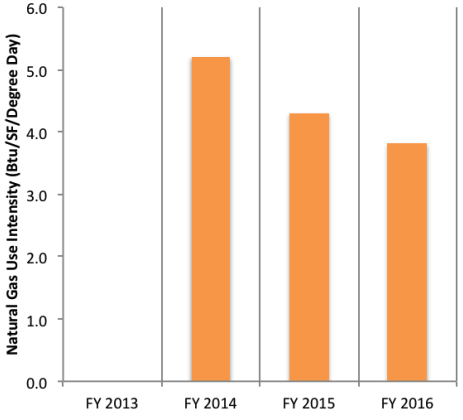


Month of Date	Use (therms) FY 2009	Use (therms) FY 2016	Change (%) FY 2016
July	-	5	
August	18	5	-72%
September	176	5	-97%
October	649	45	-93%
November	991	142	-86%
December	1,360	407	-70%
January	1,815	590	-67%
February	1,334	825	-38%
March	1,212	616	-49%
April	651	433	-33%
May	298	170	-43%
June	108	37	-66%
Grand Total	8,611	3,280	-62%
Energy Intensity			
kBtu/ Square Foot	78.3	20.2	-58.1
Weather Adjusted Energy Performance			
Heating Deg Days	6,274	5,227	
BTU/SF/Deg Day	12.5	3.9	-69%

Annual Natural Gas Use FY2013 - FY2016



Annual Natural Gas Use Intensity FY2013 - FY2016

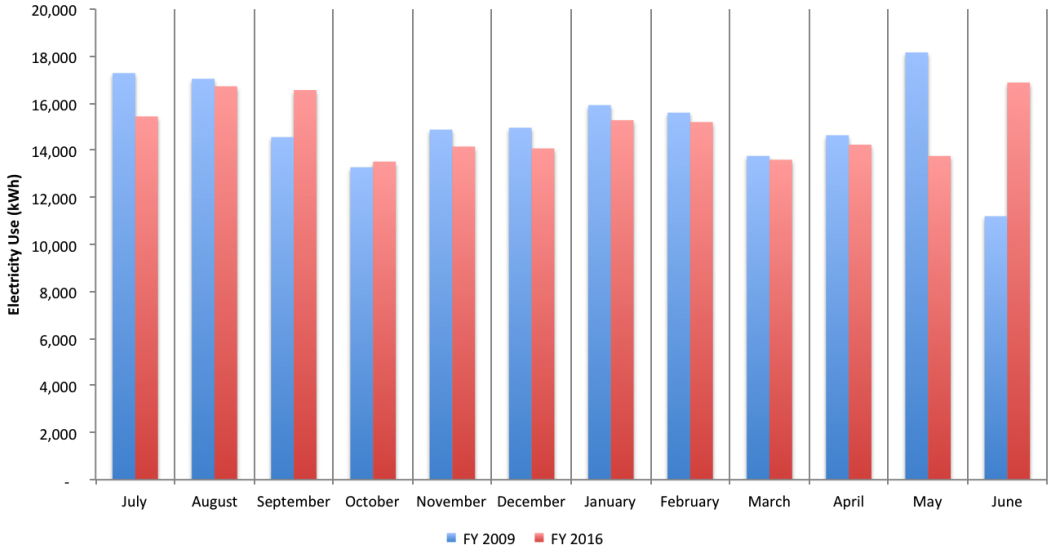


Year	Use (therms)	Change (%)	Heating Degree Days
FY 2013	0		6,055
FY 2014	5,870		6,904
FY 2015	4,956		6,965
FY 2016	3,280		5,227

Year	EUI (kBtu/ SF)	EUI (BTU/SF/ Degree Day)	EUI (BTU/SF/ Change (%)
FY 2013	0		
FY 2014	36	5.2	
FY 2015	30	4.3	
FY 2016	20	3.8	

