ENERGY SAVINGS PLAN

SUBMITTED BY:
DCO Energy Efficiency Division
100 Lenox Drive
Lawrenceville, NJ 08648
BPU Submission – April 23, 2021

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ENERGY SAVINGS PLAN

SECTION 1 – PROJECT OVERVIEW

Project Overview

The Energy Savings Plan (ESP) is the core of the Energy Savings Improvement Program (ESIP) process. It describes Brick Township School District's preferred Energy Conservation Measures (ECMs), the budget cost for each ECM and the ECM energy savings calculations that self-fund the project via reduced operating costs. The ESP provides Brick Township School District the necessary information to decide which proposed ECMs to implement as part of your (ESIP) project. Working with the District's staff, your selected ESIP project would:

1. Self-fund a $10,037,477 project
2. Generate $561,632 in annual energy savings
3. Allocate $411,540 of NJ Pay For Performance Incentives to the project

The project metrics above and the information provided throughout Section 1, 2, & 3 are indicative of a 20 Year Term where the P4P Incentive are allocated to repay debt. In Section 4 of the Energy Savings Plan there are 2 financing options for the district to choose from. These options cover 20 year terms and allow Brick BOE to choose whether the incentive are carried in the project debt repayment.

NOTE: This submitted ESP doesn't constitute any contractual obligation between Brick Township School District and DCO Energy (DCO). Any contractual obligations will be performed under separate legal documents per mutual signed agreement of the parties involved and subject to the applicable laws and requirements of the ESIP legislation and State of New Jersey.

To ensure conformance with the requirements of Public Finance Notice LFN 2009-11, the ESP must address the following elements:

- *The results of the energy audit (APPENDIX H)*
- *A description of the energy conservation measures that will comprise the program; (Section 3)*
- *An estimate of greenhouse gas reductions resulting from those energy savings (Section 3);*
- *Identification of all design and compliance issues and identification of who will provide these services; (Section 5)*
- *An assessment of risks involved in the successful implementation of the plan; (Section 5)*
- *Identify the eligibility for, and costs and revenues associated with the PJM Independent System Operator for demand response and curtailable service activities; (Section 3)*
- *Schedules showing calculations of all costs of implementing the proposed energy conservation measures and the projected energy savings; (Section 3)*

- *Maintenance requirements necessary to ensure continued energy savings, and describe how they will be provided; and (Section 6)*
- *If developed by an ESCO, a description of, and cost estimates of a proposed energy savings guarantee. (Section 7)*

In addition, and per LFN 2009-11, the ESP requires several other important elements:

- *The calculations of energy savings must be made in accordance with protocols for their calculation adopted by the BPU. The calculation shall include all applicable State and federal rebates and tax credits but shall not include the cost of an energy audit and the cost of verifying energy savings. (Section 3)*
- *An independent third party must review the plan and certify that the plan savings were properly calculated pursuant to the BPU protocols.*
- *If an ESCO is used to prepare the plan, the ESCO must provide an estimate of the cost of a guarantee of energy savings. When adopting the plan, the local unit must decide whether or not to accept the guarantee (covered below). (Section 7)*
- *The plan must be verified by an independent third party to ensure that the calculations were made in accordance with the BPU standards and that all required elements of the ESP are covered.*
- *After verification is completed, the governing body must formally adopt the plan. At that point, the plan must be submitted to the Board of Public Utilities where it will be posted on the BPU website. BPU approval is not required. If the contracting unit maintains its own website, the plan must also be posted on that site.*

DCO Energy looks forward to the third-party review of our energy calculations and Brick Township School District's approval of the Energy Savings Plan to implement via the requirements of the ESIP legislation. Your time, effort, and support is appreciated.

ENERGY SAVINGS PLAN

SECTION 2 – BRICK TOWNSHIP SCHOOL DISTRICT BASELINE

DCO Energy Efficiency Division
100 Lenox Drive
Lawrenceville, NJ 08648

Total Utility Consumption and Site EUI

The Brick Township School District Energy Savings Plan includes 16 Buildings. To develop the ESP, DCO Energy was provided with all available utility data (Electric, Natural Gas, & Solar). DCO Energy tracked and documented this utility data from January 2018 thru December 2018. A listing of the buildings, the total utility consumption, and Energy Usage Index for the 16 buildings is detailed below.

BUILDINGS & FACILITIES		
BUILDING #	BUILDING/FACILITY NAME	SQFT
1	**Brick Memorial High School**	**275,846**
2	**Brick Township High School**	**216,326**
3	**Veterans Memorial Middle School**	**134,300**
4	**Lake Riviera Middle School**	**129,208**
5	**Emma Havens Young Elementary School**	**68,247**
6	**Veterans Memorial Elementary School**	**62,739**
7	**Warren H. Wolf Elementary School**	**57,618**
8	**Osbornville Elementary School**	**46,743**
9	**Lanes Mill Elementary School**	**44,883**
10	**Midstreams Elementary School**	**43,808**
11	**Drum Point Elementary School**	**43,073**
12	**Herbertsville Elementary School & Annex**	**27,857**
13	**Brick Township Administration Building**	**29,399**
14	**Transportation Department & Bus Garage**	**6,900**
15	**Receiving Warehouse**	**9,900**
16	**Custodial / Maintenance Building**	**6,500**

BRICK TOWNSHIP PUBLIC SCHOOLS BUILDINGS/FACILITIES		ELECTRIC					
BUILDING/FACILITY NAME	SQFT	USAGE kWh	DEMAND kW	USAGE kWh / SQFT	USAGE BTU / SQFT	TOTAL COST $$	BLENDED COST $$ / kWh
Brick Memorial High School	275,846	1,987,752	698	7.2	24,587	$199,739	$0.10
Brick Township High School	216,326	1,367,005	508	6.3	21,561	$164,688	$0.12
Veterans Memorial Middle School	134,300	368,800	235	2.7	9,370	$49,461	$0.13
Lake Riviera Middle School	129,208	339,200	216	2.6	8,957	$51,469	$0.15
Emma Havens Young Elementary School	68,247	130,400	126	1.9	6,519	$20,837	$0.16
Veterans Memorial Elementary School	62,739	188,160	111	3.0	10,233	$22,848	$0.12
Warren H. Wolf Elementary School	57,618	393,920	194	6.8	23,327	$48,643	$0.12
Osbornville Elementary School	46,743	242,960	92	5.2	17,735	$28,764	$0.12
Lanes Mill Elementary School	44,883	198,840	64	4.4	15,116	$23,366	$0.12
Midstreams Elementary School	43,808	120,960	87	2.8	9,421	$16,508	$0.14
Drum Point Elementary School	43,073	287,040	90	6.7	22,738	$32,782	$0.11
Herbertsville Elementary School & Annex	27,857	245,883	72	8.8	30,116	$28,768	$0.12
Brick Township Administration Building	29,399	323,360	95	11.0	37,529	$38,962	$0.12
Transportation Department & Bus Garage	6,900	88,881	29	12.9	43,951	$10,351	$0.12
Receiving Warehouse	9,900	20,718	10	2.1	7,140	$2,629	$0.13
Custodial / Maintenance Building	6,500	33,856	15	5.2	17,772	$4,260	$0.13
TOTALS	**1,203,347**	**6,337,735**	**698**	**5.3**	**17,970**	**$744,077**	**$0.12**

BRICK TOWNSHIP PUBLIC SCHOOLS BUILDINGS/FACILITIES		NATURAL GAS			
BUILDING/FACILITY NAME	SQFT	USAGE THERMS	USAGE BTU / SQFT	TOTAL COST $$	UNIT COST $$ / THERM
Brick Memorial High School	275,846	93,410	33,863	$88,243	$0.94
Brick Township High School	216,326	104,460	48,288	$79,015	$0.76
Veterans Memorial Middle School	134,300	69,574	51,805	$3,297	$0.05
Lake Riviera Middle School	129,208	42,878	33,186	$37,249	$0.87
Emma Havens Young Elementary School	68,247	41,752	61,178	$36,610	$0.88
Veterans Memorial Elementary School	62,739	49,888	79,516	$46,489	$0.93
Warren H. Wolf Elementary School	57,618	22,582	39,192	$22,017	$0.97
Osbornville Elementary School	46,743	23,318	49,885	$22,595	$0.97
Lanes Mill Elementary School	44,883	26,690	59,465	$27,048	$1.01
Midstreams Elementary School	43,808	31,253	71,340	$30,259	$0.97
Drum Point Elementary School	43,073	38,440	89,243	$34,133	$0.89
Herbertsville Elementary School & Annex	27,857	19,507	70,026	$12,259	$0.63
Brick Township Administration Building	29,399	33,348	113,434	$25,673	$0.77
Transportation Department & Bus Garage	6,900	0	0	$0	-
Receiving Warehouse	9,900	3,986	40,258	$3,410	$0.86
Custodial / Maintenance Building	6,500	6,469	99,528	$6,070	$0.94
TOTALS	**1,203,347**	**607,553**	**50,489**	**$474,367**	**$0.78**

BRICK TOWNSHIP PUBLIC SCHOOLS BUILDINGS/FACILITIES		Solar PPA (kWh)			
BUILDING/FACILITY NAME	SQFT	USAGE Solar PPA (kWh)	USAGE BTU / SQFT	TOTAL COST $$	UNIT COST $$ / Solar PPA (kWh)
Brick Memorial High School	275,846	648,271	0	$0	$0.00
Brick Township High School	216,326	338,427	0	$14,532	$0.04
Veterans Memorial Middle School	134,300	643,223	0	$27,629	$0.04
Lake Riviera Middle School	129,208	511,960	0	$21,990	$0.04
Emma Havens Young Elementary School	68,247	234,137	0	$10,054	$0.04
Veterans Memorial Elementary School	62,739	356,579	0	$15,315	$0.04
Warren H. Wolf Elementary School	57,618	0	0	$0	-
Osbornville Elementary School	46,743	0	0	$0	-
Lanes Mill Elementary School	44,883	0	0	$0	-
Midstreams Elementary School	43,808	153,386	0	$6,585	$0.04
Drum Point Elementary School	43,073	0	0	$0	-
Herbertsville Elementary School & Annex	27,857	0	0	$0	-
Brick Township Administration Building	29,399	94,867	0	$4,074	$0.04
Transportation Department & Bus Garage	6,900	0	0	$0	-
Receiving Warehouse	9,900	0	0	$0	-
Custodial / Maintenance Building	6,500	0	0	$0	-
TOTALS	**1,203,347**	**2,980,850**	**0**	**$100,178**	**$0.03**

BRICK TOWNSHIP PUBLIC SCHOOLS BUILDINGS/FACILITIES		TOTAL ENERGY	TOTAL COST
BUILDING/FACILITY NAME	SQFT	USAGE BTUs	$$
Brick Memorial High School	275,846	16,123,240,824	$287,982
Brick Township High School	216,326	15,110,173,060	$258,234
Veterans Memorial Middle School	134,300	8,215,696,600	$80,387
Lake Riviera Middle School	129,208	5,445,185,400	$110,708
Emma Havens Young Elementary School	68,247	4,620,141,800	$67,501
Veterans Memorial Elementary School	62,739	5,630,762,920	$84,652
Warren H. Wolf Elementary School	57,618	3,602,245,805	$70,660
Osbornville Elementary School	46,743	3,160,775,520	$51,360
Lanes Mill Elementary School	44,883	3,347,394,810	$50,414
Midstreams Elementary School	43,808	3,537,982,520	$53,352
Drum Point Elementary School	43,073	4,823,343,480	$66,916
Herbertsville Elementary School & Annex	27,857	2,789,655,796	$41,027
Brick Township Administration Building	29,399	4,438,146,026	$68,709
Transportation Department & Bus Garage	6,900	303,261,972	$10,351
Receiving Warehouse	9,900	469,242,934	$6,039
Custodial / Maintenance Building	6,500	762,445,672	$10,330
TOTALS	**1,203,347**	**82,379,695,138**	**$1,318,622**

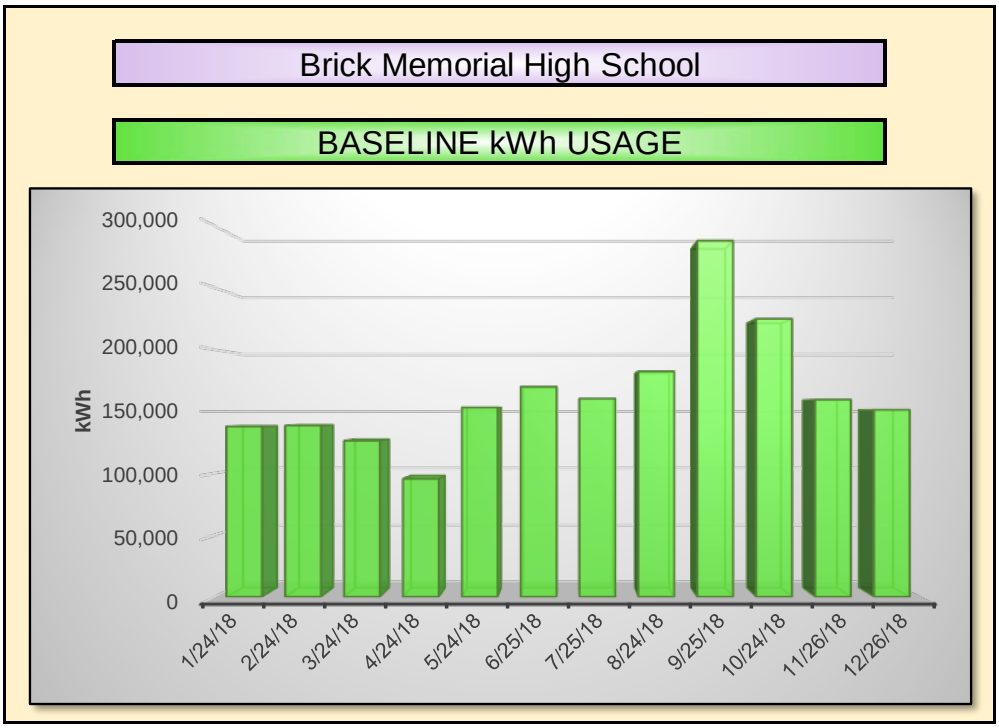
BRICK TOWNSHIP PUBLIC SCHOOLS BUILDINGS/FACILITIES		SITE EUI		
BUILDING/FACILITY NAME	SQFT	USAGE BTU / SQFT	NATIONAL MEDIAN BTU/SQFT	NATIONAL MEDIAN +/-%
Brick Memorial High School	275,846	58,450	68,800	15%
Brick Township High School	216,326	69,849	68,800	-2%
Veterans Memorial Middle School	134,300	61,174	68,800	11%
Lake Riviera Middle School	129,208	42,143	68,800	39%
Emma Havens Young Elementary School	68,247	67,697	68,800	2%
Veterans Memorial Elementary School	62,739	89,749	68,800	-30%
Warren H. Wolf Elementary School	57,618	62,519	68,800	9%
Osbornville Elementary School	46,743	67,620	68,800	2%
Lanes Mill Elementary School	44,883	74,580	68,800	-8%
Midstreams Elementary School	43,808	80,761	68,800	-17%
Drum Point Elementary School	43,073	111,981	68,800	-63%
Herbertsville Elementary School & Annex	27,857	100,142	68,800	-46%
Brick Township Administration Building	29,399	150,962	68,800	-119%
Transportation Department & Bus Garage	6,900	43,951	68,800	36%
Receiving Warehouse	9,900	47,398	68,800	31%
Custodial / Maintenance Building	6,500	117,299	68,800	-70%
TOTALS	**1,203,347**	**68,459**	**68,800**	0%

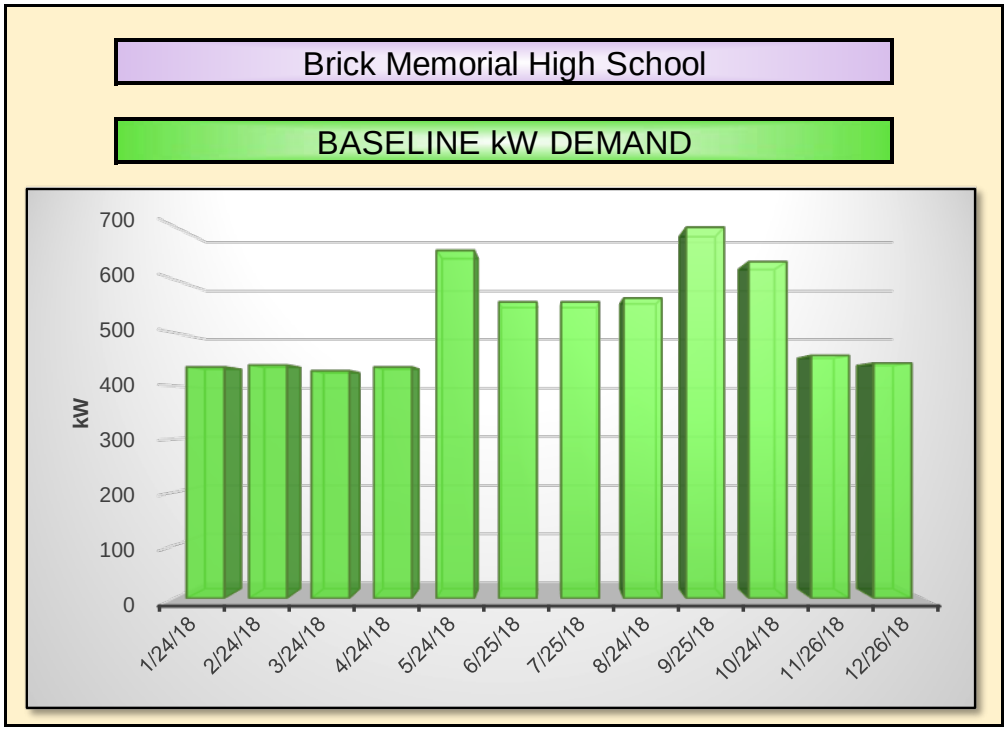
BRICK TOWNSHIP PUBLIC SCHOOLS BUILDINGS/FACILITIES		SITE ECI		
BUILDING/FACILITY NAME	SQFT	COST $$ / SQFT	NATIONAL MEDIAN BTU/SQFT	NATIONAL MEDIAN +/-%
Brick Memorial High School	275,846	$1.04	$1.38	24%
Brick Township High School	216,326	$1.19	$1.38	13%
Veterans Memorial Middle School	134,300	$0.60	$1.38	57%
Lake Riviera Middle School	129,208	$0.86	$1.38	38%
Emma Havens Young Elementary School	68,247	$0.99	$1.38	28%
Veterans Memorial Elementary School	62,739	$1.35	$1.38	2%
Warren H. Wolf Elementary School	57,618	$1.23	$1.38	11%
Osbornville Elementary School	46,743	$1.10	$1.38	20%
Lanes Mill Elementary School	44,883	$1.12	$1.38	19%
Midstreams Elementary School	43,808	$1.22	$1.38	12%
Drum Point Elementary School	43,073	$1.55	$1.38	-13%
Herbertsville Elementary School & Annex	27,857	$1.47	$1.38	-7%
Brick Township Administration Building	29,399	$2.34	$1.38	-69%
Transportation Department & Bus Garage	6,900	$1.50	$1.38	-9%
Receiving Warehouse	9,900	$0.61	$1.38	56%
Custodial / Maintenance Building	6,500	$1.59	$1.38	-15%
TOTALS	**1,203,347**	**$1.10**	**$1.38**	**21%**

On the following pages is a detailed account of each of the utility accounts and meters provided to DCO Energy.

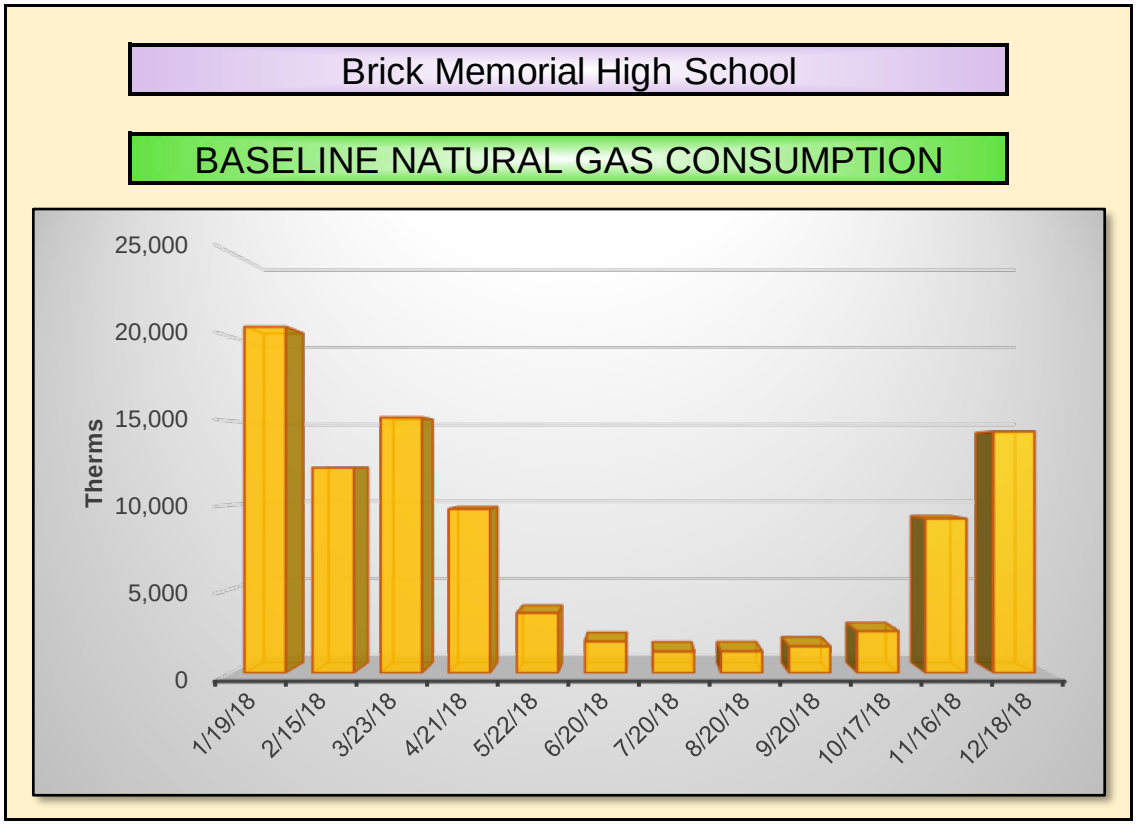
DCO Energy Efficiency Division
100 Lenox Drive
Lawrenceville, NJ 08648

Brick Memorial High School - Baseline Energy Use





Brick Memorial High School						ELECTRIC METER #1					
Provider:	JCP&L			Account #	100 088 897 242			Meter #	L97024208		
Commodity:				Account #				Meter #			
Billing Period Start Date	Actual Reading	Usage kWh	Demand kW	Electric Delivery Charges	Electric Commodity Charges	Electric Demand Charges	Total Electric Charges	Cost / kWh Checksum	Days	Load Factor	BTU
12/27/17	1/24/18	137,748	436	$17,602	$5,438	$1,555	$24,595	$0.179	29	45%	469,996,176
1/25/18	2/24/18	138,579	439	$5,768	$5,470	$1,568	$12,806	$0.092	31	42%	472,831,548
2/25/18	3/24/18	126,324	428	$5,104	$4,987	$1,529	$11,620	$0.092	28	44%	431,017,488
3/25/18	4/24/18	95,487	436	$5,032	$3,769	$1,555	$10,356	$0.108	31	29%	325,801,644
4/25/18	5/24/18	153,210	655	$5,768	$5,509	$2,339	$13,617	$0.089	30	32%	522,752,520
5/25/18	6/25/18	169,968	558	$7,086	$5,876	$1,992	$14,954	$0.088	32	40%	579,930,816
6/26/18	7/25/18	160,305	558	$6,922	$6,805	$1,992	$15,719	$0.098	30	40%	546,960,660
7/26/18	8/24/18	182,364	565	$7,356	$7,144	$2,018	$16,518	$0.091	30	45%	622,225,968
8/25/18	9/25/18	288,114	698	$11,369	$11,529	$2,493	$25,391	$0.088	32	54%	983,044,968
9/26/18	10/24/18	224,889	634	$9,695	$8,764	$2,262	$20,721	$0.092	29	51%	767,321,268
10/25/18	11/26/18	159,492	457	$8,199	$7,206	$1,632	$17,037	$0.107	33	44%	544,186,704
11/27/18	12/26/18	151,272	443	$8,852	$5,971	$1,581	$16,405	$0.108	30	47%	516,140,064
TOTALS		1,987,752	698	$98,753	$78,469	$22,517	$199,739	$0.100	365	32%	6,782,209,824



Brick Memorial High School					Natural Gas Meter #1		
Provider	NJNG		Account #	11-3523-1400-22		Meter #	893255
Commodity			Account #			Meter #	
Billing Period Start Date	**Actual Reading**	**Therms**	**Gas Delivery Charges**	**Gas Commodity Charges**	**Gas Total Charges**	**Cost / Unit Checksum**	**BTU**
12/15/17	1/19/18	20,602	$10,781	$7,003	$17,785	$0.86	2,060,245,000
1/20/18	2/15/18	12,206	$6,900	$4,151	$11,051	$0.91	1,220,627,000
2/16/18	3/23/18	15,207	$8,665	$5,171	$13,836	$0.91	1,520,694,000
3/24/18	4/21/18	9,756	$4,751	$3,317	$8,068	$0.83	975,554,000
4/22/18	5/22/18	3,573	$2,821	$1,214	$4,034	$1.13	357,295,000
5/23/18	6/20/18	1,871	$2,077	$636	$2,712	$1.45	187,114,000
6/21/18	7/20/18	1,281	$1,819	$435	$2,254	$1.76	128,118,000
7/21/18	8/20/18	1,290	$1,823	$438	$2,261	$1.75	129,040,000
8/21/18	9/20/18	1,584	$1,950	$537	$2,487	$1.57	158,406,000
9/21/18	10/17/18	2,488	$2,322	$847	$3,168	$1.27	248,801,000
10/18/18	11/16/18	9,178	$5,178	$3,123	$8,300	$0.90	917,786,000
11/17/18	12/18/18	14,374	$7,401	$4,885	$12,286	$0.85	1,437,351,000
TOTALS		93,410	$56,486	$31,757	$88,243	$0.94	9,341,031,000

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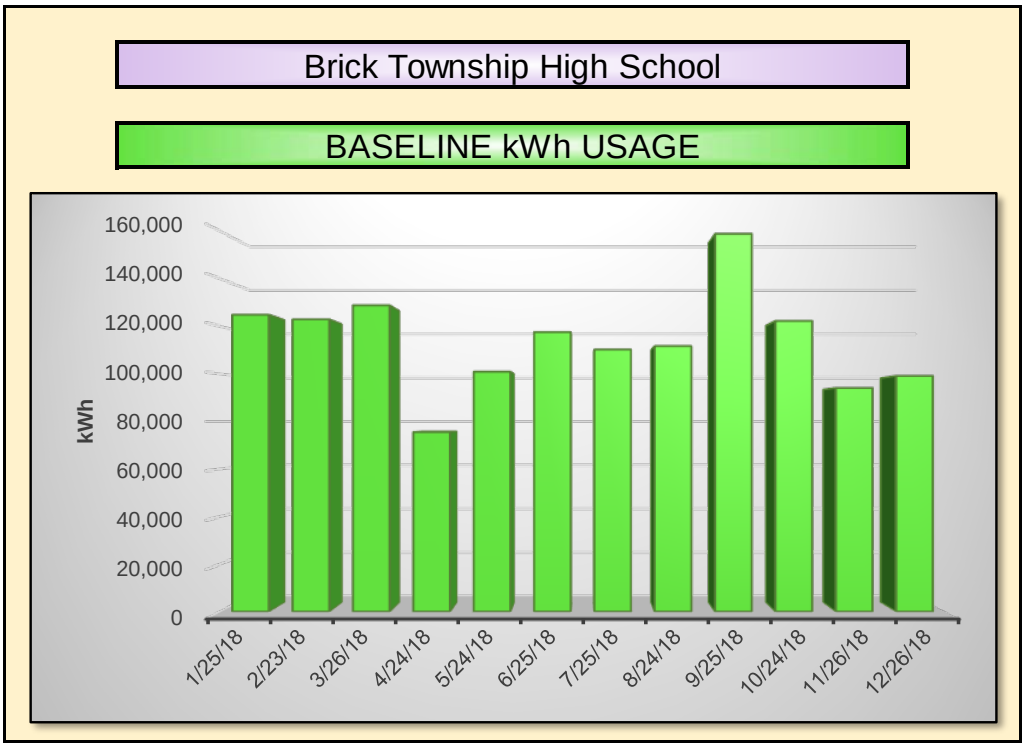
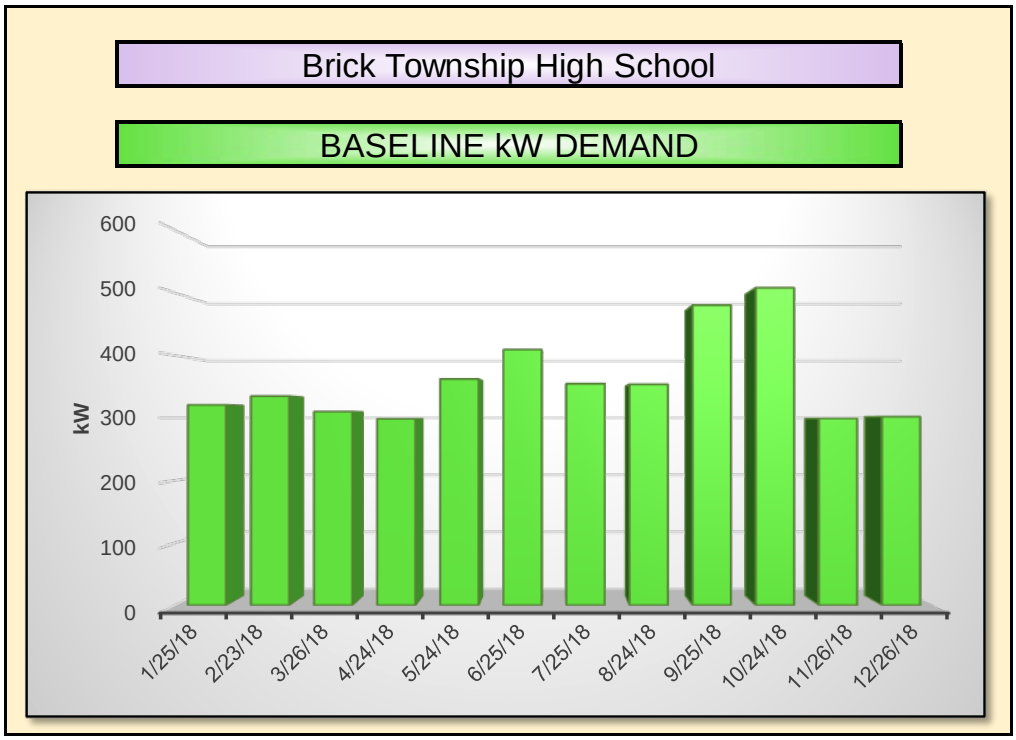
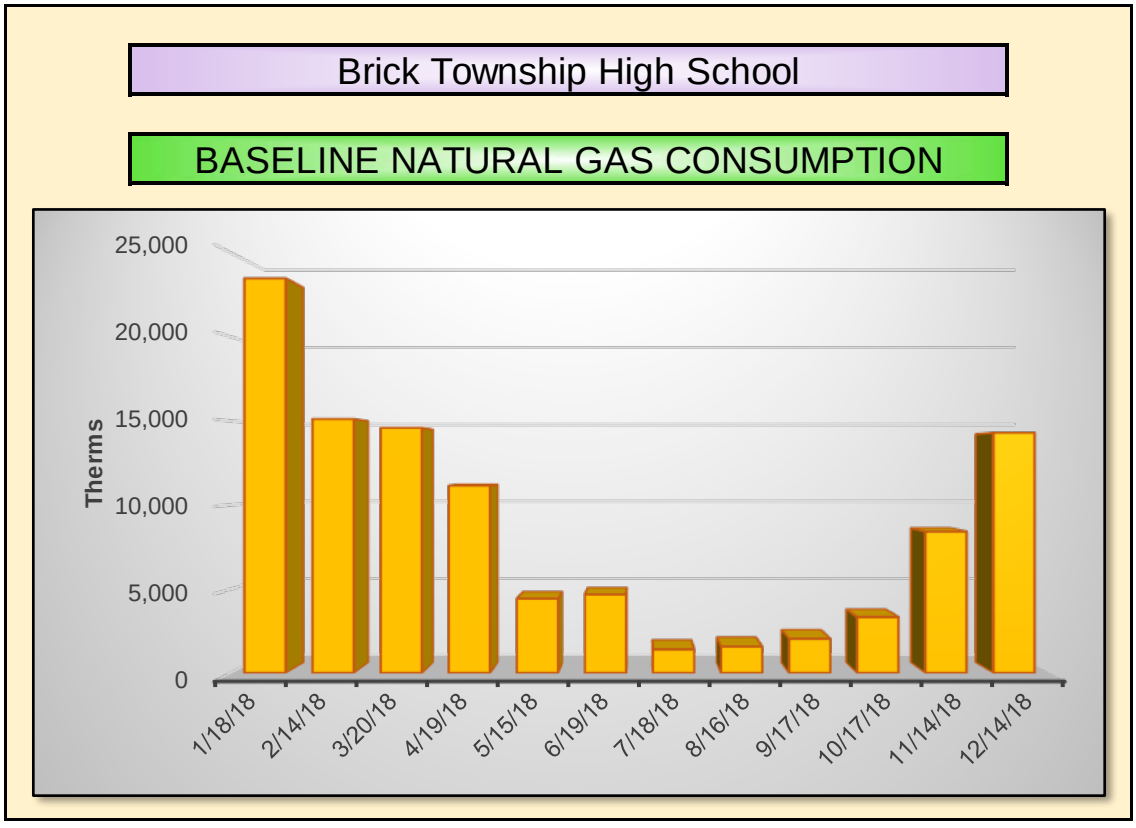
Brick Township High School - Baseline Energy Use





Brick Township High School				ELECTRIC METER #1							
Provider:	JCP&L			Account #	100 088 897 085			Meter #	L014779531/A020979927		
Commodity:				Account #				Meter #			
Billing Period Start Date	Actual Reading	Usage kWh	Demand kW	Electric Delivery Charges	Electric Commodity Charges	Electric Demand Charges	Total Electric Charges	Cost / kWh Checksum	Days	Load Factor	BTU
12/28/17	1/25/18	124,838	321	$17,478	$5,072	$1,720	$24,270	$0.194	29	56%	425,947,256
1/26/18	2/23/18	122,935	335	$6,531	$4,770	$1,818	$13,118	$0.107	29	53%	419,454,220
2/24/18	3/26/18	128,849	310	$7,032	$4,601	$1,683	$13,317	$0.103	31	56%	439,632,788
3/27/18	4/24/18	75,537	299	$5,085	$3,344	$1,555	$9,984	$0.132	29	36%	257,732,244
4/25/18	5/24/18	100,945	362	$5,784	$3,649	$1,870	$11,303	$0.112	30	39%	344,424,340
5/25/18	6/25/18	117,571	409	$6,111	$4,153	$2,280	$12,544	$0.107	32	37%	401,152,252
6/26/18	7/25/18	110,237	355	$5,660	$4,611	$1,976	$12,247	$0.111	30	43%	376,128,644
7/26/18	8/24/18	111,682	354	$5,691	$4,339	$1,970	$12,000	$0.107	30	44%	381,058,984
8/25/18	9/25/18	158,907	481	$7,833	$6,807	$2,677	$17,317	$0.109	32	43%	542,190,684
9/26/18	10/24/18	122,279	508	$6,688	$4,929	$2,622	$14,239	$0.116	29	35%	417,215,948
10/25/18	11/26/18	94,083	299	$6,201	$4,236	$1,544	$11,981	$0.127	33	40%	321,011,196
11/27/18	12/26/18	99,142	302	$6,072	$4,737	$1,558	$12,368	$0.125	30	46%	338,272,504
TOTALS		1,367,005	508	$86,167	$55,247	$23,273	$164,688	$0.120	364	31%	4,664,221,060



