

Marion County Public Schools

WHERE WE...

Dream
Believe
Achieve

Guaranteed Energy Savings Contract

2015 - 2016

Annual Reconciliation Report

755 East Main Street
Lebanon, KY 40033

October 12, 2015

CMTA, Inc.
10411 Meeting Street
Prospect, KY 40059

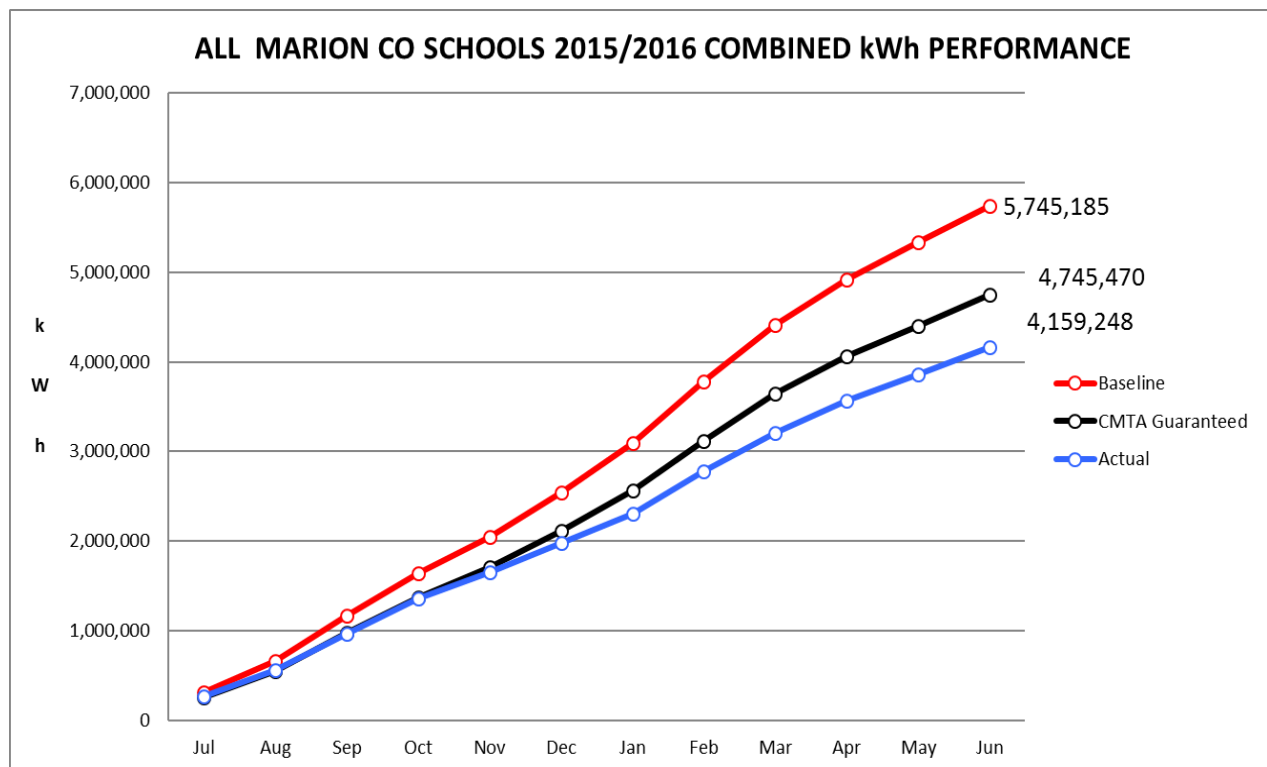
cmta
ENERGY SOLUTIONS

Overall Savings Summary

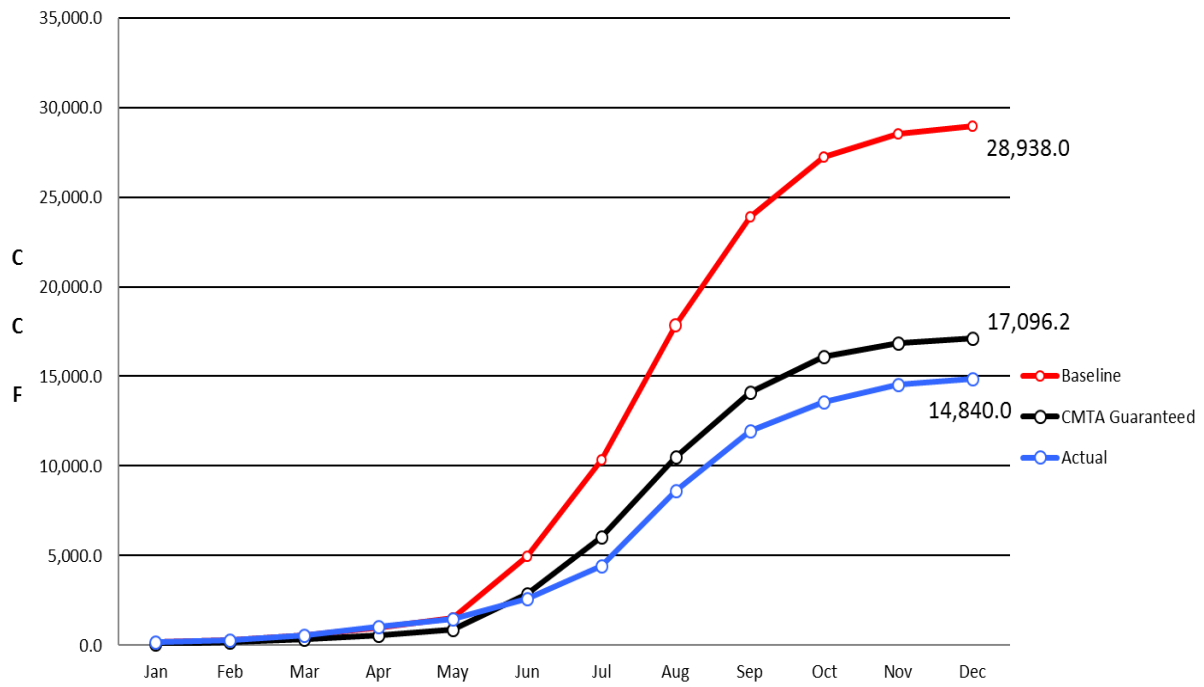
The following table shows the district's overall savings based on the original guarantee compared to actual meter-read data. Each energy type is shown individually as well as the cost associated with each energy type. The overall expected guaranteed energy savings for this past year was \$104,242. This was exceeded by a substantial amount of \$56,240, post construction. This is a 54% excess savings above what was guaranteed. You will also see the running total of the excess savings that have accumulated beyond the guaranteed amount.

	Energy Savings			Cost Savings		
	Guaranteed	Actual	% to Guarantee	Guaranteed	Actual	% to Guarantee
Electricity Consumption (kWh)	999,717	1,585,937	159%	\$94,687	\$147,935	156%
Gas (CCF)	11,841	14,098	119%	\$9,555	\$12,547	131%
			Total Cost Savings	\$104,242	\$160,482	154%

Excess Savings		
Year		+/-
1	2015-2016	\$ 56,240
Total		\$ 56,240



ALL MARION CO SCHOOLS COMBINED CCF PERFORMANCE



Lebanon Middle School

Scope of Work:

1. HVAC System Geothermal Upgrade

The existing heating and cooling system in Lebanon Middle School was converted to a geothermal heating and cooling system. That was accomplished by first removing all of the existing split systems, fan coil units, chilled water pumps, and electric heaters as well as the existing air-cooled chiller. A new, ground-source heat pump system was installed as were new, dedicated outdoor air units. Additionally, the kitchen hood, make-up air unit, and exhaust fan were replaced. Lastly, the system was integrated with new, web-based DDC controls in order to allow for programmable and efficient system control.