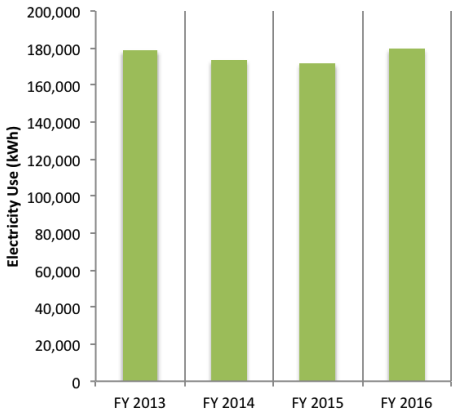
PUBLIC SAFETY ELECTRICITY

Monthly Electricity Use FY2009 and FY2016

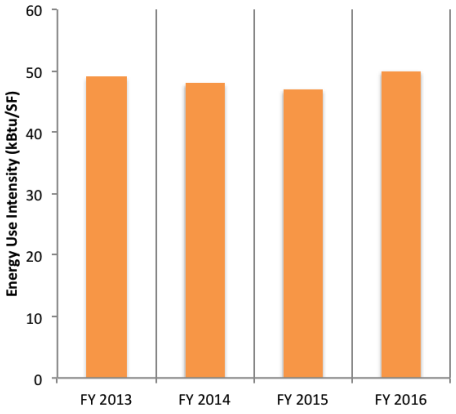


Month of Date	Use (kWh) FY 2009	Use (kWh) FY 2016	Change (%) FY 2016
July	17,280	15,440	-11%
August	17,040	16,720	-2%
September	14,560	16,560	14%
October	13,280	13,520	2%
November	14,880	14,160	-5%
December	14,960	14,080	-6%
January	15,920	15,280	-4%
February	15,600	15,200	-3%
March	13,760	13,600	-1%
April	14,640	14,240	-3%
May	18,160	13,760	-24%
June	11,200	16,880	51%
Grand Total	181,280	179,440	-1%
Energy Intensity			Change
kBtu/ Square Foot	50.1	49.5	-0.5

Annual Electricity Use FY2013 - FY2016



Annual Electricity Use Intensity FY2013 - FY2016

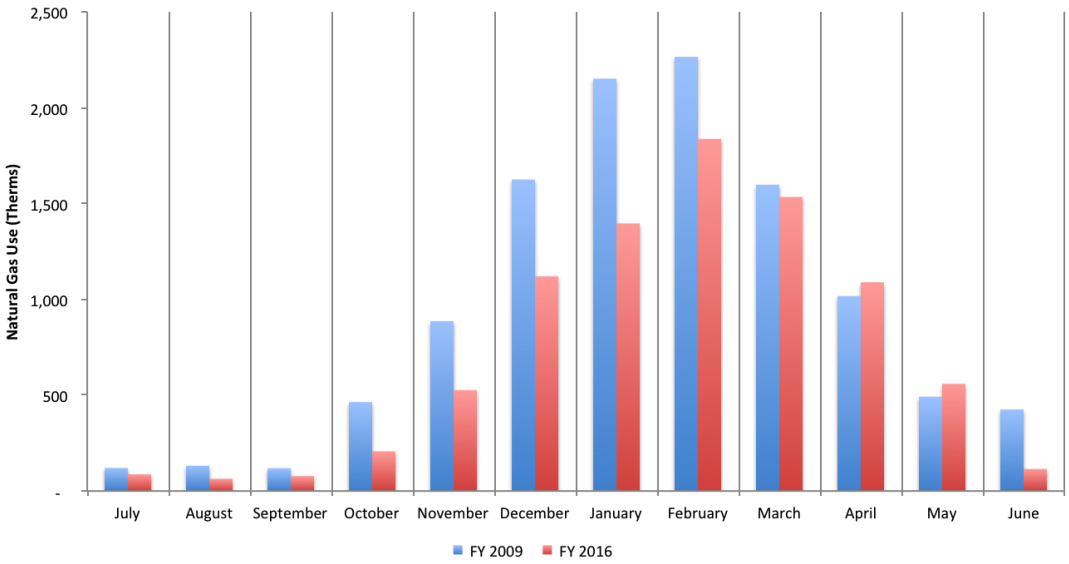


Year	Use (kWh)	Change (%)	Cooling Degree Days
FY 2013	178,640		720
FY 2014	173,280	-3%	569
FY 2015	171,440	-4%	529
FY 2016	179,440	0%	710