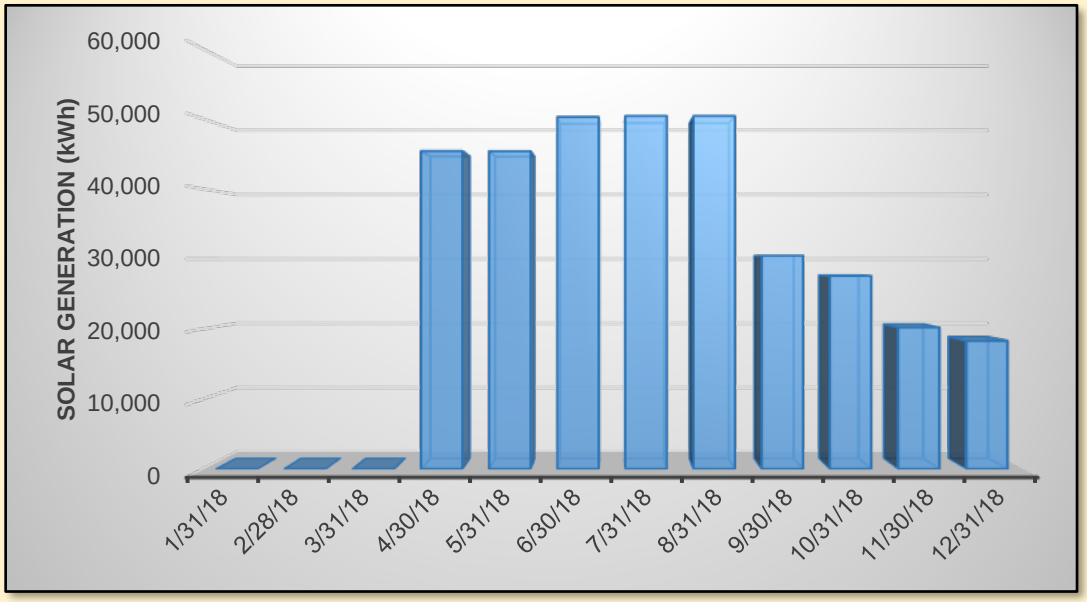
Brick Township High School					Natural Gas Meter #1		
Provider	NJNG		Account #	04-4531-3100-22	Meter #	1039390	
Commodity			Account #		Meter #		
Billing Period Start Date	**Actual Reading**	**Therms**	**Gas Delivery Charges**	**Gas Commodity Charges**	**Gas Total Charges**	**Cost / Unit Checksum**	**BTU**
12/15/17	1/18/18	10,348	$5,430	$3,519	$8,949	$0.86	1,034,765,000
1/19/18	2/14/18	6,373	$3,592	$2,166	$5,758	$0.90	637,288,000
2/15/18	3/20/18	5,913	$3,511	$2,009	$5,520	$0.93	591,329,000
3/21/18	4/19/18	4,466	$2,287	$1,520	$3,806	$0.85	446,632,000
4/20/18	5/15/18	2,000	$1,519	$680	$2,199	$1.10	200,027,000
5/16/18	6/19/18	1,976	$1,508	$672	$2,179	$1.10	197,588,000
6/20/18	7/18/18	1,162	$1,152	$394	$1,547	$1.33	116,249,000
7/19/18	8/16/18	1,324	$1,223	$449	$1,672	$1.26	132,380,000
8/17/18	9/17/18	1,534	$1,314	$520	$1,834	$1.20	153,381,000
9/18/18	10/17/18	1,534	$1,263	$520	$1,784	$1.16	153,373,000
10/18/18	11/14/18	3,769	$2,216	$1,282	$3,498	$0.93	376,889,000
11/15/18	12/14/18	6,016	$3,178	$2,047	$5,224	$0.87	601,599,000
TOTALS		46,415	$28,193	$15,776	$43,969	$0.95	4,641,500,000

Brick Township High School					Natural Gas Meter #2		
Provider	NJNG		Account #	04-4531-3300-23	Meter #	1039386	
Commodity			Account #		Meter #		
Billing Period Start Date	**Actual Reading**	**Therms**	**Gas Delivery Charges**	**Gas Commodity Charges**	**Gas Total Charges**	**Cost / Unit Checksum**	**BTU**
12/14/17	1/17/18	13,128	$6,843		$6,843	$0.52	1,312,832,000
1/17/18	2/14/18	8740	$4,813		$4,813	$0.55	874,019,000
2/15/18	3/20/18	8674	$4,939		$4,939	$0.57	867,440,000
3/21/18	4/19/18	6684	$3,329		$3,329	$0.50	668,408,000
4/20/18	5/15/18	2420	$1,831		$1,831	$0.76	242,026,000
5/16/18	6/19/18	2699	$1,952		$1,952	$0.72	269,934,000
6/20/18	7/18/18	232	$874		$874	$3.77	23,202,000
7/19/18	8/16/18	248	$881		$881	$3.55	24,792,000
8/17/18	9/17/18	502	$992		$992	$1.98	50,176,000
9/18/18	10/17/18	1793	$1,535		$1,535	$0.86	179,252,000
10/18/18	11/14/18	4643	$2,750		$2,750	$0.59	464,311,000
11/15/18	12/14/18	8281	$4,307		$4,307	$0.52	828,060,000
TOTALS		58,045	$35,045	$0	$35,045	$0.60	5,804,452,000

Brick Township High School					
TOTAL NATURAL GAS					
Therms	**Gas Delivery Charges**	**Gas Commodity Charges**	**Gas Total Charges**	**Cost / Unit Checksum**	**BTU**
23,476	$12,273	$3,519	$15,791	$0.67	2,347,597,000
15,113	$8,405	$2,166	$10,571	$0.70	1,511,307,000
14,588	$8,450	$2,009	$10,460	$0.72	1,458,769,000
11,150	$5,615	$1,520	$7,135	$0.64	1,115,040,000
4,421	$3,350	$680	$4,029	$0.91	442,053,000
4,675	$3,460	$672	$4,132	$0.88	467,522,000
1,395	$2,027	$394	$2,421	$1.74	139,451,000
1,572	$2,104	$449	$2,553	$1.62	157,172,000
2,036	$2,305	$520	$2,825	$1.39	203,557,000
3,326	$2,799	$520	$3,319	$1.00	332,625,000
8,412	$4,966	$1,282	$6,248	$0.74	841,200,000
14,297	$7,484	$2,047	$9,531	$0.67	1,429,659,000
104,460	**$63,238**	**$15,776**	**$79,015**	**$0.76**	**10,445,952,000**

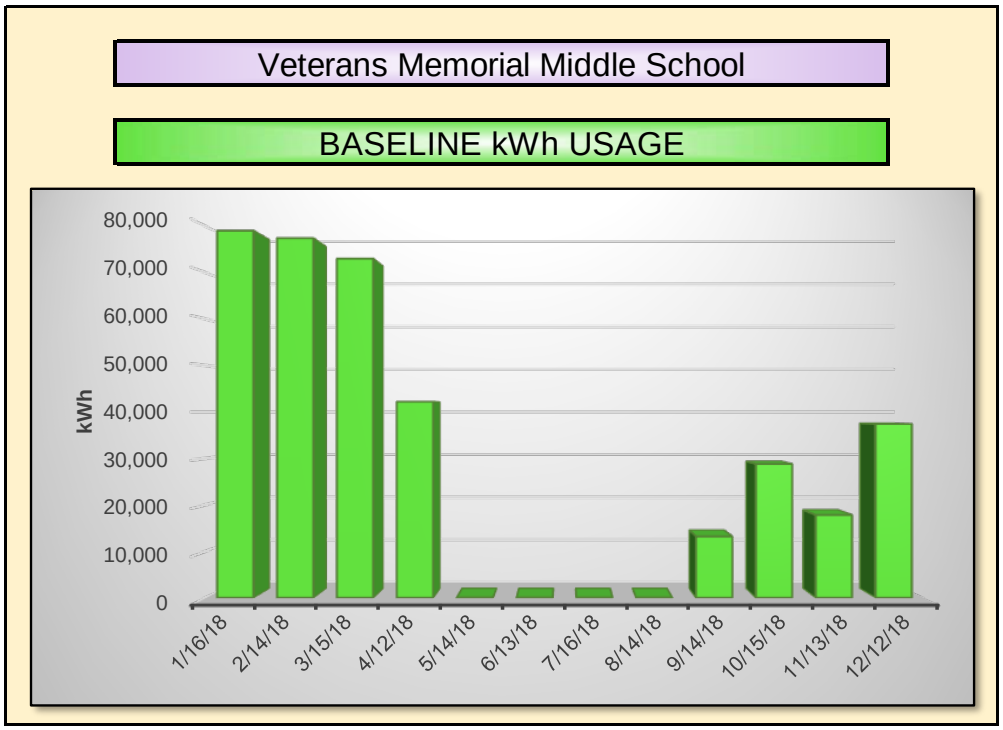
Brick Township High School

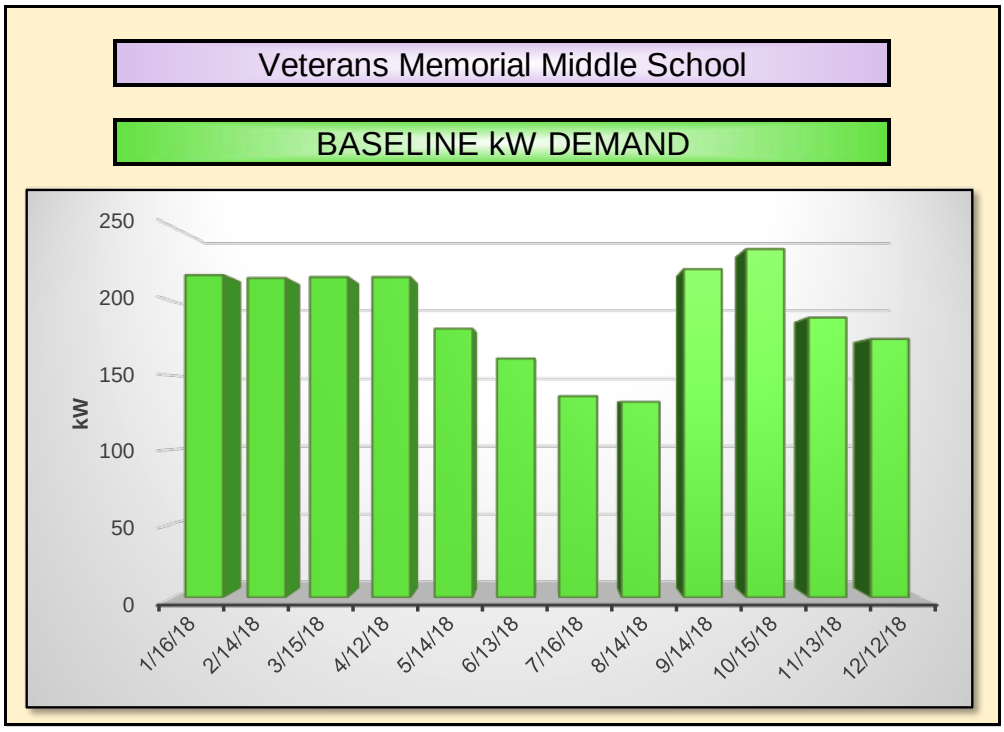
BASELINE Solar PPA (kWh) CONSUMPTION



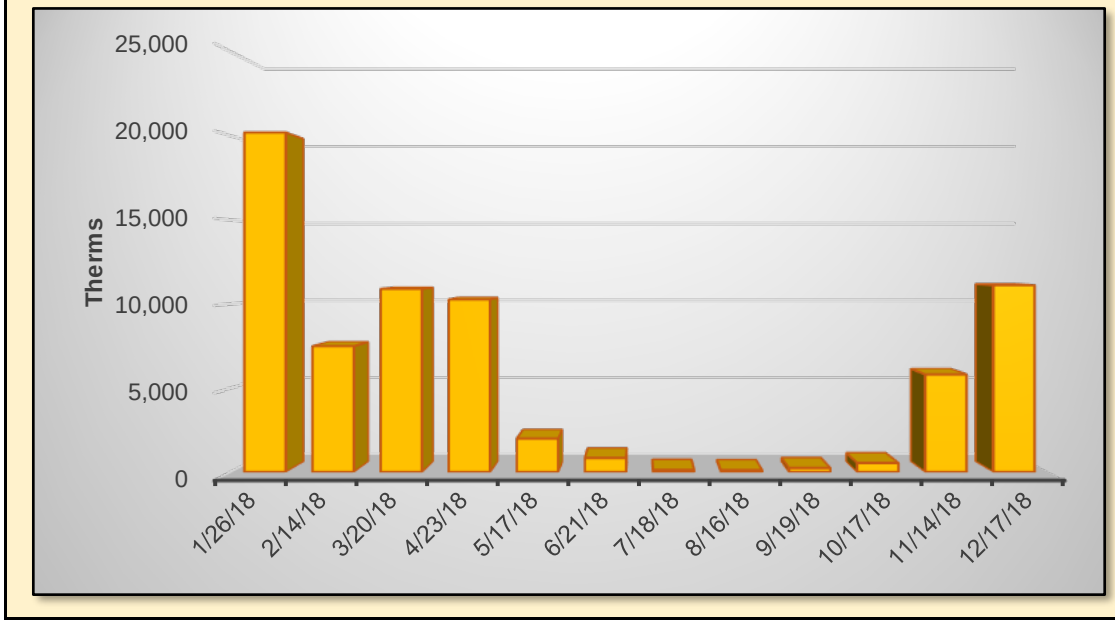
Brick Township High School					
Provider		Solar PPA (kWh)			
Meter/Acct #					
Billing Period Start Date	Actual Reading	Solar PPA (kWh)	$$	Cost / Unit Checksum	BTU
1/1/18	1/31/18	0	$0	-	0
2/1/18	2/28/18	0	$0	-	0
3/1/18	3/31/18	0	$0	-	0
4/1/18	4/30/18	45,404	$1,930	$0.04	0
5/1/18	5/31/18	45,395	$1,929	$0.04	0
6/1/18	6/30/18	50,274	$2,167	$0.04	0
7/1/18	7/31/18	50,416	$2,173	$0.04	0
8/1/18	8/31/18	50,416	$2,173	$0.04	0
9/1/18	9/30/18	30,464	$1,313	$0.04	0
10/1/18	10/31/18	27,564	$1,188	$0.04	0
11/1/18	11/30/18	20,210	$871	$0.04	0
12/1/18	12/31/18	18,285	$788	$0.04	0
TOTALS		338,427	14,532	$0.04	0

Veterans Memorial Middle School - Baseline Energy Use





Veterans Memorial Middle School						ELECTRIC METER #1					
Provider:	JCP&L			Account #	100 018 605 186			Meter #	G28725601		
Commodity:				Account #				Meter #			
Billing Period Start Date	Actual Reading	Usage kWh	Demand kW	Electric Delivery Charges	Electric Commodity Charges	Electric Demand Charges	Total Electric Charges	Cost / kWh Checksum	Days	Load Factor	BTU
12/15/17	1/16/18	79,000	218	$1,507	$7,240	$1,374	$10,120	$0.128	33	46%	269,548,000
1/17/18	2/14/18	77,400	216	$1,476	$7,122	$1,358	$9,956	$0.129	29	52%	264,088,800
2/15/18	3/15/18	73,000	216	$1,425	$6,932	$1,362	$9,719	$0.133	29	48%	249,076,000
3/16/18	4/12/18	42,200	216	$828	$4,067	$1,333	$6,229	$0.148	28	29%	143,986,400
4/13/18	5/14/18	(10,400)	182	$11	($412)	$1,076	$676	($0.065)	32	-7%	(35,484,800)
5/15/18	6/13/18	(5,600)	161	$11	$0	$1,019	$1,030	($0.184)	30	-5%	(19,107,200)
6/14/18	7/16/18	(30,600)	136	$11	$0	$848	$859	($0.028)	33	-28%	(104,407,200)
7/17/18	8/14/18	(17,800)	132	$11	$0	$822	$834	($0.047)	29	-19%	(60,733,600)
8/15/18	9/14/18	13,200	222	$11	$0	$1,425	$1,437	$0.109	31	8%	45,038,400
9/15/18	10/15/18	28,800	235	$11	$0	$1,413	$1,425	$0.049	31	16%	98,265,600
10/16/18	11/13/18	17,800	189	$161	$567	$1,122	$1,850	$0.104	29	14%	60,733,600
11/14/18	12/12/18	37,400	175	$676	$3,618	$1,032	$5,326	$0.142	29	31%	127,608,800
TOTALS		304,400	235	$6,141	$29,134	$14,185	$49,461	$0.162	363	15%	1,038,612,800



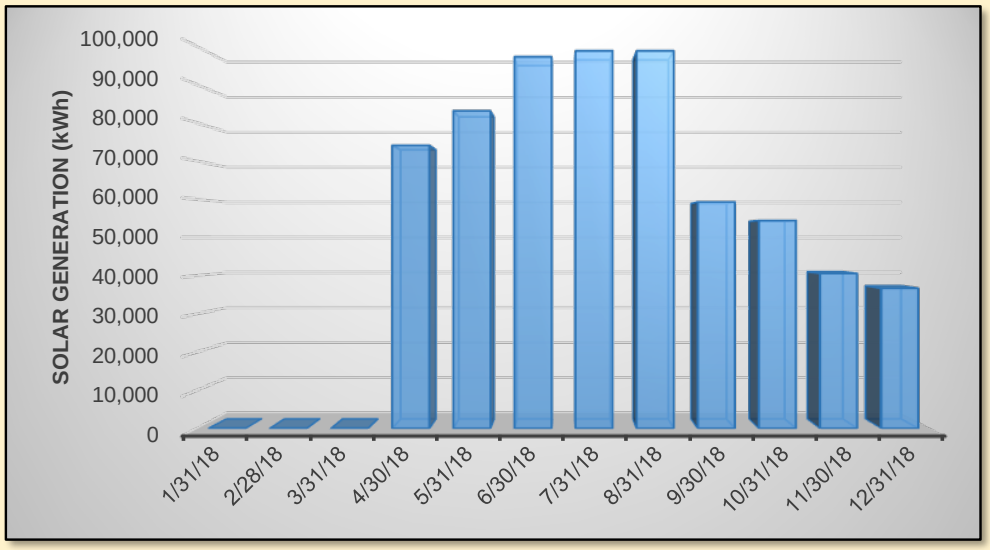
Veterans Memorial Middle School					Natural Gas Meter #1		
Provider	NJNG		Account #	08-3520-0540-22	Meter #	811999	
Commodity			Account #		Meter #		
Billing Period Start Date	Actual Reading	Therms	Gas Delivery Charges	Gas Commodity Charges	Gas Total Charges	Cost / Unit Checksum	BTU
12/14/17	1/26/18	19,291	$10,207	$2,701	$12,908	$0.67	1,929,148,000
1/27/18	2/14/18	7,127	$3,845	$998	$4,843	$0.68	712,669,000
2/15/18	3/20/18	10,293	$5,865	$1,441	$7,306	$0.71	1,029,325,000
3/21/18	4/23/18	9,718	$4,521	$1,361	$5,881	$0.61	971,811,000
4/24/18	5/17/18	1,927	$1,579	$270	$1,849	$0.96	192,677,000
5/18/18	6/21/18	819	$1,279	$115	$1,394	$1.70	81,883,000
6/22/18	7/18/18	117	$973	$16	$989	$8.46	11,691,000
7/19/18	8/16/18	104	$967	$15	$982	$9.41	10,437,000
8/17/18	9/19/18	233	$1,023	$33	$1,056	$4.54	23,272,000
9/20/18	10/17/18	504	$1,138	$71	$1,209	$2.40	50,412,000
10/18/18	11/14/18	5,499	$3,275	$770	$4,044	$0.74	549,891,000
11/15/18	12/17/18	10,478	$5,405	$1,467	$6,872	$0.66	1,047,823,000
TOTALS		66,110	$40,077	$9,255	$49,333	$0.75	6,611,039,000

Veterans Memorial Middle School					Natural Gas Meter #2		
Provider	NJNG		Account #	08-3520-0542-17	Meter #	850212	
Commodity			Account #		Meter #		
Billing Period Start Date	Actual Reading	Therms	Gas Delivery Charges	Gas Commodity Charges	Gas Total Charges	Cost / Unit Checksum	BTU
12/14/17	1/26/18	909	$534	$127	$662	$0.73	90,885,000
1/27/18	2/14/18	359	$212	$50	$262	$0.73	35,885,000
2/15/18	3/20/18	600	$360	$84	$444	$0.74	59,971,000
3/21/18	4/23/18	546	$311	$76	$387	$0.71	54,563,000
4/24/18	5/17/18	63	$53	$9	$62	$0.99	6,284,000
5/18/18	6/21/18	15	$34	$2	$36	$2.40	1,491,000
6/22/18	7/18/18	0	$26	$0	$26	-	0
7/19/18	8/16/18	0	$26	$0	$26	-	0
8/17/18	9/19/18	0	$26	$0	$26	-	0
9/20/18	10/17/18	33	$42	$5	$47	$1.43	3,304,000
10/18/18	11/14/18	305	$172	$43	$214	$0.70	30,496,000
11/15/18	12/17/18	634	$329	$89	$417	$0.66	63,433,000
TOTALS		3463	$2,125	$485	$2,610	$0.75	346,312,000

Veterans Memorial Middle School					
TOTAL NATURAL GAS					
Therms	Gas Delivery Charges	Gas Commodity Charges	Gas Total Charges	Cost / Unit Checksum	BTU
20,200	$10,742	$2,828	$13,570	$0.67	2,020,033,000
7,486	$4,058	$1,048	$5,106	$0.68	748,554,000
10,893	$6,225	$1,525	$7,750	$0.71	1,089,296,000
10,264	$4,831	$1,437	$6,268	$0.61	1,026,374,000
1,990	$1,633	$279	$1,911	$0.96	198,961,000
834	$1,313	$117	$1,430	$1.71	83,374,000
117	$999	$16	$1,015	$8.68	11,691,000
104	$993	$15	$1,008	$9.66	10,437,000
233	$1,049	$33	$1,082	$4.65	23,272,000
537	$1,180	$75	$1,256	$2.34	53,716,000
5,804	$3,446	$813	$4,259	$0.73	580,387,000
11,113	$5,734	$1,556	$7,289	$0.66	1,111,256,000
69,574	$42,202	$9,740	$51,942	$0.75	6,957,351,000

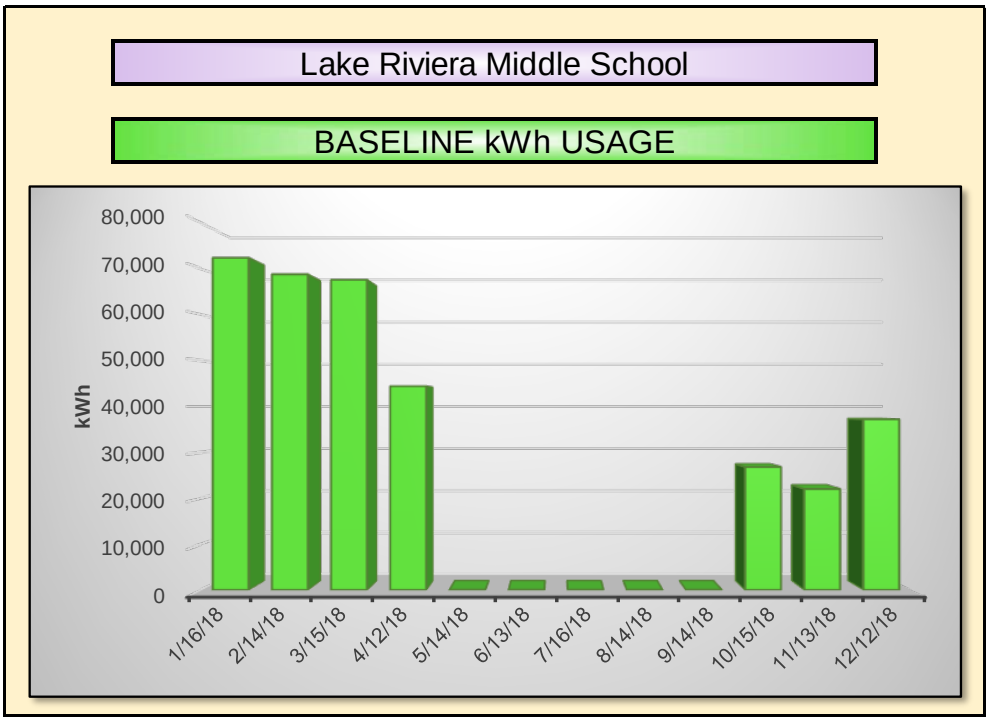
Veterans Memorial Middle School

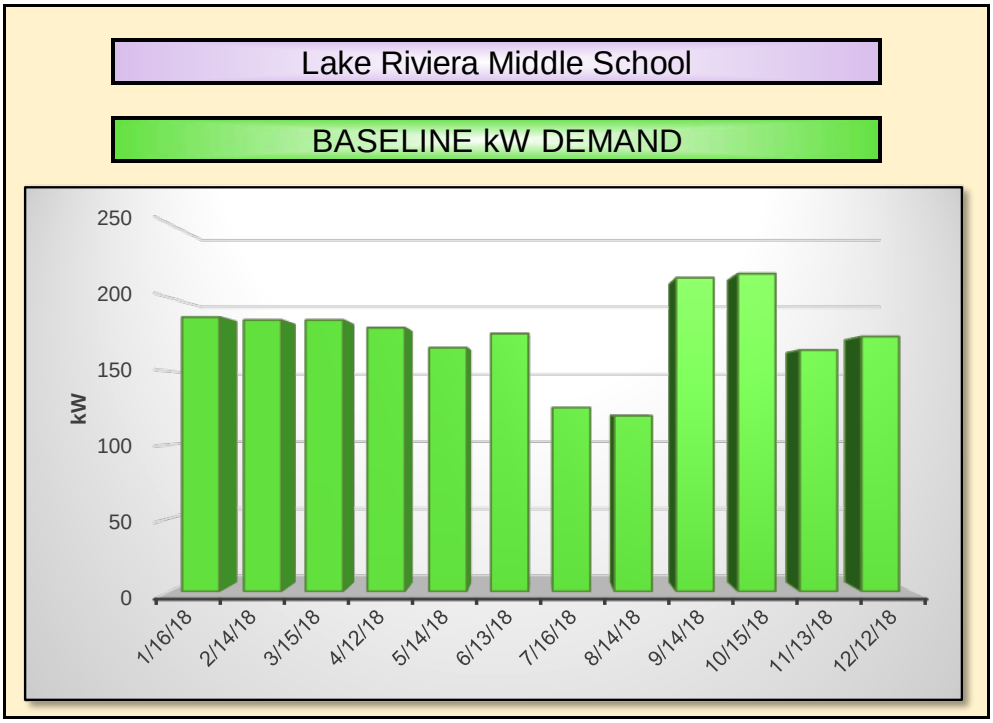
BASELINE Solar PPA (kWh) CONSUMPTION



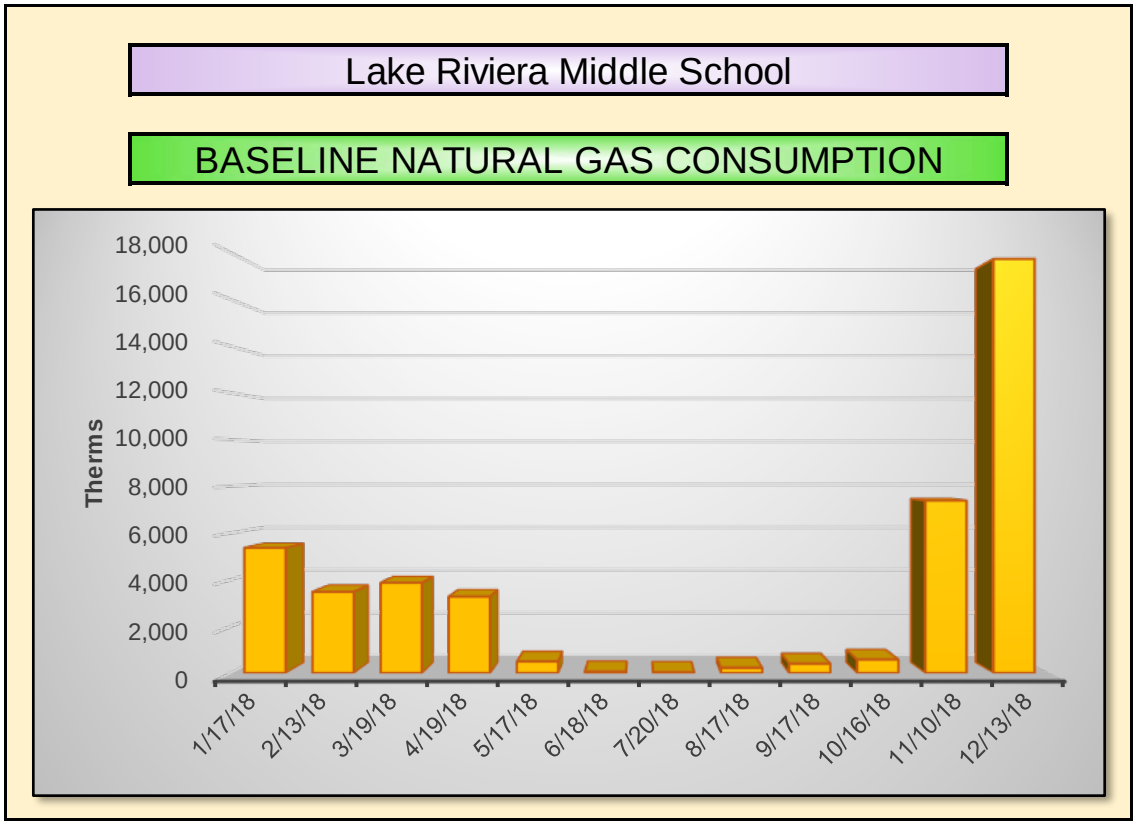
Veterans Memorial Middle School					
Provider	NJ Clean Energy Ventures		Solar PPA (kWh)		
Meter/Acct #					
Billing Period Start Date	Actual Reading	Solar PPA (kWh)	$$	Cost / Unit Checksum	BTU
1/1/18	1/31/18	0	$0	-	0
2/1/18	2/28/18	0	$0	-	0
3/1/18	3/31/18	0	$0	-	0
4/1/18	4/30/18	74,103	$3,149	$0.04	0
5/1/18	5/31/18	83,147	$3,534	$0.04	0
6/1/18	6/30/18	97,290	$4,193	$0.04	0
7/1/18	7/31/18	98,837	$4,260	$0.04	0
8/1/18	8/31/18	98,837	$4,260	$0.04	0
9/1/18	9/30/18	59,306	$2,556	$0.04	0
10/1/18	10/31/18	54,422	$2,346	$0.04	0
11/1/18	11/30/18	40,573	$1,749	$0.04	0
12/1/18	12/31/18	36,709	$1,582	$0.04	0
TOTALS		643,223	27,629	$0.04	0

Lake Riviera Middle School - Baseline Energy Use





Lake Riviera Middle School						ELECTRIC METER #1					
Provider:	JCP&L			Account #	100 018 880 342			Meter #	G21354821 / G28387483		
Commodity:				Account #				Meter #			
Billing Period Start Date	**Actual Reading**	**Usage kWh**	**Demand kW**	**Electric Delivery Charges**	**Electric Commodity Charges**	**Electric Demand Charges**	**Total Electric Charges**	**Cost / kWh Checksum**	**Days**	**Load Factor**	**BTU**
12/15/17	1/16/18	72,400	187	$7,810	$226	$1,154	$9,190	$0.127	33	49%	247,028,800
1/17/18	2/14/18	68,800	185	$7,424	$226	$1,154	$8,804	$0.128	29	53%	234,745,600
2/15/18	3/15/18	67,600	185	$7,522	$222	$1,154	$8,898	$0.132	29	53%	230,651,200
3/16/18	4/12/18	44,400	180	$5,002	$146	$1,095	$6,243	$0.141	28	37%	151,492,800
4/13/18	5/14/18	0	166	$11	$0	$978	$989	-	32	0%	0
5/15/18	6/13/18	0	176	$11	$0	$1,114	$1,126	-	30	0%	0
6/14/18	7/16/18	0	125	$11	$0	$775	$787	-	33	0%	0
7/17/18	8/14/18	0	120	$11	$0	$738	$749	-	29	0%	0
8/15/18	9/14/18	0	214	$11	$0	$1,370	$1,382	-	31	0%	0
9/15/18	10/15/18	26,800	216	$536	$2,619	$1,294	$4,449	$0.166	31	17%	91,441,600
10/16/18	11/13/18	22,000	164	$437	$2,150	$968	$3,556	$0.162	29	19%	75,064,000
11/14/18	12/12/18	37,200	174	$673	$3,599	$1,026	$5,298	$0.142	29	31%	126,926,400
TOTALS		**339,200**	**216**	**$29,460**	**$9,189**	**$12,820**	**$51,469**	**$0.152**	**363**	**18%**	**1,157,350,400**



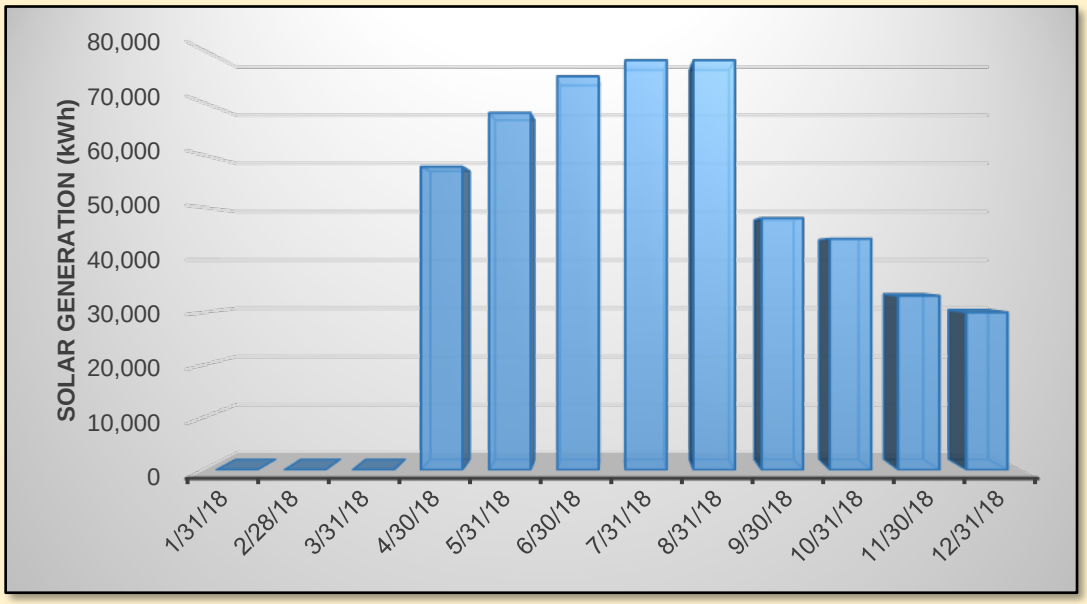
Lake Riviera Middle School					Natural Gas Meter #1		
Provider	NJNG		Account #	06-4539-6162-29	Meter #	425689	
Commodity			Account #		Meter #		
Billing Period Start Date	**Actual Reading**	**Therms**	**Gas Delivery Charges**	**Gas Commodity Charges**	**Gas Total Charges**	**Cost / Unit Checksum**	**BTU**
12/13/17	1/17/18	1384	$1,597		$1,597	$1.15	138,438,000
1/18/18	2/13/18	840	$1,185		$1,185	$1.41	84,001,000
2/14/18	3/19/18	868	$1,198		$1,198	$1.38	86,768,000
3/20/18	4/19/18	740	$680		$680	$0.92	74,044,000
4/20/18	5/17/18	47	$808		$808	$17.03	4,746,000
5/18/18	6/18/18	51	$810		$810	$15.88	5,100,000
6/19/18	7/20/18	28	$800		$800	$28.17	2,841,000
7/21/18	8/17/18	223	$885		$885	$3.97	22,301,000
8/18/18	9/17/18	401	$963		$963	$2.40	40,069,000
9/18/18	10/16/18	463	$989		$989	$2.14	46,297,000
10/17/18	11/10/18	5426	$3,112		$3,112	$0.57	542,587,000
11/11/18	12/13/18	14746	$7,100		$7,100	$0.48	1,474,618,000
TOTALS		25,218	$20,126	$0	$20,126	$0.80	2,521,810,000

Lake Riviera Middle School					Natural Gas Meter #2		
Provider	NJNG		Account #	06-4539-0118-10	Meter #	1059718	
Commodity			Account #		Meter #		
Billing Period Start Date	**Actual Reading**	**Therms**	**Gas Delivery Charges**	**Gas Commodity Charges**	**Gas Total Charges**	**Cost / Unit Checksum**	**BTU**
12/13/17	1/17/18	3980	$2,170	$1,353	$3,523	$0.89	397,991,000
1/18/18	2/13/18	2641	$1,495	$898	$2,392	$0.91	264,095,000
2/14/18	3/19/18	2998	$1,659	$1,020	$2,679	$0.89	299,825,000
3/20/18	4/19/18	2533	$1,272	$860	$2,132	$0.84	253,301,000
4/20/18	5/17/18	444	$464	$150	$613	$1.38	44,397,000
5/18/18	6/18/18	0	$270	$0	$270	-	0
6/19/18	7/20/18	0	$270	$0	$270	-	0
7/21/18	8/17/18	0	$270	$0	$270	-	0
8/18/18	9/17/18	0	$270	$0	$270	-	0
9/18/18	10/16/18	114	$321	$37	$358	$3.15	11,385,000
10/17/18	11/10/18	1960	$1,111	$666	$1,778	$0.91	195,998,000
11/11/18	12/13/18	2990	$1,552	$1,016	$2,569	$0.86	299,033,000
TOTALS		17,660	$11,123	$6,000	$17,123	$0.97	1,766,025,000

Lake Riviera Middle School					
TOTAL NATURAL GAS					
Therms	**Gas Delivery Charges**	**Gas Commodity Charges**	**Gas Total Charges**	**Cost / Unit Checksum**	**BTU**
5,364	$3,766	$1,353	$5,119	$0.95	536,429,000
3,481	$2,680	$898	$3,577	$1.03	348,096,000
3,866	$2,857	$1,020	$3,877	$1.00	386,593,000
3,273	$1,952	$860	$2,812	$0.86	327,345,000
491	$1,272	$150	$1,422	$2.89	49,143,000
51	$1,080	$0	$1,080	$21.17	5,100,000
28	$1,070	$0	$1,070	$37.66	2,841,000
223	$1,155	$0	$1,155	$5.18	22,301,000
401	$1,232	$0	$1,232	$3.08	40,069,000
577	$1,310	$37	$1,347	$2.34	57,682,000
7,386	$4,223	$666	$4,889	$0.66	738,585,000
17,737	$8,652	$1,016	$9,669	$0.55	1,773,651,000
42,878	**$31,248**	**$6,000**	**$37,249**	**$0.87**	**4,287,835,000**