2. Lighting Upgrades

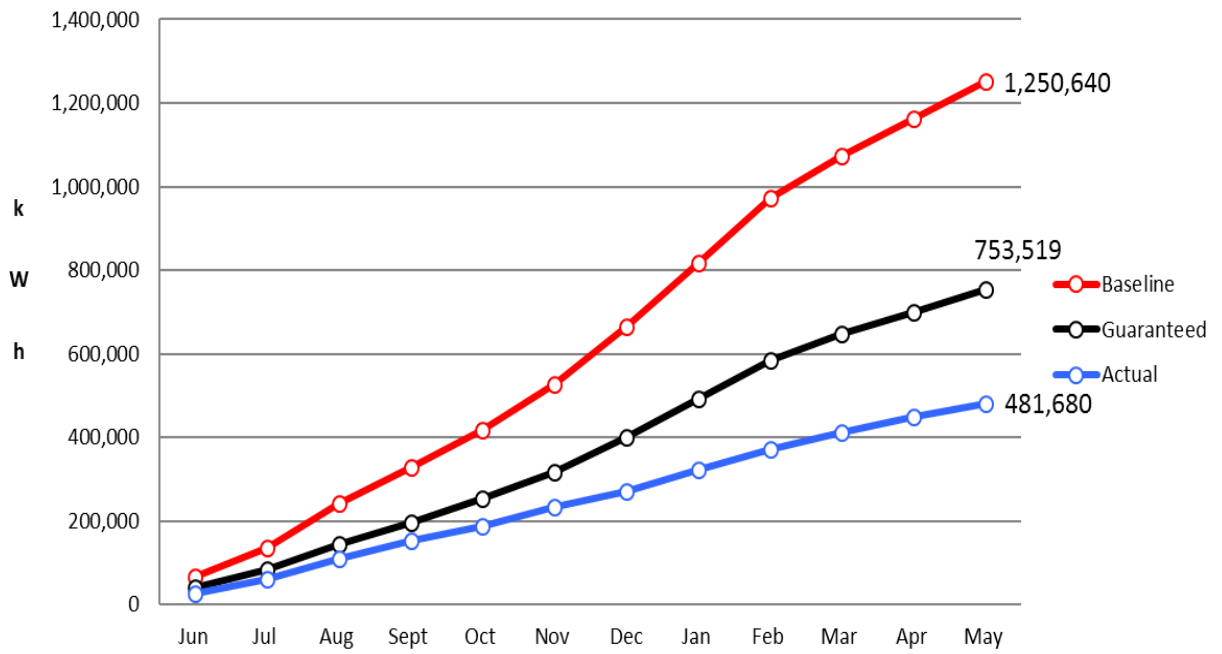
A number of lighting upgrades were performed to both the interior and exterior fixtures at Lebanon Middle School. Around the exterior, all of the existing metal halide pole lights and wall packs were upgraded with new LED fixtures. Inside the building, the high bay fixtures were replaced with new LED fixtures, and all of the existing T8 linear fluorescent fixtures were retrofitted with new troffers and LED lamps.

Savings Summary:

At Lebanon Middle School, nearly 770,000 kWh were saved resulting in a savings of \$72,820.51 over the course of the past year.

Month	Baseline kWh	Guaranteed	kWh	kWh Saved	kWh Savings
Jun 2015	66,720	40,199	25,200	41,520	\$ 3,931.94
Jul 2015	70,320	42,368	34,560	35,760	\$ 3,386.47
Aug 2015	103,920	62,612	49,680	54,240	\$ 5,136.53
Sep 2015	86,640	52,201	44,640	42,000	\$ 3,977.40
Oct 2015	91,440	55,093	33,840	57,600	\$ 5,454.72
Nov 2015	108,720	65,505	44,640	64,080	\$ 6,068.38
Dec 2015	136,560	82,278	38,880	97,680	\$ 9,250.30
Jan 2016	154,560	93,123	50,400	104,160	\$ 9,863.95
Feb 2016	152,640	91,967	51,120	101,520	\$ 9,613.94
Mar 2016	102,480	61,745	38,160	64,320	\$ 6,091.10
Apr 2016	88,560	53,358	36,720	51,840	\$ 4,909.25
May 2016	88,080	53,069	33,840	54,240	\$ 5,136.53
Total Savings				768,960	\$ 72,820.51

Lebanon Middle k W h Tracker



Marion County High School

Scope of Work:

1. HVAC Controls Upgrade and Commissioning

The existing controls system was reviewed and adjusted to optimize facility operation and energy conservation. This included making the appropriate modifications to temperature set points and occupancy schedules. Additionally, the controls were updated to a web-based system to allow for remote access and adjustment.

2. Lighting Upgrades

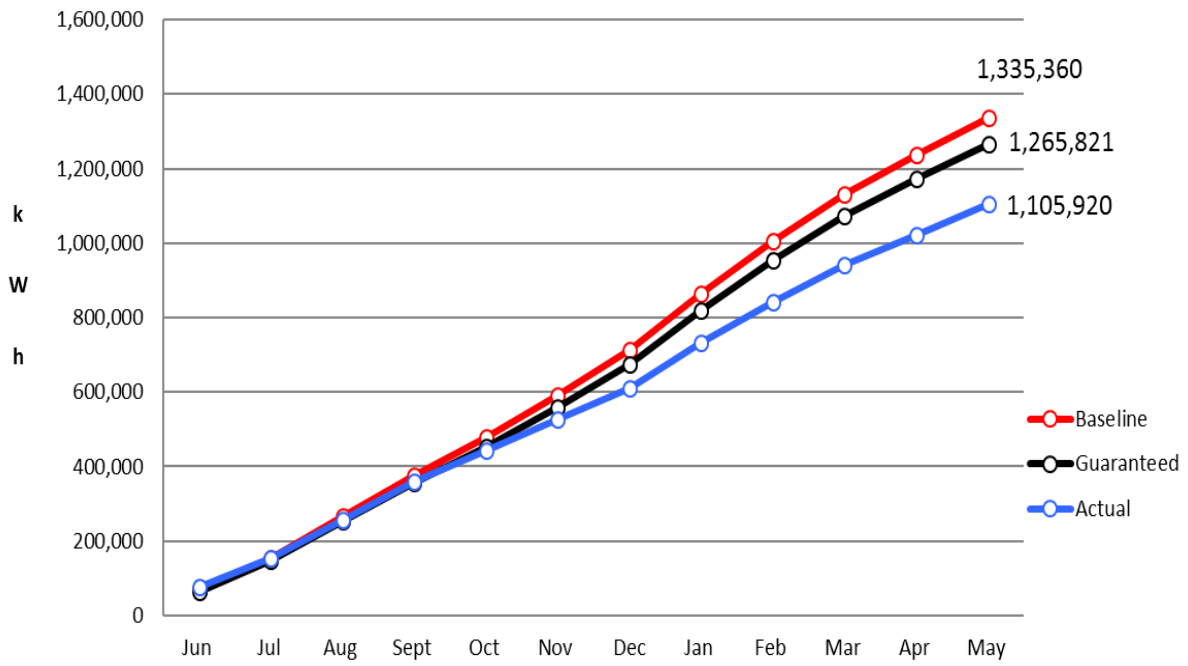
All of the existing metal halide pole lights and wall packs around the exterior of the high school were upgraded with new LED fixtures. Inside the building, the high bay fixtures were also replaced with new LED fixtures.

Savings Summary:

At Marion County High School, the improvements made at the school also outperformed the kWh guarantee as can be seen in the chart below. Exceeding the guarantee for the last year resulted in an energy savings of \$21,727.97 at the high school.

Month	Baseline kWh	Guaranteed	kWh	kWh Saved	kWh Savings
Jun 2015	68,400	64,838	74,880	-6,480	\$ (613.66)
Jul 2015	85,440	80,991	78,480	6,960	\$ 659.11
Aug 2015	112,080	106,243	103,680	8,400	\$ 795.48
Sep 2015	109,440	103,741	101,520	7,920	\$ 750.02
Oct 2015	102,960	97,598	84,960	18,000	\$ 1,704.60
Nov 2015	111,360	105,561	83,520	27,840	\$ 2,636.45
Dec 2015	122,400	116,026	82,800	39,600	\$ 3,750.12
Jan 2016	151,200	143,326	120,960	30,240	\$ 2,863.73
Feb 2016	143,040	135,591	111,600	31,440	\$ 2,977.37
Mar 2016	125,760	119,211	100,080	25,680	\$ 2,431.90
Apr 2016	104,640	99,191	79,920	24,720	\$ 2,340.98
May 2016	98,640	93,503	83,520	15,120	\$ 1,431.86
			Total Savings	229440	\$ 21,727.97

Marion High k W h Tracker



St. Charles Middle School

Scope of Work:

1. HVAC Controls Upgrade and Commissioning

The existing controls system was reviewed and adjusted to optimize facility operation and energy conservation. This included making the appropriate modifications to temperature set points and occupancy schedules. Additionally, the controls were updated to a web-based system to allow for remote access and adjustment.