Year	EUI (kBtu/ SF)	EUI Change (%)
FY 2013	49	
FY 2014	48	-2%
FY 2015	47	-4%
FY 2016	50	2%

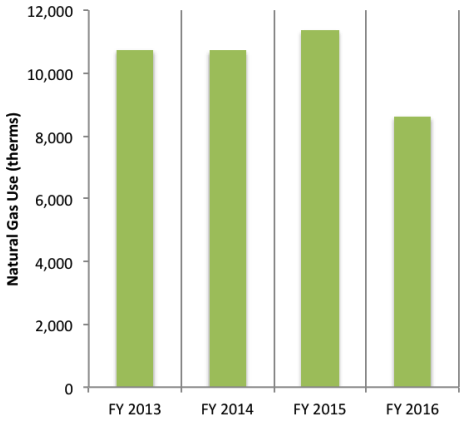
PUBLIC SAFETY NATURAL GAS

Monthly Natural Gas Use FY2009 and FY2016

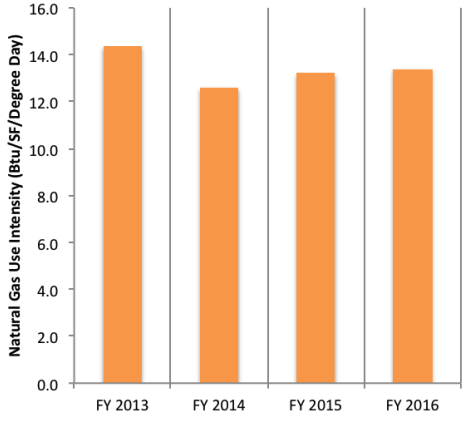


Month of Date	Use (therms) FY 2009	Use (therms) FY 2016	Change (%) FY 2016
July	120	87	-28%
August	132	64	-52%
September	119	78	-34%
October	464	207	-55%
November	886	526	-41%
December	1,625	1,120	-31%
January	2,151	1,396	-35%
February	2,265	1,837	-19%
March	1,598	1,534	-4%
April	1,017	1,089	7%
May	492	559	14%
June	425	115	-73%
Grand Total	11,294	8,612	-24%
Energy Intensity			
kBtu/ Square Foot	91.4	69.7	-21.7
Weather Adjusted Energy Performance			
Heating Deg Days	6,274	5,227	
BTU/SF/Deg Day	14.6	13.3	-8%

Annual Natural Gas Use FY2013 - FY2016



Annual Natural Gas Use Intensity FY2013 - FY2016

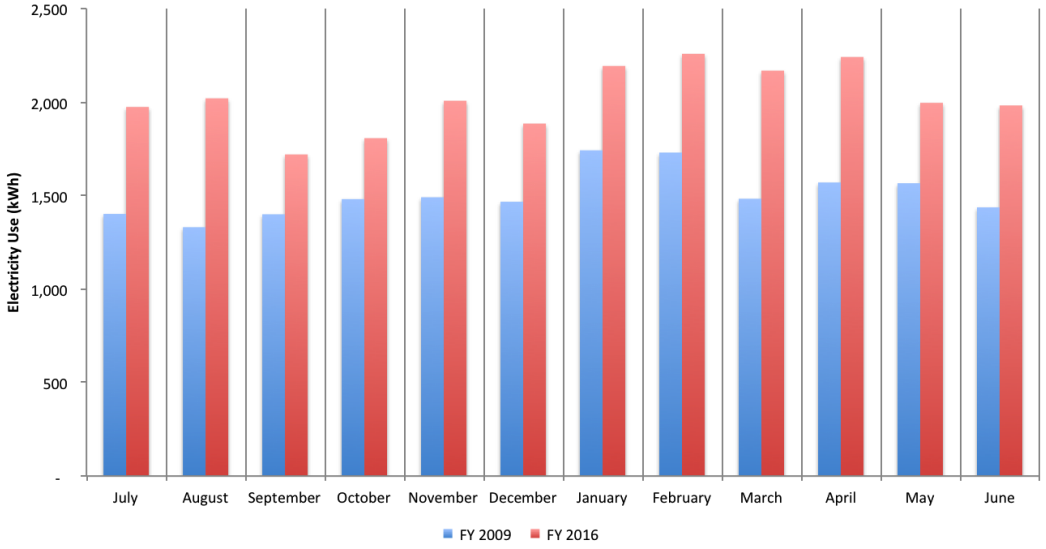


Year	Use (therms)	Change (%)	Heating Degree Days
FY 2013	10,742		6,055
FY 2014	10,709	0%	6,904
FY 2015	11,361	6%	6,965
FY 2016	8,612	-20%	5,227