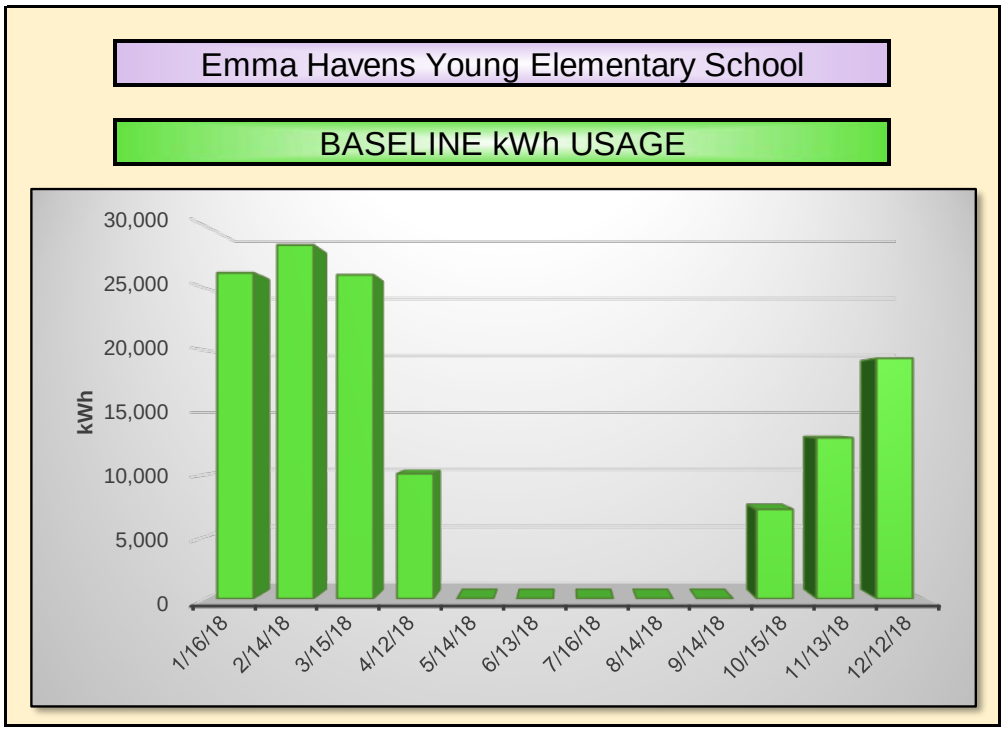
Lake Riviera Middle School

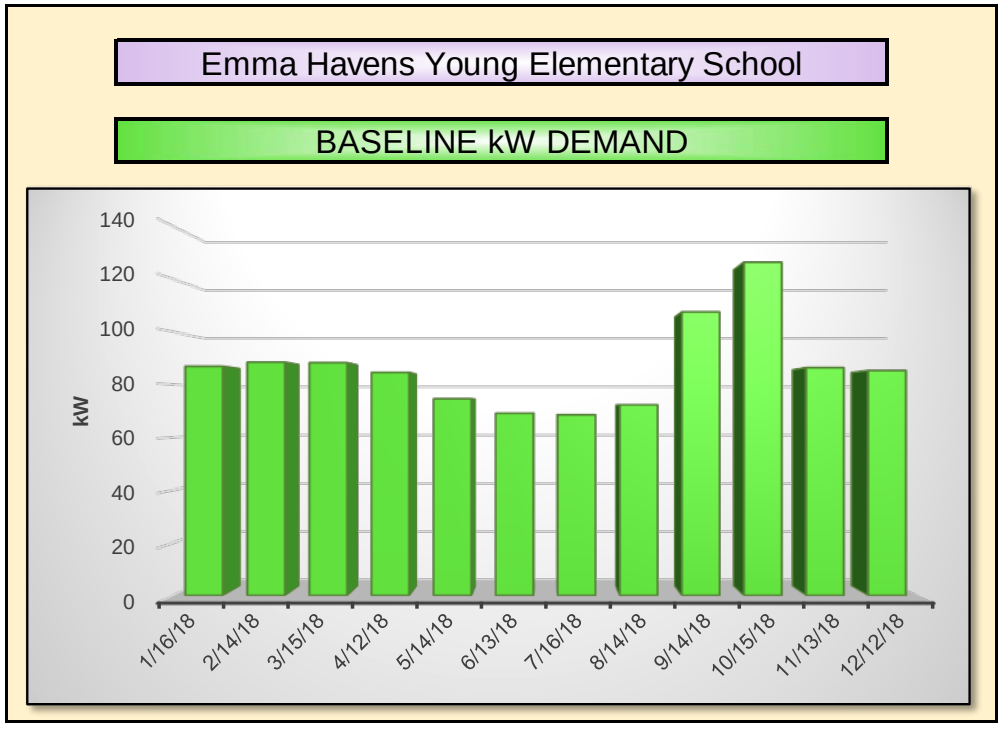
BASELINE Solar PPA (kWh) CONSUMPTION



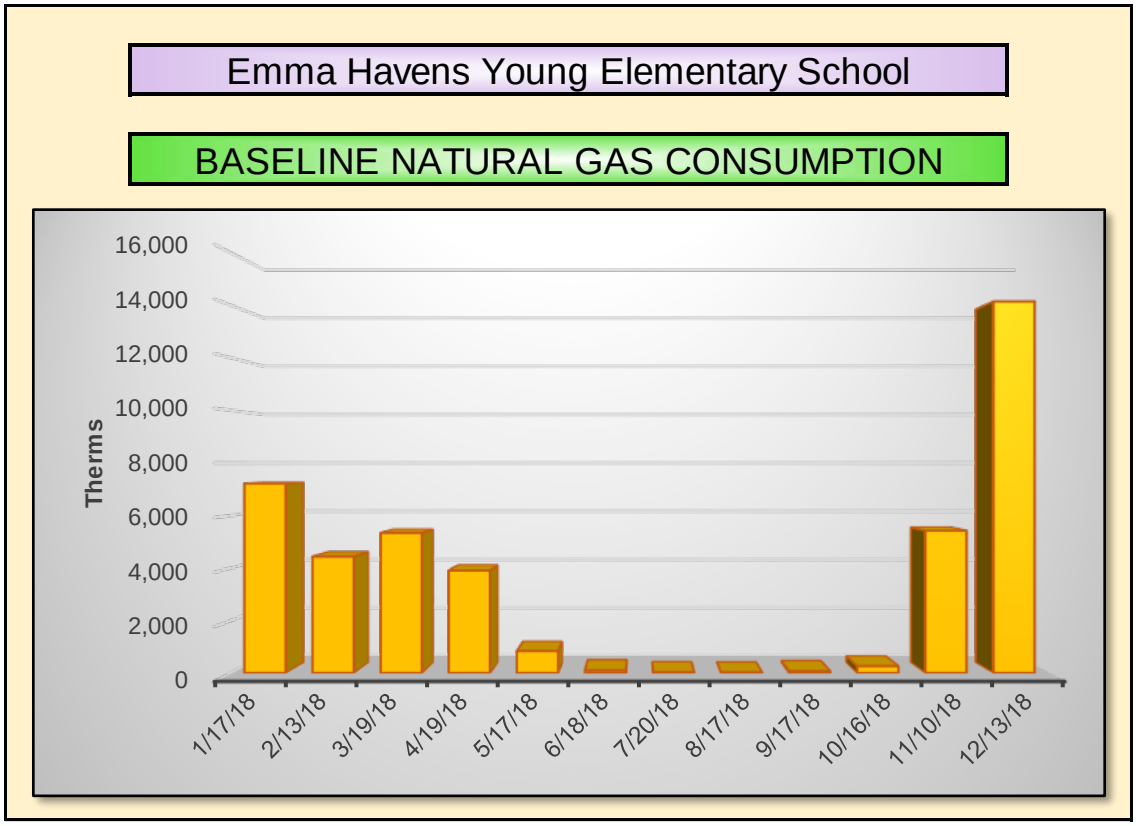
Lake Riviera Middle School					
Provider		Solar PPA (kWh)			
Meter/Acct #					
Billing Period Start Date	Actual Reading	Solar PPA (kWh)	$$	Cost / Unit Checksum	BTU
1/1/18	1/31/18	0	$0	-	0
2/1/18	2/28/18	0	$0	-	0
3/1/18	3/31/18	0	$0	-	0
4/1/18	4/30/18	57,760	$2,455	$0.04	0
5/1/18	5/31/18	68,024	$2,891	$0.04	0
6/1/18	6/30/18	74,961	$3,231	$0.04	0
7/1/18	7/31/18	78,027	$3,363	$0.04	0
8/1/18	8/31/18	78,027	$3,363	$0.04	0
9/1/18	9/30/18	47,976	$2,068	$0.04	0
10/1/18	10/31/18	44,036	$1,898	$0.04	0
11/1/18	11/30/18	33,154	$1,429	$0.04	0
12/1/18	12/31/18	29,996	$1,293	$0.04	0
TOTALS		511,960	21,990	$0.04	0

Emma Havens Young ES - Baseline Energy Use





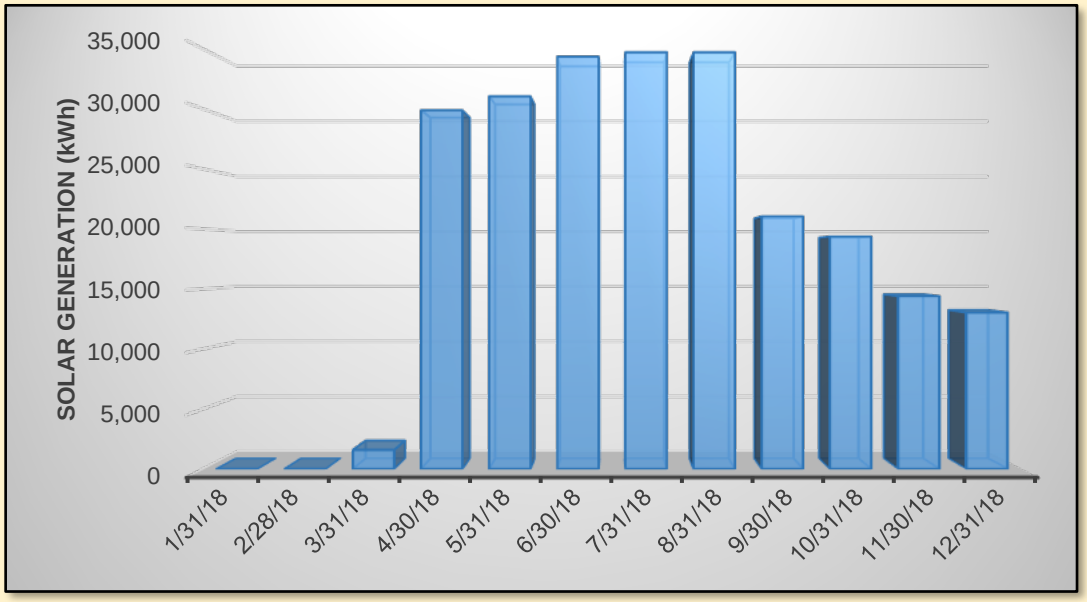
Emma Havens Young Elementary School						ELECTRIC METER #1					
Provider:	JCP&L			Account #	100 017 827 161			Meter #	L86728153 / S314121233		
Commodity:				Account #				Meter #			
Billing Period Start Date	**Actual Reading**	**Usage kWh**	**Demand kW**	**Electric Delivery Charges**	**Electric Commodity Charges**	**Electric Demand Charges**	**Total Electric Charges**	**Cost / kWh Checksum**	**Days**	**Load Factor**	**BTU**
12/15/17	1/16/18	26,240	87	$779	$2,188	$490	$3,457	$0.132	33	38%	89,530,880
1/17/18	2/14/18	28,480	89	$849	$2,375	$499	$3,723	$0.131	29	46%	97,173,760
2/15/18	3/15/18	26,080	88	$872	$2,175	$498	$3,545	$0.136	29	42%	88,984,960
3/16/18	4/12/18	10,080	85	$382	$841	$477	$1,700	$0.169	28	18%	34,392,960
4/13/18	5/14/18	0	75	$11	$0	$112	$123	-	32	0%	0
5/15/18	6/13/18	0	69	$11	$0	$398	$409	-	30	0%	0
6/14/18	7/16/18	0	69	$11	$0	$394	$405	-	33	0%	0
7/17/18	8/14/18	0	72	$11	$0	$419	$431	-	29	0%	0
8/15/18	9/14/18	0	108	$11	$0	$656	$667	-	31	0%	0
9/15/18	10/15/18	7,200	126	$309	$600	$713	$1,623	$0.225	31	8%	24,566,400
10/16/18	11/13/18	12,960	86	$461	$1,081	$487	$2,029	$0.157	29	22%	44,219,520
11/14/18	12/12/18	19,360	85	$380	$1,873	$472	$2,725	$0.141	29	33%	66,056,320
TOTALS		130,400	126	$4,087	$11,134	$5,616	$20,837	$0.160	363	12%	444,924,800



Emma Havens Young Elementary School					Natural Gas Meter #1		
Provider	NJNG		Account #	06-4539-7455-22	Meter #	872589	
Commodity			Account #		Meter #		
Billing Period Start Date	**Actual Reading**	**Therms**	**Gas Delivery Charges**	**Gas Commodity Charges**	**Gas Total Charges**	**Cost / Unit Checksum**	**BTU**
12/15/17	1/17/18	7,215	$3,796	$2,455	$6,250	$0.87	721,540,000
1/18/18	2/13/18	4,433	$2,509	$1,506	$4,015	$0.91	443,263,000
2/14/18	3/19/18	5,333	$3,017	$1,812	$4,829	$0.91	533,271,000
3/20/18	4/19/18	3,901	$1,959	$1,326	$3,285	$0.84	390,088,000
4/20/18	5/17/18	836	$822	$286	$1,108	$1.33	83,551,000
5/18/18	6/18/18	101	$502	$35	$536	$5.28	10,147,000
6/19/18	7/20/18	24	$468	$7	$475	$19.38	2,449,000
7/21/18	8/17/18	18	$465	$7	$472	$26.45	1,784,000
8/18/18	9/17/18	68	$487	$24	$511	$7.49	6,819,000
9/18/18	10/16/18	260	$571	$88	$660	$2.54	26,007,000
10/17/18	11/10/18	5,418	$2,686	$1,843	$4,529	$0.84	541,760,000
11/11/18	12/13/18	14,145	$6,973	$2,968	$9,941	$0.70	1,414,538,000
TOTALS		41,752	$24,255	$12,356	$36,610	$0.88	4,175,217,000

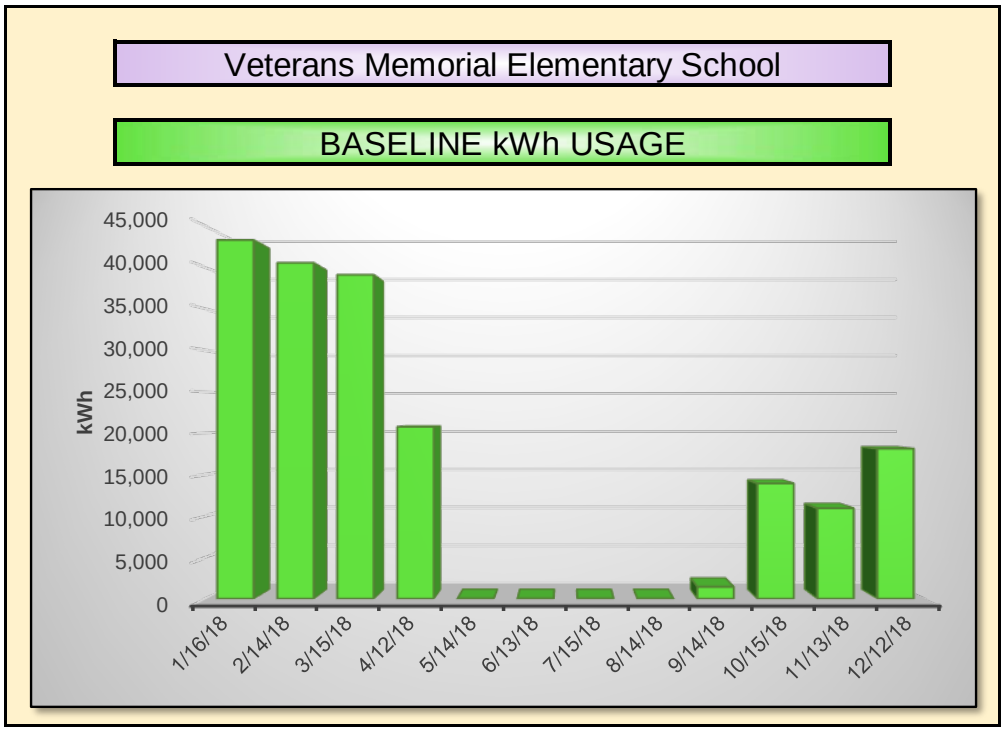
Emma Havens Young Elementary School

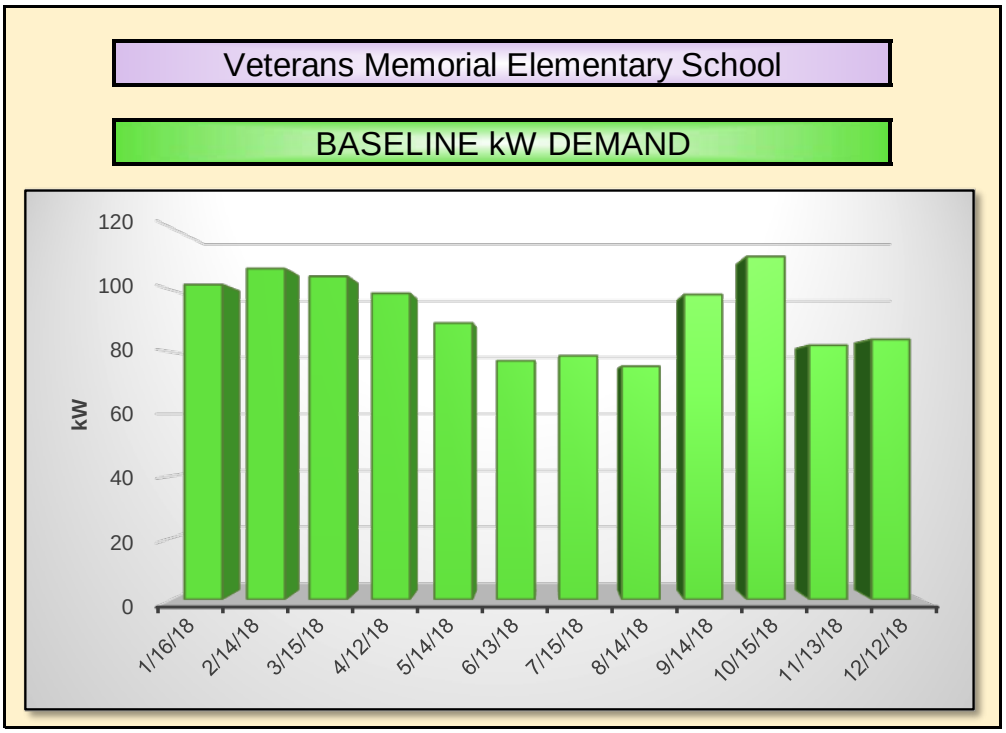
BASELINE Solar PPA (kWh) CONSUMPTION



Emma Havens Young Elementary School					
Provider	NJ Clean Energy Ventures		Solar PPA (kWh)		
Meter/Acct #					
Billing Period Start Date	Actual Reading	Solar PPA (kWh)	$$	Cost / Unit Checksum	BTU
1/1/18	1/31/18	0	$0	-	0
2/1/18	2/28/18	0	$0	-	0
3/1/18	3/31/18	1,580	$67	$0.04	0
4/1/18	4/30/18	29,885	$1,270	$0.04	0
5/1/18	5/31/18	31,045	$1,319	$0.04	0
6/1/18	6/30/18	34,359	$1,481	$0.04	0
7/1/18	7/31/18	34,712	$1,496	$0.04	0
8/1/18	8/31/18	34,712	$1,496	$0.04	0
9/1/18	9/30/18	21,046	$907	$0.04	0
10/1/18	10/31/18	19,369	$835	$0.04	0
11/1/18	11/30/18	14,400	$621	$0.04	0
12/1/18	12/31/18	13,029	$562	$0.04	0
TOTALS		234,137	10,054	$0.04	0

Veterans Memorial ES - Baseline Energy Use

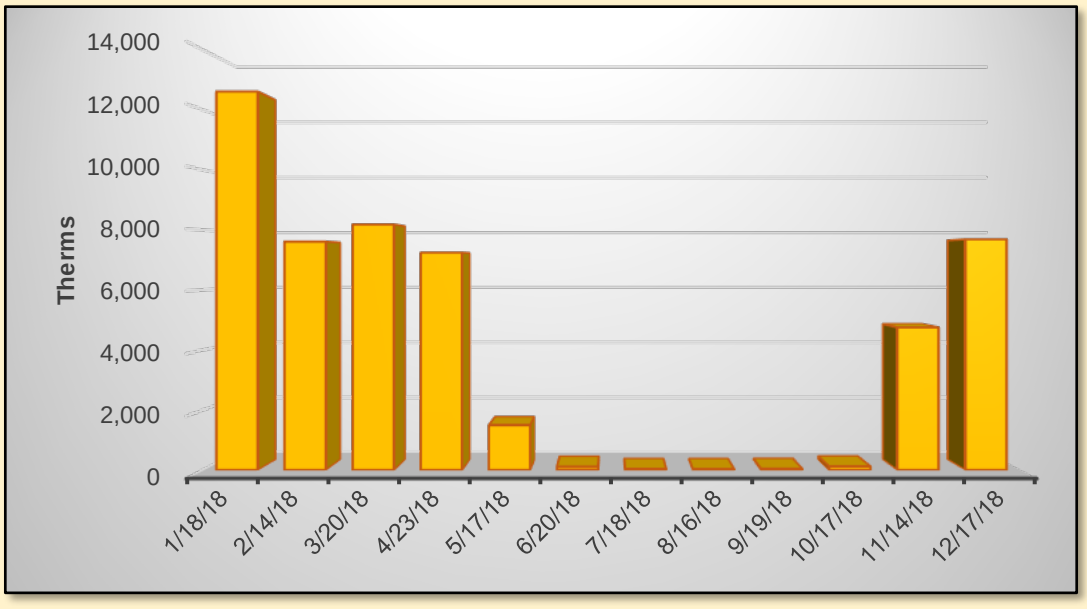




Veterans Memorial Elementary School						ELECTRIC METER #1					
Provider:	JCP&L			Account #	100 047 201 825			Meter #	G28308373		
Commodity:				Account #				Meter #			
Billing Period Start Date	**Actual Reading**	**Usage kWh**	**Demand kW**	**Electric Delivery Charges**	**Electric Commodity Charges**	**Electric Demand Charges**	**Total Electric Charges**	**Cost / kWh Checksum**	**Days**	**Load Factor**	**BTU**
12/15/17	1/16/18	43,320	102	$856	$3,970	$607	$5,433	$0.125	33	54%	147,807,840
1/17/18	2/14/18	40,560	107	$804	$3,732	$640	$5,177	$0.128	29	54%	138,390,720
2/15/18	3/15/18	39,120	105	$778	$3,731	$624	$5,133	$0.131	29	54%	133,477,440
3/16/18	4/12/18	20,760	99	$440	$2,001	$575	$3,016	$0.145	28	31%	70,833,120
4/13/18	5/14/18	(9,240)	89	$11	$0	$498	$509	($0.055)	32	-13%	(31,526,880)
5/15/18	6/13/18	(5,640)	77	$11	$0	$452	$464	($0.082)	30	-10%	(19,243,680)
6/14/18	7/15/18	(19,440)	79	$11	$0	$463	$474	($0.024)	32	-32%	(66,329,280)
7/16/18	8/14/18	(11,520)	75	$11	$0	$440	$451	($0.039)	30	-21%	(39,306,240)
8/15/18	9/14/18	1,440	99	$11	$0	$596	$608	$0.422	31	2%	4,913,280
9/15/18	10/15/18	13,920	111	$11	$0	$633	$644	$0.046	31	17%	47,495,040
10/16/18	11/13/18	10,920	82	$11	$0	$453	$464	$0.042	29	19%	37,259,040
11/14/18	12/12/18	18,120	84	$11	$0	$465	$476	$0.026	29	31%	61,825,440
TOTALS		142,320	111	$2,969	$13,434	$6,445	$22,848	$0.161	363	15%	485,595,840

Veterans Memorial Elementary School

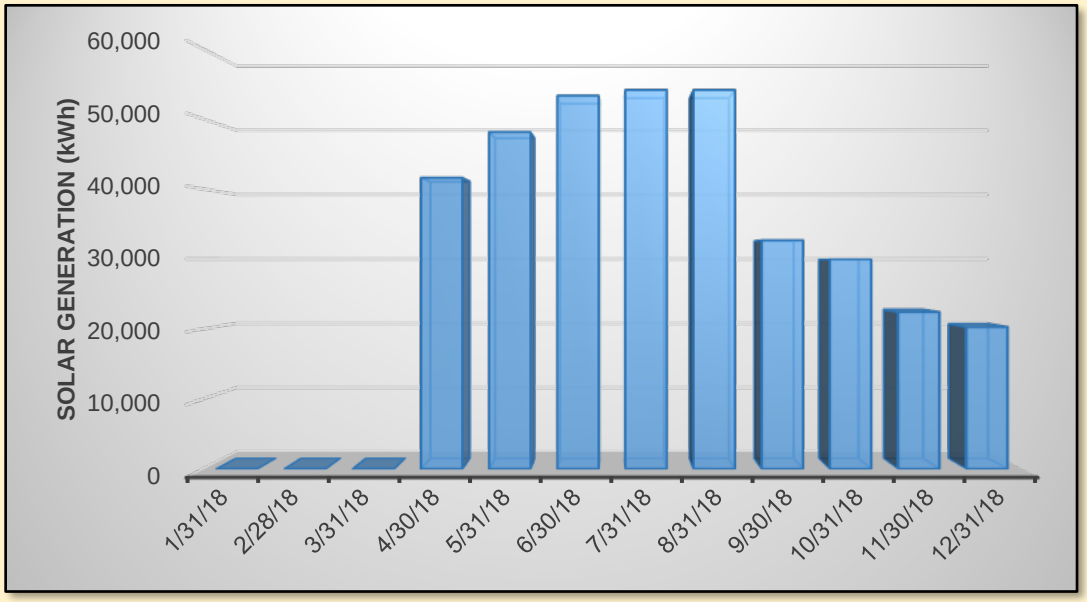
BASELINE NATURAL GAS CONSUMPTION



Veterans Memorial Elementary School					Natural Gas Meter #1		
Provider	NJNG		Account #	08-3520-0535-21	Meter #	1059741	
Commodity			Account #		Meter #		
Billing Period Start Date	**Actual Reading**	**Therms**	**Gas Delivery Charges**	**Gas Commodity Charges**	**Gas Total Charges**	**Cost / Unit Checksum**	**BTU**
12/14/17	1/18/18	12,607	$6,519	$4,287	$10,806	$0.86	1,260,728,000
1/19/18	2/14/18	7,610	$4,209	$2,587	$6,796	$0.89	760,980,000
2/15/18	3/20/18	8,183	$4,613	$2,781	$7,394	$0.90	818,252,000
3/21/18	4/23/18	7,243	$3,381	$2,461	$5,842	$0.81	724,312,000
4/24/18	5/17/18	1,494	$1,206	$507	$1,712	$1.15	149,434,000
5/18/18	6/20/18	105	$737	$37	$774	$7.34	10,542,000
6/21/18	7/18/18	30	$16	$10	$26	$0.86	3,000,000
7/19/18	8/16/18	28	$703	$10	$713	$25.75	2,769,000
8/17/18	9/19/18	34	$706	$10	$716	$20.95	3,416,000
9/20/18	10/17/18	117	$741	$41	$782	$6.67	11,724,000
10/18/18	11/14/18	4,751	$2,724	$1,615	$4,339	$0.91	475,143,000
11/15/18	12/17/18	7,685	$3,979	$2,611	$6,590	$0.86	768,461,000
TOTALS		49,888	$29,532	$16,957	$46,489	$0.93	4,988,761,000

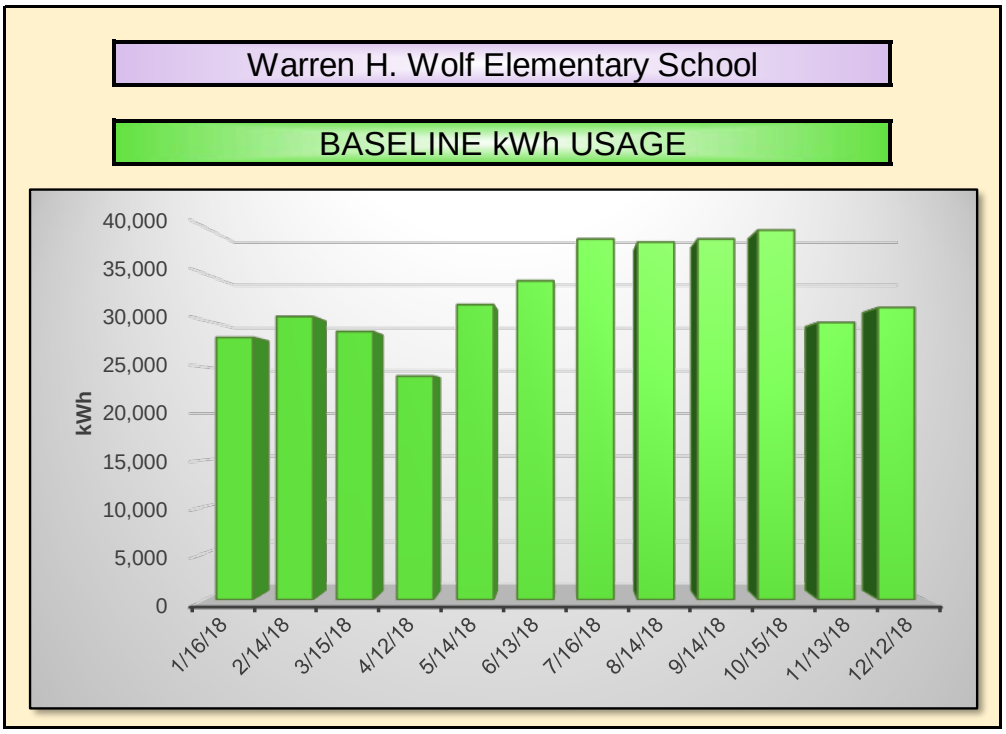
Veterans Memorial Elementary School

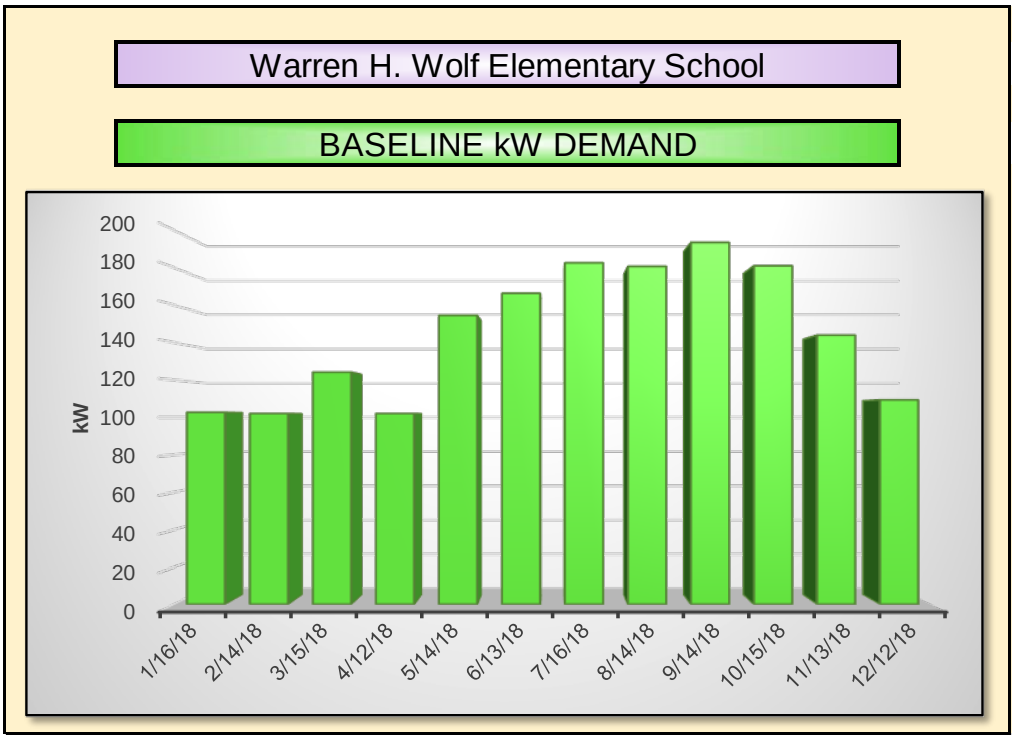
BASELINE Solar PPA (kWh) CONSUMPTION



Veterans Memorial Elementary School					
Provider	NJ Clean Energy Ventures		Solar PPA (kWh)		
Meter/Acct #					
Billing Period Start Date	Actual Reading	Solar PPA (kWh)	$$	Cost / Unit Checksum	BTU
1/1/18	1/31/18	0	0	-	0
2/1/18	2/28/18	0	0	-	0
3/1/18	3/31/18	0	0	-	0
4/1/18	4/30/18	41,598	1,768	$0.04	0
5/1/18	5/31/18	48,121	2,045	$0.04	0
6/1/18	6/30/18	53,309	2,298	$0.04	0
7/1/18	7/31/18	54,138	2,333	$0.04	0
8/1/18	8/31/18	54,138	2,333	$0.04	0
9/1/18	9/30/18	32,664	1,408	$0.04	0
10/1/18	10/31/18	29,945	1,291	$0.04	0
11/1/18	11/30/18	22,400	965	$0.04	0
12/1/18	12/31/18	20,267	873	$0.04	0
TOTALS		356,579	15,315	$0.04	0

Warren H. Wolf Elementary School - Baseline Energy Use

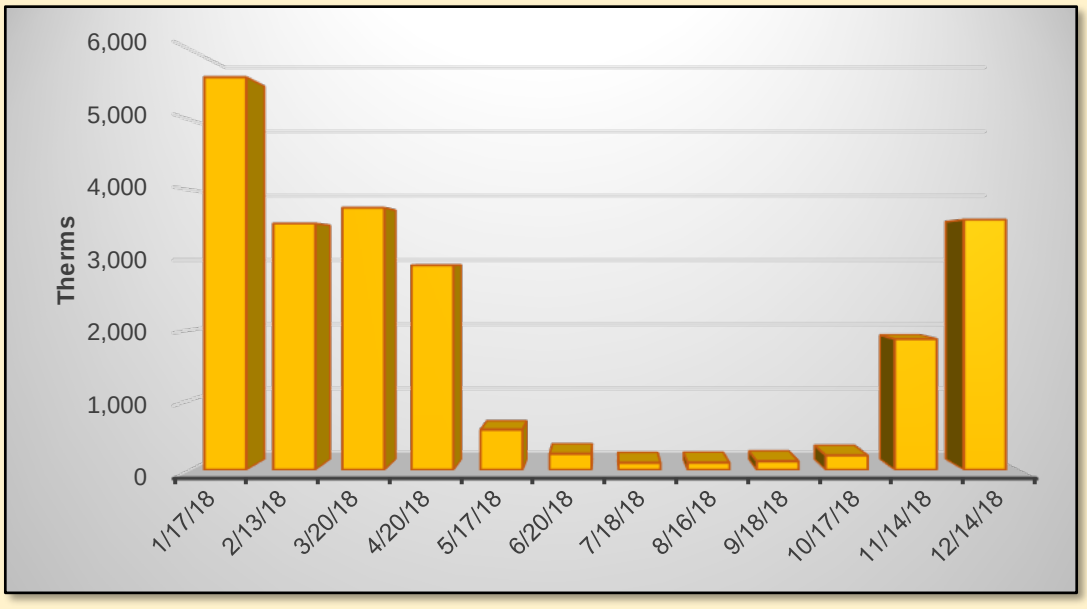




Warren H. Wolf Elementary School						ELECTRIC METER #1					
Provider:	JCP&L			Account #	100 017 747 732			Meter #	G35518257		
Commodity:				Account #				Meter #			
Billing Period Start Date	**Actual Reading**	**Usage kWh**	**Demand kW**	**Electric Delivery Charges**	**Electric Commodity Charges**	**Electric Demand Charges**	**Total Electric Charges**	**Cost / kWh Checksum**	**Days**	**Load Factor**	**BTU**
12/15/17	1/16/18	28,160	103	$577	$2,052	$615	$3,244	$0.115	33	35%	96,081,920
1/17/18	2/14/18	30,400	102	$616	$2,215	$611	$3,442	$0.113	29	43%	103,724,800
2/15/18	3/15/18	28,800	124	$590	$2,099	$754	$3,442	$0.120	29	33%	98,265,600
3/16/18	4/12/18	24,000	102	$499	$1,749	$595	$2,842	$0.118	28	35%	81,888,000
4/13/18	5/14/18	31,680	155	$653	$2,308	$901	$3,862	$0.122	32	27%	108,092,160
5/15/18	6/13/18	34,240	166	$682	$2,511	$1,053	$4,246	$0.124	30	29%	116,826,880
6/14/18	7/16/18	38,720	183	$764	$2,840	$1,162	$4,767	$0.123	33	27%	132,112,640
7/17/18	8/14/18	38,400	181	$761	$2,817	$1,149	$4,727	$0.123	29	31%	131,020,800
8/15/18	9/14/18	38,720	194	$764	$2,840	$1,236	$4,839	$0.125	31	27%	132,112,640
9/15/18	10/15/18	39,680	181	$763	$3,458	$1,073	$5,295	$0.133	31	29%	135,388,160
10/16/18	11/13/18	29,760	144	$570	$2,594	$840	$4,004	$0.135	29	30%	101,541,120
11/14/18	12/12/18	31,360	109	$577	$2,733	$623	$3,933	$0.125	29	41%	107,000,320
TOTALS		393,920	194	$7,815	$30,216	$10,611	$48,643	$0.123	363	23%	1,344,055,040