2. Lighting Upgrades

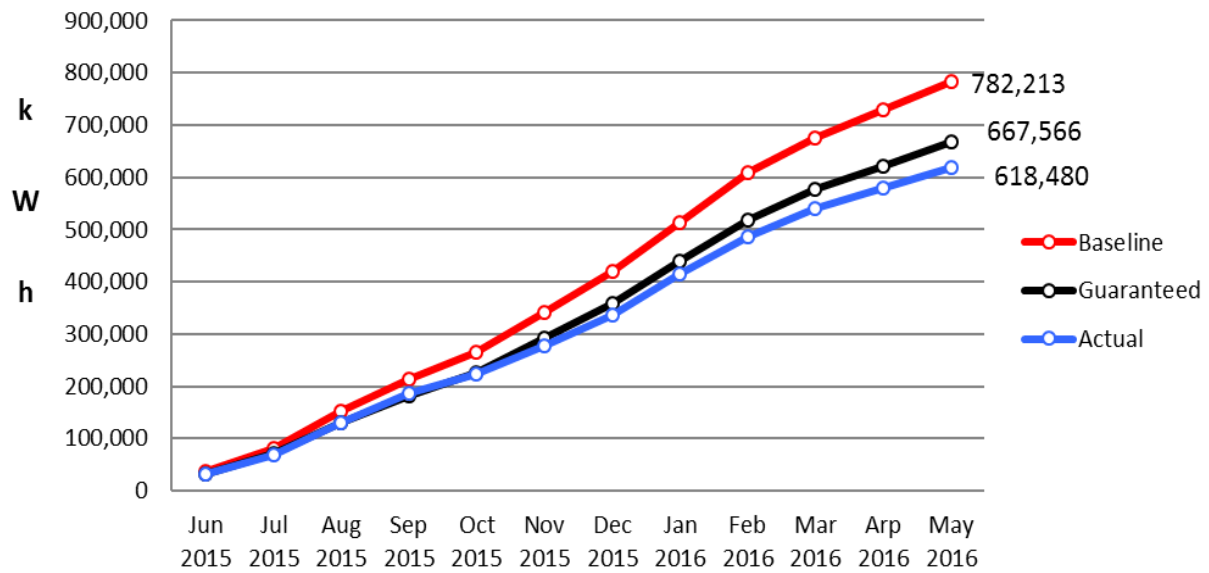
All of the existing metal halide pole lights and wall packs around the exterior of the school were upgraded with new LED fixtures. Inside the building, the high bay fixtures were also replaced with new LED fixtures.

Savings Summary:

The results at St. Charles Middle School also performed better than what was guaranteed. The total savings realized from the kWh reduction was \$13,252.51.

	Baseline						
Month	kWh 7108	kwh 0927	Guaranteed	kWh1	kWh2	kWh Saved	kWh Savings
Jun 2015	24,085	13,968	32,476	21,040	9,840	7,173	\$ 580.61
Jul 2015	27,951	16,209	37,688	24,960	13,920	5,280	\$ 427.36
Aug 2015	43,985	25,508	59,308	33,840	26,400	9,253	\$ 748.96
Sep 2015	39,495	22,905	53,254	30,800	24,720	6,880	\$ 556.86
Oct 2015	32,997	19,136	44,492	19,920	17,040	15,173	\$ 1,228.13
Nov 2015	47,529	27,564	64,087	34,320	21,840	18,933	\$ 1,532.46
Dec 2015	49,268	28,572	66,431	36,400	21,360	20,080	\$ 1,625.27
Jan 2016	60,155	34,885	81,110	52,000	26,160	16,880	\$ 1,366.26
Feb 2016	59,429	34,464	80,132	47,040	24,960	21,893	\$ 1,772.04
Mar 2016	43,175	25,038	58,215	33,600	20,640	13,973	\$ 1,131.00
Apr 2016	32,963	19,116	44,447	22,560	16,560	12,960	\$ 1,048.98
May 2016	34,061	19,753	45,926	20,080	18,480	15,253	\$ 1,234.60
Total Savings				376,560	241,920	163,733	\$ 13,252.51

St. Charles k W h Tracker



Glasscock Elementary School

Scope of Work:

1. HVAC Controls Upgrade and Commissioning

The existing controls system was reviewed and adjusted to optimize facility operation and energy conservation. This included making the appropriate modifications to temperature set points and occupancy schedules. Additionally, the controls were updated to a web-based system to allow for remote access and adjustment.

2. Lighting Upgrades

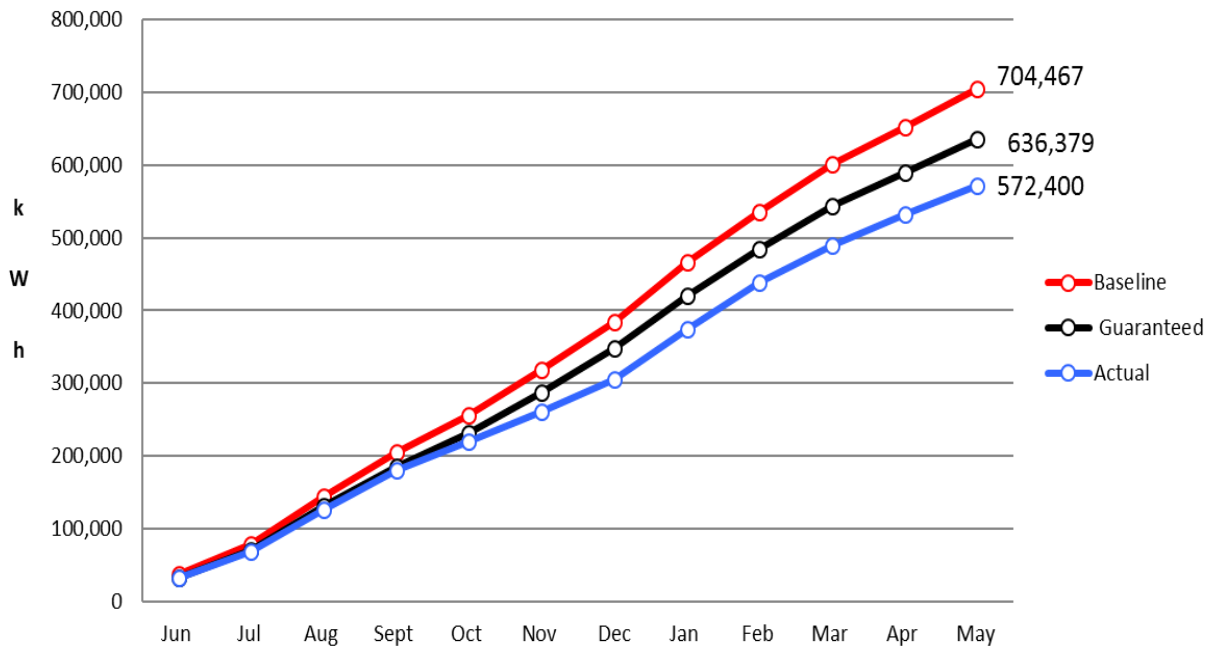
All of the existing metal halide pole lights and wall packs around the exterior of the school were upgraded with new LED fixtures. Inside the building, the high bay fixtures were also replaced with new LED fixtures.

Savings Summary:

At Glasscock Elementary, there was a similar degree of savings to that of St. Charles Middle School. As can be seen in the chart below, the total savings for Glasscock Elementary School was \$12,506.71 during the past year.