Year	EUI (kBtu/ SF)	EUI (BTU/SF/ Degree Day)	EUI (BTU/SF/ Change (%)
FY 2013	87	14.4	
FY 2014	87	12.6	-12%
FY 2015	92	13.2	-8%
FY 2016	70	13.4	-7%

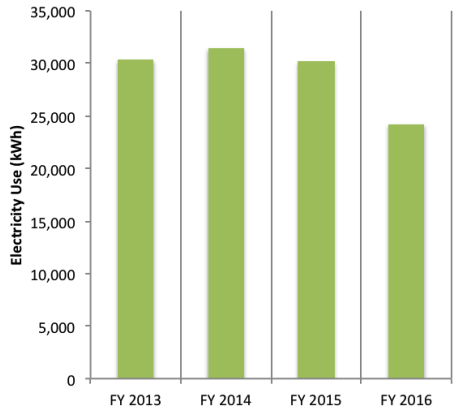
BEMIS HALL ELECTRICITY

Monthly Electricity Use FY2009 and FY2016

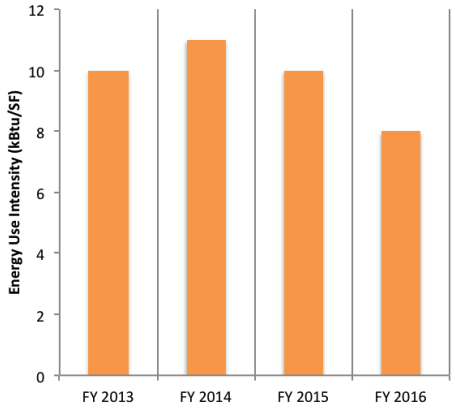


Month of Date	Use (kWh) FY 2009	Use (kWh) FY 2016	Change (%) FY 2016
July	1,402	1,974	41%
August	1,331	2,020	52%
September	1,400	1,720	23%
October	1,481	1,807	22%
November	1,491	2,007	35%
December	1,467	1,885	28%
January	1,742	2,193	26%
February	1,730	2,258	31%
March	1,483	2,168	46%
April	1,570	2,241	43%
May	1,566	1,996	27%
June	1,437	1,982	38%
Grand Total	18,100	24,251	34%
Energy Intensity			Change
kBtu/ Square Foot	6.2	8.3	2.1