Warren H. Wolf Elementary School

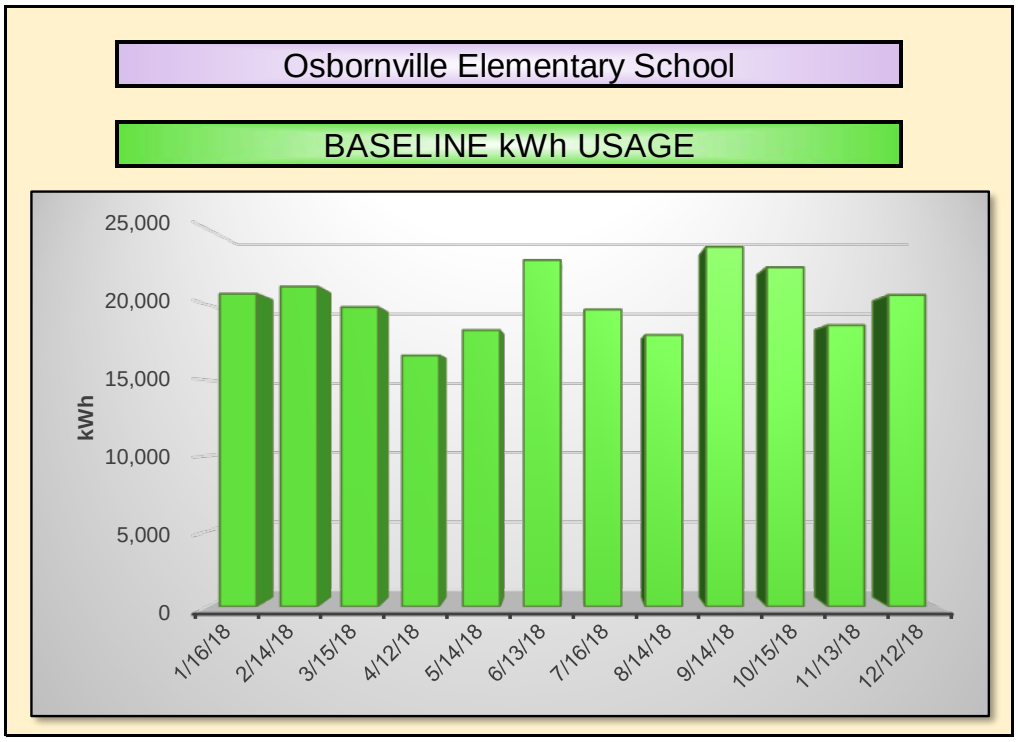
BASELINE NATURAL GAS CONSUMPTION

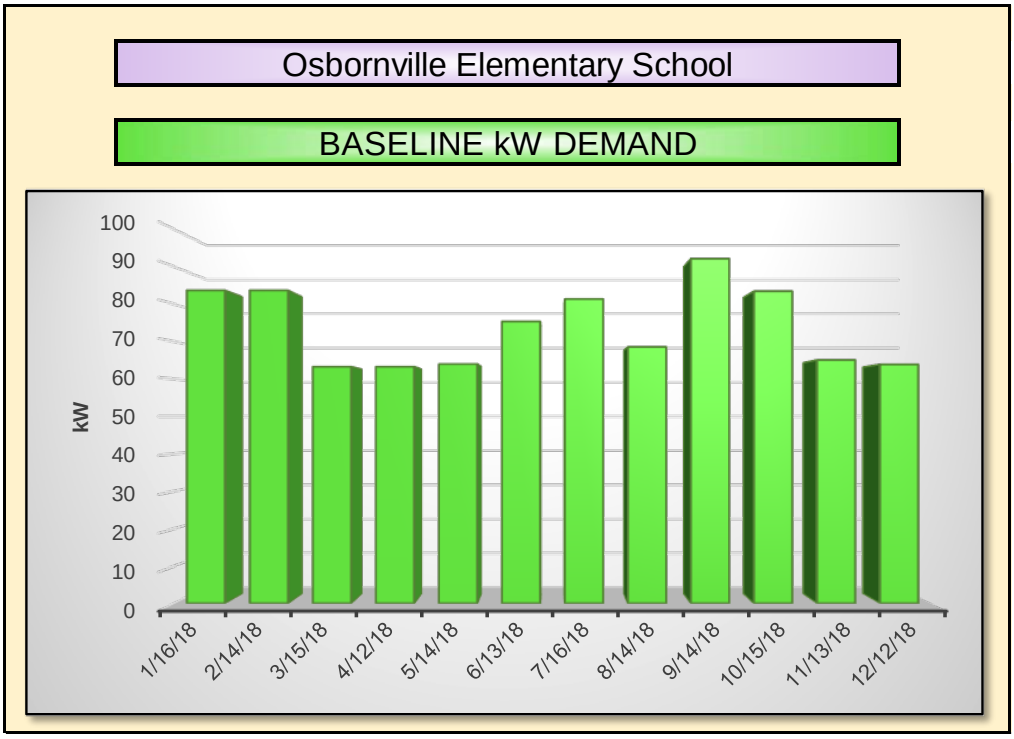


Warren H. Wolf Elementary School					Natural Gas Meter #1		
Provider	NJNG		Account #	04-4530-5020-14	Meter #	945031	
Commodity			Account #		Meter #		
Billing Period Start Date	**Actual Reading**	**Therms**	**Gas Delivery Charges**	**Gas Commodity Charges**	**Gas Total Charges**	**Cost / Unit Checksum**	**BTU**
12/13/17	1/17/18	5,612	$2,968	$1,907	$4,875	$0.87	561,156,000
1/18/18	2/13/18	3,520	$1,862	$1,197	$3,058	$0.87	351,961,765
2/14/18	3/20/18	3,746	$2,181	$1,275	$3,455	$0.92	374,552,000
3/21/18	4/20/18	2,924	$1,447	$993	$2,440	$0.83	292,384,000
4/21/18	5/17/18	575	$621	$197	$819	$1.42	57,515,000
5/18/18	6/20/18	230	$471	$78	$549	$2.39	23,000,000
6/21/18	7/18/18	100	$414	$34	$448	$4.48	9,990,000
7/19/18	8/16/18	103	$415	$34	$449	$4.35	10,331,000
8/17/18	9/18/18	123	$424	$41	$465	$3.78	12,276,000
9/19/18	10/17/18	207	$462	$70	$533	$2.58	20,677,000
10/18/18	11/14/18	1,869	$1,174	$636	$1,810	$0.97	186,922,000
11/15/18	12/14/18	3,574	$1,903	$1,214	$3,117	$0.87	357,426,000
TOTALS		22,582	$14,342	$7,675	$22,017	$0.97	2,258,190,765

DCO Energy Efficiency Division
100 Lenox Drive
Lawrenceville, NJ 08648

Osbornville Elementary School - Baseline Energy Use

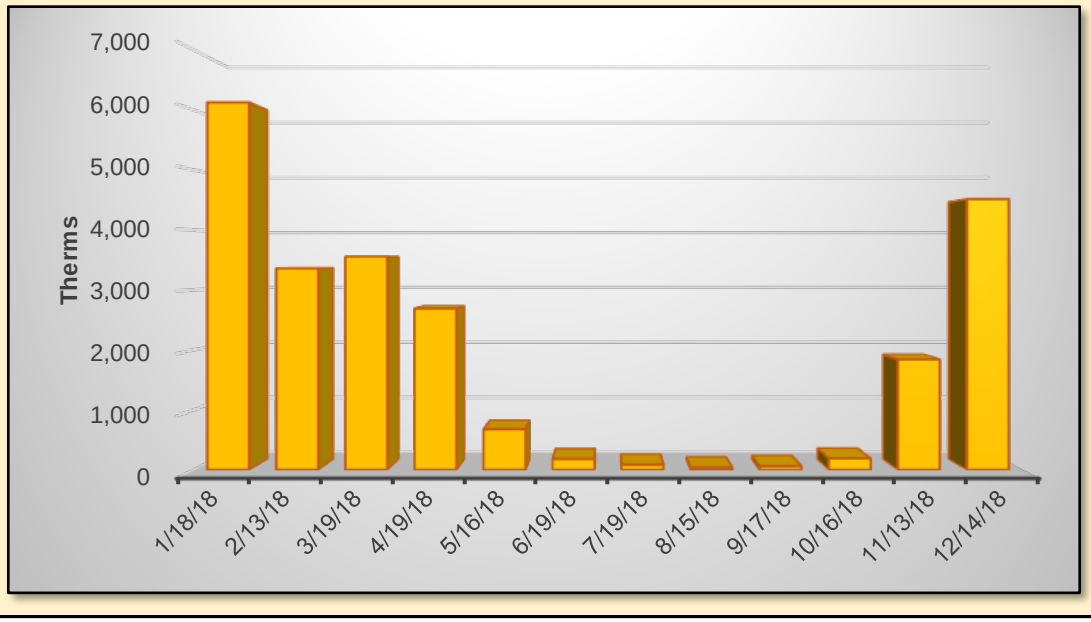




Osbornville Elementary School						ELECTRIC METER #1					
Provider:	JCP&L			Account #	100 017 282 060			Meter #	G21021475		
Commodity:				Account #				Meter #			
Billing Period Start Date	**Actual Reading**	**Usage kWh**	**Demand kW**	**Electric Delivery Charges**	**Electric Commodity Charges**	**Electric Demand Charges**	**Total Electric Charges**	**Cost / kWh Checksum**	**Days**	**Load Factor**	**BTU**
12/15/17	1/16/18	20,720	84	$444	$1,510	$487	$2,441	$0.118	33	31%	70,696,640
1/17/18	2/14/18	21,200	84	$452	$1,545	$486	$2,483	$0.117	29	36%	72,334,400
2/15/18	3/15/18	19,840	63	$427	$1,446	$352	$2,224	$0.112	29	45%	67,694,080
3/16/18	4/12/18	16,640	63	$365	$1,213	$344	$1,922	$0.116	28	39%	56,775,680
4/13/18	5/14/18	18,320	64	$391	$1,344	$339	$2,074	$0.113	32	37%	62,507,840
5/15/18	6/13/18	22,960	75	$479	$1,684	$440	$2,603	$0.113	30	42%	78,339,520
6/14/18	7/16/18	19,680	81	$421	$1,443	$481	$2,345	$0.119	33	31%	67,148,160
7/17/18	8/14/18	18,000	69	$392	$1,320	$394	$2,107	$0.117	29	38%	61,416,000
8/15/18	9/14/18	23,840	92	$496	$1,749	$553	$2,798	$0.117	31	35%	81,342,080
9/15/18	10/15/18	22,480	84	$459	$1,959	$461	$2,880	$0.128	31	36%	76,701,760
10/16/18	11/13/18	18,640	65	$380	$1,625	$345	$2,350	$0.126	29	41%	63,599,680
11/14/18	12/12/18	20,640	64	$401	$1,799	$338	$2,538	$0.123	29	46%	70,423,680
TOTALS		**242,960**	**92**	**$5,108**	**$18,636**	**$5,021**	**$28,764**	**$0.118**	**363**	**30%**	**828,979,520**

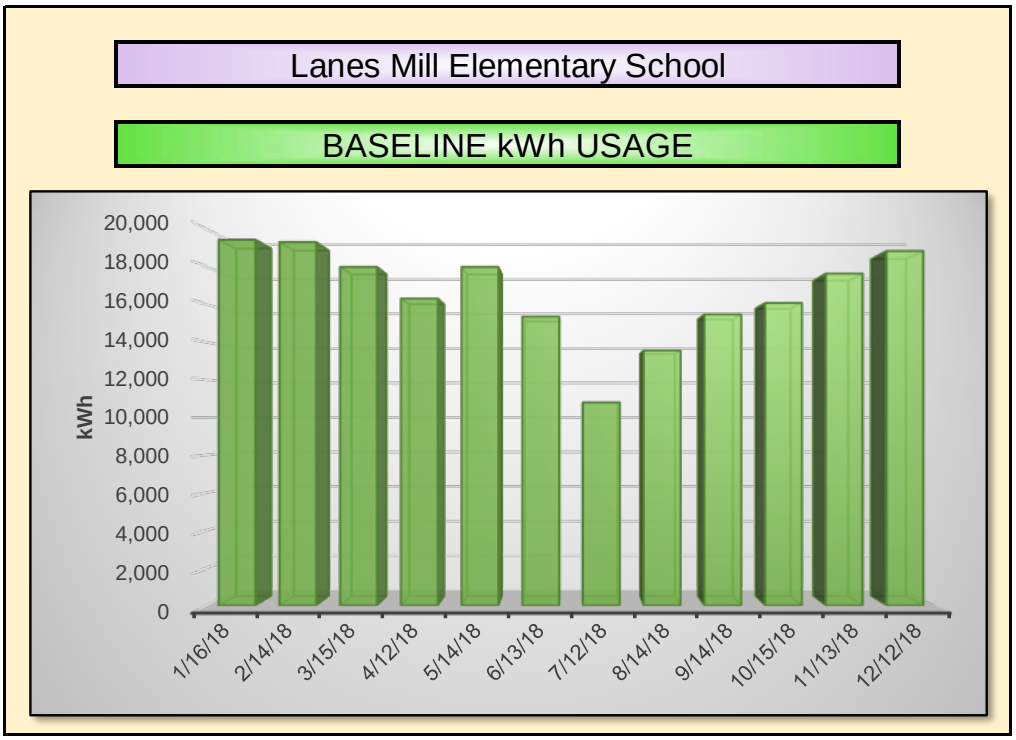
Osbornville Elementary School

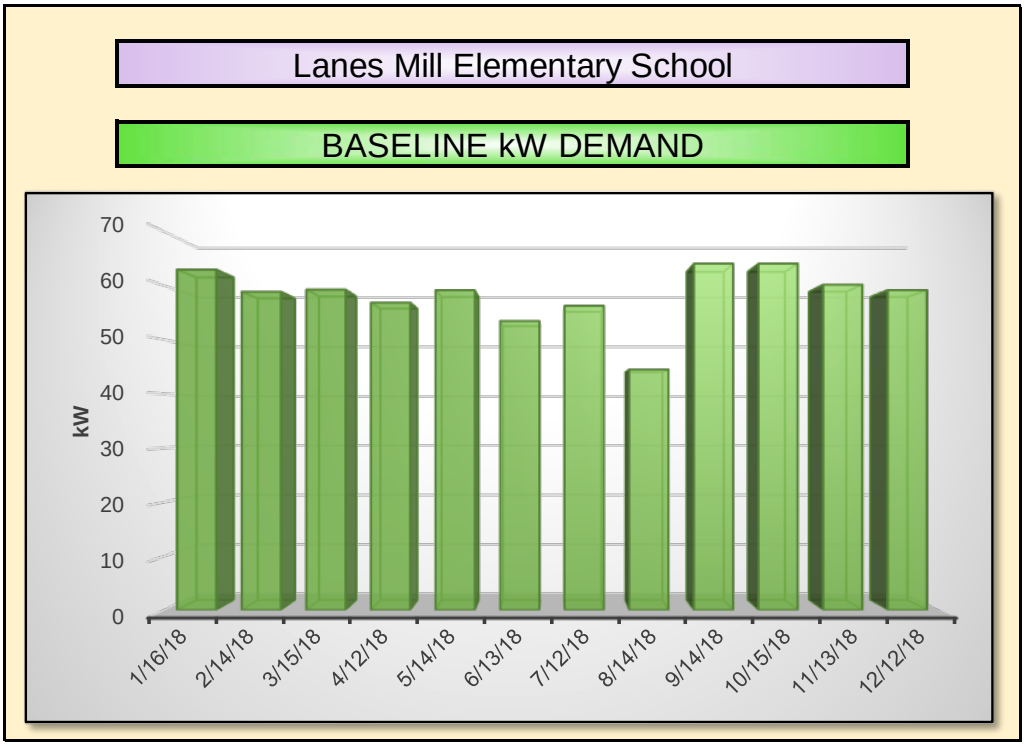
BASELINE NATURAL GAS CONSUMPTION



Osbornville Elementary School					Natural Gas Meter #1		
Provider	NJNG		Account #	06-4540-4209-28	Meter #	1039394	
Commodity			Account #		Meter #		
Billing Period Start Date	**Actual Reading**	**Therms**	**Gas Delivery Charges**	**Gas Commodity Charges**	**Gas Total Charges**	**Cost / Unit Checksum**	**BTU**
12/13/17	1/18/18	6,125	$3,264	$2,084	$5,348	$0.87	612,540,000
1/19/18	2/13/18	3,358	$1,839	$1,142	$2,981	$0.89	335,821,000
2/14/18	3/19/18	3,556	$2,075	$1,210	$3,286	$0.92	355,558,000
3/20/18	4/19/18	2,690	$1,377	$915	$2,291	$0.85	268,984,000
4/20/18	5/16/18	678	$652	$231	$883	$1.30	67,847,000
5/17/18	6/19/18	181	$435	$62	$496	$2.74	18,102,000
6/20/18	7/19/18	86	$393	$31	$424	$4.92	8,609,000
7/20/18	8/15/18	38	$372	$14	$386	$10.07	3,834,000
8/16/18	9/17/18	62	$383	$20	$403	$6.51	6,192,000
9/18/18	10/16/18	192	$439	$65	$505	$2.63	19,184,000
10/17/18	11/13/18	1,839	$1,145	$626	$1,770	$0.96	183,937,000
11/14/18	12/14/18	4,512	$2,288	$1,533	$3,822	$0.85	451,188,000
TOTALS		23,318	$14,663	$7,932	$22,595	$0.97	2,331,796,000

Lanes Mill Elementary School - Baseline Energy Use

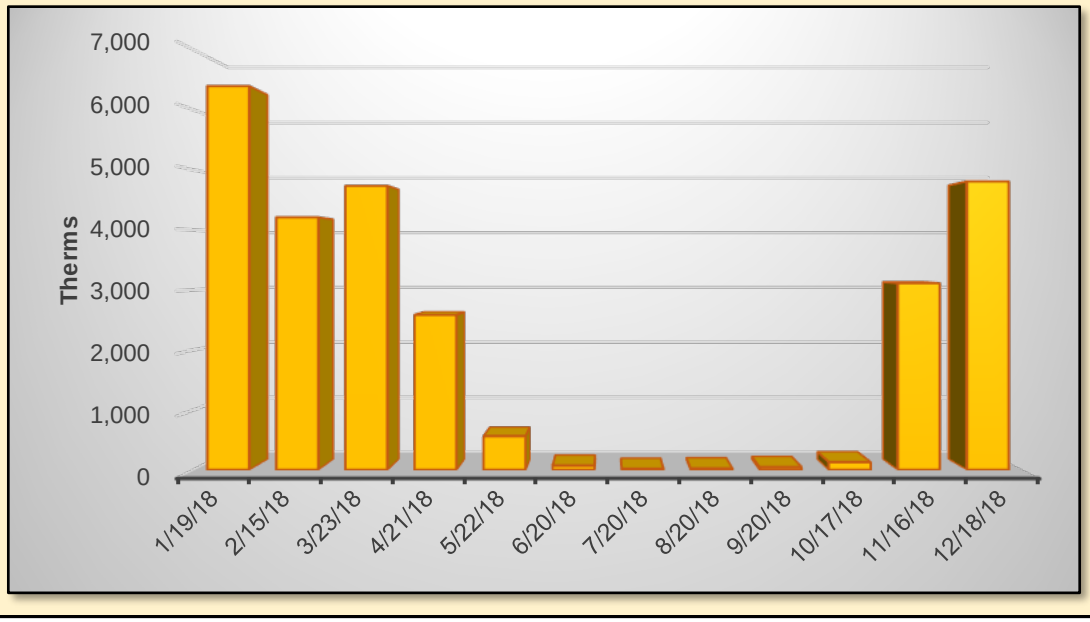




Lanes Mill Elementary School						ELECTRIC METER #1					
Provider:	JCP&L			Account #	100 014 721 441			Meter #			
Commodity:				Account #				Meter #			
Billing Period Start Date	**Actual Reading**	**Usage kWh**	**Demand kW**	**Electric Delivery Charges**	**Electric Commodity Charges**	**Electric Demand Charges**	**Total Electric Charges**	**Cost / kWh Checksum**	**Days**	**Load Factor**	**BTU**
12/15/17	1/16/18	19,440	63	$420	$1,417	$351	$2,187	$0.113	33	39%	66,329,280
1/17/18	2/14/18	19,320	59	$417	$1,408	$323	$2,148	$0.111	29	47%	65,919,840
2/15/18	3/15/18	18,000	59	$393	$1,312	$325	$2,030	$0.113	29	44%	61,416,000
3/16/18	4/12/18	16,320	57	$360	$1,189	$303	$1,852	$0.113	28	43%	55,683,840
4/13/18	5/14/18	18,000	59	$388	$1,312	$315	$2,014	$0.112	32	40%	61,416,000
5/15/18	6/13/18	15,360	54	$343	$1,127	$293	$1,762	$0.115	30	40%	52,408,320
6/14/18	7/12/18	10,800	56	$261	$792	$312	$1,365	$0.126	29	28%	36,849,600
7/13/18	8/14/18	13,560	45	$312	$995	$232	$1,539	$0.113	33	38%	46,266,720
8/15/18	9/14/18	15,480	64	$345	$1,135	$364	$1,845	$0.119	31	32%	52,817,760
9/15/18	10/15/18	16,080	64	$346	$1,401	$339	$2,087	$0.130	31	34%	54,864,960
10/16/18	11/13/18	17,640	60	$363	$1,537	$315	$2,215	$0.126	29	42%	60,187,680
11/14/18	12/12/18	18,840	59	$371	$1,642	$308	$2,322	$0.123	29	46%	64,282,080
TOTALS		**198,840**	**64**	**$4,320**	**$15,267**	**$3,780**	**$23,366**	**$0.118**	**363**	**36%**	**678,442,080**

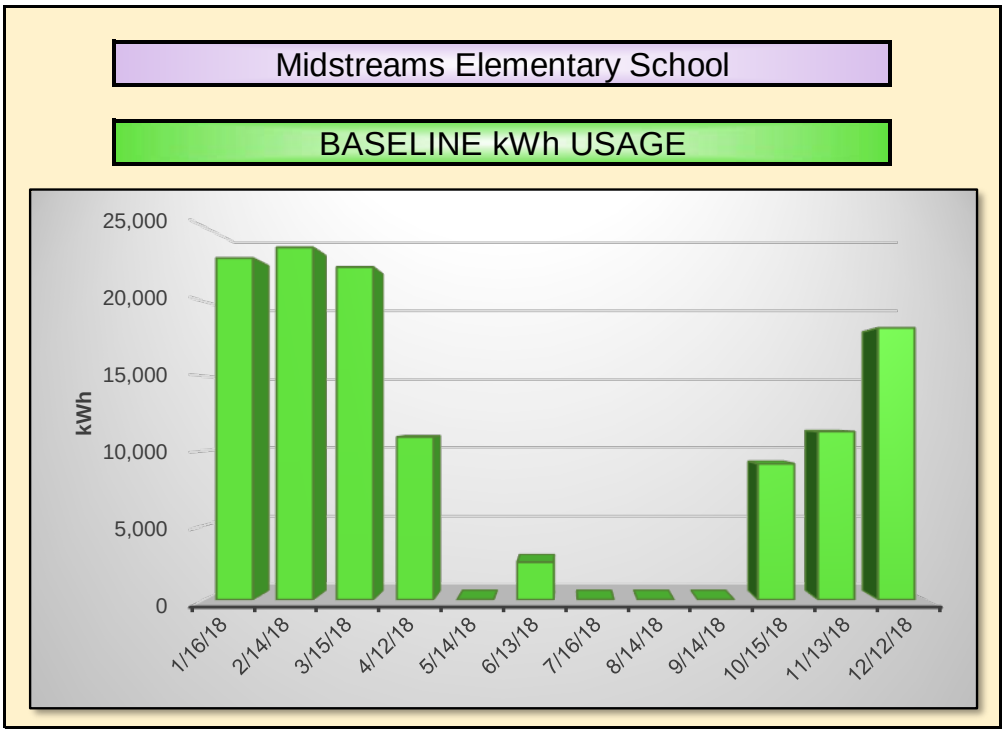
Lanes Mill Elementary School

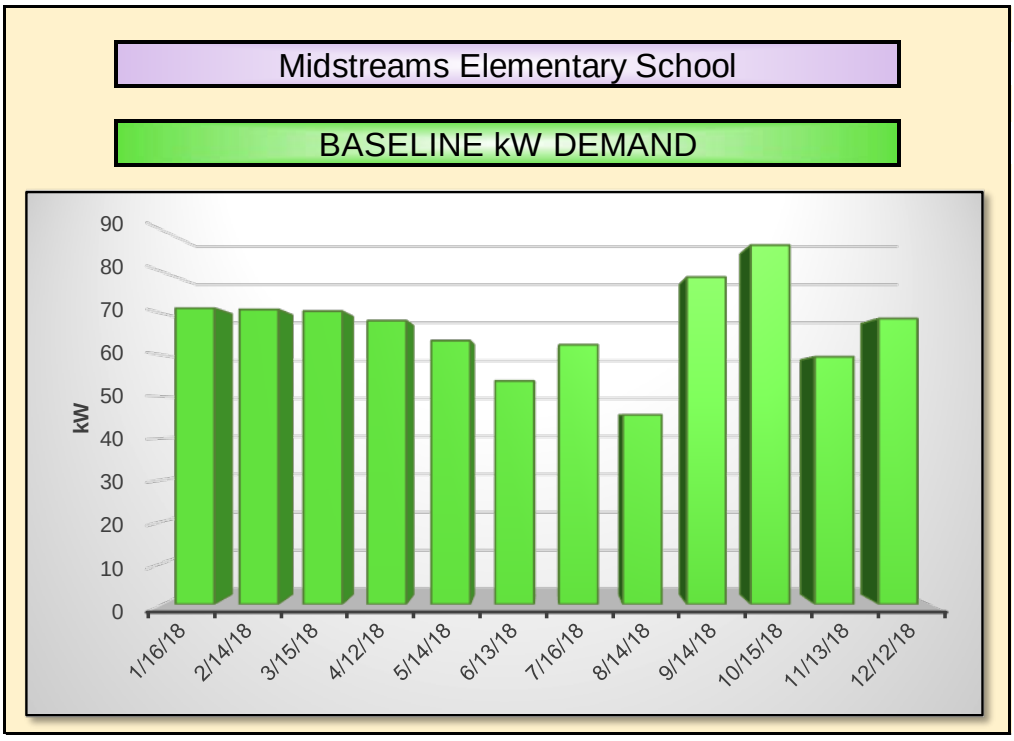
BASELINE NATURAL GAS CONSUMPTION



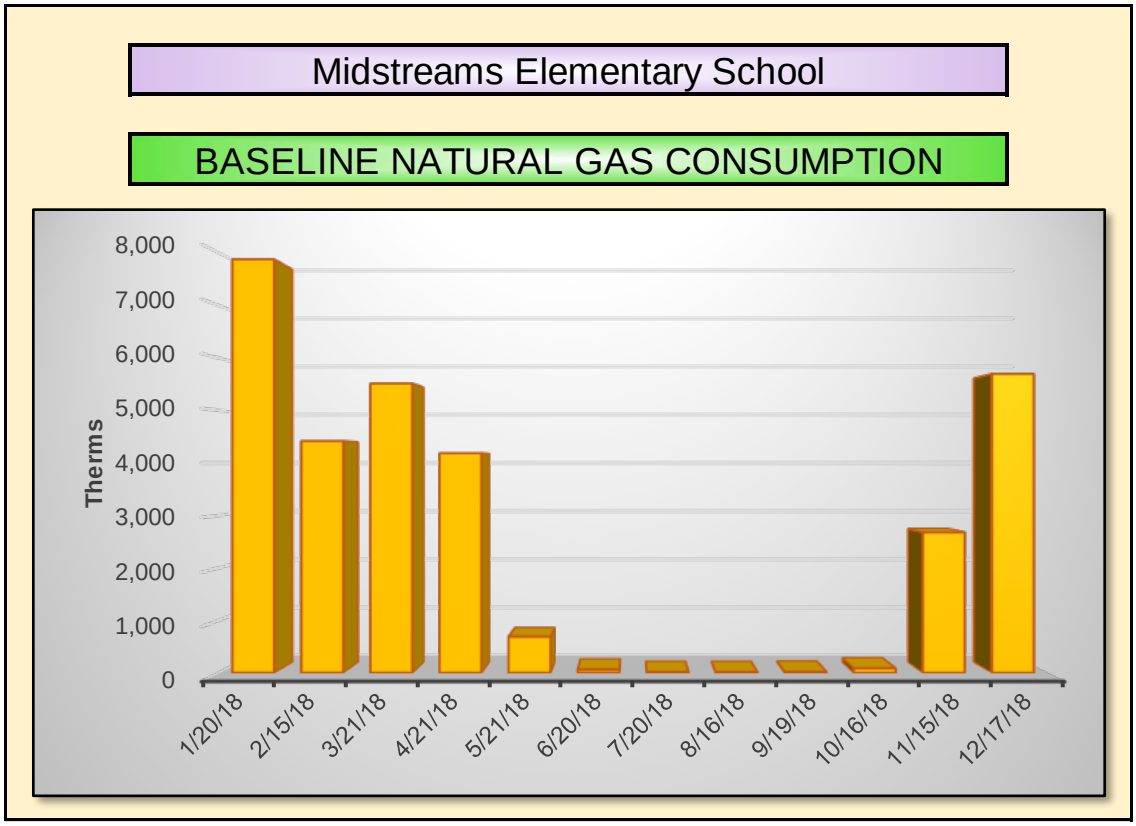
Lanes Mill Elementary School					Natural Gas Meter #1		
Provider	NJNG		Account #	11-3523-1510-2Y	Meter #	851914	
Commodity			Account #		Meter #		
Billing Period Start Date	**Actual Reading**	**Therms**	**Gas Delivery Charges**	**Gas Commodity Charges**	**Gas Total Charges**	**Cost / Unit Checksum**	**BTU**
12/15/17	1/19/18	6,397	$3,487	$2,176	$5,663	$0.89	639,731,000
1/20/18	2/15/18	4,211	$2,476	$1,431	$3,907	$0.93	421,089,000
2/16/18	3/23/18	4,736	$2,878	$1,611	$4,489	$0.95	473,579,000
3/24/18	4/21/18	2,583	$1,343	$877	$2,220	$0.86	258,348,000
4/22/18	5/22/18	561	$771	$190	$961	$1.71	56,131,000
5/23/18	6/20/18	70	$556	$24	$580	$8.25	7,028,000
6/21/18	7/20/18	15	$532	$5	$537	$36.09	1,488,000
7/21/18	8/20/18	22	$535	$8	$543	$24.26	2,237,000
8/21/18	9/20/18	45	$545	$14	$559	$12.46	4,484,000
9/21/18	10/17/18	129	$524	$44	$568	$4.41	12,896,000
10/18/18	11/16/18	3,111	$1,801	$1,058	$2,859	$0.92	311,146,000
11/17/18	12/18/18	4,808	$2,527	$1,635	$4,162	$0.87	480,795,730
TOTALS		26,690	$17,974	$9,073	$27,048	$1.01	2,668,952,730

Midstreams Elementary School - Baseline Energy Use





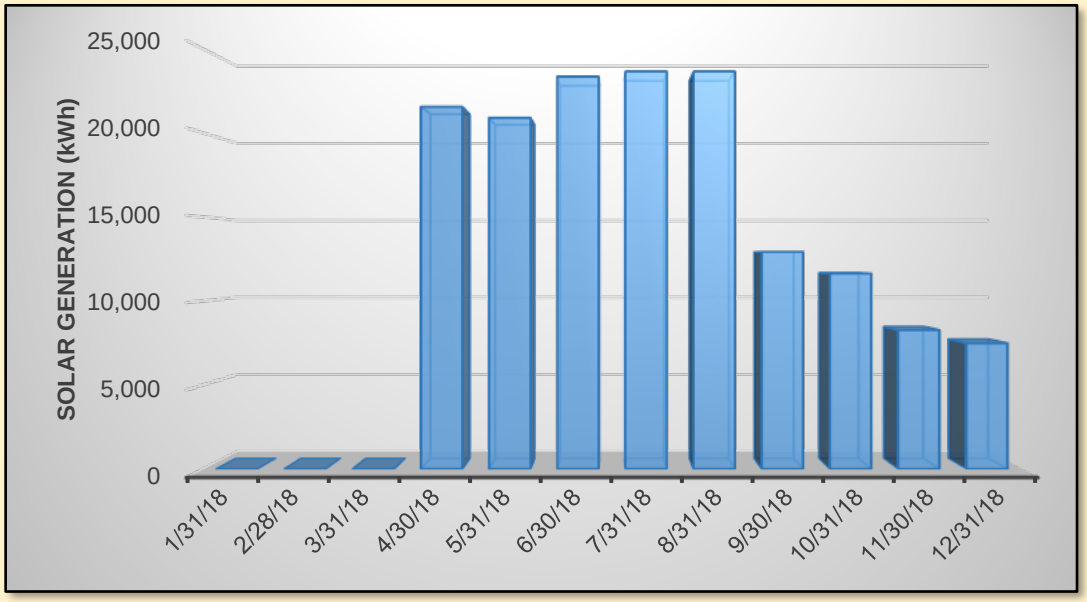
Midstreams Elementary School						ELECTRIC METER #1					
Provider:	JCP&L			Account #	100 017 862 465			Meter #	G21123818 / S314035685		
Commodity:				Account #				Meter #			
Billing Period Start Date	**Actual Reading**	**Usage kWh**	**Demand kW**	**Electric Delivery Charges**	**Electric Commodity Charges**	**Electric Demand Charges**	**Total Electric Charges**	**Cost / kWh Checksum**	**Days**	**Load Factor**	**BTU**
12/15/17	1/16/18	22,920	71	$484	$1,670	$405	$2,559	$0.112	33	41%	78,203,040
1/17/18	2/14/18	23,640	71	$496	$1,723	$403	$2,621	$0.111	29	48%	80,659,680
2/15/18	3/15/18	22,320	71	$472	$1,626	$400	$2,498	$0.112	29	45%	76,155,840
3/16/18	4/12/18	10,920	68	$262	$796	$377	$1,434	$0.131	28	24%	37,259,040
4/13/18	5/14/18	0	64	$11	$0	$335	$347	-	32	0%	0
5/15/18	6/13/18	2,520	54	$112	$185	$295	$592	$0.235	30	7%	8,598,240
6/14/18	7/16/18	0	63	$11	$0	$353	$365	-	33	0%	0
7/17/18	8/14/18	0	46	$11	$0	$240	$251	-	29	0%	0
8/15/18	9/14/18	0	79	$11	$0	$463	$474	-	31	0%	0
9/15/18	10/15/18	9,120	87	$223	$795	$480	$1,498	$0.164	31	14%	31,117,440
10/16/18	11/13/18	11,280	60	$255	$983	$311	$1,549	$0.137	29	27%	38,487,360
11/14/18	12/12/18	18,240	69	$362	$1,590	$369	$2,320	$0.127	29	38%	62,234,880
TOTALS		120,960	87	$2,710	$9,367	$4,430	$16,508	$0.136	363	16%	412,715,520



Midstreams Elementary School					Natural Gas Meter #1		
Provider	NJNG		Account #	19-3593-1250-2Y	Meter #	1039550	
Commodity			Account #		Meter #		
Billing Period Start Date	**Actual Reading**	**Therms**	**Gas Delivery Charges**	**Gas Commodity Charges**	**Gas Total Charges**	**Cost / Unit Checksum**	**BTU**
12/15/17	1/20/18	7,877	$4,226	$2,679	$6,905	$0.88	787,712,000
1/21/18	2/15/18	4,417	$2,430	$1,503	$3,933	$0.89	441,716,000
2/16/18	3/21/18	5,513	$3,132	$1,873	$5,005	$0.91	551,311,000
3/22/18	4/21/18	4,185	$2,042	$1,424	$3,466	$0.83	418,514,000
4/22/18	5/21/18	691	$785	$235	$1,020	$1.48	69,057,000
5/22/18	6/20/18	62	$510	$21	$531	$8.63	6,158,000
6/21/18	7/20/18	15	$490	$7	$497	$32.90	1,510,000
7/21/18	8/16/18	15	$490	$7	$497	$32.84	1,513,000
8/17/18	9/19/18	20	$492	$7	$499	$25.58	1,950,000
9/20/18	10/16/18	87	$507	$31	$538	$6.22	8,651,000
10/17/18	11/15/18	2,677	$1,616	$910	$2,526	$0.94	267,687,000
11/16/18	12/17/18	5,695	$2,908	$1,934	$4,842	$0.85	569,488,000
TOTALS		31,253	$19,629	$10,630	$30,259	$0.97	3,125,267,000