Month	Baseline kWh	Guaranteed	kWh	kWh Saved	kWh Savings
Jun 2015	36,800	33,243	31,800	5,000	\$ 473.50
Jul 2015	41,667	37,640	37,400	4,267	\$ 404.05
Aug 2015	66,267	59,862	57,000	9,267	\$ 877.55
Sep 2015	59,867	54,080	53,800	6,067	\$ 574.51
Oct 2015	52,133	47,095	39,200	12,933	\$ 1,224.79
Nov 2015	61,067	55,164	41,200	19,867	\$ 1,881.37
Dec 2015	66,933	60,464	44,400	22,533	\$ 2,133.91
Jan 2016	81,000	73,171	69,000	12,000	\$ 1,136.40
Feb 2016	70,067	63,295	64,200	5,867	\$ 555.57
Mar 2016	65,267	58,959	52,000	13,267	\$ 1,256.35
Apr 2016	51,400	46,432	42,000	9,400	\$ 890.18
May 2016	52,000	46,974	40,400	11,600	\$ 1,098.52
Total Savings				132067	\$ 12,506.71

Glasscock k W h Tracker



Lebanon Elementary School

Scope of Work:

1. HVAC Controls Upgrade and Commissioning

The existing controls system was reviewed and adjusted to optimize facility operation and energy conservation. This included making the appropriate modifications to temperature set points and occupancy schedules. Additionally, the controls were updated to a web-based system to allow for remote access and adjustment.

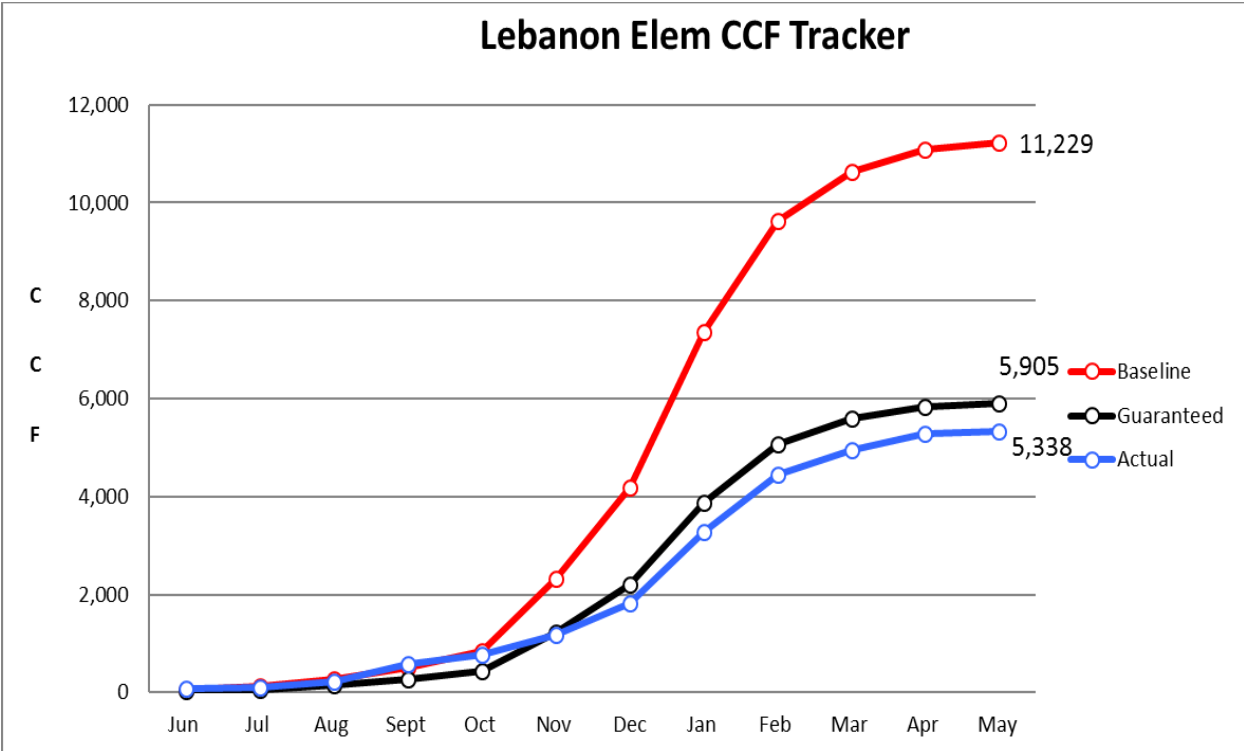
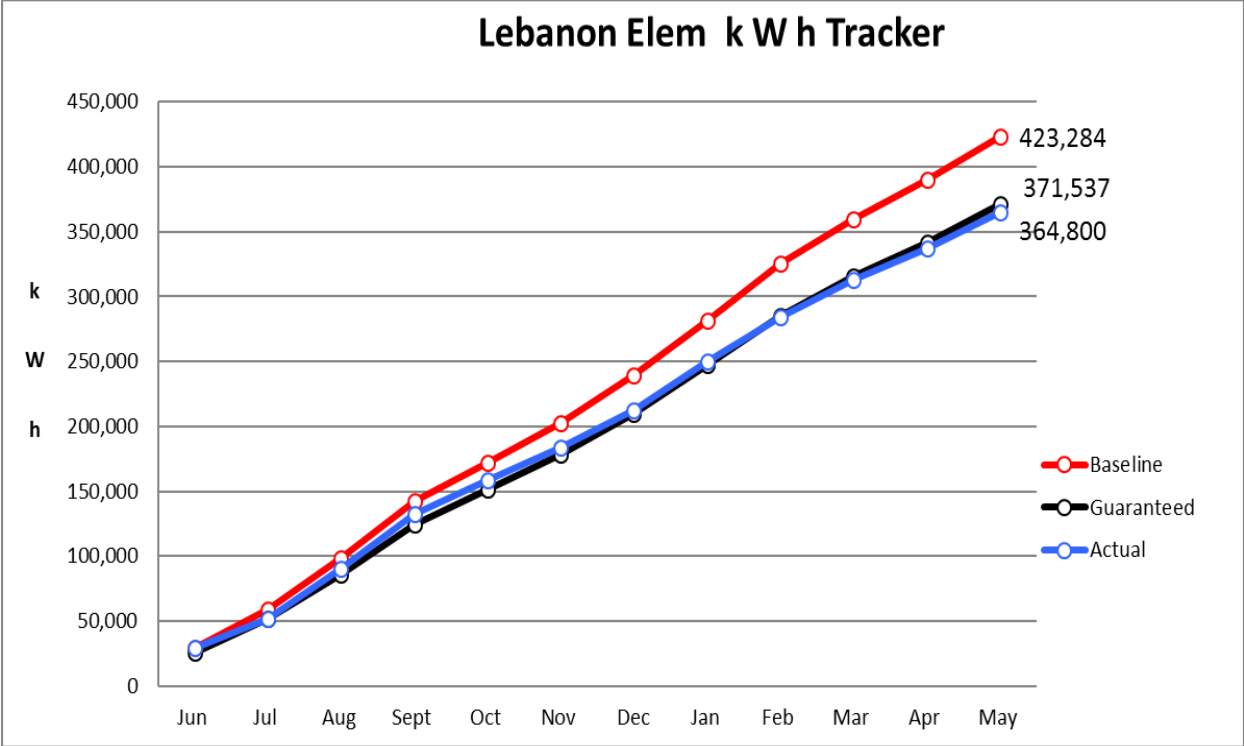
2. Lighting Upgrades

All of the existing metal halide pole lights and wall packs around the exterior of the school were upgraded with new LED fixtures. Inside the building, the high bay fixtures were also replaced with new LED fixtures.

Savings Summary:

At Lebanon Elementary, the savings for both the kWh and ccf (natural gas) exceeded the guaranteed amounts. For the past year, there was a combined savings of \$10,781.46.