Annual Electricity Use FY2013 - FY2016



Annual Electricity Use Intensity FY2013 - FY2016

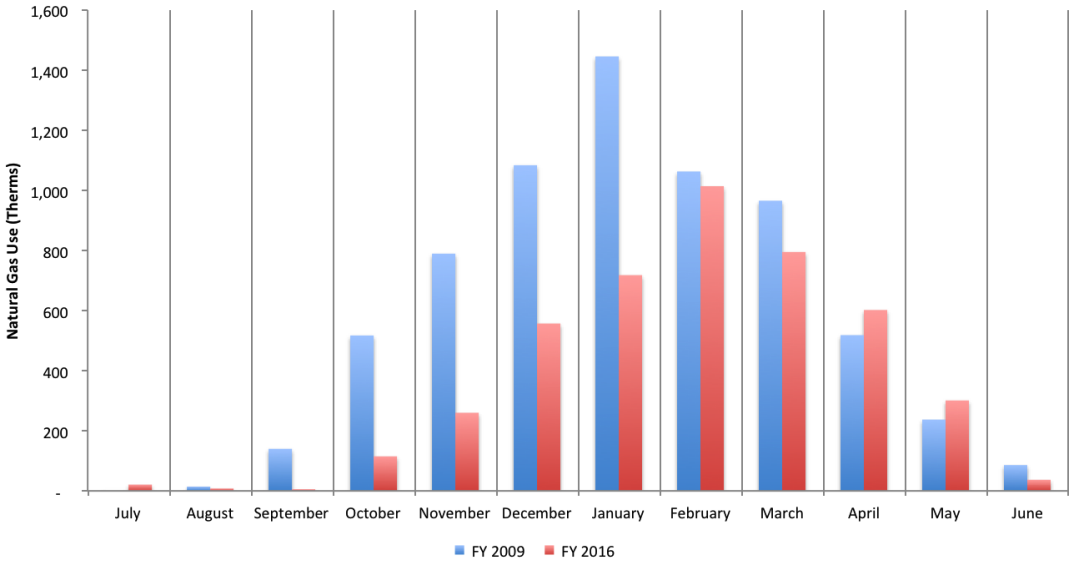


Year	Use (kWh)	Change (%)	Cooling Degree Days
FY 2013	30,365		720
FY 2014	31,482	4%	569
FY 2015	30,196	-1%	529
FY 2016	24,251	-20%	710

Year	EUI (kBtu/ SF)	EUI Change (%)
FY 2013	10	
FY 2014	11	10%
FY 2015	10	0%
FY 2016	8	-20%

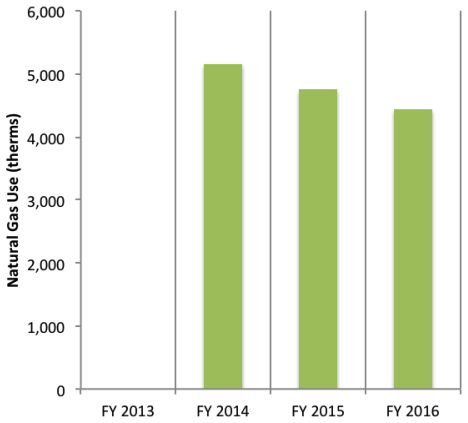
BEMIS HALL NATURAL GAS

Monthly Natural Gas Use FY2009 and FY2016

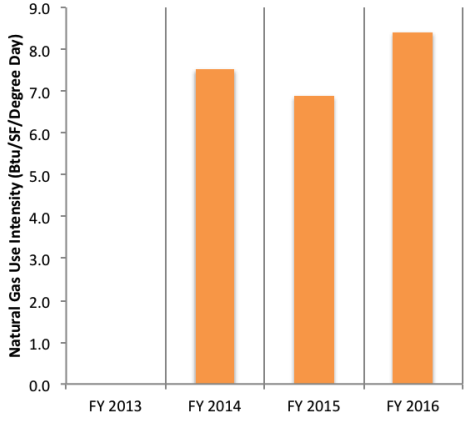


Month of Date	Use (therms) FY 2009	Use (therms) FY 2016	Change (%) FY 2016
July	-	21	
August	14	8	-44%
September	140	3	-98%
October	517	115	-78%
November	790	260	-67%
December	1,084	557	-49%
January	1,446	718	-50%
February	1,063	1,014	-5%
March	966	795	-18%
April	518	602	16%
May	237	301	27%
June	86	37	-57%
Grand Total	6,861	4,431	-35%
Energy Intensity			
kBtu/ Square Foot	68.8	44.4	-24.4
Weather Adjusted Energy Performance			
Heating Deg Days	6,274	5,227	
BTU/SF/Deg Day	11.0	8.5	-22%