Midstreams Elementary School

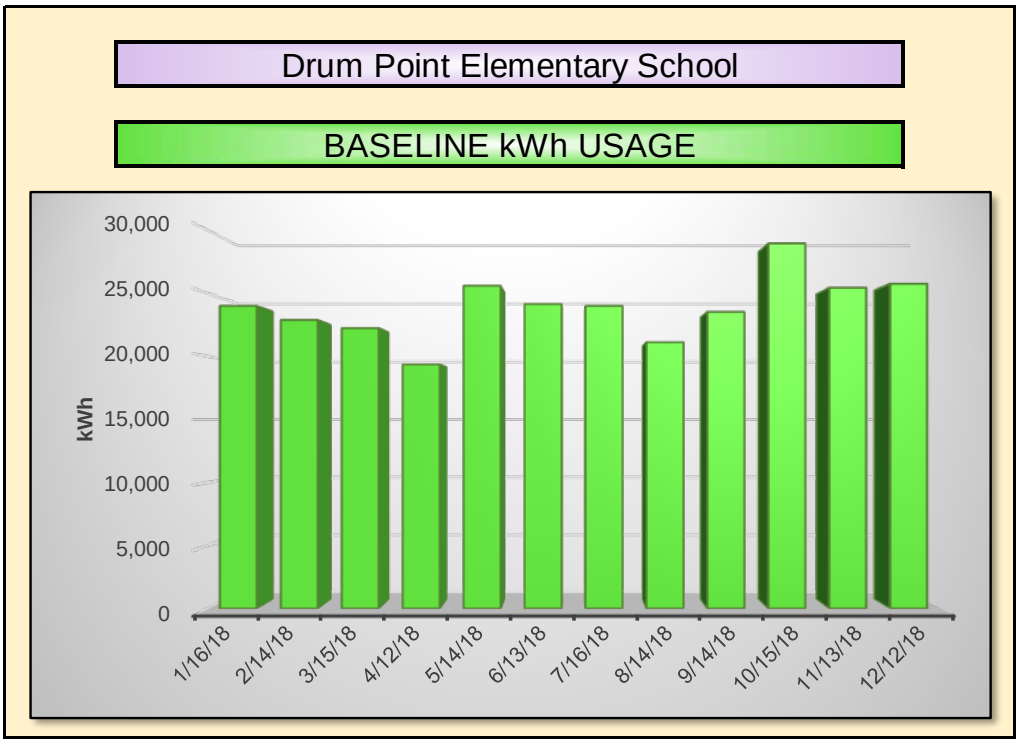
BASELINE Solar PPA (kWh) CONSUMPTION

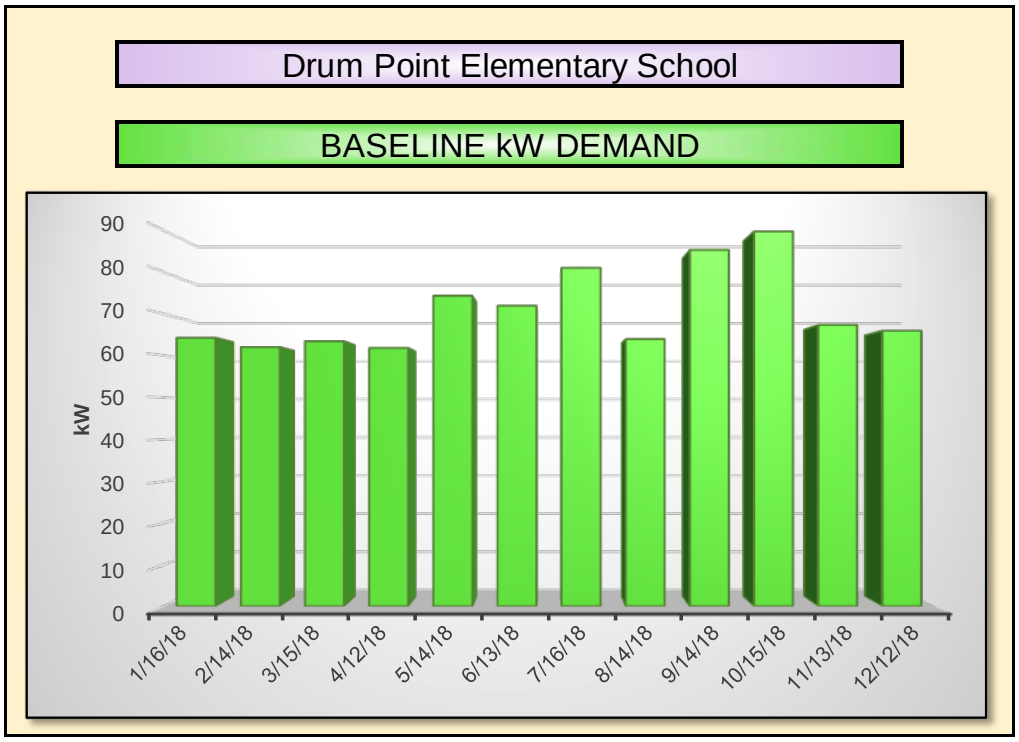


Midstreams Elementary School					
Provider	NJ Clean Energy Ventures		Solar PPA (kWh)		
Meter/Acct #					
Billing Period Start Date	Actual Reading	Solar PPA (kWh)	$$	Cost / Unit Checksum	BTU
1/1/18	1/31/18	0	0	-	0
2/1/18	2/28/18	0	0	-	0
3/1/18	3/31/18	0	0	-	0
4/1/18	4/30/18	21,555	916	$0.04	0
5/1/18	5/31/18	20,900	888	$0.04	0
6/1/18	6/30/18	23,344	1,006	$0.04	0
7/1/18	7/31/18	23,651	1,019	$0.04	0
8/1/18	8/31/18	23,651	1,019	$0.04	0
9/1/18	9/30/18	12,920	557	$0.04	0
10/1/18	10/31/18	11,625	501	$0.04	0
11/1/18	11/30/18	8,264	356	$0.04	0
12/1/18	12/31/18	7,477	322	$0.04	0
TOTALS		153,386	6,585	$0.04	0

DCO Energy Efficiency Division
100 Lenox Drive
Lawrenceville, NJ 08648

Drum Point Elementary School - Baseline Energy Use

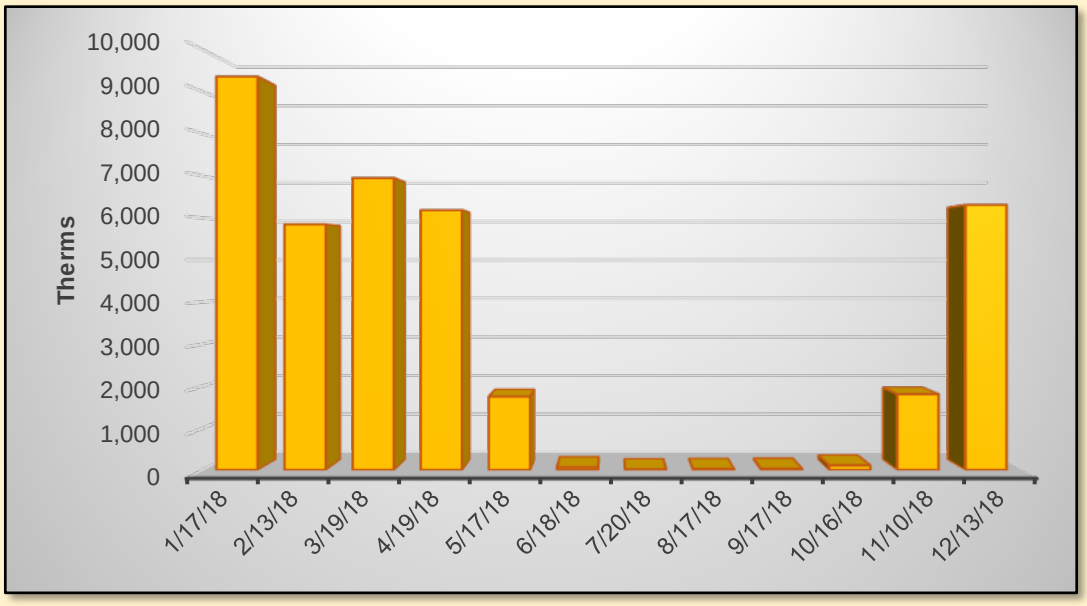




Drum Point Elementary School						ELECTRIC METER #1					
Provider:	JCP&L			Account #	100 017 826 957			Meter #	G28658731 / G28225780		
Commodity:				Account #				Meter #			
Billing Period Start Date	**Actual Reading**	**Usage kWh**	**Demand kW**	**Electric Delivery Charges**	**Electric Commodity Charges**	**Electric Demand Charges**	**Total Electric Charges**	**Cost / kWh Checksum**	**Days**	**Load Factor**	**BTU**
12/15/17	1/16/18	24,000	64	$503	$1,749	$359	$2,611	$0.109	33	47%	81,888,000
1/17/18	2/14/18	22,880	62	$482	$1,667	$344	$2,493	$0.109	29	53%	78,066,560
2/15/18	3/15/18	22,240	64	$471	$1,621	$353	$2,444	$0.110	29	50%	75,882,880
3/16/18	4/12/18	19,360	62	$610	$1,411	$139	$2,161	$0.112	28	47%	66,056,320
4/13/18	5/14/18	25,600	74	$522	$1,878	$404	$2,804	$0.110	32	45%	87,347,200
5/15/18	6/13/18	24,160	72	$501	$1,772	$417	$2,690	$0.111	30	47%	82,433,920
6/14/18	7/16/18	24,000	81	$844	$1,760	$479	$2,738	$0.114	33	37%	81,888,000
7/17/18	8/14/18	21,120	64	$807	$1,549	$367	$2,364	$0.112	29	47%	72,061,440
8/15/18	9/14/18	23,520	85	$490	$1,725	$507	$2,723	$0.116	31	37%	80,250,240
9/15/18	10/15/18	28,960	90	$574	$2,524	$500	$3,598	$0.124	31	43%	98,811,520
10/16/18	11/13/18	25,440	67	$496	$2,217	$360	$3,073	$0.121	29	54%	86,801,280
11/14/18	12/12/18	25,760	66	$485	$2,245	$352	$3,083	$0.120	29	56%	87,893,120
TOTALS		**287,040**	**90**	**$6,785**	**$22,118**	**$4,582**	**$32,782**	**$0.114**	**363**	**37%**	**979,380,480**

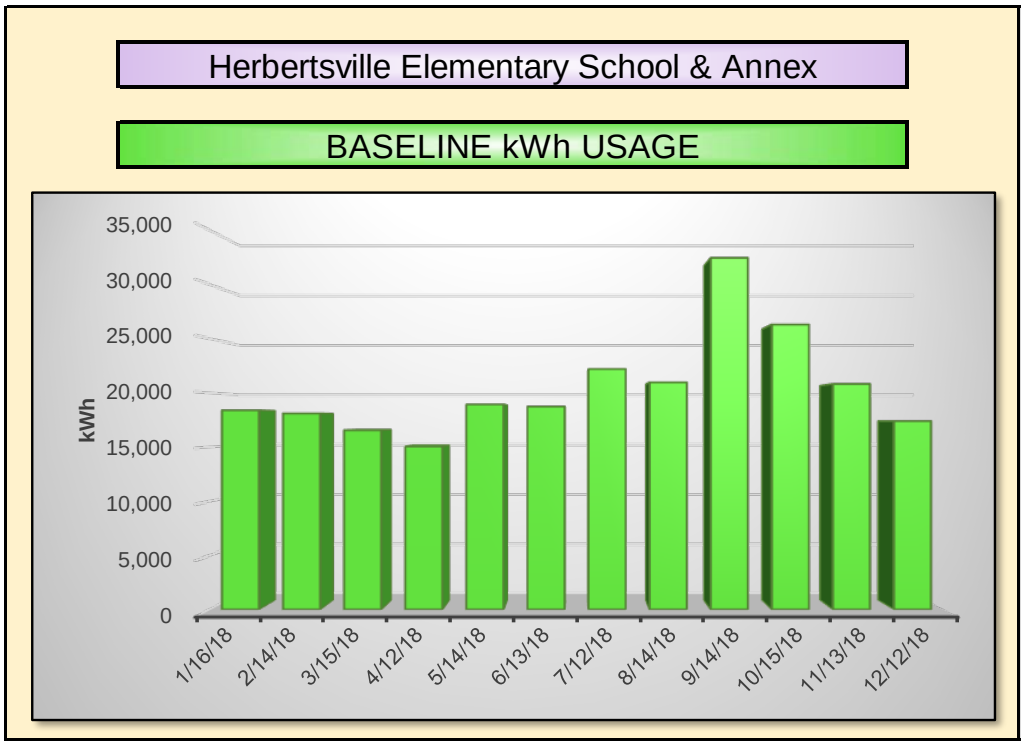
Drum Point Elementary School

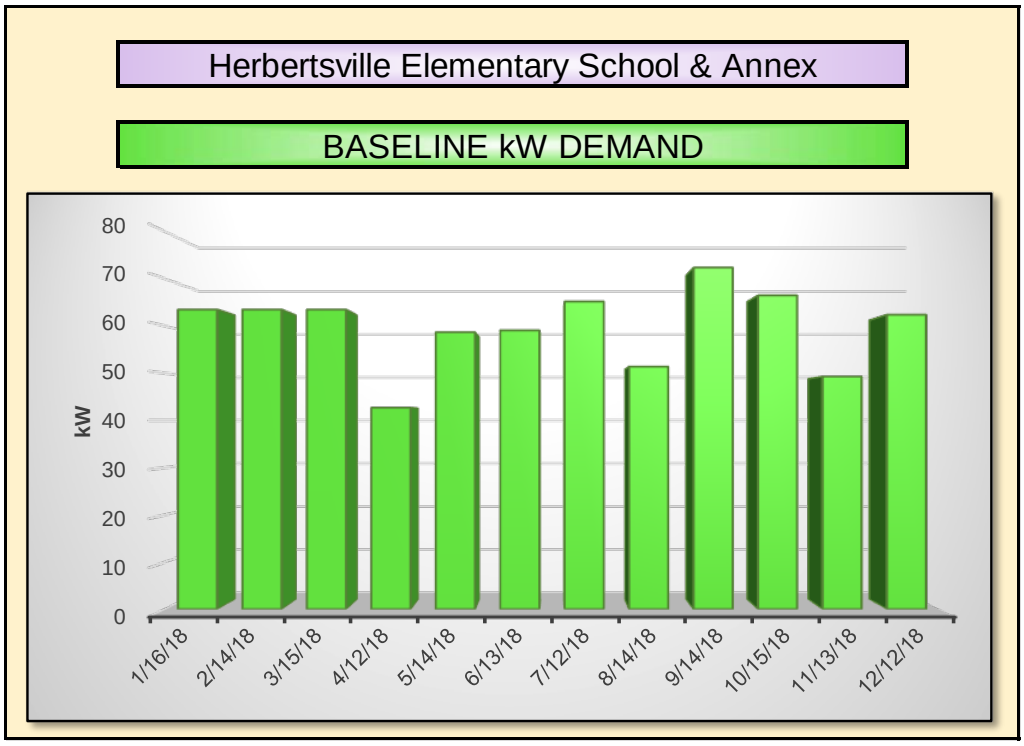
BASELINE NATURAL GAS CONSUMPTION



Drum Point Elementary School					Natural Gas Meter #1		
Provider	NJNG		Account #	06-4539-7450-2Y	Meter #	546188	
Commodity			Account #		Meter #		
Billing Period Start Date	**Actual Reading**	**Therms**	**Gas Delivery Charges**	**Gas Commodity Charges**	**Gas Total Charges**	**Cost / Unit Checksum**	**BTU**
12/15/17	1/17/18	9,363	$5,029	$3,182	$8,212	$0.88	936,259,000
1/18/18	2/13/18	5,849	$3,405	$0	$3,405	$0.58	584,875,000
2/14/18	3/19/18	6,949	$4,054	$2,363	$6,416	$0.92	694,896,000
3/20/18	4/19/18	6,185	$3,076	$2,101	$5,177	$0.84	618,483,000
4/20/18	5/17/18	1,750	$1,463	$595	$2,058	$1.18	174,996,000
5/18/18	6/18/18	63	$726	$0	$726	$11.55	6,282,000
6/19/18	7/20/18	12	$703	$3	$707	$60.47	1,169,000
7/21/18	8/17/18	21	$708	$7	$714	$33.54	2,130,000
8/18/18	9/17/18	27	$710	$10	$720	$26.98	2,669,000
9/18/18	10/16/18	109	$700	$37	$738	$6.78	10,871,000
10/17/18	11/10/18	1,804	$1,295	$612	$1,907	$1.06	180,418,000
11/11/18	12/13/18	6,309	$3,354	$0	$3,354	$0.53	630,915,000
TOTALS		38,440	$25,223	$8,910	$34,133	$0.89	3,843,963,000

Herbertsville Elementary School - Baseline Energy Use

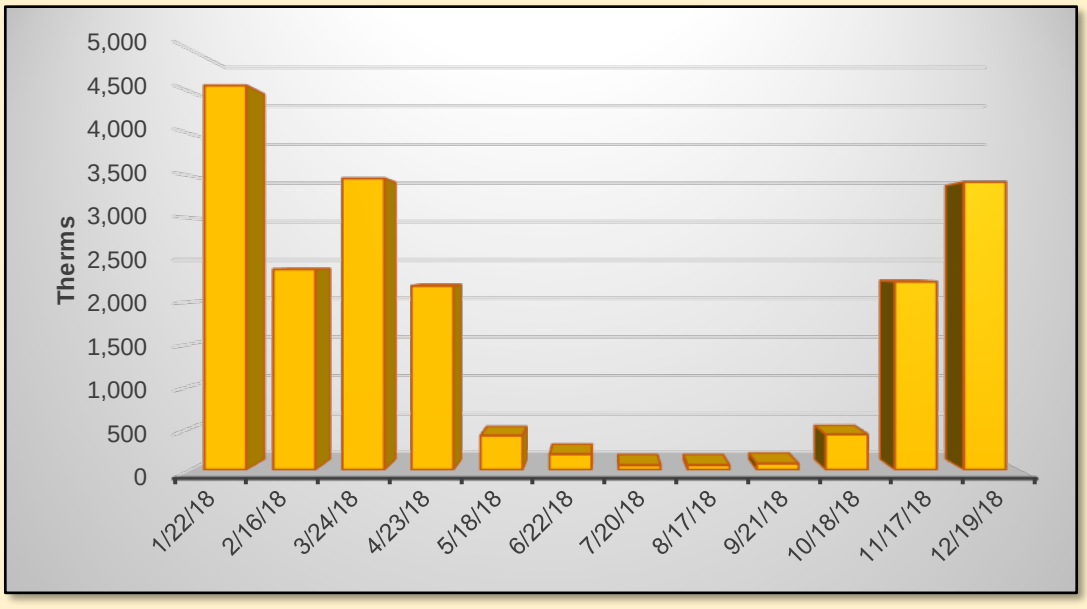




Herbertsville Elementary School & Annex						ELECTRIC METER #1					
Provider:	JCP&L			Account #	100 013 962 954			Meter #	S07019166		
Commodity:				Account #				Meter #			
Billing Period Start Date	**Actual Reading**	**Usage kWh**	**Demand kW**	**Electric Delivery Charges**	**Electric Commodity Charges**	**Electric Demand Charges**	**Total Electric Charges**	**Cost / kWh Checksum**	**Days**	**Load Factor**	**BTU**
12/15/17	1/16/18	12,160	64	$287	$886	$204	$1,378	$0.113	33	24%	41,489,920
1/17/18	2/14/18	11,680	64	$278	$851	$204	$1,333	$0.114	29	26%	39,852,160
2/15/18	3/15/18	10,640	64	$259	$775	$204	$1,238	$0.116	29	24%	36,303,680
3/16/18	4/12/18	9,760	43	$241	$711	$211	$1,163	$0.119	28	34%	33,301,120
4/13/18	5/14/18	12,960	59	$295	$951	$305	$1,551	$0.120	32	29%	44,219,520
5/15/18	6/13/18	13,600	59	$311	$998	$330	$1,639	$0.121	30	32%	46,403,200
6/14/18	7/12/18	17,600	65	$384	$1,291	$372	$2,046	$0.116	29	39%	60,051,200
7/13/18	8/14/18	16,480	51	$349	$1,268	$235	$1,852	$0.112	33	40%	56,229,760
8/15/18	9/14/18	26,720	72	$548	$1,960	$420	$2,927	$0.110	31	50%	91,168,640
9/15/18	10/15/18	20,560	67	$426	$1,792	$354	$2,572	$0.125	31	42%	70,150,720
10/16/18	11/13/18	15,440	49	$326	$1,346	$248	$1,920	$0.124	29	45%	52,681,280
11/14/18	12/12/18	11,440	62	$250	$997	$190	$1,437	$0.126	29	26%	39,033,280
TOTALS		**179,040**	**72**	**$3,953**	**$13,825**	**$3,278**	**$21,057**	**$0.118**	**363**	**28%**	**610,884,480**

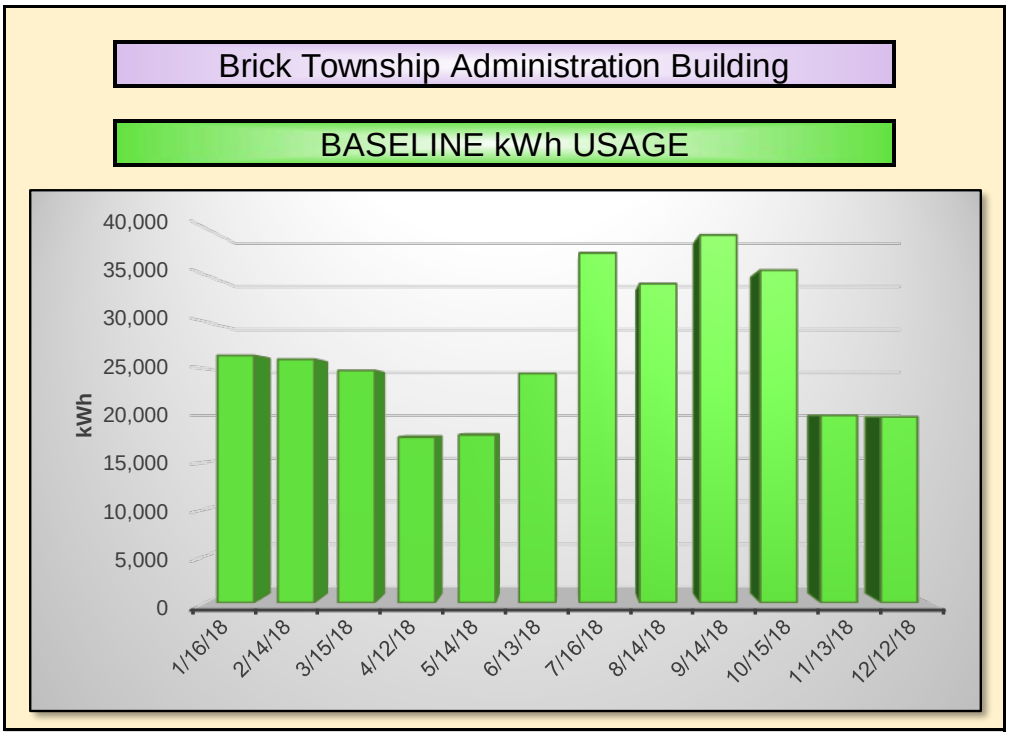
Herbertsville Elementary School & Annex

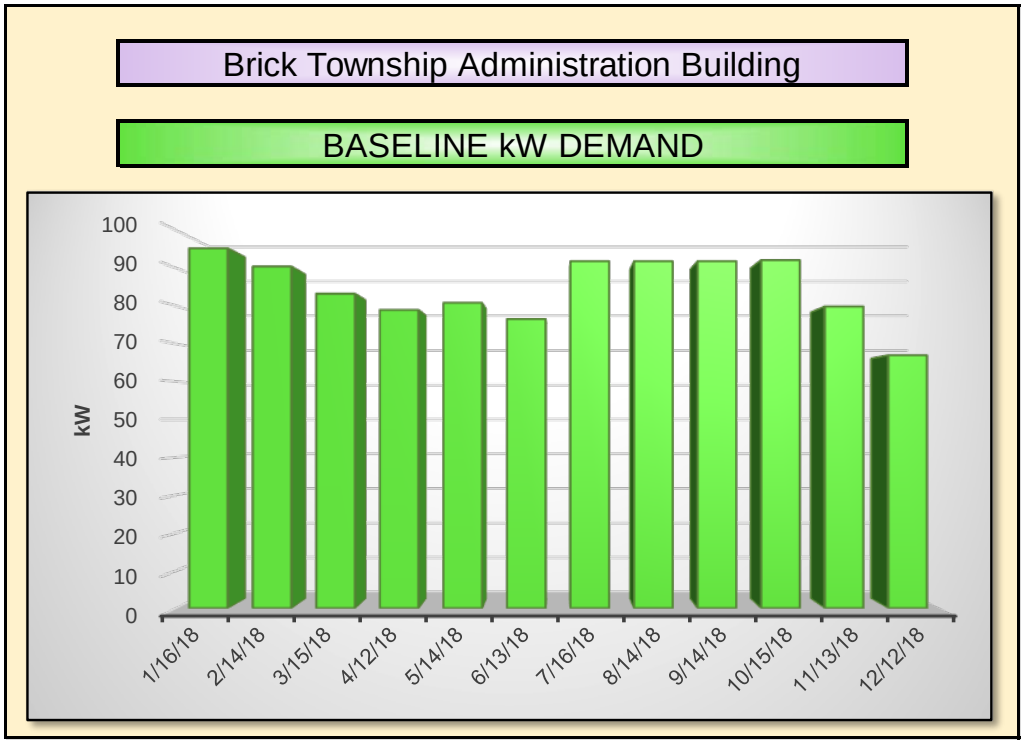
BASELINE NATURAL GAS CONSUMPTION



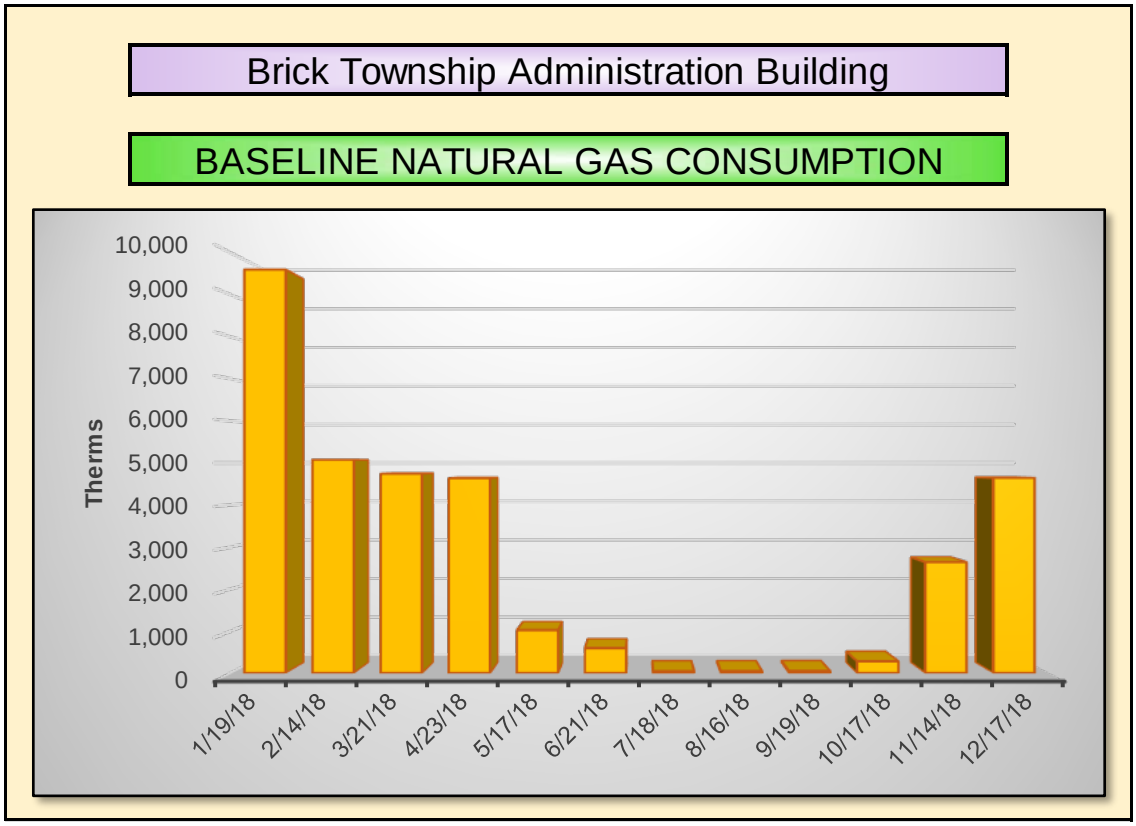
Herbertsville Elementary School & Annex					Natural Gas Meter #1		
Provider	NJNG		Account #	13-3602-7955-29	Meter #	641880	
Commodity			Account #		Meter #		
Billing Period Start Date	**Actual Reading**	**Therms**	**Gas Delivery Charges**	**Gas Commodity Charges**	**Gas Total Charges**	**Cost / Unit Checksum**	**BTU**
12/18/17	1/22/18	4,577	$2,440		$2,440	$0.53	457,746,000
1/23/18	2/16/18	2,390	$1,364		$1,364	$0.57	238,985,000
2/17/18	3/24/18	3,471	$2,026		$2,026	$0.58	347,128,000
3/25/18	4/23/18	2,191	$1,074		$1,074	$0.49	219,102,000
4/24/18	5/18/18	409	$435		$435	$1.06	40,900,000
5/19/18	6/22/18	187	$402		$402	$2.14	18,740,000
6/23/18	7/20/18	56	$344		$344	$6.12	5,633,000
7/21/18	8/17/18	58	$345		$345	$6.00	5,751,000
8/18/18	9/21/18	76	$353		$353	$4.66	7,579,000
9/22/18	10/18/18	422	$471		$471	$1.12	42,206,000
10/19/18	11/17/18	2,240	$1,249		$1,249	$0.56	224,030,000
11/18/18	12/19/18	3,429	$1,757		$1,757	$0.51	342,903,000
TOTALS		19,507	$12,259	$0	$12,259	$0.63	1,950,703,000

Administration Building - Baseline Energy Use





Brick Township Administration Building						ELECTRIC METER #1					
Provider:	JCP&L			Account #	100 018 605 129			Meter #	S314121216		
Commodity:				Account #				Meter #			
Billing Period Start Date	Actual Reading	Usage kWh	Demand kW	Electric Delivery Charges	Electric Commodity Charges	Electric Demand Charges	Total Electric Charges	Cost / kWh Checksum	Days	Load Factor	BTU
12/15/17	1/16/18	22,080	95	$468	$1,609	$564	$2,641	$0.120	33	29%	75,336,960
1/17/18	2/14/18	21,840	91	$463	$1,591	$531	$2,586	$0.118	29	35%	74,518,080
2/15/18	3/15/18	20,880	83	$446	$1,521	$484	$2,451	$0.117	29	36%	71,242,560
3/16/18	4/12/18	14,160	79	$321	$1,032	$446	$1,798	$0.127	28	27%	48,313,920
4/13/18	5/14/18	13,680	81	$308	$1,003	$445	$1,756	$0.128	32	22%	46,676,160
5/15/18	6/13/18	20,400	77	$433	$1,496	$448	$2,378	$0.117	30	37%	69,604,800
6/14/18	7/16/18	31,680	92	$638	$2,324	$551	$3,512	$0.111	33	44%	108,092,160
7/17/18	8/14/18	28,800	92	$587	$2,112	$551	$3,251	$0.113	29	45%	98,265,600
8/15/18	9/14/18	34,080	92	$680	$2,500	$551	$3,731	$0.109	31	50%	116,280,960
9/15/18	10/15/18	31,200	92	$614	$2,719	$515	$3,848	$0.123	31	45%	106,454,400
10/16/18	11/13/18	16,560	80	$345	$1,443	$438	$2,226	$0.134	29	30%	56,502,720
11/14/18	12/12/18	16,320	67	$330	$1,422	$357	$2,110	$0.129	29	35%	55,683,840
TOTALS		271,680	95	$5,633	$20,774	$5,882	$32,289	$0.119	363	33%	926,972,160



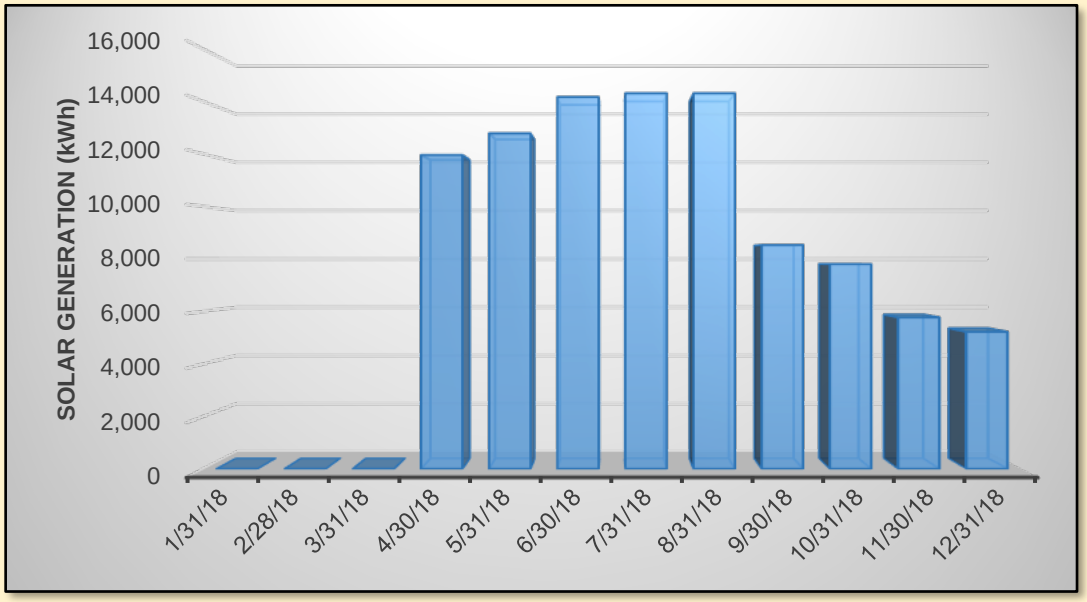
Brick Township Administration Building					Natural Gas Meter #1		
Provider	NJNG		Account #	04-4530-5020-14	Meter #	945031	
Commodity			Account #		Meter #		
Billing Period Start Date	**Actual Reading**	**Therms**	**Gas Delivery Charges**	**Gas Commodity Charges**	**Gas Total Charges**	**Cost / Unit Checksum**	**BTU**
12/14/17	1/19/18	4,430	$2,658	$1,506	$4,164	$0.94	442,952,941
1/20/18	2/14/18	3,521	$2,001	$360	$2,362	$0.67	352,103,000
2/15/18	3/21/18	2,070	$1,242	$704	$1,946	$0.94	206,979,412
3/22/18	4/23/18	2,040	$1,224	$694	$1,917	$0.94	203,976,471
4/24/18	5/17/18	410	$246	$139	$385	$0.94	40,994,118
5/18/18	6/21/18	200	$120	$68	$188	$0.94	19,997,059
6/22/18	7/18/18	20	$12	$7	$19	$0.94	2,000,000
7/19/18	8/16/18	20	$12	$7	$19	$0.94	2,000,000
8/17/18	9/19/18	20	$12	$7	$19	$0.94	2,000,000
9/20/18	10/17/18	0	$0	$0	$0	-	0
10/18/18	11/14/18	1,140	$684	$388	$1,071	$0.94	113,988,235
11/15/18	12/17/18	2,060	$1,236	$700	$1,936	$0.94	205,976,471
TOTALS		15,930	$9,447	$4,579	$14,026	$0.88	1,592,967,706

Brick Township Administration Building					Natural Gas Meter #2		
Provider	NJNG		Account #	08-3520-2872-21	Meter #	517321	
Commodity			Account #		Meter #		
Billing Period Start Date	Actual Reading	Therms	Gas Delivery Charges	Gas Commodity Charges	Gas Total Charges	Cost / Unit Checksum	BTU
12/14/17	1/18/18	745	$434		$434	$0.58	74,507,000
1/19/18	2/14/18	493	$296		$296	$0.60	49,275,000
2/15/18	3/20/18	608	$364		$364	$0.60	60,825,000
3/21/18	4/23/18	553	$315		$315	$0.57	55,307,000
4/24/18	5/17/18	200	$124		$124	$0.62	20,024,000
5/18/18	6/21/18	188	$123		$123	$0.65	18,847,000
6/22/18	7/18/18	0	$26		$26	-	0
7/19/18	8/16/18	0	$26		$26	-	0
8/17/18	9/19/18	1	$27		$27	$24.92	107,000
9/20/18	10/17/18	0	$26		$26	-	0
10/18/18	11/14/18	357	$197		$197	$0.55	35,721,000
11/15/18	12/17/18	526	$277		$277	$0.53	52,647,000
TOTALS		3673	$2,235	$0	$2,235	$0.61	367,260,000

Brick Township Administration Building							
Provider	NJNG		Account #	20-0009-3834-40	Meter #	601513	
Commodity			Account #		Meter #		
Billing Period Start Date	Actual Reading	Therms	Gas Delivery Charges	Gas Commodity Charges	Gas Total Charges	Cost / Unit Checksum	BTU
12/14/17	1/19/18	4427	$2,400		$2,400	$0.54	442,722,000
1/20/18	2/14/18	1062	$727		$727	$0.68	106,244,000
2/15/18	3/14/18	2065	$1,308		$1,308	$0.63	206,514,000
3/15/18	4/23/18	2042	$1,001		$1,001	$0.49	204,178,000
4/24/18	5/17/18	409	$410		$410	$1.00	40,939,000
5/18/18	6/21/18	202	$377		$377	$1.87	20,183,000
6/22/18	7/18/18	19	$297		$297	$15.72	1,892,000
7/19/18	8/16/18	21	$298		$298	$14.08	2,119,000
8/17/18	9/19/18	23	$299		$299	$12.75	2,348,000
9/20/18	10/17/18	277	$387		$387	$1.40	27,682,000
10/18/18	11/14/18	1142	$758		$758	$0.66	114,249,000
11/15/18	12/17/18	2055	$1,148		$1,148	$0.56	205,544,000
TOTALS		13746	$9,412	$0	$9,412	$0.68	1,374,614,000