Month	Baseline kWh	Guaranteed	kWh	ccf	kWh Saved	ccf Saved	kWh Savings	ccf Savings
Jun 2015	29,472	25,869	29,600	72	-128	-7	\$ (12.15)	\$ (6.23)
Jul 2015	29,028	25,480	22,240	25	6,788	31	\$ 642.86	\$ 27.59
Aug 2015	39,767	34,906	38,240	117	1,527	39	\$ 144.64	\$ 35.01
Sep 2015	43,929	38,559	42,080	358	1,849	-128	\$ 175.13	\$ (113.92)
Oct 2015	30,161	26,473	26,720	205	3,441	132	\$ 325.83	\$ 117.48
Nov 2015	30,536	26,803	24,960	389	5,576	1,081	\$ 528.02	\$ 961.79
Dec 2015	36,244	31,813	28,800	649	7,444	1,233	\$ 704.95	\$ 1,097.67
Jan 2016	42,204	37,045	37,280	1471	4,924	1,702	\$ 466.33	\$ 1,514.48
Feb 2016	43,869	38,506	34,080	1170	9,789	1,085	\$ 926.99	\$ 965.65
Mar 2016	34,377	30,175	28,640	500	5,737	513	\$ 543.33	\$ 456.27
Apr 2016	30,117	26,435	24,320	325	5,797	125	\$ 549.01	\$ 111.55
May 2016	33,580	29,475	27,840	57	5,740	85	\$ 543.55	\$ 75.65
Total Savings					58,484	5,891	\$ 5,538.47	\$ 5,242.99
Grand Total Savings							\$ 10,781.46	



Calvary Elementary School

Scope of Work:

1. HVAC Controls Upgrade and Commissioning

The existing controls system was reviewed and adjusted to optimize facility operation and energy conservation. This included making the appropriate modifications to temperature set points and occupancy schedules. Additionally, the controls were updated to a web-based system to allow for remote access and adjustment.

2. Lighting Upgrades

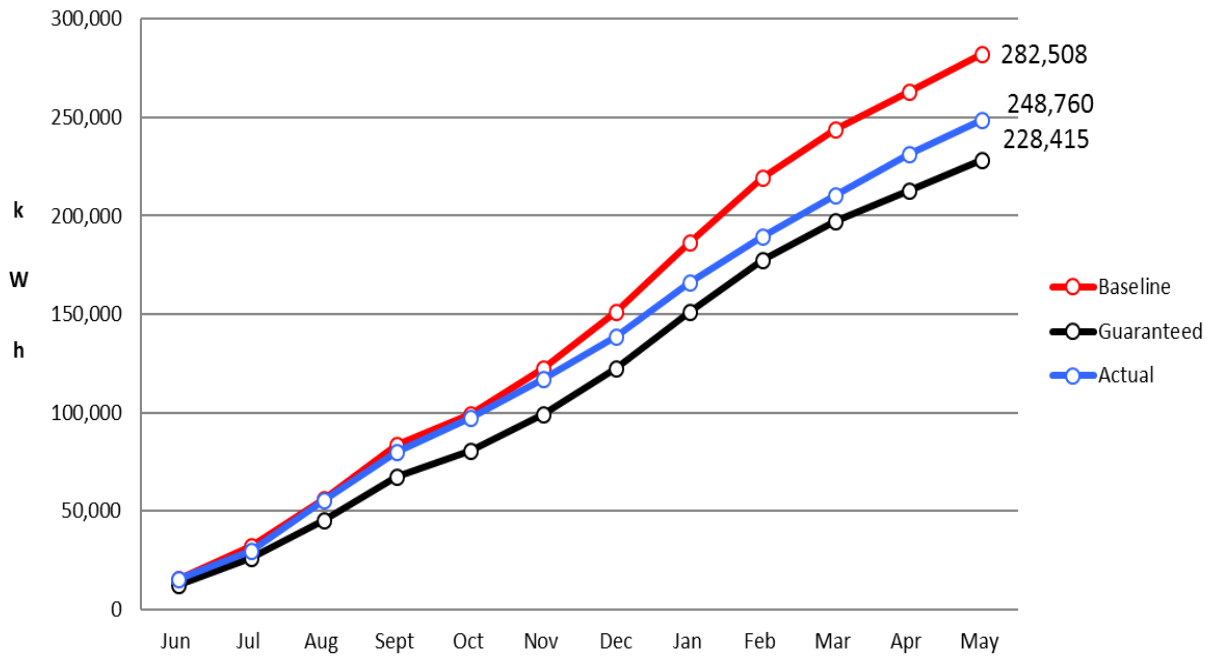
All of the existing metal halide pole lights and wall packs around the exterior of the school were upgraded with new LED fixtures. Inside the building, the high bay fixtures were also replaced with new LED fixtures.

Savings Summary:

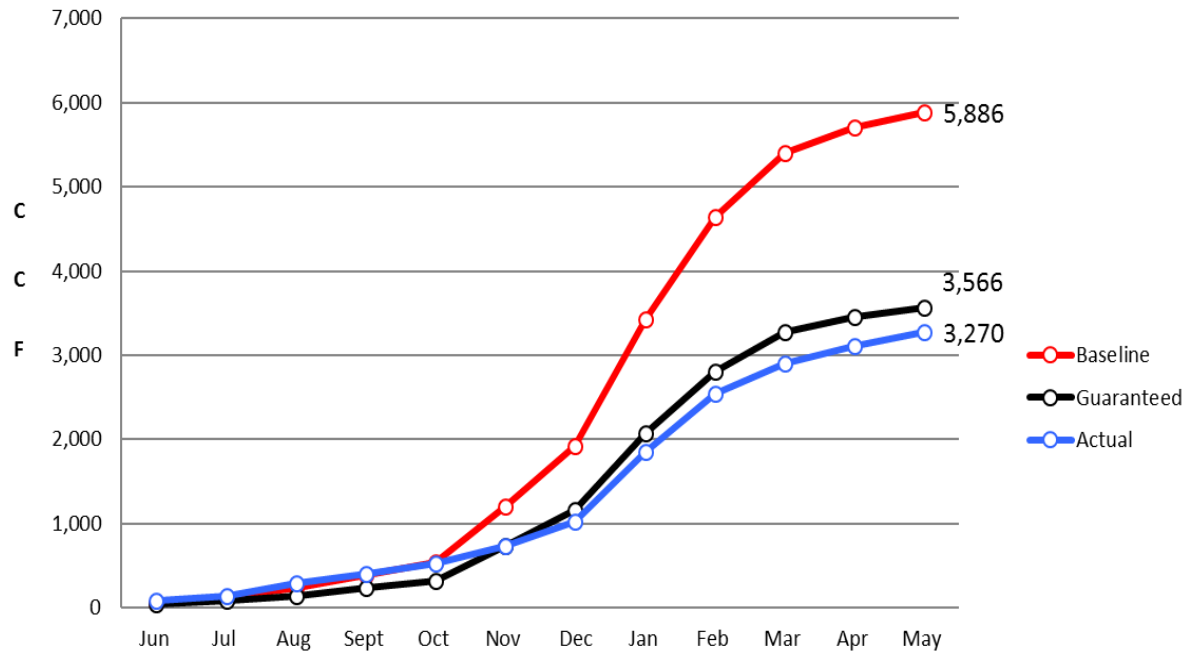
At Calvary Elementary, the savings for kWh did not meet the guaranteed amount. However, the ccf (natural gas) savings exceeded the guaranteed amount. As a result, despite the kWh savings not reaching the guaranteed amount, the school still realized a total of \$5,524.44 in savings.