Annual Natural Gas Use FY2013 - FY2016



Annual Natural Gas Use Intensity FY2013 - FY2016

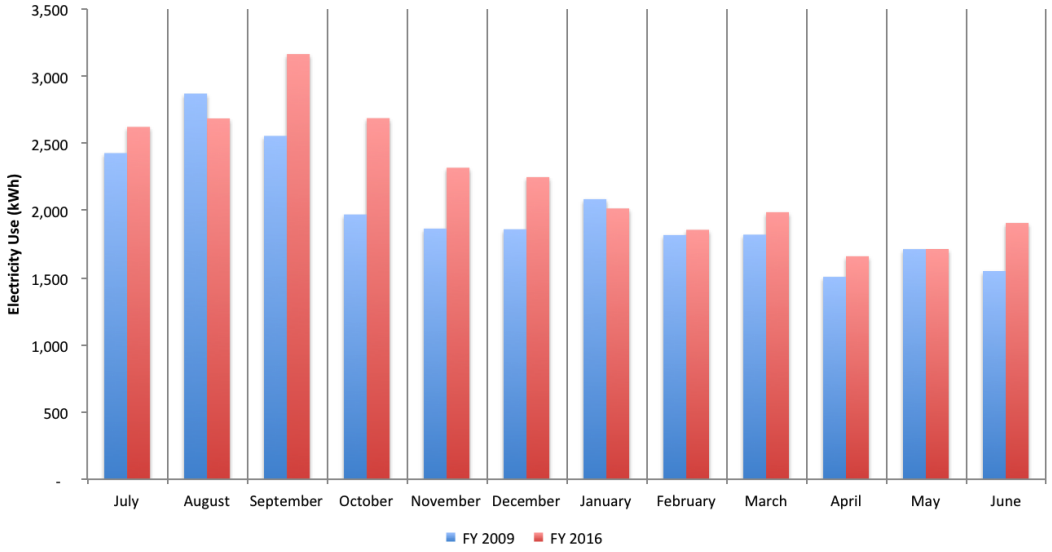


Year	Use (therms)	Change (%)	Heating Degree Days
FY 2013	0		6,055
FY 2014	5,156		6,904
FY 2015	4,748		6,965
FY 2016	4,431		5,227

Year	EUI (kBtu/ SF)	EUI (BTU/SF/ Degree Day)	EUI (BTU/SF/ Change (%)
FY 2013	0		
FY 2014	52	7.5	
FY 2015	48	6.9	
FY 2016	44	8.4	

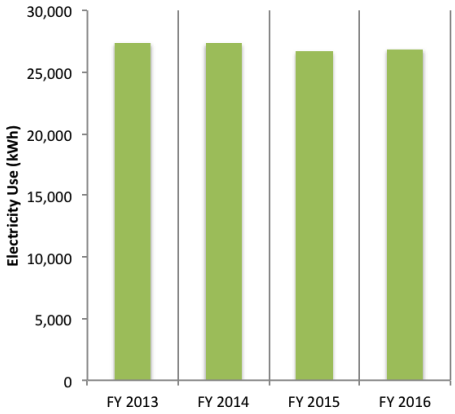
PIERCE HOUSE ELECTRICITY

Monthly Electricity Use FY2009 and FY2016

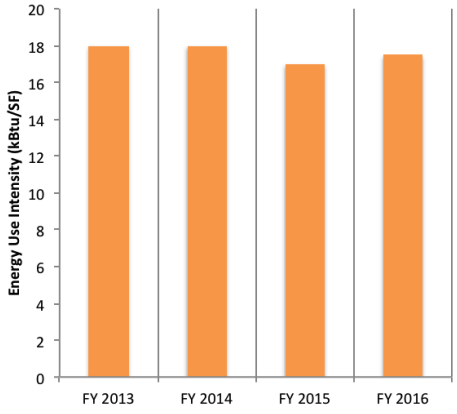


Month of Date	Use (kWh) FY 2009	Use (kWh) FY 2016	Change (%) FY 2016
July	2,428	2,623	8%
August	2,871	2,686	-6%
September	2,556	3,165	24%
October	1,971	2,688	36%
November	1,866	2,319	24%
December	1,861	2,249	21%
January	2,085	2,016	-3%
February	1,818	1,857	2%
March	1,821	1,988	9%
April	1,507	1,660	10%
May	1,713	1,714	0%
June	1,550	1,908	23%
Grand Total	24,047	26,873	12%
Energy Intensity			Change
kBtu/ Square Foot	15.5	17.3	1.8