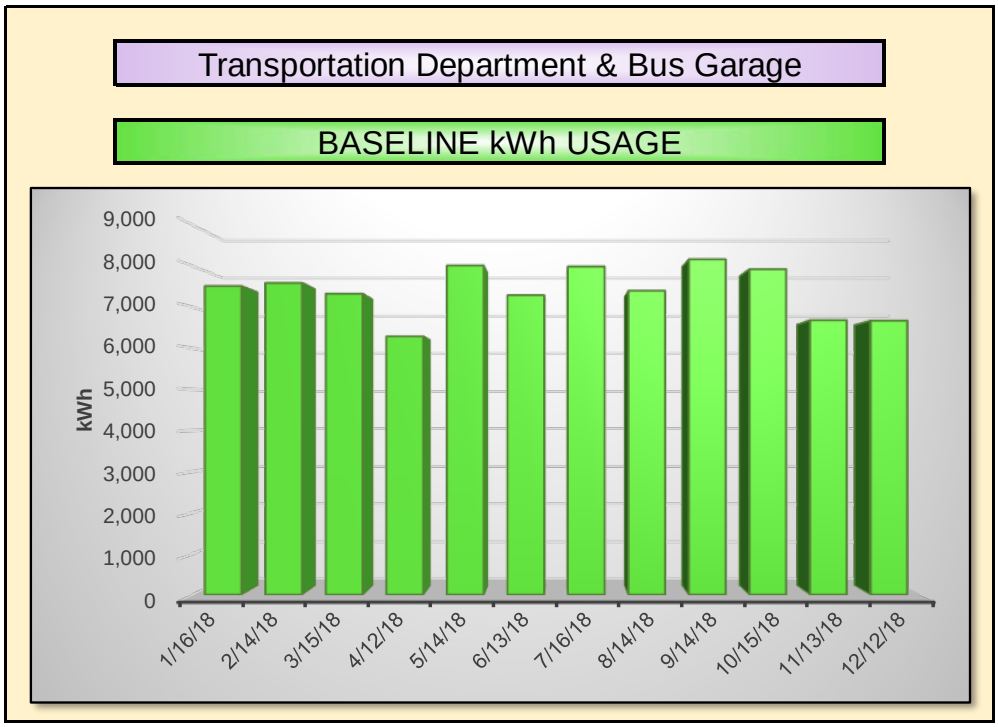
Brick Township Administration Building

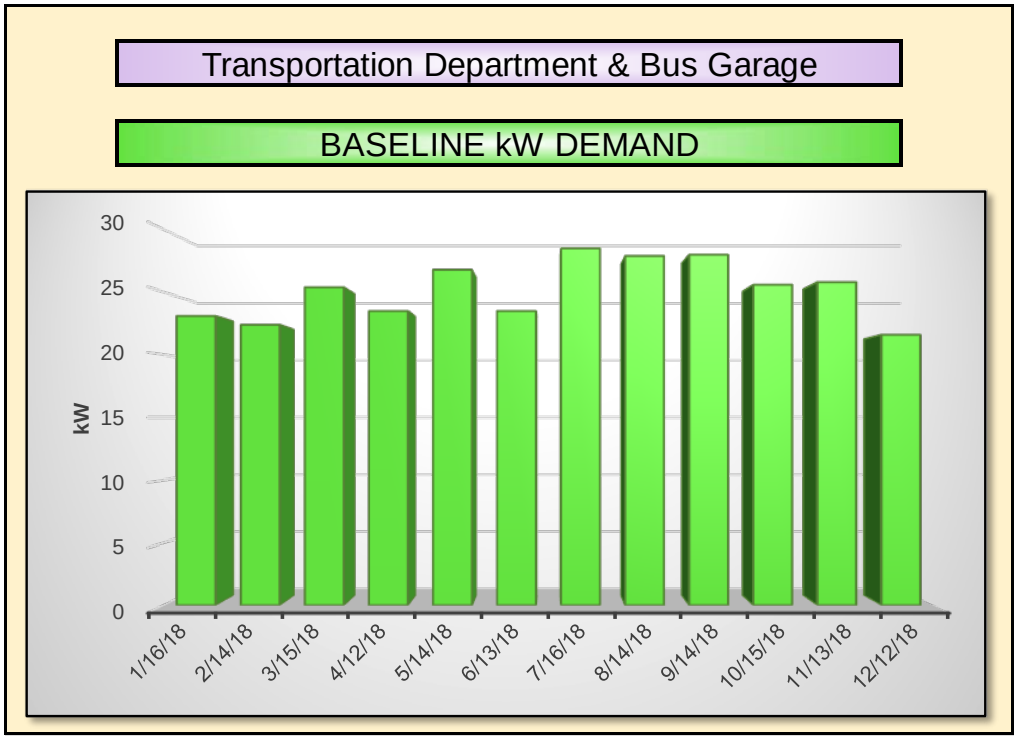
BASELINE Solar PPA (kWh) CONSUMPTION



Brick Township Administration Building					
Provider	NJ Clean Energy Ventures		Solar PPA (kWh)		
Meter/Acct #					
Billing Period Start Date	Actual Reading	Solar PPA (kWh)	$$	Cost / Unit Checksum	BTU
1/1/18	1/31/18	0	0	-	0
2/1/18	2/28/18	0	0	-	0
3/1/18	3/31/18	0	0	-	0
4/1/18	4/30/18	11,960	508	$0.04	0
5/1/18	5/31/18	12,785	543	$0.04	0
6/1/18	6/30/18	14,170	611	$0.04	0
7/1/18	7/31/18	14,310	617	$0.04	0
8/1/18	8/31/18	14,310	617	$0.04	0
9/1/18	9/30/18	8,533	368	$0.04	0
10/1/18	10/31/18	7,801	336	$0.04	0
11/1/18	11/30/18	5,774	249	$0.04	0
12/1/18	12/31/18	5,224	225	$0.04	0
TOTALS		94,867	4,074	$0.04	0

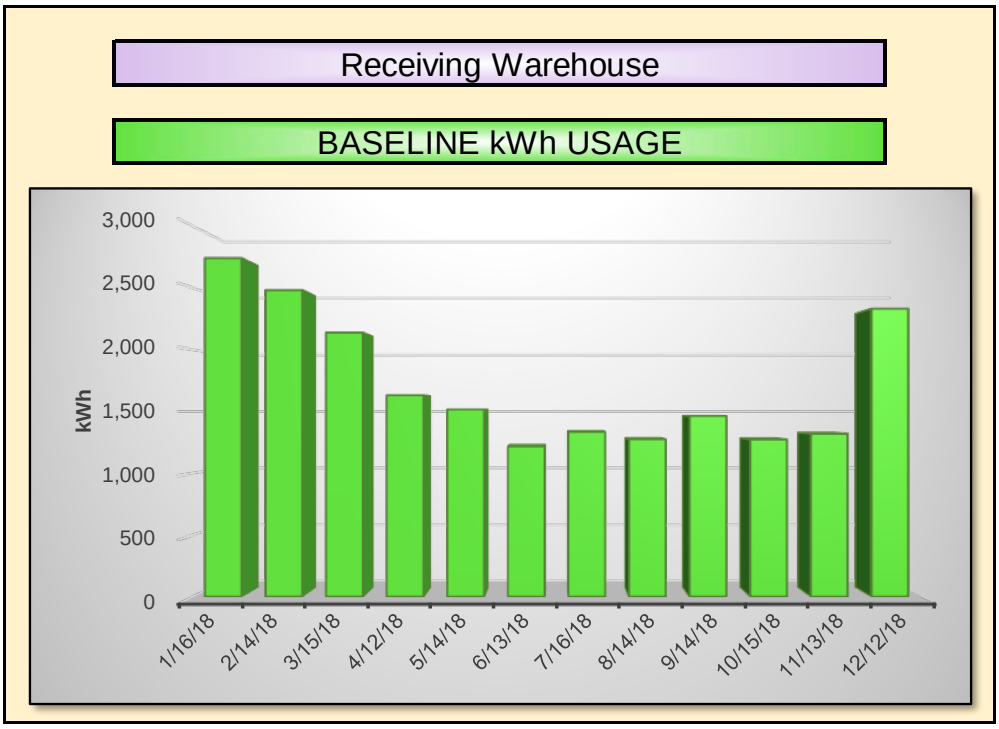
Transportation & Garage - Baseline Energy Use

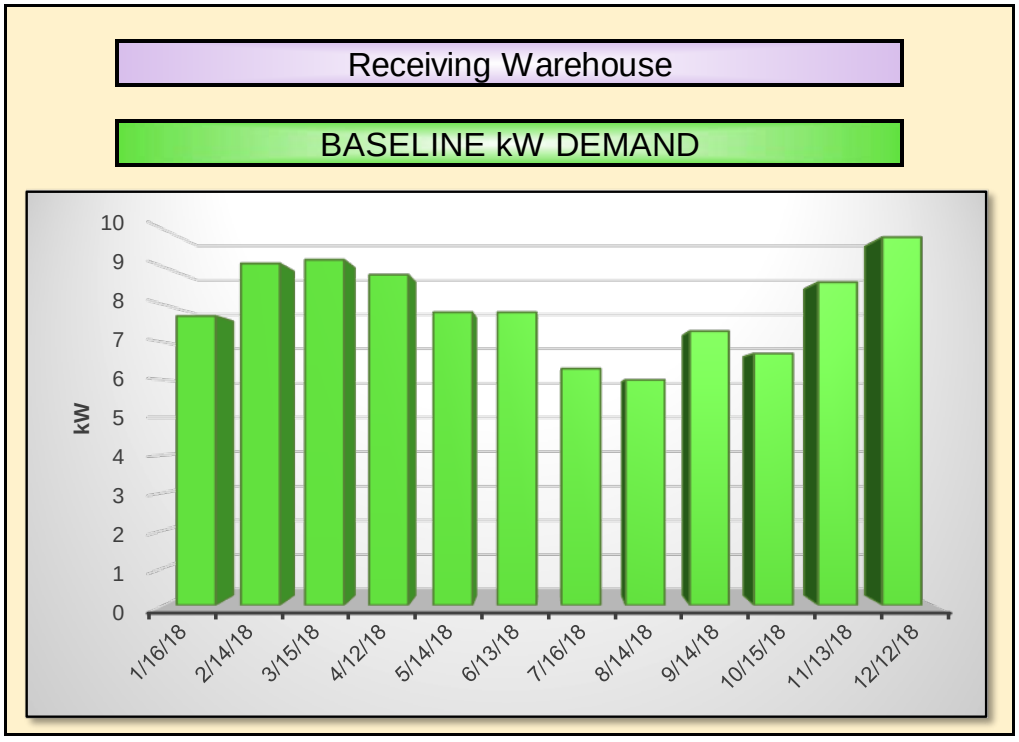




Transportation Department & Bus Garage						ELECTRIC METER #1					
Provider:	JCP&L			Account #	100 017 744 796			Meter #	S322978410		
Commodity:				Account #				Meter #			
Billing Period Start Date	**Actual Reading**	**Usage kWh**	**Demand kW**	**Electric Delivery Charges**	**Electric Commodity Charges**	**Electric Demand Charges**	**Total Electric Charges**	**Cost / kWh Checksum**	**Days**	**Load Factor**	**BTU**
12/15/17	1/16/18	7,514	23	$203	$548	$87	$837	$0.111	33	41%	25,637,768
1/17/18	2/14/18	7,592	22	$204	$553	$82	$839	$0.110	29	49%	25,903,904
2/15/18	3/15/18	7,329	25	$207	$534	$94	$835	$0.114	29	41%	25,006,548
3/16/18	4/12/18	6,290	24	$178	$458	$87	$724	$0.115	28	40%	21,461,480
4/13/18	5/14/18	8,018	27	$212	$586	$102	$900	$0.112	32	39%	27,357,416
5/15/18	6/13/18	7,293	24	$198	$535	$91	$824	$0.113	30	43%	24,883,716
6/14/18	7/16/18	7,992	29	$211	$586	$125	$921	$0.115	33	35%	27,268,704
7/17/18	8/14/18	7,401	28	$200	$543	$120	$864	$0.117	29	38%	25,252,212
8/15/18	9/14/18	8,168	28	$214	$599	$121	$934	$0.114	31	39%	27,869,216
9/15/18	10/15/18	7,927	26	$202	$691	$98	$991	$0.125	31	42%	27,046,924
10/16/18	11/13/18	6,684	26	$183	$583	$93	$858	$0.128	29	37%	22,805,808
11/14/18	12/12/18	6,673	22	$172	$582	$73	$826	$0.124	29	44%	22,768,276
TOTALS		88,881	29	$2,383	$6,797	$1,171	$10,351	$0.116	363	36%	303,261,972

Receiving Warehouse - Baseline Energy Use

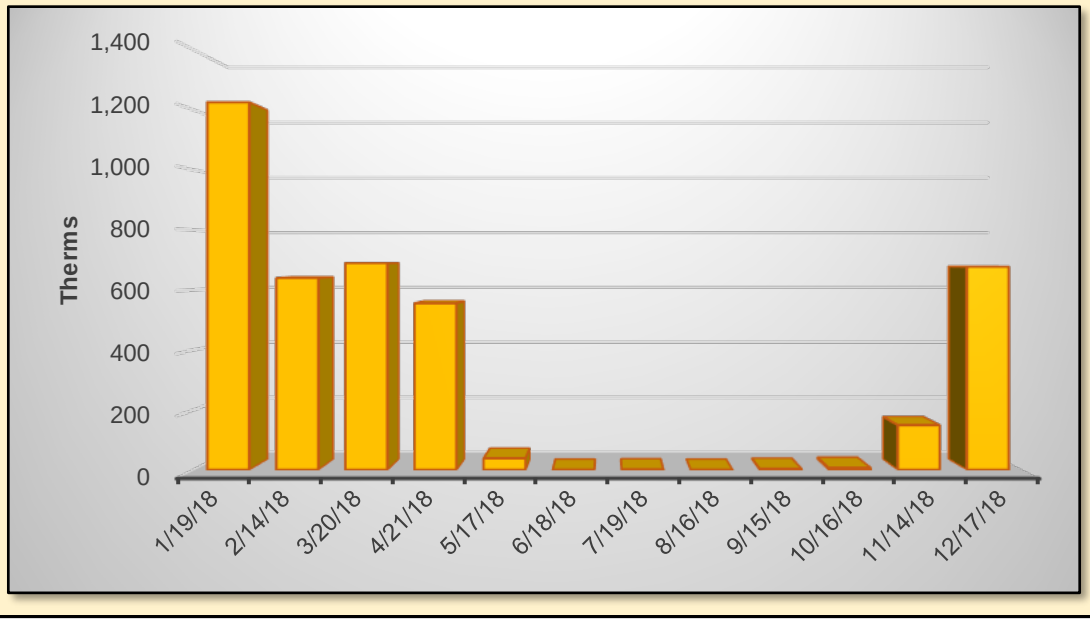




Receiving Warehouse						ELECTRIC METER #1					
Provider:	JCP&L			Account #	100 017 082 098			Meter #	S313381702		
Commodity:				Account #				Meter #			
Billing Period Start Date	**Actual Reading**	**Usage kWh**	**Demand kW**	**Electric Delivery Charges**	**Electric Commodity Charges**	**Electric Demand Charges**	**Total Electric Charges**	**Cost / kWh Checksum**	**Days**	**Load Factor**	**BTU**
12/15/17	1/16/18	2,741	8	$107	$200	$0	$307	$0.112	33	45%	9,352,292
1/17/18	2/14/18	2,482	9	$102	$181	$0	$283	$0.114	29	39%	8,468,584
2/15/18	3/15/18	2,138	9	$133	$119	$0	$252	$0.118	29	33%	7,294,856
3/16/18	4/12/18	1,631	9	$85	$119	$0	$204	$0.125	28	28%	5,564,972
4/13/18	5/14/18	1,516	8	$81	$111	$0	$192	$0.127	32	25%	5,172,592
5/15/18	6/13/18	1,216	8	$80	$89	$0	$170	$0.139	30	22%	4,148,992
6/14/18	7/16/18	1,334	6	$83	$98	$0	$180	$0.135	33	27%	4,551,608
7/17/18	8/14/18	1,274	6	$82	$93	$0	$175	$0.137	29	31%	4,346,888
8/15/18	9/14/18	1,463	7	$85	$107	$0	$192	$0.131	31	27%	4,991,756
9/15/18	10/15/18	1,272	7	$77	$111	$0	$187	$0.147	31	26%	4,340,064
10/16/18	11/13/18	1,319	9	$77	$115	$0	$192	$0.145	29	22%	4,500,428
11/14/18	12/12/18	2,332	10	$92	$203	$0	$296	$0.127	29	34%	7,956,784
TOTALS		20,718	10	$1,083	$1,546	$0	$2,629	$0.127	363	24%	70,689,816

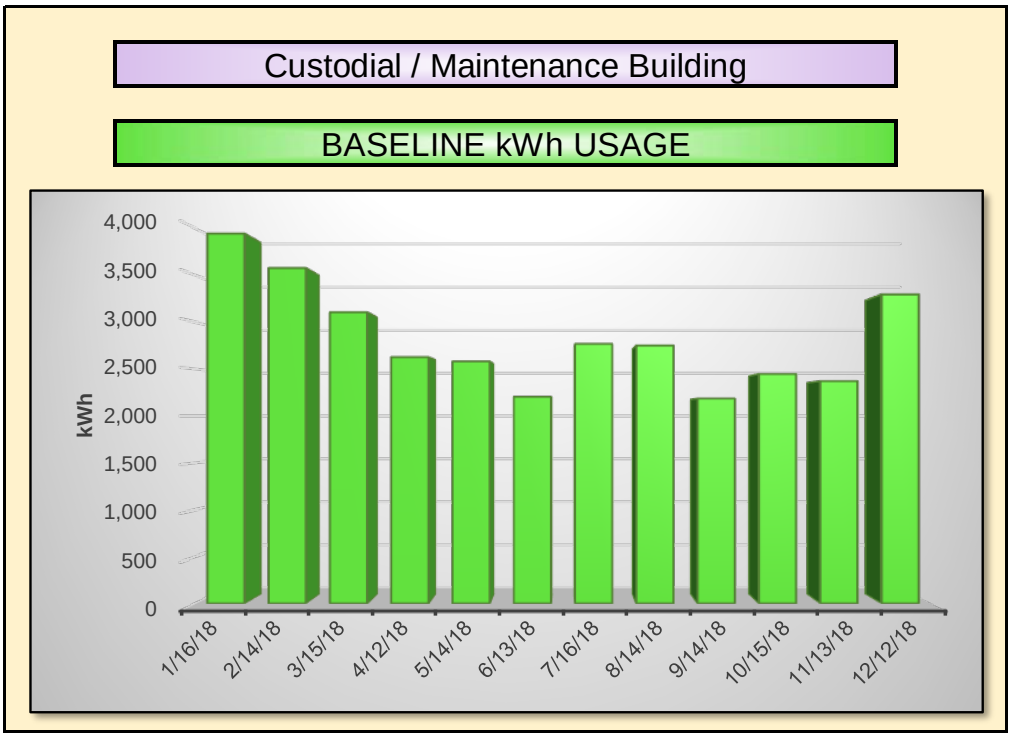
Receiving Warehouse

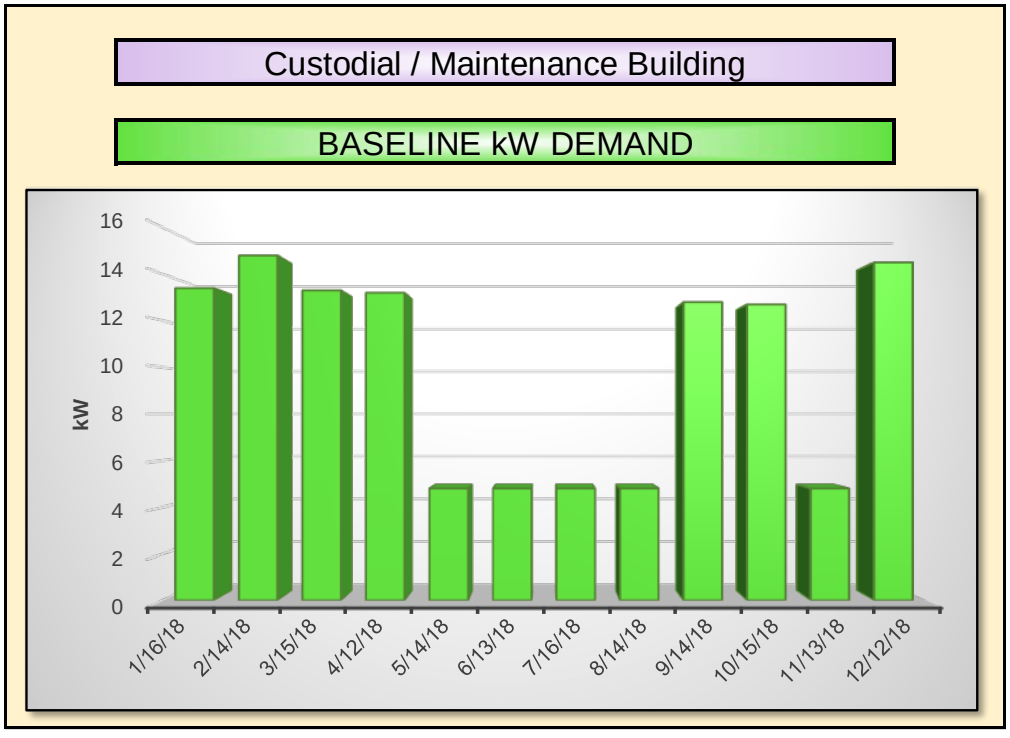
BASELINE NATURAL GAS CONSUMPTION



Receiving Warehouse					Natural Gas Meter #1		
Provider	NJNG		Account #	18-3575-9496-24	Meter #	580349	
Commodity			Account #		Meter #		
Billing Period Start Date	**Actual Reading**	**Therms**	**Gas Delivery Charges**	**Gas Commodity Charges**	**Gas Total Charges**	**Cost / Unit Checksum**	**BTU**
12/15/17	1/19/18	1,226	$697	$418	$1,115	$0.91	122,572,000
1/20/18	2/14/18	640		$218	$218	$0.34	63,994,118
2/15/18	3/20/18	689	$409	$235	$643	$0.93	68,935,000
3/21/18	4/21/18	555	$317	$190	$508	$0.91	55,520,000
4/22/18	5/17/18	38	$46	$14	$59	$1.55	3,834,000
5/18/18	6/18/18	0	$26	$0	$26	-	0
6/19/18	7/19/18	1	$27	$0	$27	$25.15	106,000
7/20/18	8/16/18	0	$26	$0	$26	-	0
8/17/18	9/15/18	3	$28	$0	$28	$8.67	320,000
9/16/18	10/16/18	6	$29	$2	$32	$4.94	639,000
10/17/18	11/14/18	149	$97	$51	$148	$0.99	14,928,000
11/15/18	12/17/18	677	$349	$231	$580	$0.86	67,705,000
TOTALS		3,986	$2,051	$1,359	$3,410	$0.86	398,553,118

Custodial/Maintenance Building - Baseline Energy Use

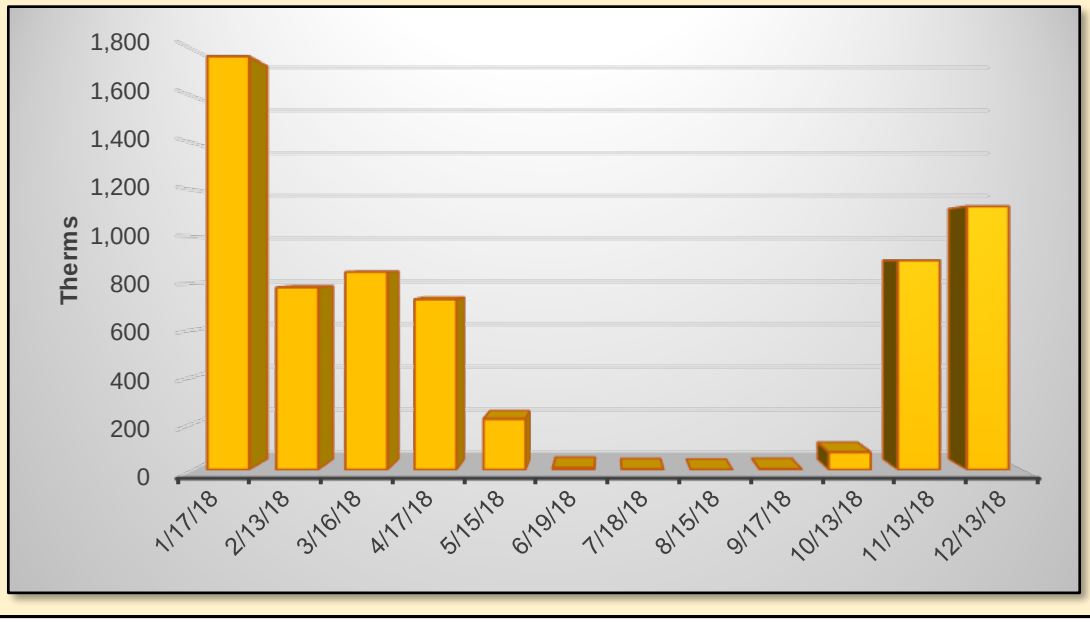




Custodial / Maintenance Building						ELECTRIC METER #1					
Provider:	JCP&L			Account #	100 017 744 499			Meter #	S313025655		
Commodity:				Account #				Meter #			
Billing Period Start Date	**Actual Reading**	**Usage kWh**	**Demand kW**	**Electric Delivery Charges**	**Electric Commodity Charges**	**Electric Demand Charges**	**Total Electric Charges**	**Cost / kWh Checksum**	**Days**	**Load Factor**	**BTU**
12/15/17	1/16/18	3,944	13	$137	$287	$22	$447	$0.113	33	37%	13,456,928
1/17/18	2/14/18	3,577	15	$131	$261	$32	$423	$0.118	29	35%	12,204,724
2/15/18	3/15/18	3,105	13	$122	$226	$22	$370	$0.119	29	34%	10,594,260
3/16/18	4/12/18	2,627	13	$112	$191	$21	$324	$0.123	28	30%	8,963,324
4/13/18	5/14/18	2,581	5	$109	$189	$15	$313	$0.121	32	70%	8,806,372
5/15/18	6/13/18	2,205	5	$106	$162	$15	$283	$0.128	30	64%	7,523,460
6/14/18	7/16/18	2,768	5	$117	$203	$15	$334	$0.121	33	73%	9,444,416
7/17/18	8/14/18	2,751	5	$116	$202	$15	$333	$0.121	29	82%	9,386,412
8/15/18	9/14/18	2,185	13	$117	$206	$19	$343	$0.157	31	23%	7,455,220
9/15/18	10/15/18	2,447	13	$105	$213	$17	$336	$0.137	31	26%	8,349,164
10/16/18	11/13/18	2,371	5	$103	$207	$15	$324	$0.137	29	71%	8,089,852
11/14/18	12/12/18	3,295	15	$116	$287	$28	$432	$0.131	29	33%	11,242,540
TOTALS		33,856	15	$1,391	$2,635	$234	$4,260	$0.126	363	26%	115,516,672

Custodial / Maintenance Building

BASELINE NATURAL GAS CONSUMPTION



Custodial / Maintenance Building					Natural Gas Meter #1		
Provider	NJNG		Account #	22-0008-3682-48	Meter #	1085326	
Commodity			Account #		Meter #		
Billing Period Start Date	**Actual Reading**	**Therms**	**Gas Delivery Charges**	**Gas Commodity Charges**	**Gas Total Charges**	**Cost / Unit Checksum**	**BTU**
12/12/17	1/17/18	1,773	$1,002	$603	$1,604	$0.91	177,275,000
1/18/18	2/13/18	782	$454	$446	$900	$1.15	78,198,000
2/14/18	3/16/18	848	$490	$288	$779	$0.92	84,834,000
3/17/18	4/17/18	731	$412	$248	$660	$0.90	73,069,000
4/18/18	5/15/18	218	$139	$74	$213	$0.97	21,835,000
5/16/18	6/19/18	9	$30	$3	$33	$3.92	852,000
6/20/18	7/18/18	2	$27	$1	$28	$13.11	213,000
7/19/18	8/15/18	0	$26	$0	$26	-	0
8/16/18	9/17/18	3	$28	$1	$29	$9.02	320,000
9/18/18	10/13/18	76	$64	$26	$90	$1.18	7,567,000
10/14/18	11/13/18	898	$454	$305	$759	$0.85	89,782,000
11/14/18	12/13/18	1,130	$565	$384	$949	$0.84	112,984,000
TOTALS		6,469	$3,690	$2,379	$6,070	$0.94	646,929,000

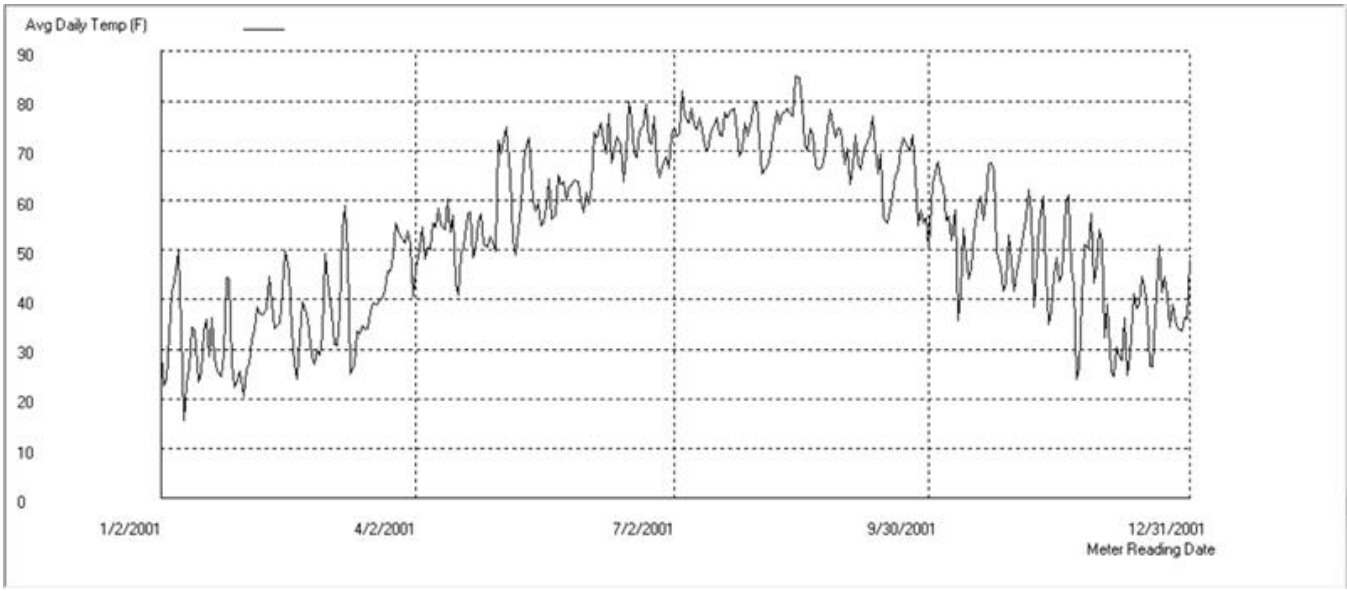
Energy Savings Utility Rates

DCO Energy used the following rates to calculate the energy savings:

CALCULATED UTILITY RATES BY BUILDING					
BUILDING/FACILITY	ELECTRIC			NATURAL GAS	OTHER ENERGY #1
	$$ / kW	$$ / kWh	Blended $$ / kWh	Therms	Solar PPA (kWh)
Brick Memorial High School	$3.57	$0.09	$0.10	$0.94	-
Brick Township High School	$5.37	$0.10	$0.12	$0.76	$0.04
Veterans Memorial Middle School	$6.17	$0.10	$0.13	$0.05	$0.04
Lake Riviera Middle School	$6.13	$0.11	$0.15	$0.87	$0.04
Emma Havens Young Elementary School	$5.41	$0.12	$0.16	$0.88	$0.04
Veterans Memorial Elementary School	$5.81	$0.09	$0.12	$0.93	$0.04
Warren H. Wolf Elementary School	$6.09	$0.10	$0.12	$0.97	-
Osbornville Elementary School	$5.65	$0.10	$0.12	$0.97	-
Lanes Mill Elementary School	$5.41	$0.10	$0.12	$1.01	-
Midstreams Elementary School	$5.54	$0.10	$0.14	$0.97	$0.04
Drum Point Elementary School	$5.38	$0.10	$0.11	$0.89	-
Herbertsville Elementary School & Annex	$5.42	$0.10	$0.12	$0.63	-
Brick Township Administration Building	$6.77	$0.10	$0.12	$0.77	$0.04
Transportation Department & Bus Garage	$3.88	$0.10	$0.12	-	-
Receiving Warehouse	$0.00	$0.13	$0.13	$0.86	-
Custodial / Maintenance Building	$1.97	$0.12	$0.13	$0.94	-

Brick Twp. School District – Baseline Weather Data

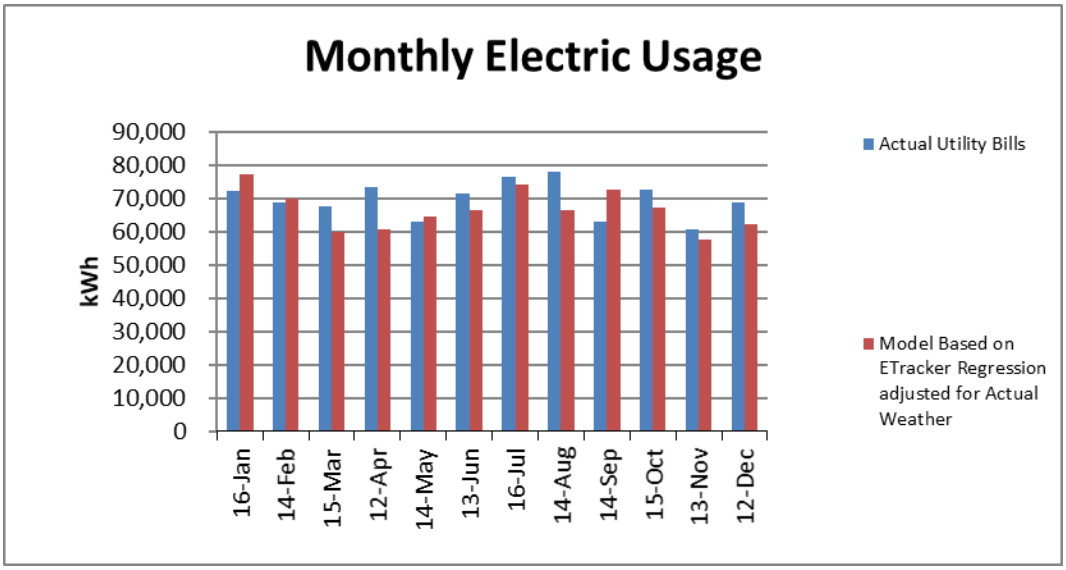
The graph below represents the Atlantic City TMY3 weather file used for the Brick Township School District area. TMY3 weather data is used for weather normalized calculations and energy models utilizing weather data.

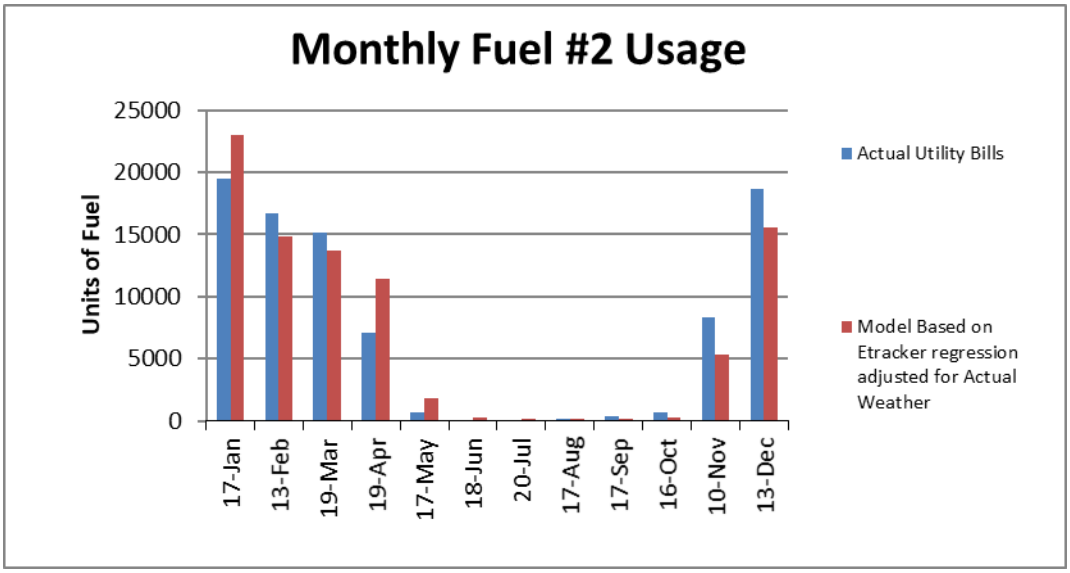


DCO Energy Efficiency Division
100 Lenox Drive
Lawrenceville, NJ 08648

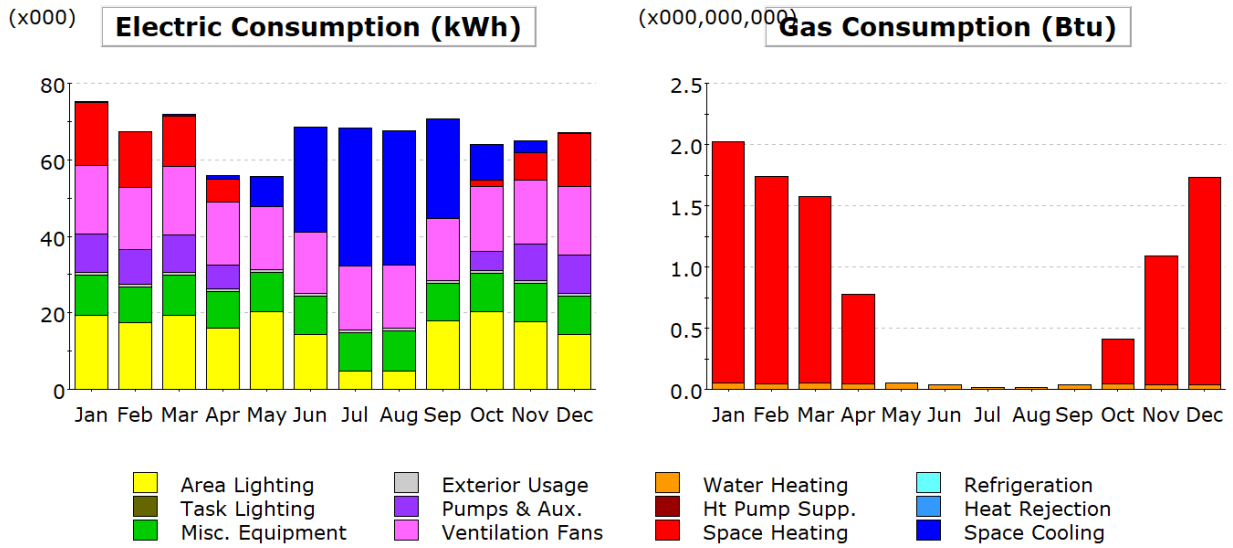
Lake Riviera Middle School – Energy Modeling Baseline

Lake Riviera Middle School baseline energy use has been analyzed using eQuest energy simulation software. The New Jersey Clean Energy Protocols require +/- 5% accuracy when simulating baseline annual energy use. To calibrate the model, eTracker weather normalization software was used to establish the relationship between weather and energy use of each building. Shown below are the comparison charts and the modeling software baseline output reports. The reports show that the model baseline produced by DCO Energy is accurate and within acceptable tolerances.