Month	Baseline kWh	Guaranteed	kWh	ccf	kWh Saved	ccf Saved	kWh Savings	ccf Savings
Jun 2015	15,639	12,644	15,600	89	39	-25	\$ 3.66	\$ (22.55)
Jul 2015	16,445	13,296	14,280	49	2,165	20	\$ 205.03	\$ 17.50
Aug 2015	24,133	19,512	25,440	151	-1,307	-41	\$ (123.74)	\$ (36.79)
Sep 2015	27,547	22,273	24,720	109	2,827	39	\$ 267.75	\$ 35.01
Oct 2015	15,643	12,648	17,520	122	-1,877	22	\$ (177.75)	\$ 19.88
Nov 2015	23,166	18,730	19,560	216	3,606	452	\$ 341.46	\$ 402.28
Dec 2015	28,692	23,198	21,480	282	7,212	441	\$ 682.94	\$ 392.79
Jan 2016	35,448	28,661	27,720	834	7,728	674	\$ 731.87	\$ 599.56
Feb 2016	32,503	26,280	23,160	685	9,343	522	\$ 884.78	\$ 464.88
Mar 2016	24,504	19,812	21,240	371	3,264	386	\$ 309.07	\$ 343.24
Apr 2016	19,410	15,694	20,520	202	-1,110	105	\$ (105.09)	\$ 93.75
May 2016	19,378	15,667	17,520	160	1,858	21	\$ 175.92	\$ 18.99
Total Savings					33,748	2,616	\$ 3,195.90	\$ 2,328.54
					Grand Total Savings		\$ 5,524.44	

Calvary Elem k W h Tracker



Calvary Elem CCF Tracker



West Marion Elementary School

Scope of Work:

1. HVAC Controls Upgrade and Commissioning

The existing controls system was reviewed and adjusted to optimize facility operation and energy conservation. This included making the appropriate modifications to temperature set points and occupancy schedules. Additionally, the controls were updated to a web-based system to allow for remote access and adjustment.

2. Lighting Upgrades

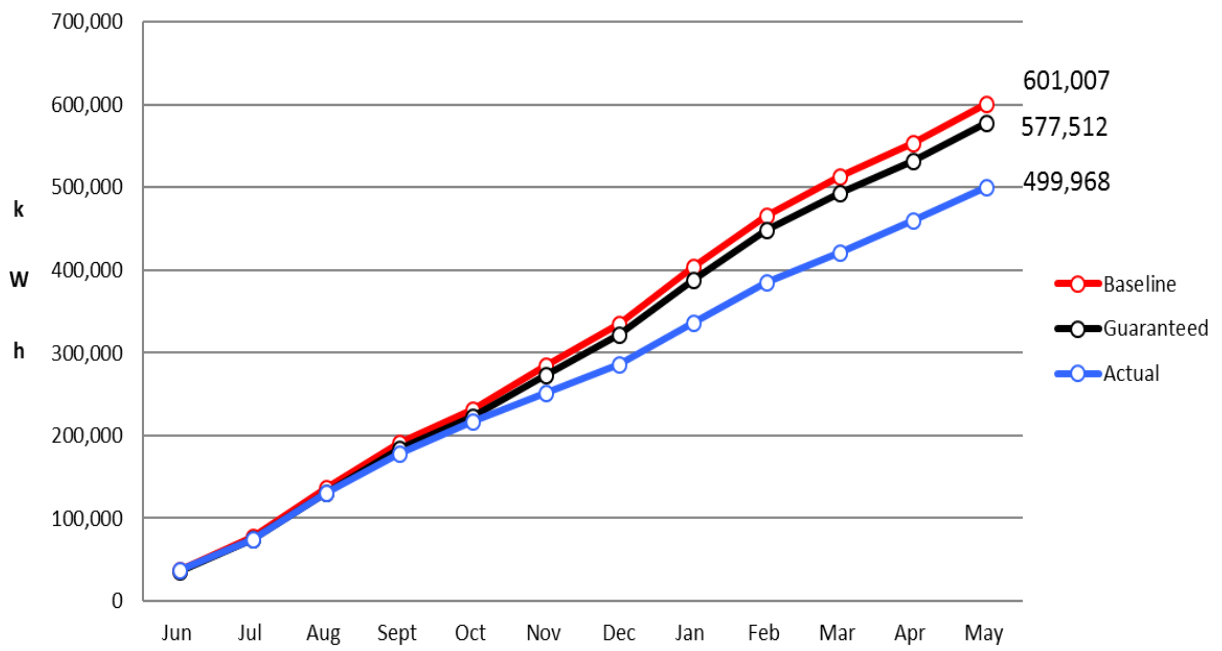
The existing metal halide pole lights and wall packs around the exterior of the school were upgraded with new LED fixtures. Inside the building, the high bay fixtures were also replaced with new LED fixtures.

Savings Summary:

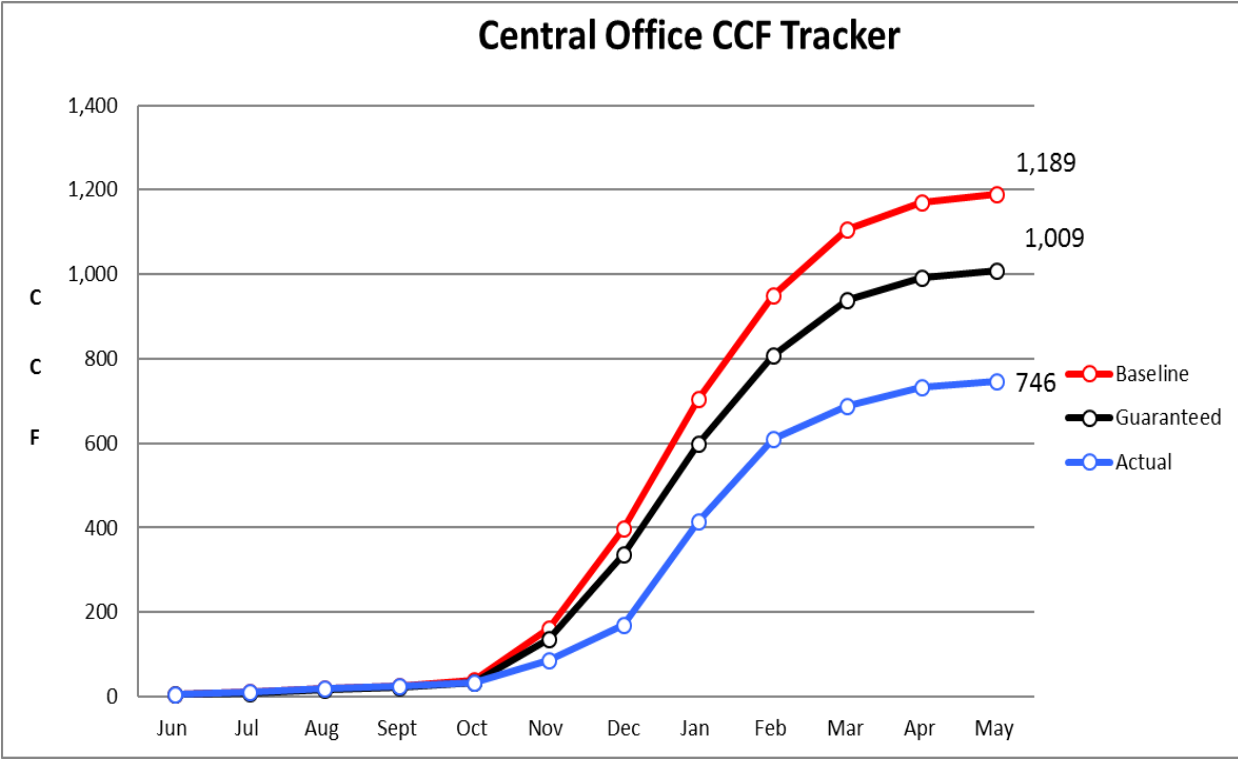
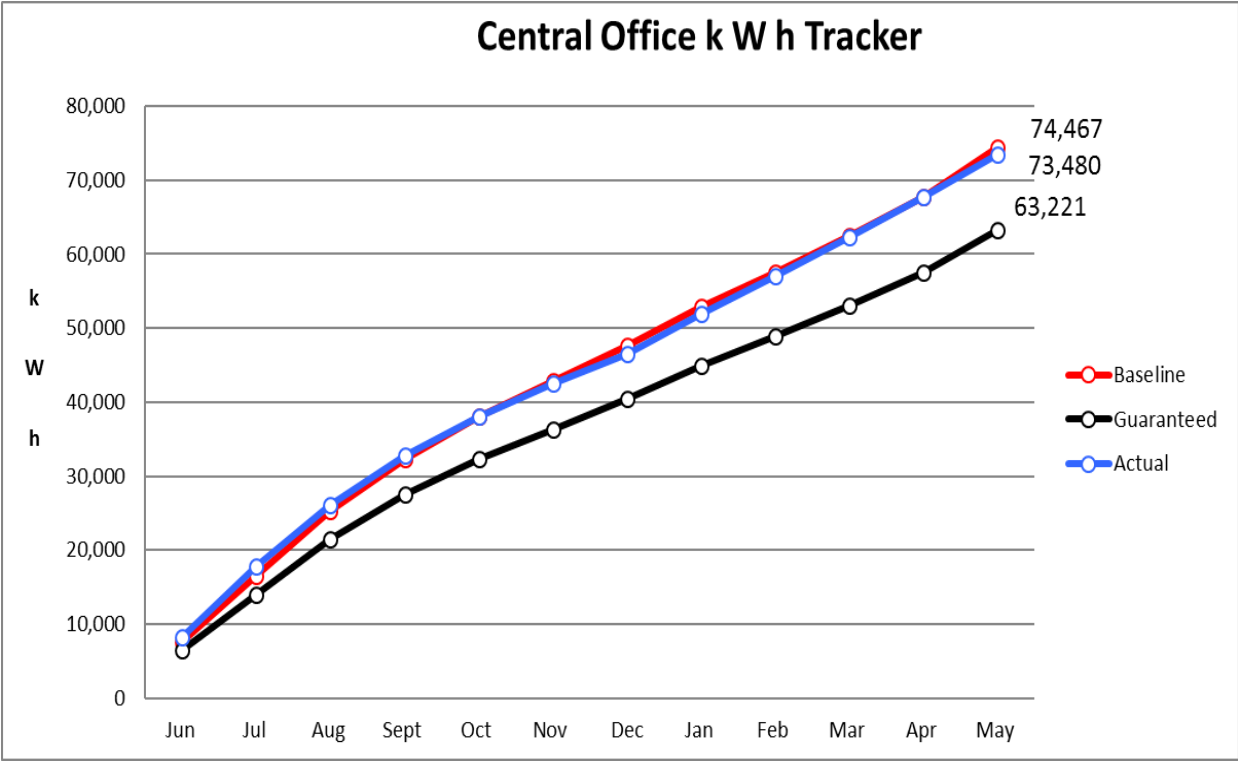
The kWh use at West Marion Elementary was below the guaranteed amount by a substantial amount as can be seen in the graph below. Due to this, the school experienced a total savings of \$9,568.39.