Annual Electricity Use FY2013 - FY2016



Annual Electricity Use Intensity FY2013 - FY2016

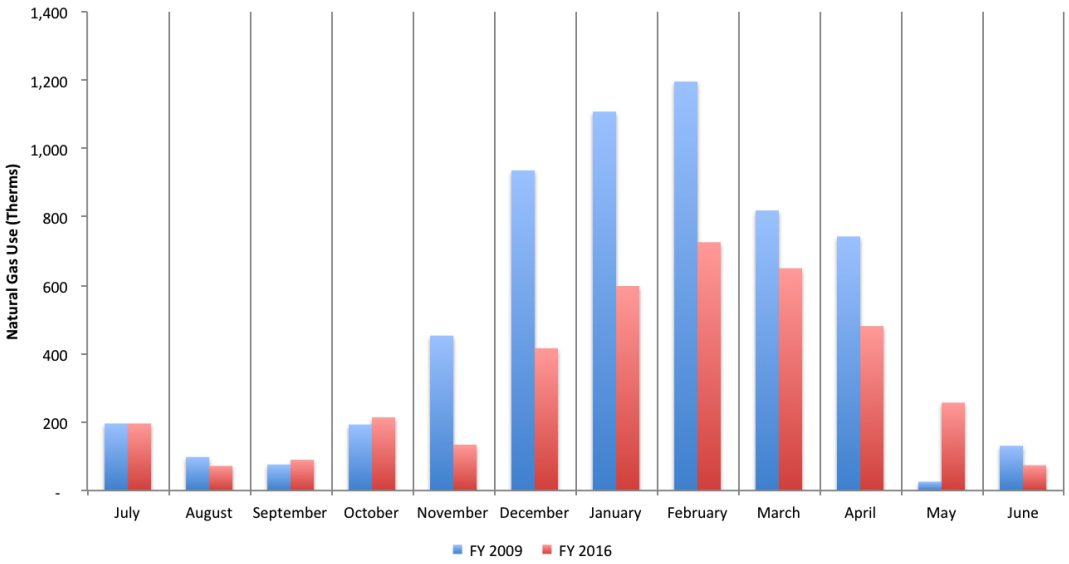


Year	Use (kWh)	Change (%)	Cooling Degree Days
FY 2013	27,397		720
FY 2014	27,365	0%	569
FY 2015	26,710	-3%	529
FY 2016	26,873	-2%	710

Year	EUI (kBtu/ SF)	EUI Change (%)
FY 2013	18	
FY 2014	18	0%
FY 2015	17	-6%
FY 2016	17	-3%

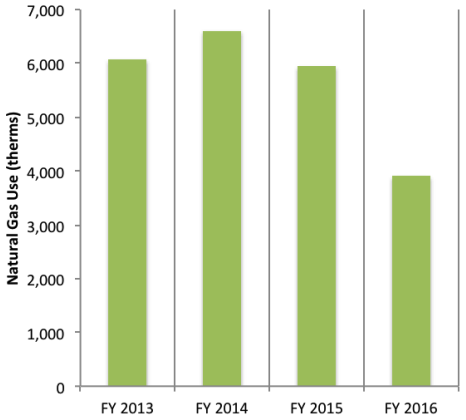
PIERCE HOUSE NATURAL GAS

Monthly Natural Gas Use FY2009 and FY2016

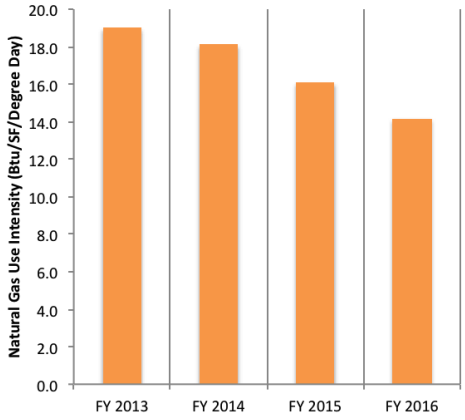


Month of Date	Use (therms) FY 2009	Use (therms) FY 2016	Change (%) FY 2016
July	196	196	0%
August	98	72	-27%
September	76	90	18%
October	193	214	11%
November	453	134	-70%
December	936	416	-56%
January	1,108	598	-46%
February	1,196	726	-39%
March	819	650	-21%
April	743	481	-35%
May	26	257	888%
June	131	74	-44%
Grand Total	5,975	3,908	-35%
Energy Intensity			
kBtu/ Square Foot	112.6	73.7	-39.0
Weather Adjusted Energy Performance			
Heating Deg Days	6,274	5,227	
BTU/SF/Deg Day	17.9	14.1	-21%