Below is the Monthly Energy Consumption Output for the Lake Riviera Middle School baseline model.



Electric Consumption (kWh x000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.08	0.07	0.67	1.03	7.68	27.56	36.16	34.95	26.26	9.37	3.05	0.13	147.00
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	16.46	14.53	13.01	5.87	-	-	-	-	-	1.72	7.18	13.96	72.72
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	18.12	16.35	17.83	16.59	16.53	16.04	16.59	16.60	16.07	16.74	16.73	17.88	202.06
Pumps & Aux.	10.01	9.04	10.00	6.12	0.02	0.00	-	0.00	0.01	5.16	9.66	10.00	60.02
Ext. Usage	0.69	0.62	0.69	0.67	0.69	0.67	0.69	0.69	0.67	0.69	0.67	0.69	8.13
Misc. Equip.	10.38	9.26	10.38	9.69	10.38	10.01	10.07	10.38	10.01	10.07	10.01	10.07	120.70
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	19.40	17.55	19.40	15.96	20.24	14.30	4.86	4.86	17.80	20.24	17.65	14.32	186.57
Total	75.14	67.42	71.98	55.93	55.54	68.58	68.36	67.47	70.80	63.99	64.95	67.05	797.22

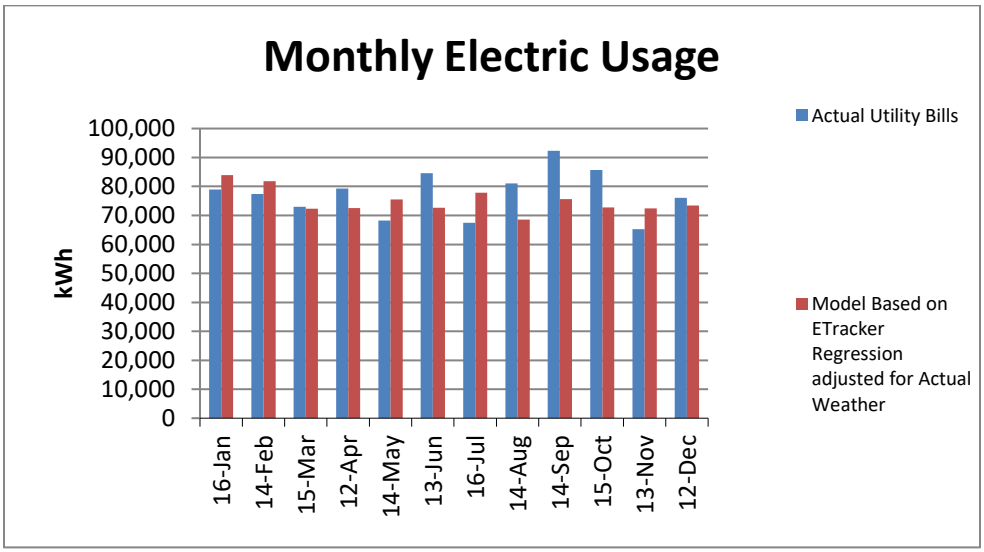
Gas Consumption (Btu x000,000,000)

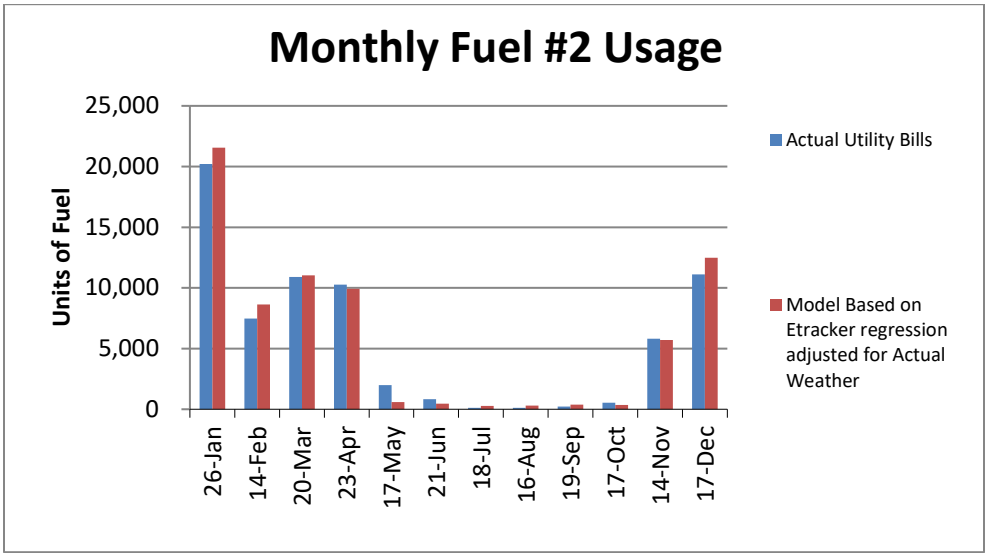
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	1.98	1.69	1.52	0.73	-	-	-	-	-	0.37	1.05	1.69	9.03
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	0.05	0.05	0.05	0.04	0.05	0.03	0.02	0.02	0.04	0.04	0.04	0.03	0.46
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	2.03	1.74	1.57	0.78	0.05	0.03	0.02	0.02	0.04	0.41	1.09	1.73	9.49

DCO Energy Efficiency Division
100 Lenox Drive
Lawrenceville, NJ 08648

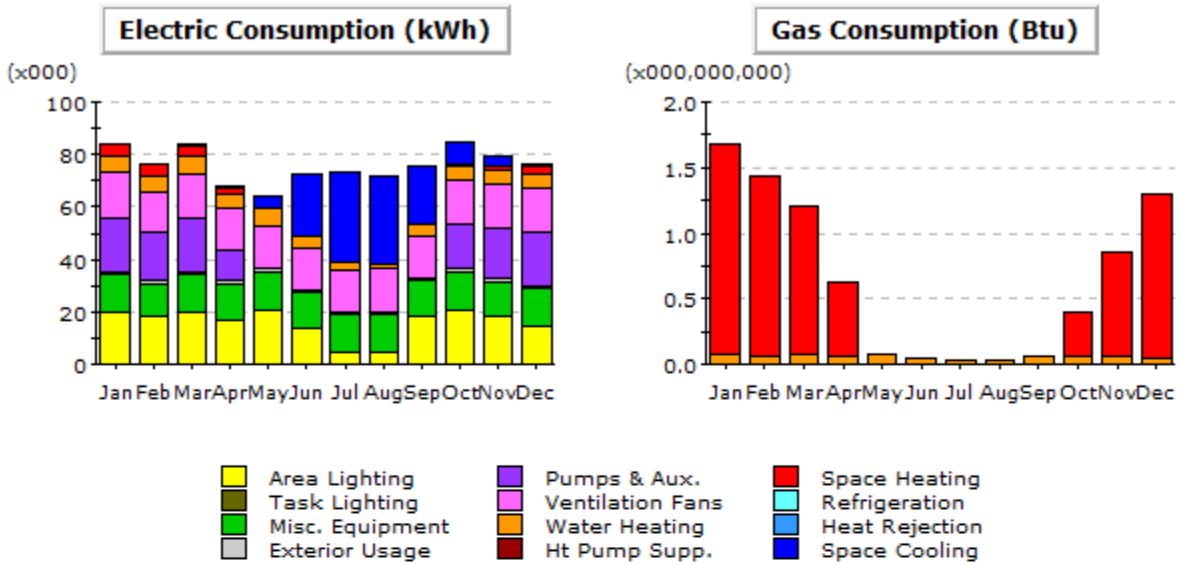
Veterans Memorial Middle School – Energy Modeling Baseline

Veterans Memorial Middle School baseline energy use has been analyzed using eQuest energy simulation software. The New Jersey Clean Energy Protocols require +/- 5% accuracy when simulating baseline annual energy use. To calibrate the model, eTracker weather normalization software was used to establish the relationship between weather and energy use of each building. Shown below are the comparison charts and the modeling software baseline output reports. The reports show that the model baseline produced by DCO Energy is accurate and within acceptable tolerances.





Below is the Monthly Energy Consumption Output for the Veterans Memorial Middle School baseline model.



Electric Consumption (kWh x000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.10	0.09	0.89	0.75	4.48	23.86	34.73	33.33	21.57	8.61	3.21	0.32	131.93
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	4.62	4.06	3.28	1.67	-	-	-	-	-	0.73	2.10	3.53	20.00
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	6.42	6.04	6.86	5.48	6.57	4.48	2.33	2.24	4.83	5.63	5.29	4.68	60.85
Vent. Fans	17.18	15.51	16.92	16.05	16.19	15.71	16.26	16.26	15.73	16.39	16.14	16.93	195.29
Pumps & Aux.	20.46	18.47	20.42	11.87	0.11	0.03	0.03	0.03	0.06	17.01	19.67	20.43	128.57
Ext. Usage	1.23	1.11	1.23	1.19	1.23	1.19	1.23	1.23	1.19	1.23	1.19	1.23	14.52
Misc. Equip.	14.08	12.73	14.08	14.18	14.41	13.52	14.41	14.41	13.52	14.41	13.19	14.08	167.04
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	20.04	18.13	20.04	16.49	20.91	13.83	4.32	4.32	18.36	20.91	18.24	14.79	190.38
Total	84.13	76.15	83.73	67.68	63.90	72.63	73.31	71.82	75.25	84.92	79.03	76.00	908.56

Gas Consumption (Btu x000,000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	1.60	1.38	1.14	0.56	0.00	0.00	-	-	-	0.34	0.79	1.25	7.06
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	0.07	0.06	0.07	0.06	0.07	0.05	0.03	0.03	0.05	0.06	0.06	0.05	0.64
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1.67	1.44	1.21	0.62	0.07	0.05	0.03	0.03	0.05	0.40	0.85	1.31	7.75

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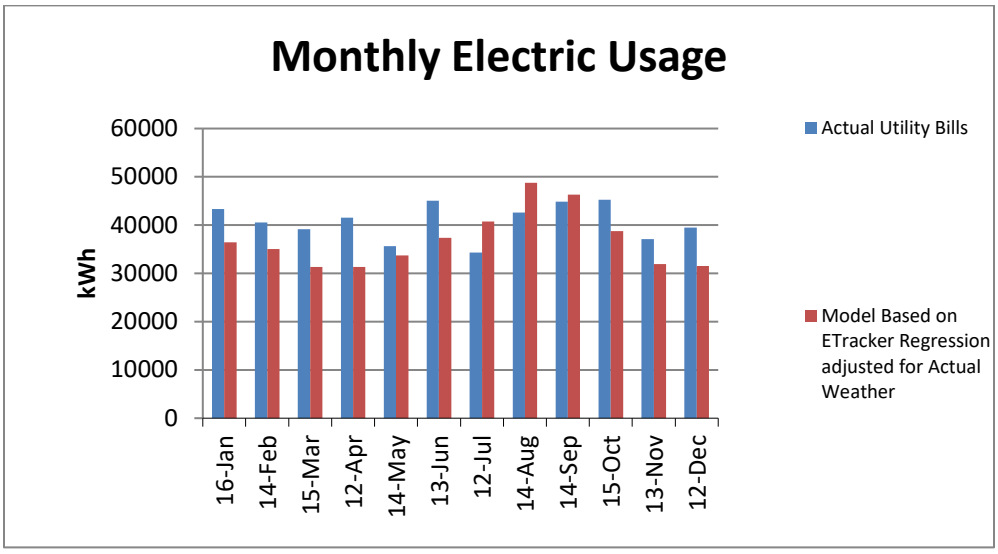
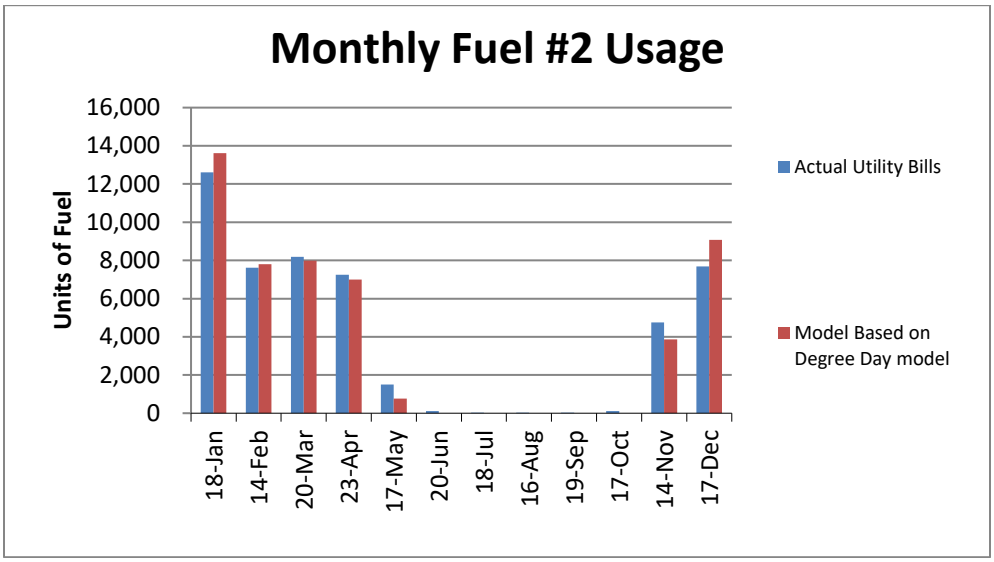
100 Lenox Drive
Lawrenceville, NJ 08648

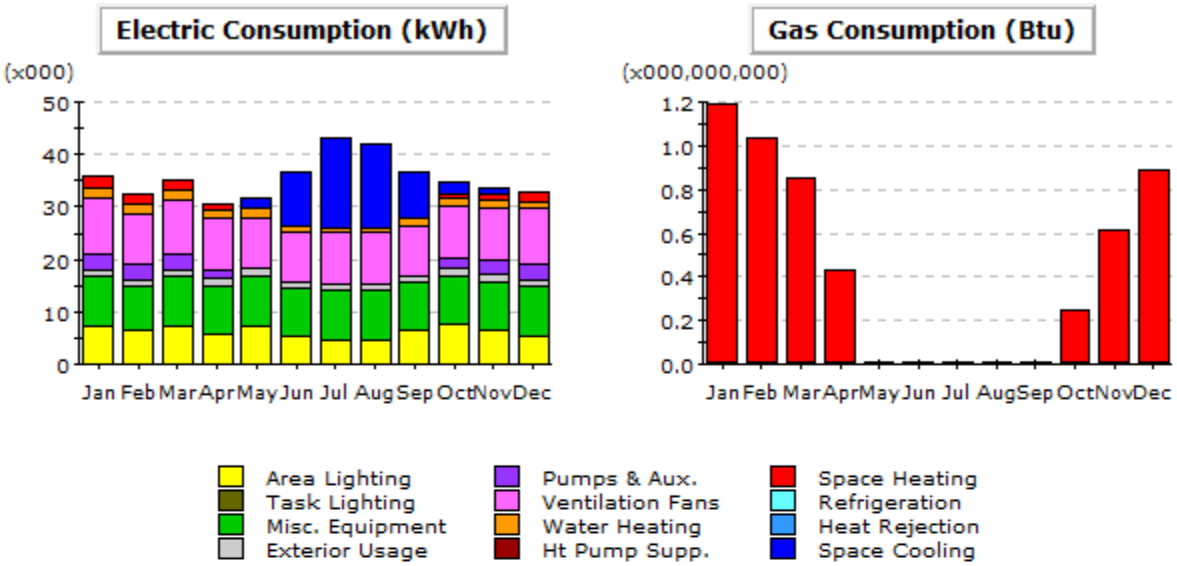
Veterans Memorial Elementary School – Energy Modeling Baseline

Veterans Memorial Elementary School baseline energy use has been analyzed using eQuest energy simulation software. The New Jersey Clean Energy Protocols require +/- 5% accuracy when simulating baseline annual energy use. To calibrate the model, eTracker weather normalization software was used to establish the relationship between weather and energy use of each building. Shown below are the comparison charts and the modeling software baseline output reports. The reports show that the model baseline produced by DCO Energy is accurate and within acceptable tolerances.





Below is the Monthly Energy Consumption Output for the Veterans Memorial Elementary School baseline model.



Electric Consumption (kWh x000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	0.12	0.13	1.87	10.25	16.94	15.99	8.84	2.56	0.82	0.00	57.52
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	2.41	2.17	1.73	0.92	-	-	-	-	-	0.43	1.22	1.70	10.59
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	1.90	1.77	1.97	1.62	1.91	1.14	0.82	0.78	1.38	1.64	1.53	1.36	17.83
Vent. Fans	10.64	9.61	10.40	9.78	9.73	9.42	9.74	9.74	9.42	9.92	9.89	10.37	118.68
Pumps & Aux.	3.11	2.81	3.09	1.80	0.04	0.00	-	0.00	0.02	2.04	2.94	3.10	18.95
Ext. Usage	1.29	1.16	1.29	1.25	1.29	1.25	1.29	1.29	1.25	1.29	1.25	1.29	15.16
Misc. Equip.	9.52	8.60	9.52	9.21	9.52	9.21	9.52	9.52	9.21	9.52	9.21	9.52	112.09
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	7.20	6.46	7.11	5.82	7.33	5.23	4.63	4.63	6.50	7.45	6.55	5.35	74.26
Total	36.07	32.58	35.23	30.53	31.69	36.51	42.94	41.96	36.62	34.85	33.42	32.68	425.08

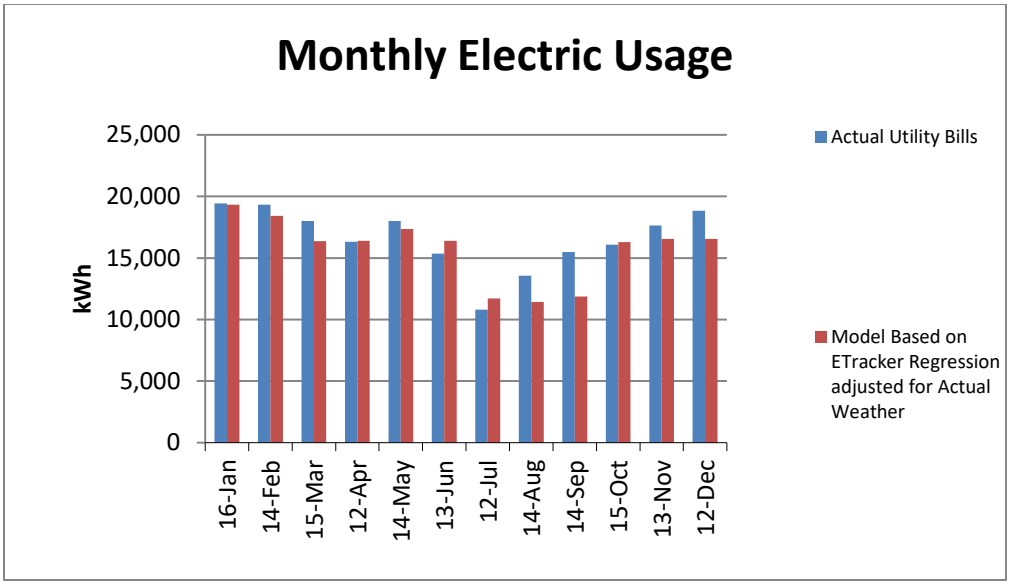
Gas Consumption (Btu x000,000,000)

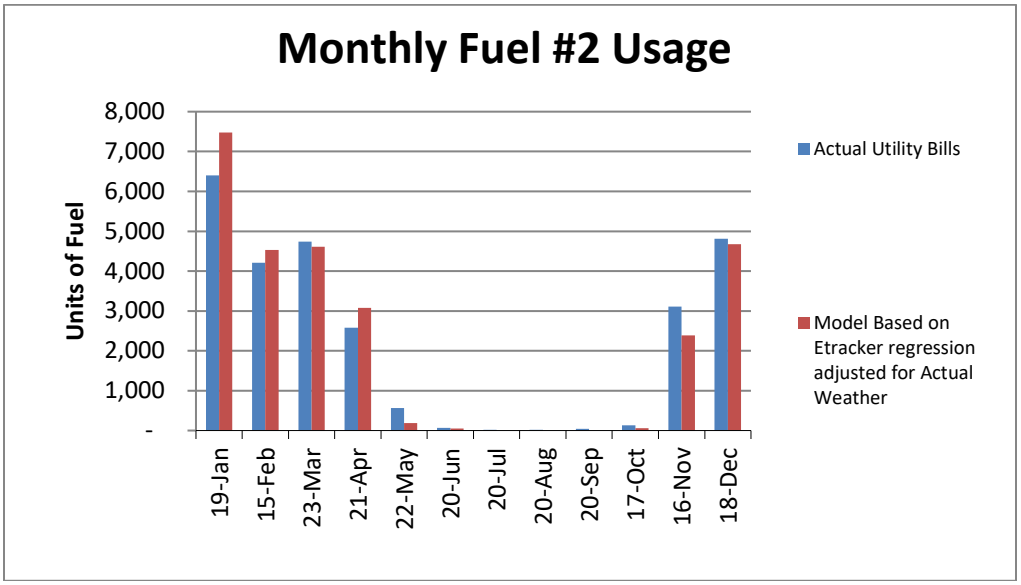
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	1.18	1.03	0.84	0.42	-	-	-	-	-	0.24	0.60	0.88	5.19
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.12
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1.19	1.04	0.85	0.43	0.01	0.01	0.01	0.01	0.01	0.25	0.61	0.89	5.32

DCO Energy Efficiency Division
100 Lenox Drive
Lawrenceville, NJ 08648

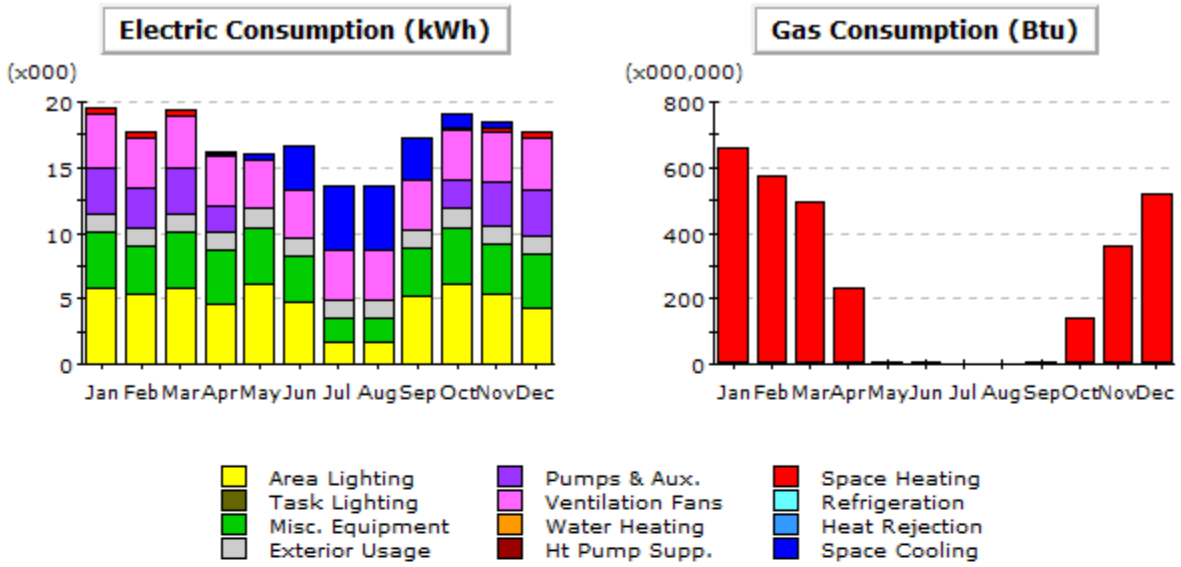
Lanes Mill Elementary School – Energy Modeling Baseline

Lanes Mill Elementary School baseline energy use has been analyzed using eQuest energy simulation software. The New Jersey Clean Energy Protocols require +/- 5% accuracy when simulating baseline annual energy use. To calibrate the model, eTracker weather normalization software was used to establish the relationship between weather and energy use of each building. Shown below are the comparison charts and the modeling software baseline output reports. The reports show that the model baseline produced by DCO Energy is accurate and within acceptable tolerances.





Below is the Monthly Energy Consumption Output for the Lanes Mill Elementary School baseline model.



Electric Consumption (kWh x000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.01	0.00	0.08	0.08	0.38	3.31	4.90	4.84	3.22	1.13	0.44	0.02	18.41
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.49	0.43	0.38	0.18	-	-	-	-	-	0.10	0.27	0.40	2.24
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	4.15	3.75	4.06	3.80	3.81	3.69	3.82	3.82	3.70	3.85	3.85	4.05	46.35
Pumps & Aux.	3.50	3.16	3.50	2.03	-	-	-	-	-	2.15	3.38	3.50	21.20
Ext. Usage	1.40	1.26	1.40	1.35	1.40	1.35	1.40	1.40	1.35	1.40	1.35	1.40	16.46
Misc. Equip.	4.14	3.74	4.14	4.16	4.31	3.50	1.83	1.83	3.72	4.31	3.78	4.01	43.46
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	5.88	5.31	5.88	4.58	6.13	4.79	1.66	1.66	5.20	6.13	5.35	4.34	56.90
Total	19.55	17.66	19.42	16.17	16.02	16.64	13.62	13.56	17.19	19.07	18.43	17.70	205.03

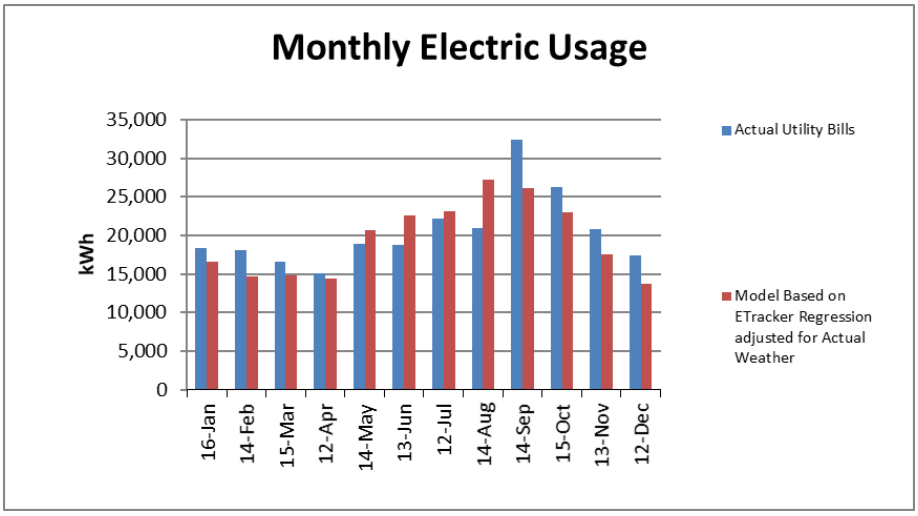
Gas Consumption (Btu x000,000)

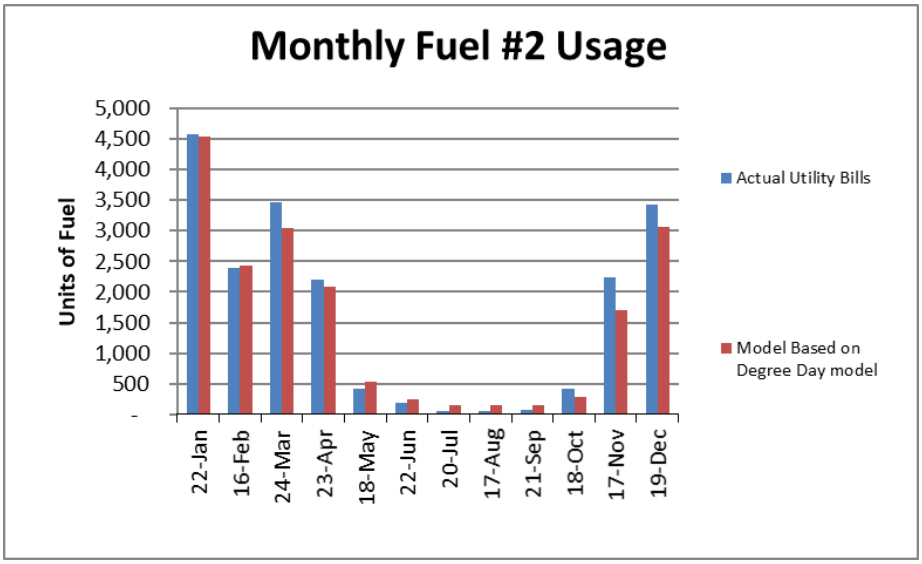
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	649.7	565.7	485.5	227.6	-	-	-	-	-	132.9	351.7	511.5	2,924.7
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	7.3	6.8	7.6	5.9	7.3	5.4	2.3	2.2	5.1	6.2	5.8	5.1	67.0
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	657.0	572.6	493.1	233.5	7.3	5.4	2.3	2.2	5.1	139.1	357.5	516.7	2,991.8

DCO Energy Efficiency Division
100 Lenox Drive
Lawrenceville, NJ 08648

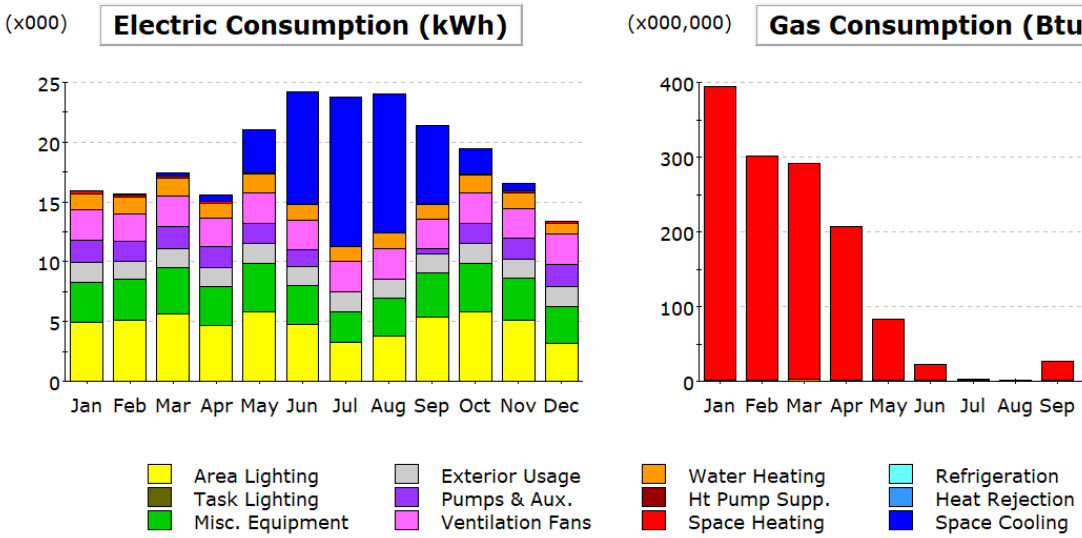
Herbertsville Elementary School – Energy Modeling Baseline

Herbertsville Elementary School baseline energy use has been analyzed using eQuest energy simulation software. The New Jersey Clean Energy Protocols require +/- 5% accuracy when simulating baseline annual energy use. To calibrate the model, eTracker weather normalization software was used to establish the relationship between weather and energy use of each building. Shown below are the comparison charts and the modeling software baseline output reports. The reports show that the model baseline produced by DCO Energy is accurate and within acceptable tolerances.





Below is the Monthly Energy Consumption Output for the Herbertsville Elementary School baseline model.



Electric Consumption (kWh x000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.03	0.03	0.24	0.51	3.58	9.36	12.48	11.66	6.56	2.13	0.70	0.03	47.33
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.24	0.20	0.20	0.16	0.09	0.03	-	-	0.03	0.12	0.16	0.22	1.46
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	1.29	1.38	1.53	1.25	1.58	1.32	1.28	1.26	1.28	1.45	1.27	0.81	15.69
Vent. Fans	2.55	2.30	2.49	2.45	2.55	2.47	2.56	2.56	2.47	2.55	2.47	2.55	29.96
Pumps & Aux.	1.89	1.70	1.86	1.76	1.75	1.37	-	0.00	0.46	1.76	1.75	1.87	16.16
Ext. Usage	1.64	1.48	1.64	1.59	1.64	1.59	1.64	1.64	1.59	1.64	1.59	1.64	19.29
Misc. Equip.	3.38	3.49	3.86	3.20	4.02	3.29	2.58	3.10	3.68	4.02	3.52	3.14	41.30
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	4.94	5.07	5.60	4.68	5.83	4.76	3.22	3.81	5.35	5.83	5.13	3.15	57.37
Total	15.96	15.65	17.43	15.60	21.03	24.19	23.75	24.03	21.41	19.50	16.59	13.42	228.57

Gas Consumption (Btu x000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	392.7	299.7	289.4	205.0	81.9	20.8	1.2	-	25.8	117.3	208.7	339.9	1,982.4
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	1.5	1.6	1.8	1.5	1.2	1.0	0.6	0.6	0.6	0.6	1.0	0.6	12.7
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	0.3	0.3	0.4	0.4	0.5	0.6	0.6	0.6	0.6	0.5	0.4	0.4	5.7
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	394.5	301.7	291.6	207.0	83.7	22.3	2.4	1.2	26.9	118.5	210.1	340.9	2,000.8

DCO Energy Efficiency Division
100 Lenox Drive
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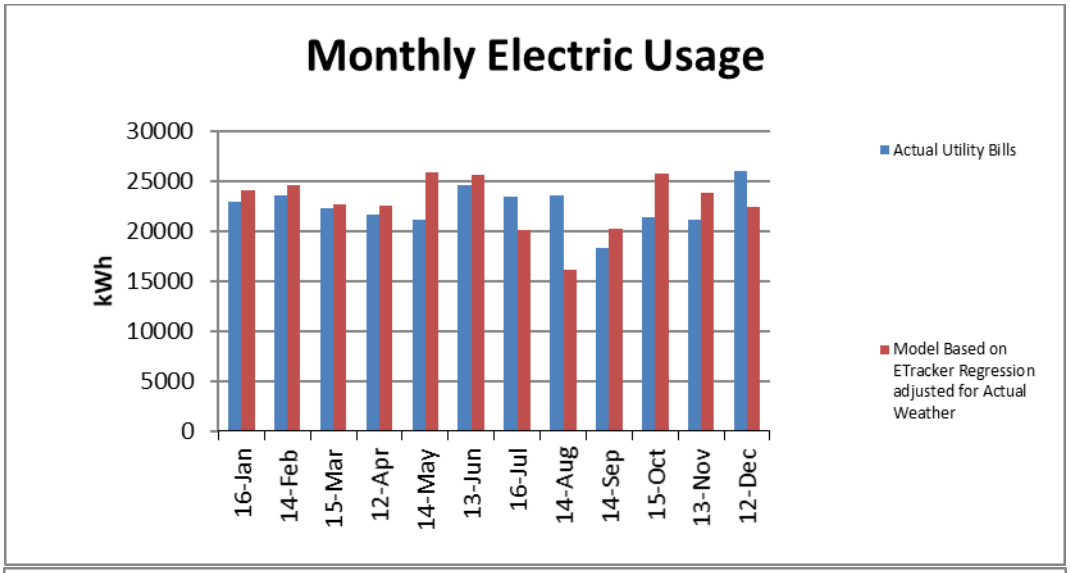
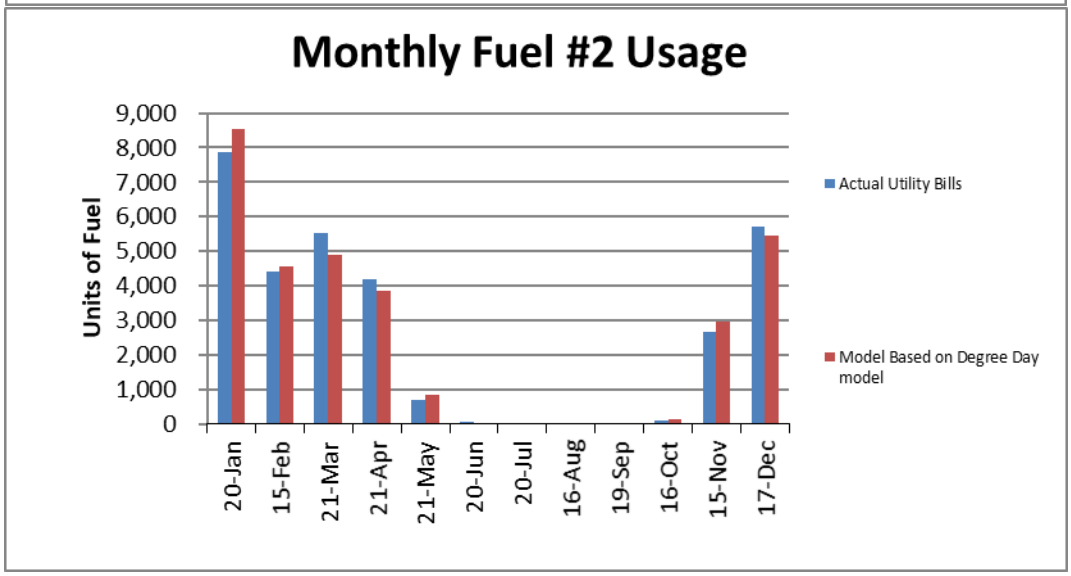
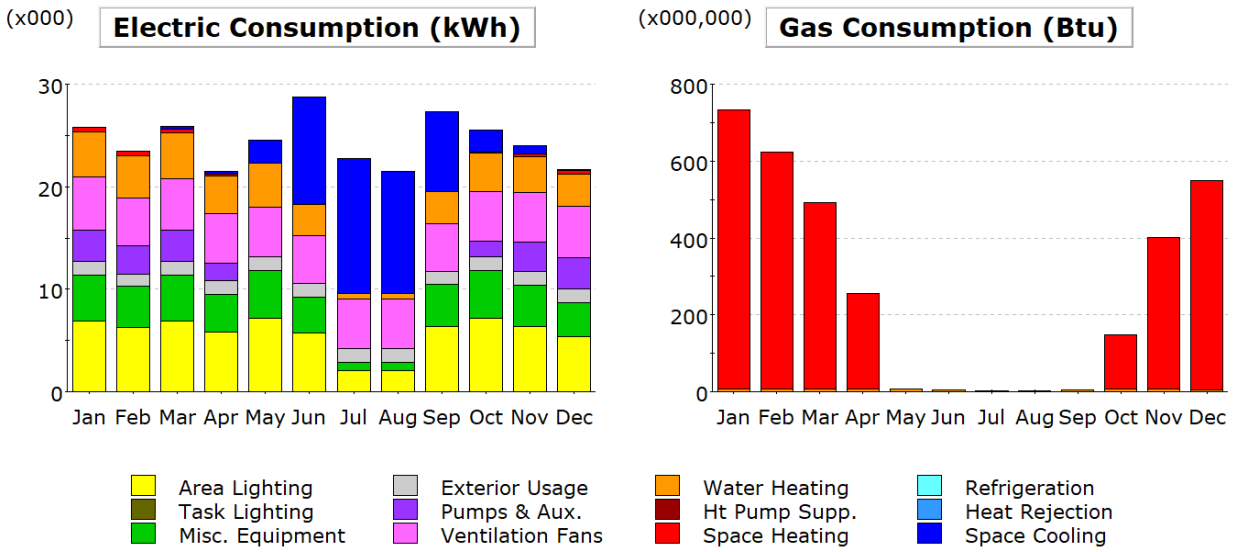
Midtreams Elementary School – Energy Modeling Baseline

Midstreams Elementary School baseline energy use has been analyzed using eQuest energy simulation software. The New Jersey Clean Energy Protocols require +/- 5% accuracy when simulating baseline annual energy use. To calibrate the model, eTracker weather normalization software was used to establish the relationship between weather and energy use of each building. Shown below are the comparison charts and the modeling software baseline output reports. The reports show that the model baseline produced by DCO Energy is accurate and within acceptable tolerances.