Month	Baseline kWh	Guaranteed	kWh	kWh Saved	kWh Savings
Jun 2015	37,258	35,801	37,632	-374	\$ (35.42)
Jul 2015	40,612	39,024	36,864	3,748	\$ 354.94
Aug 2015	58,700	56,405	55,680	3,020	\$ 285.96
Sep 2015	54,740	52,600	48,768	5,972	\$ 565.58
Oct 2015	40,548	38,963	38,400	2,148	\$ 203.42
Nov 2015	52,387	50,339	34,944	17,443	\$ 1,651.82
Dec 2015	51,130	49,131	34,176	16,954	\$ 1,605.54
Jan 2016	69,014	66,316	50,304	18,710	\$ 1,771.84
Feb 2016	62,080	59,653	48,384	13,696	\$ 1,297.04
Mar 2016	47,233	45,387	36,864	10,369	\$ 981.94
Apr 2016	40,407	38,827	38,016	2,391	\$ 226.43
May 2016	46,898	45,065	39,936	6,962	\$ 659.30
			Total Savings	101,039	\$ 9,568.39

West Marion k W h Tracker

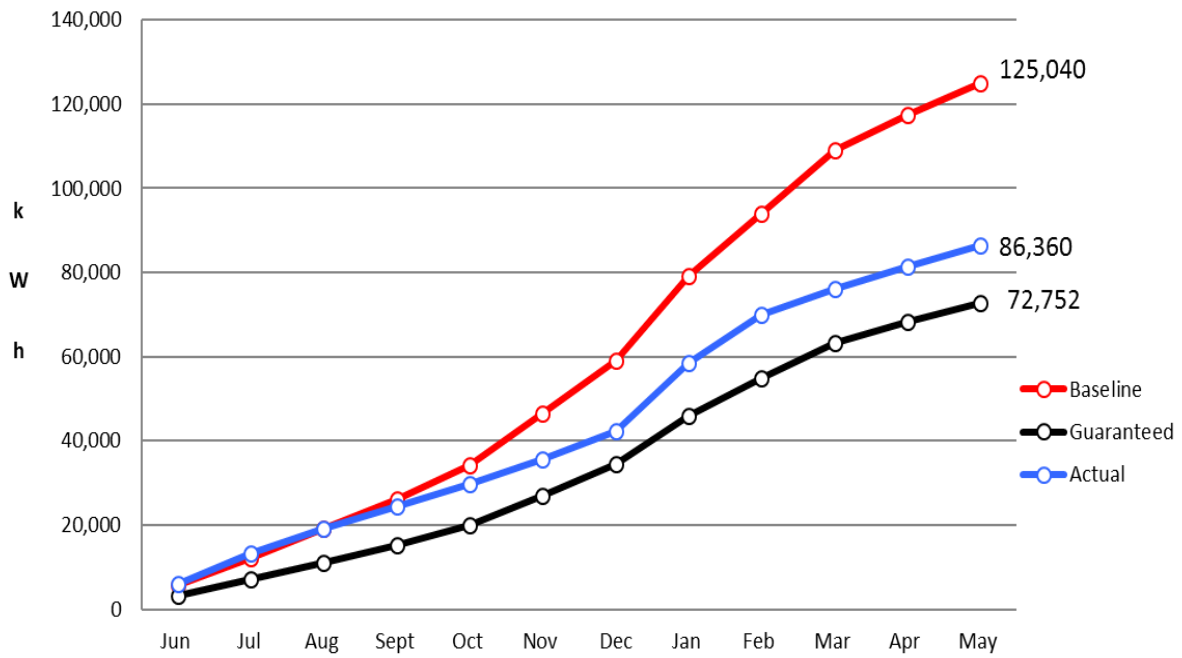


Month	Baseline kWh	Guaranteed	kWh	ccf	kWh Saved	ccf Saved	kWh Savings	ccf Savings
Jun 2015	7,547	6,407	8,160	6	-613	0	\$ (58.08)	\$ -
Jul 2015	8,973	7,618	9,560	4	-587	1	\$ (55.56)	\$ 0.89
Aug 2015	8,840	7,505	8,400	10	440	-2	\$ 41.67	\$ (1.78)
Sep 2015	6,973	5,920	6,680	6	293	1	\$ 27.78	\$ 0.59
Oct 2015	5,733	4,867	5,240	9	493	5	\$ 46.72	\$ 4.15
Nov 2015	4,733	4,019	4,480	51	253	72	\$ 23.99	\$ 64.08
Dec 2015	4,773	4,052	4,000	84	773	151	\$ 73.23	\$ 134.69
Jan 2016	5,360	4,551	5,360	246	0	61	\$ -	\$ 54.29
Feb 2016	4,653	3,951	5,200	194	-547	52	\$ (51.77)	\$ 46.28
Mar 2016	4,840	4,109	5,280	78	-440	79	\$ (41.67)	\$ 70.01
Apr 2016	5,320	4,517	5,320	44	0	19	\$ -	\$ 16.61
May 2016	6,720	5,705	5,800	14	920	5	\$ 87.12	\$ 4.15
Total Savings					987	443	\$ 93.44	\$ 393.97
Grand Total Savings							\$ 487.41	