Annual Natural Gas Use FY2013 - FY2016



Annual Natural Gas Use Intensity FY2013 - FY2016



Year	Use (therms)	Change (%)	Heating Degree Days
FY 2013	6,077		6,055
FY 2014	6,612	9%	6,904
FY 2015	5,952	-2%	6,965
FY 2016	3,908	-36%	5,227

Year	EUI (kBtu/ SF)	EUI (BTU/SF/ Degree Day)	EUI (BTU/SF/ Change (%)
FY 2013	115	19.0	
FY 2014	125	18.1	-5%
FY 2015	112	16.1	-15%
FY 2016	74	14.2	-25%

APPENDIX B: GREEN COMMUNITY ENERGY REDUCTION TARGETS

Town of Lincoln Energy Use

Target Energy Savings

Building	Department	Fuel	Account	Electric kWh Savings	Gas Therm Savings	Oil Gallon Savings	Gasoline/ Diesel Savings	Target MMBTU Savings	Facility Percent	Department Percent
Brooks Building	School	Electric	25853051008	20%				250.16	1%	
Brooks Building	School	Gas	4961419180		40%			2,478.96	8%	
Smith Building	School	Electric	25853161005	20%				117.30	0%	
Smith Building	School	Gas	4961418610		40%			1,409.96	5%	
Hartwell Parking Lot Lights	School	Electric	25853041009					-	0%	
Hartwell Building and Pods	School	Electric	28233750018	20%				322.32	1%	
Hartwell Building	School	Gas	4961419030		20%			264.58	1%	
Hartwell Pod A	School	Gas	4961420230		50%			222.85	1%	
Hartwell Pod B	School	Gas	4961420260		20%			63.70	0%	
Hartwell Pod C	School	Gas	4961420650		20%			56.30	0%	17%
Bemis Hall	Town	Electric	26945850019	30%				17.09	0%	
Bemis Hall	Town	Electric	27147940012					-		
Bemis Hall	Town	Oil	LINCBEMI			10%		66.81	0%	
Codman Farm	Town	Electric	25851591005	20%				32.76	0%	
Codman Farm	Town	Electric	25851591005	20%				0.01	0%	
Codman Farm	Town	Gas	4961410360		10%			49.32	0%	
Conservation Garage	Town	Electric	27918570014	10%				0.04	0%	
Conservation Garage	Town	Gas	4961419210		10%			44.55	0%	
Library	Town	Electric	25848721004	20%				122.49	0%	
Library	Town	Oil	LINCLIBR			25%		177.87	1%	
Pierce House	Town	Electric	25853171004	20%				16.41	0%	
Pierce House	Town	Gas	4961417230		20%			130.20	0%	
Public Safety	Town	Electric	25851861002	10%				61.87	0%	
Public Safety	Town	Gas	4961419960		5%			56.47	0%	
Streetlights	Town	Electric	24409551009					-		
Streetlights	Town	Electric	25398931003					-		
Streetlights	Town	Electric	26773441006					-		
Streetlights	Town	Electric	27355050017					-		
TBD6	Town	Electric	25849341000					-		
Tennis Court Lights	Town	Electric	25853031000					-		
Town Hall	Town	Electric	25852971008	20%				45.76	0%	
Town Hall	Town	Electric	25852971008	20%				15.21	0%	
Town Hall	Town	Oil	LINCTOWN			40%		385.95	1%	
Transfer Station	Town	Electric	25847781009	5%				3.22	0%	4%
Vehicles - Gasoline	Vehicles	Gas/ Diesel	1250345				5%	118.09	0%	
Vehicles - Diesel	Vehicles	Gas/ Diesel	4402813				5%	125.63	0%	1%
Farrar Pond Well	Water	Electric	25850721009					-		
Filtration Plant	Water	Electric	27302860013					-		
Flints Pond Pump Station	Water	Electric	25848831001					-		
Flints Pond Pump Station	Water	Gas	4961411890					-		
Telemetry	Water	Electric	23608911006					-		
Tower Road Well	Water	Electric	25851561008	10%				9.81	0%	
Tower Road Well	Water	Gas	4961619210					-		0%
Total				**3%**	**16%**	**2%**	**0%**	6,665.70	**22%**	**22%**