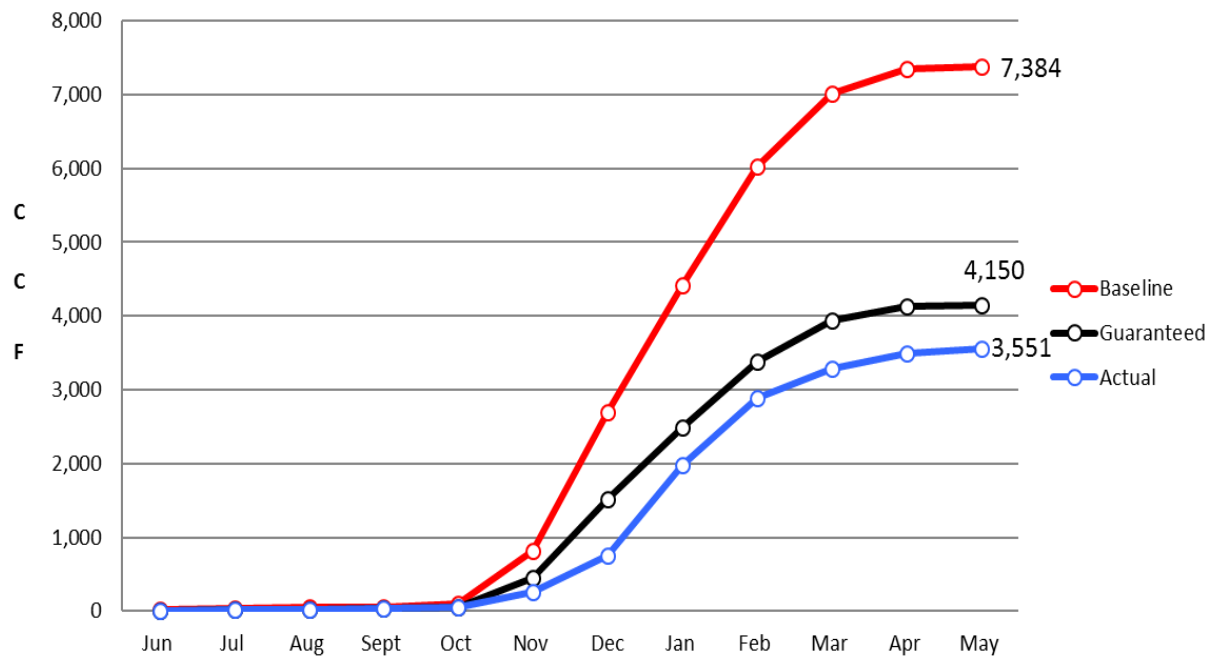


Month	Baseline kWh	Guaranteed	kWh	c/cf	kWh Saved	c/cf Saved	kWh Savings	c/cf Savings
Jun 2015	5,680	3,305	6,040	7	-360	6	\$ (34.09)	\$ 5.34
Jul 2015	6,520	3,794	7,320	15	-800	8	\$ (75.76)	\$ 7.12
Aug 2015	7,000	4,073	5,840	3	1,160	6	\$ 109.85	\$ 5.34
Sep 2015	6,960	4,050	5,240	7	1,720	0	\$ 162.88	\$ -
Oct 2015	8,000	4,655	5,280	19	2,720	21	\$ 257.58	\$ 18.69
Nov 2015	12,280	7,145	5,920	212	6,360	510	\$ 602.29	\$ 453.90
Dec 2015	12,640	7,354	6,800	498	5,840	1,390	\$ 553.05	\$ 1,237.10
Jan 2016	20,000	11,637	16,120	1212	3,880	507	\$ 367.44	\$ 451.23
Feb 2016	15,000	8,727	11,280	913	3,720	695	\$ 352.28	\$ 618.55
Mar 2016	14,840	8,634	6,360	395	8,480	592	\$ 803.06	\$ 526.88
Apr 2016	8,520	4,957	5,080	216	3,440	112	\$ 325.77	\$ 99.68
May 2016	7,600	4,422	5,080	54	2,520	-14	\$ 238.64	\$ (12.46)
Total Savings					38,680	3,833	\$ 3,663.00	\$ 3,411.37
Grand Total Savings							\$ 7,074.37	

Bus Garage kWh Tracker

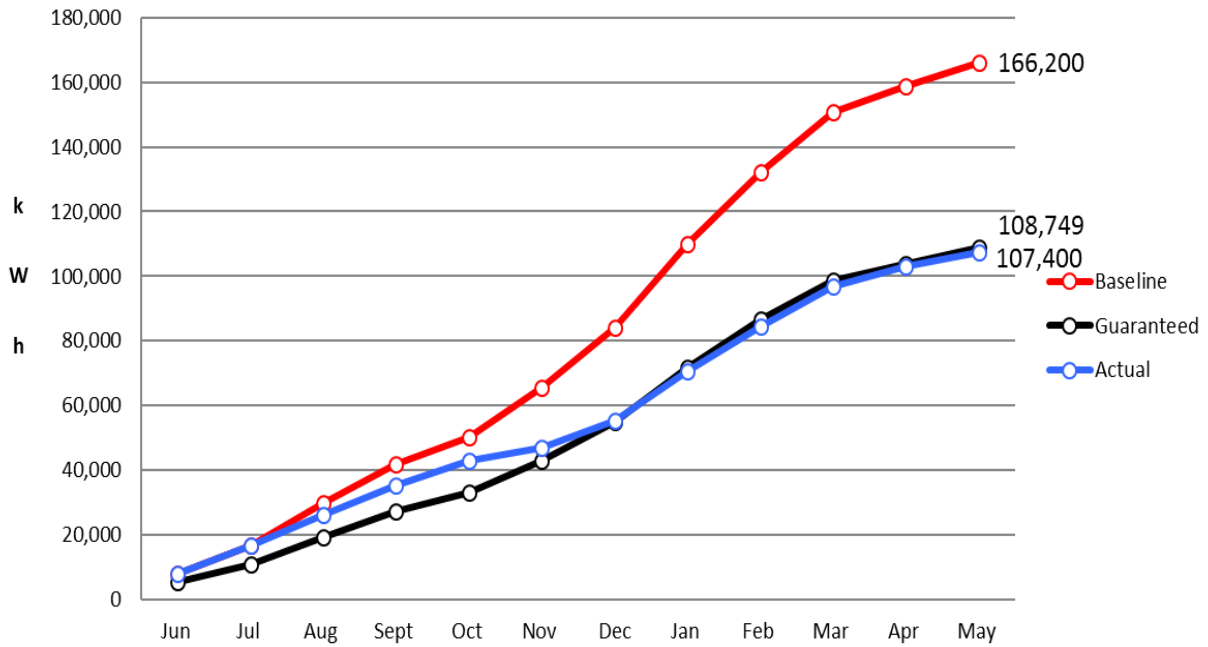


Bus Garage Elem CCF Tracker



Month	Baseline kWh	Guaranteed	kWh	ccf	kWh Saved	ccf Saved	kWh Savings	ccf Savings
Jun 2015	8,100	5,300	8,100	0	0	0	\$ -	\$ -
Jul 2015	8,700	5,693	8,700	0	0	0	\$ -	\$ -
Aug 2015	12,900	8,441	9,300	0	3,600	0	\$ 340.92	\$ -
Sep 2015	12,000	7,852	9,300	0	2,700	0	\$ 255.69	\$ -
Oct 2015	8,700	5,693	7,500	99	1,200	-64	\$ 113.64	\$ (56.96)
Nov 2015	15,300	10,011	4,200	256	11,100	162	\$ 1,051.17	\$ 144.18
Dec 2015	18,300	11,974	8,400	312	9,900	337	\$ 937.53	\$ 299.93
Jan 2016	25,800	16,882	15,300	410	10,500	428	\$ 994.35	\$ 380.92
Feb 2016	22,500	14,722	13,800	369	8,700	353	\$ 823.89	\$ 314.17
Mar 2016	18,600	12,170	12,300	273	6,300	137	\$ 596.61	\$ 121.93
Apr 2016	7,800	5,104	6,000	199	1,800	-72	\$ 170.46	\$ (64.08)
May 2016	7,500	4,907	4,500	17	3,000	34	\$ 284.10	\$ 30.26
Total Savings					58,800	1,315	\$ 5,568.36	\$ 1,170.35
Grand Total Savings							\$ 6,738.71	

Fitness Center k W h Tracker



Fitness Center CCF Tracker