Below is the Monthly Energy Consumption Output for the Midstreams Elementary School baseline model.



Electric Consumption (kWh x000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.01	0.00	0.22	0.24	2.20	10.48	13.20	11.96	7.75	2.14	0.79	0.01	49.00
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.51	0.44	0.34	0.18	-	-	-	-	-	0.10	0.28	0.38	2.24
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	4.37	4.09	4.53	3.73	4.37	3.07	0.54	0.52	3.15	3.73	3.50	3.11	38.72
Vent. Fans	5.20	4.68	5.02	4.77	4.80	4.66	4.82	4.81	4.65	4.84	4.82	5.05	58.13
Pumps & Aux.	3.02	2.73	3.02	1.75	0.01	0.00	-	0.00	0.00	1.56	2.91	3.02	18.02
Ext. Usage	1.34	1.21	1.34	1.30	1.34	1.30	1.34	1.34	1.30	1.34	1.30	1.34	15.80
Misc. Equip.	4.43	4.01	4.43	3.69	4.62	3.54	0.79	0.79	4.06	4.62	4.05	3.34	42.36
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	6.93	6.27	6.93	5.84	7.19	5.70	2.10	2.10	6.39	7.19	6.36	5.37	68.35
Total	25.82	23.43	25.84	21.50	24.52	28.74	22.78	21.52	27.30	25.52	24.01	21.63	292.62

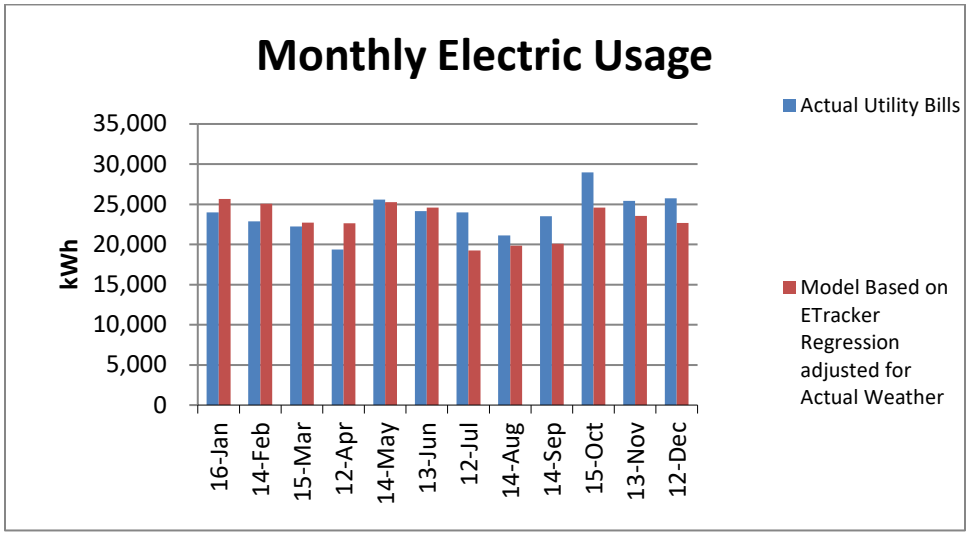
Gas Consumption (Btu x000,000)

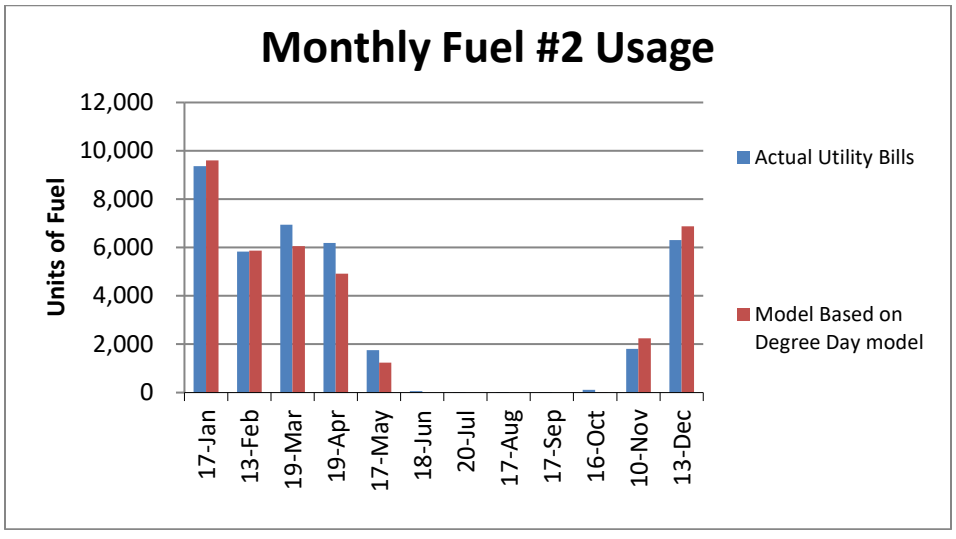
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	726.3	617.6	483.4	250.2	-	-	-	-	-	141.7	394.2	543.1	3,156.5
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	6.8	6.4	7.1	5.8	6.8	4.8	0.8	0.8	4.9	5.8	5.5	4.9	60.4
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	6.7
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	733.6	624.5	491.0	256.6	7.4	5.4	1.4	1.4	5.5	148.1	400.2	548.5	3,223.6

DCO Energy Efficiency Division
100 Lenox Drive
Lawrenceville, NJ 08648

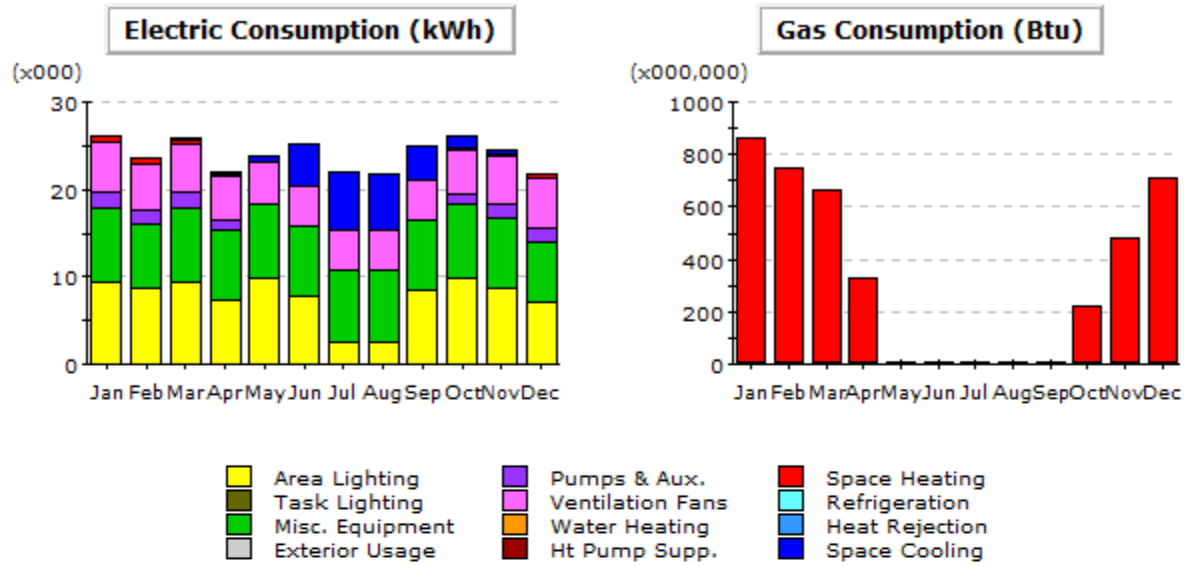
Drum Point Elementary School – Energy Modeling Baseline

Drum Point Elementary School baseline energy use has been analyzed using eQuest energy simulation software. The New Jersey Clean Energy Protocols require +/- 5% accuracy when simulating baseline annual energy use. To calibrate the model, eTracker weather normalization software was used to establish the relationship between weather and energy use of each building. Shown below are the comparison charts and the modeling software baseline output reports. The reports show that the model baseline produced by DCO Energy is accurate and within acceptable tolerances.





Below is the Monthly Energy Consumption Output for the Drum Point Elementary School baseline model.



Electric Consumption (kWh x000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.00	0.00	0.07	0.09	0.78	4.77	6.55	6.34	3.93	1.40	0.46	0.00	24.39
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.58	0.51	0.48	0.24	-	-	-	-	-	0.16	0.36	0.51	2.84
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	5.80	5.24	5.65	5.14	4.88	4.63	4.73	4.73	4.64	5.11	5.27	5.65	61.47
Pumps & Aux.	1.79	1.62	1.79	1.04	-	-	-	-	-	1.21	1.73	1.79	10.97
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	8.34	7.54	8.34	7.98	8.36	8.04	8.20	8.20	8.05	8.36	8.06	6.86	96.34
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	9.50	8.59	9.49	7.39	9.91	7.70	2.49	2.49	8.38	9.91	8.65	7.01	91.52
Total	26.02	23.49	25.83	21.89	23.92	25.14	21.97	21.77	25.00	26.16	24.52	21.82	287.53

Gas Consumption (Btu x000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	848.0	734.9	653.7	318.8	-	-	-	-	-	209.5	470.5	698.7	3,934.2
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	10.9	10.2	11.3	8.9	10.9	8.3	4.7	4.5	7.8	9.3	8.7	7.8	103.3
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	858.8	745.1	665.0	327.8	10.9	8.3	4.7	4.5	7.8	218.8	479.2	706.6	4,037.6

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100 Lenox Drive
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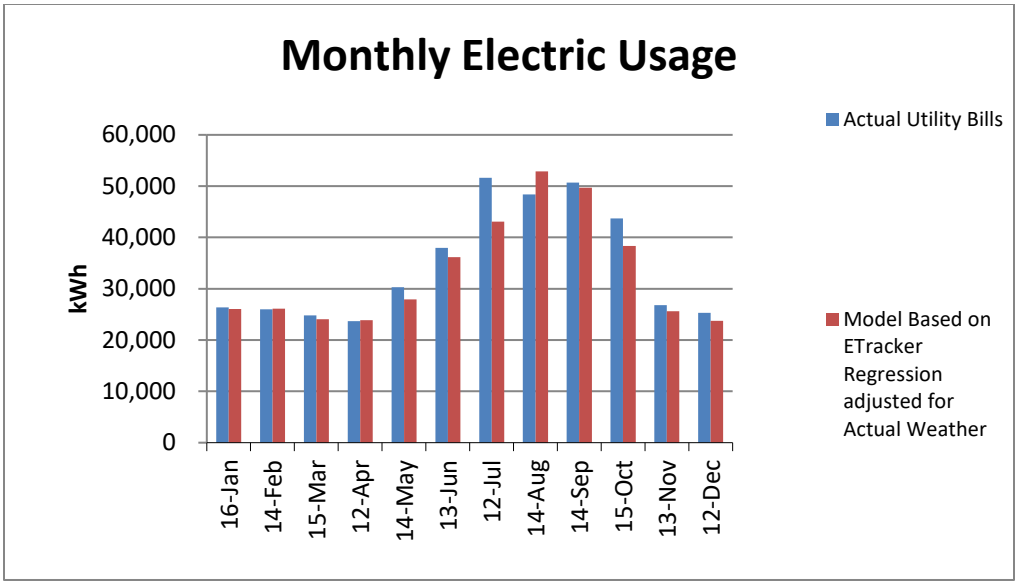
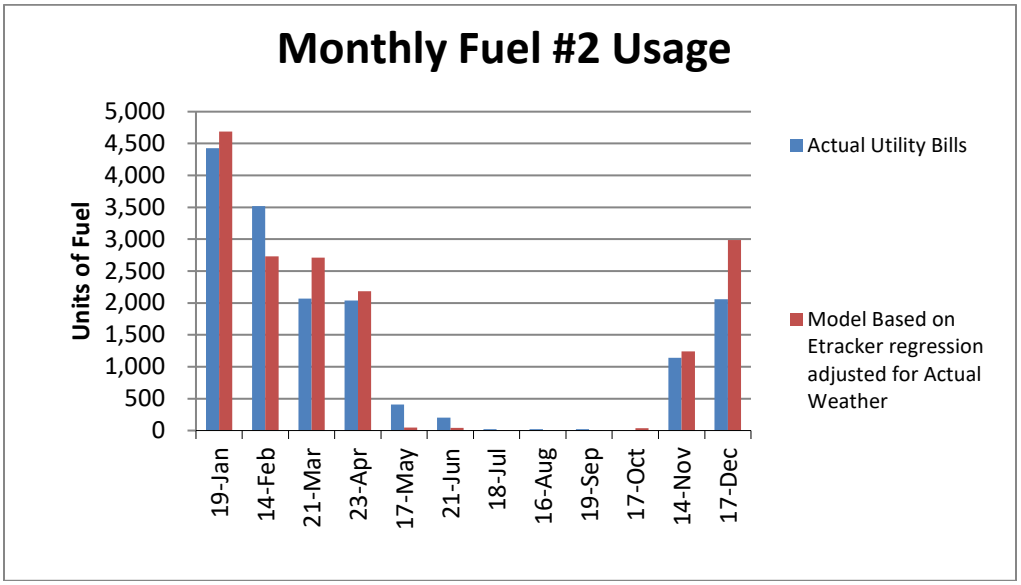
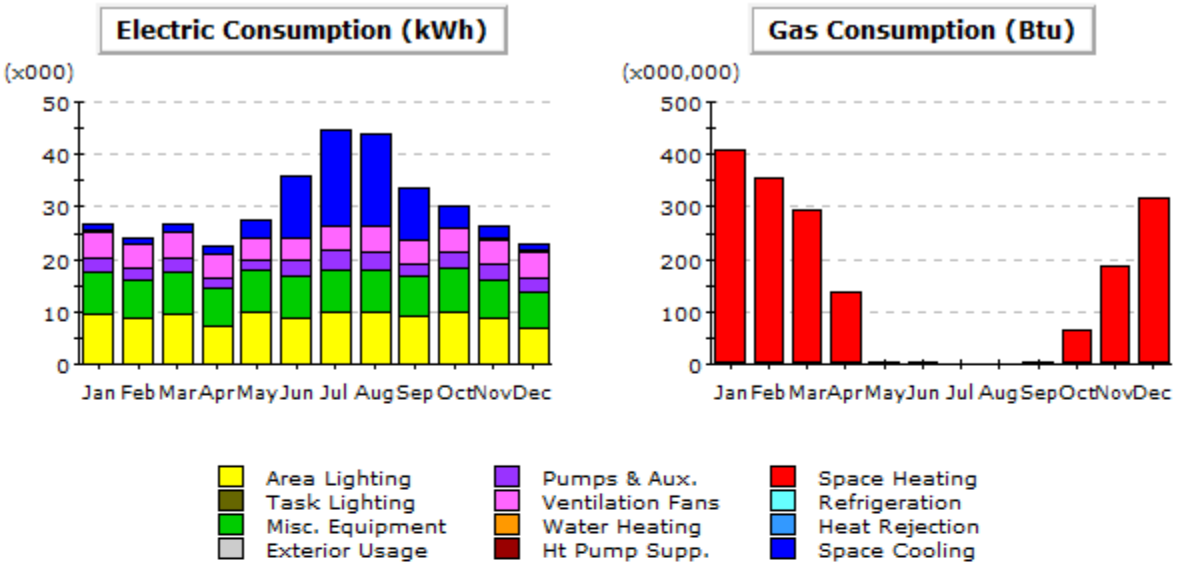
Brick Administration Building – Energy Modeling Baseline

Brick Administration Building baseline energy use has been analyzed using eQuest energy simulation software. The New Jersey Clean Energy Protocols require +/- 5% accuracy when simulating baseline annual energy use. To calibrate the model, eTracker weather normalization software was used to establish the relationship between weather and energy use of each building. Shown below are the comparison charts and the modeling software baseline output reports. The reports show that the model baseline produced by DCO Energy is accurate and within acceptable tolerances.





Below is the Monthly Energy Consumption Output for the Brick Administration Building baseline model.



Electric Consumption (kWh x000)

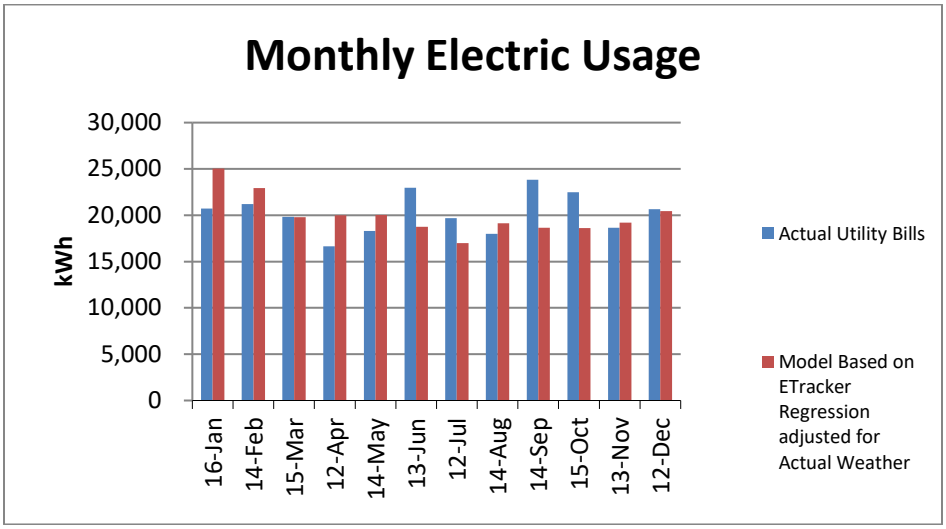
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	1.12	1.01	1.38	1.60	3.38	11.67	18.16	17.52	9.94	4.19	2.26	1.25	73.48
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.27	0.24	0.21	0.10	-	-	-	-	-	0.05	0.14	0.23	1.23
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	5.04	4.54	4.87	4.49	4.45	4.46	4.76	4.77	4.47	4.56	4.56	4.90	55.86
Pumps & Aux.	2.63	2.37	2.78	2.00	1.72	3.06	3.56	3.41	2.55	3.19	3.01	2.68	32.97
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	8.00	7.23	8.00	7.16	8.18	7.69	8.18	8.18	7.69	8.18	7.51	6.95	92.95
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	9.60	8.62	9.49	7.20	9.86	8.96	9.86	9.87	9.02	9.97	8.70	6.90	108.05
Total	26.66	24.02	26.74	22.55	27.59	35.84	44.51	43.76	33.66	30.14	26.17	22.91	364.54

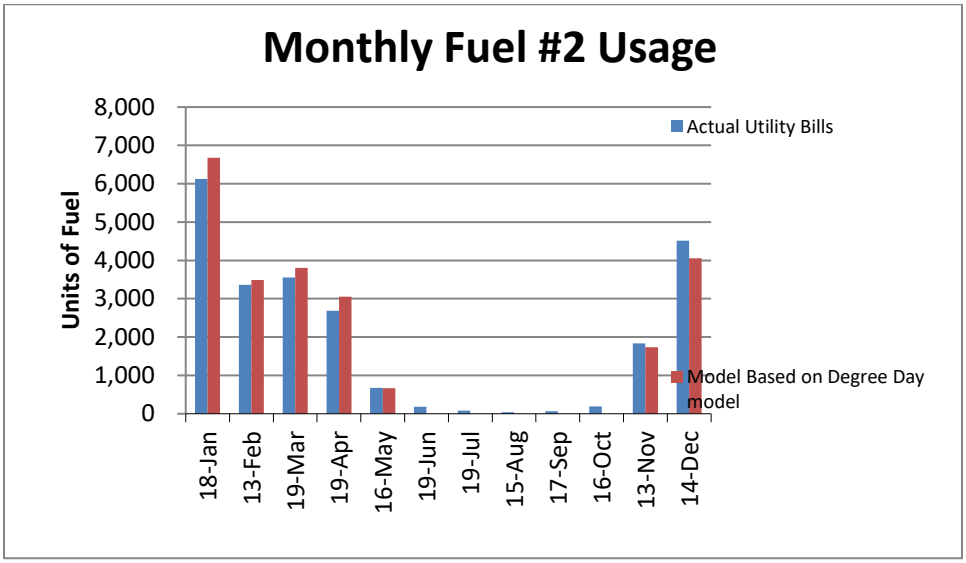
Gas Consumption (Btu x000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	403.1	348.2	289.3	132.5	-	-	-	-	-	60.0	182.5	314.6	1,730.2
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	5.4	5.0	5.6	4.6	5.4	3.8	1.8	1.7	3.9	4.6	4.3	3.8	49.9
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	408.4	353.2	294.8	137.1	5.4	3.8	1.8	1.7	3.9	64.6	186.8	318.5	1,780.0

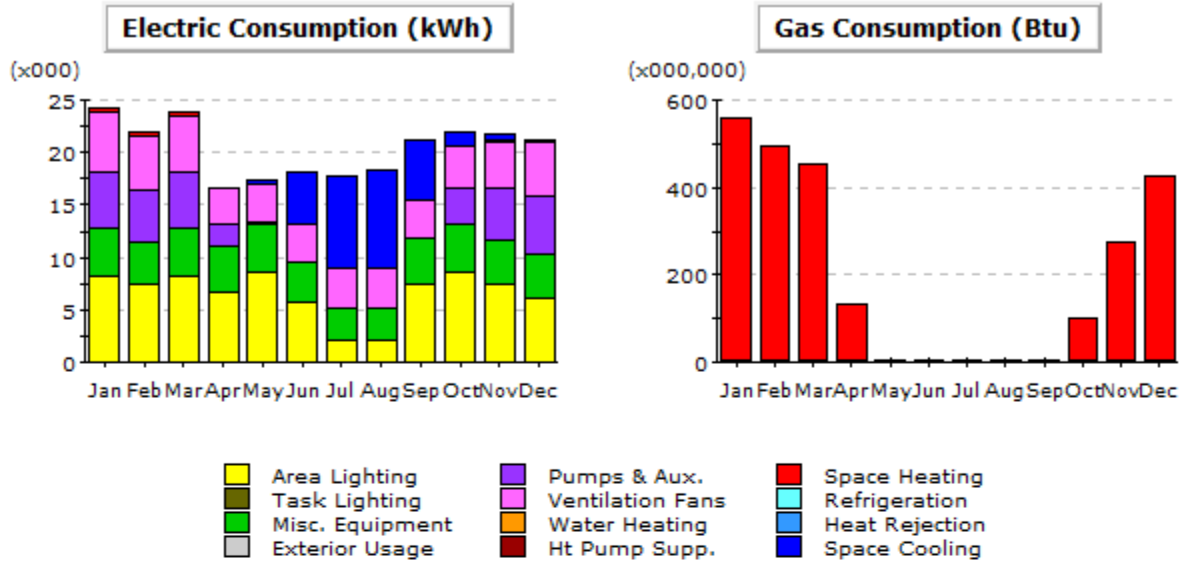
Osbornville Elementary School– Energy Modeling Baseline

Osbornville Elementary School baseline energy use has been analyzed using eQuest energy simulation software. The New Jersey Clean Energy Protocols require +/- 5% accuracy when simulating baseline annual energy use. To calibrate the model, eTracker weather normalization software was used to establish the relationship between weather and energy use of each building. Shown below are the comparison charts and the modeling software baseline output reports. The reports show that the model baseline produced by DCO Energy is accurate and within acceptable tolerances.





Below is the Monthly Energy Consumption Output for the Osbornville Elementary School baseline model.



Electric Consumption (kWh x000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.00	-	0.01	0.02	0.36	5.06	8.82	9.30	5.74	1.39	0.50	0.00	31.19
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.38	0.34	0.31	0.09	-	-	-	-	-	0.06	0.19	0.30	1.66
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	5.58	5.07	5.36	3.45	3.67	3.57	3.70	3.72	3.61	4.01	4.47	5.15	51.37
Pumps & Aux.	5.49	4.96	5.44	2.09	0.02	0.00	-	0.00	0.01	3.31	4.96	5.44	31.71
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	4.54	4.11	4.54	4.33	4.73	3.83	3.20	3.20	4.25	4.73	4.15	4.36	49.98
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	8.17	7.39	8.17	6.72	8.53	5.72	2.03	2.03	7.50	8.53	7.44	6.02	78.25
Total	24.17	21.87	23.84	16.70	17.31	18.18	17.75	18.25	21.10	22.04	21.70	21.27	244.18

Gas Consumption (Btu x000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	551.7	488.2	445.1	129.1	-	-	-	-	-	92.9	270.8	422.7	2,400.5
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	6.0	5.6	6.2	5.2	6.0	4.0	2.0	2.0	4.4	5.1	4.8	4.3	55.5
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	0.4	0.3	0.4	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.4	6.1
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	558.1	494.2	451.8	134.7	6.6	4.6	2.6	2.5	4.9	98.6	276.0	427.5	2,462.1

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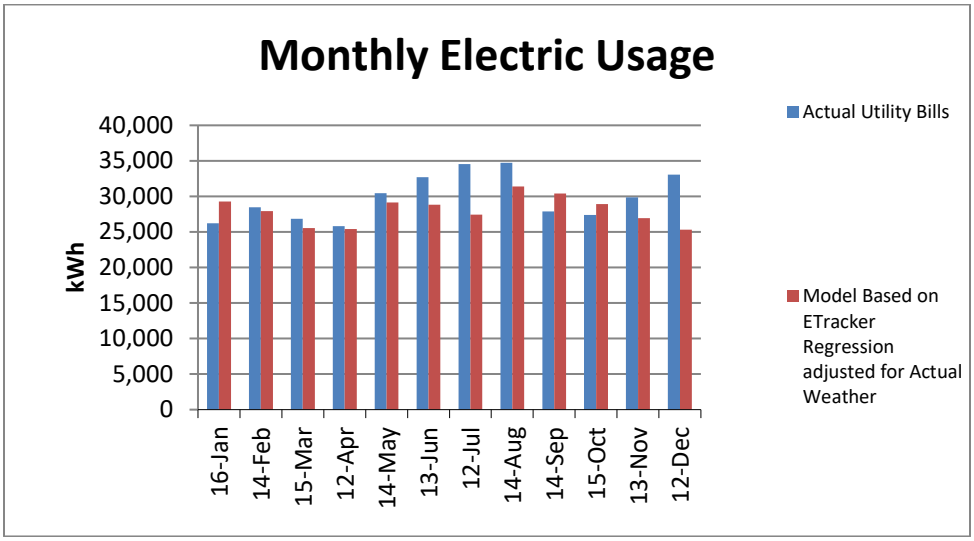
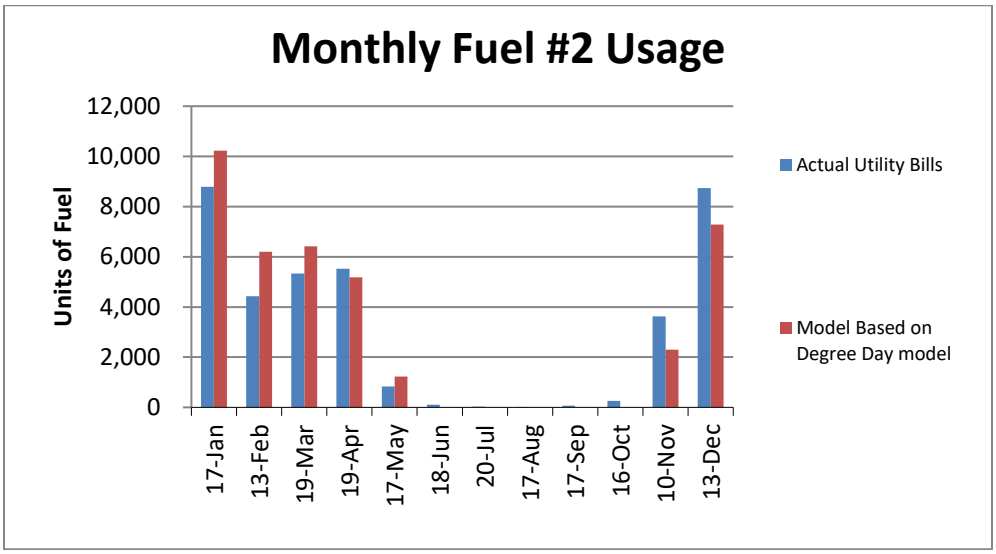
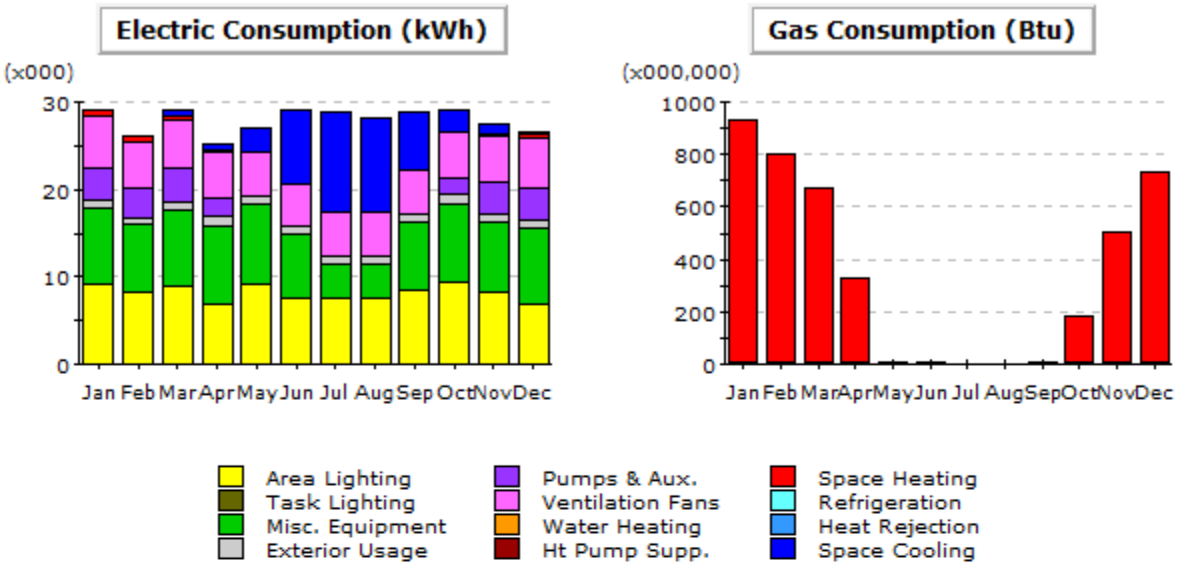
Emma Havens Young Elementary School– Energy Modeling Baseline

Emma Havens Young Elementary School baseline energy use has been analyzed using eQuest energy simulation software. The New Jersey Clean Energy Protocols require +/- 5% accuracy when simulating baseline annual energy use. To calibrate the model, eTracker weather normalization software was used to establish the relationship between weather and energy use of each building. Shown below are the comparison charts and the modeling software baseline output reports. The reports show that the model baseline produced by DCO Energy is accurate and within acceptable tolerances.





Below is the Monthly Energy Consumption Output for the Emma Havens Young Elementary School baseline model.



Electric Consumption (kWh x000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.06	0.03	0.53	0.63	2.72	8.30	11.47	10.75	6.68	2.52	1.11	0.10	44.90
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.70	0.60	0.51	0.25	-	-	-	-	-	0.14	0.39	0.56	3.15
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	5.84	5.26	5.61	5.18	5.11	4.97	5.15	5.14	4.97	5.17	5.24	5.63	63.25
Pumps & Aux.	3.77	3.41	3.77	2.19	-	-	-	-	-	1.95	3.65	3.77	22.53
Ext. Usage	0.96	0.87	0.96	0.93	0.96	0.93	0.96	0.96	0.93	0.96	0.93	0.96	11.30
Misc. Equip.	8.66	7.83	8.66	8.98	9.02	7.33	3.87	3.87	7.80	9.02	7.91	8.66	91.60
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	9.10	8.13	8.98	6.94	9.21	7.48	7.49	7.52	8.44	9.39	8.31	6.82	97.80
Total	29.10	26.13	29.02	25.09	27.01	29.00	28.94	28.25	28.82	29.15	27.53	26.50	334.53

Gas Consumption (Btu x000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	922.0	788.9	657.6	318.8	-	-	-	-	-	177.4	496.3	725.6	4,086.5
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	10.4	9.8	10.8	8.5	10.5	5.7	3.5	3.4	7.6	8.9	8.4	7.4	94.9
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	932.4	798.7	668.4	327.3	10.5	5.7	3.5	3.4	7.6	186.3	504.6	733.0	4,181.4

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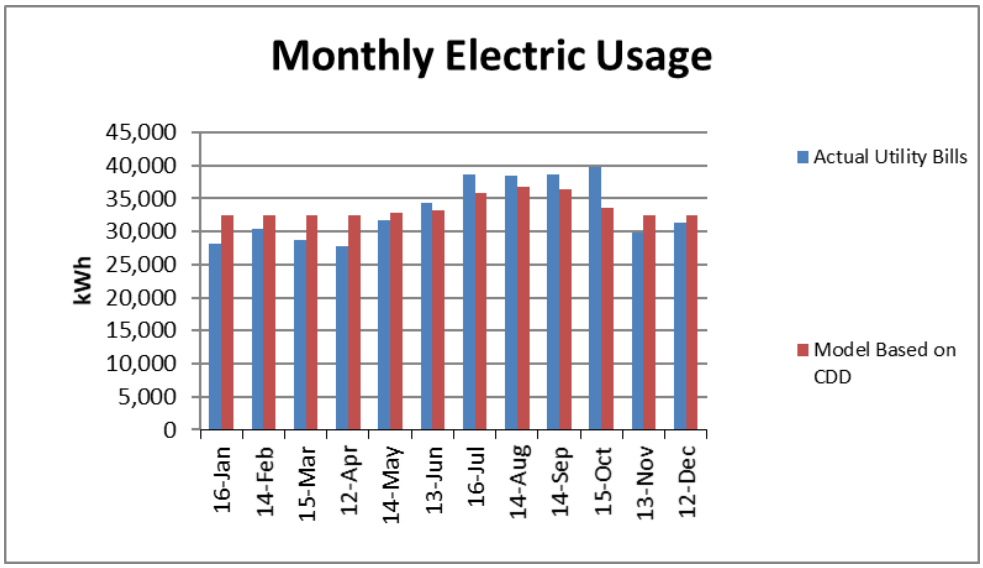
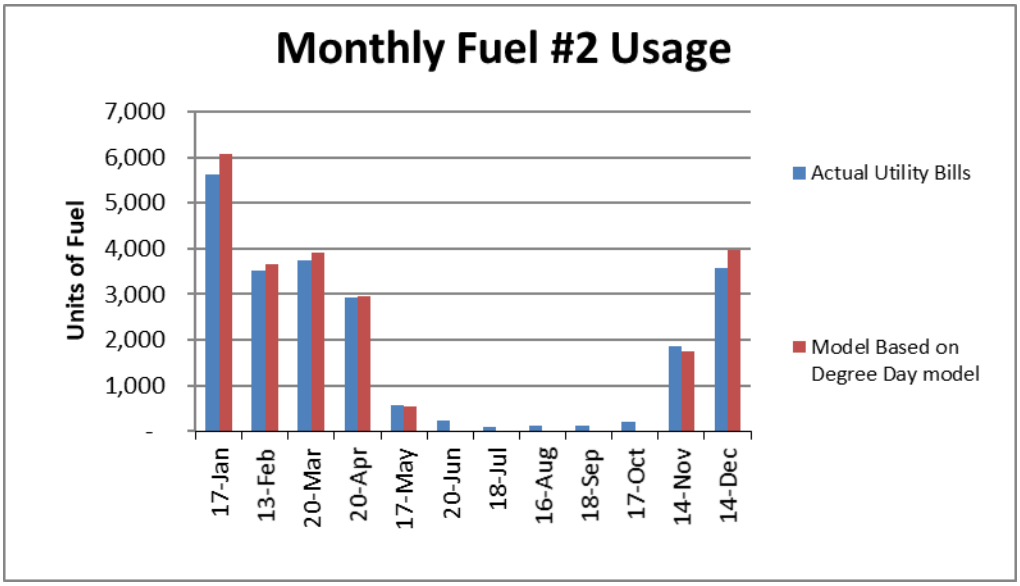
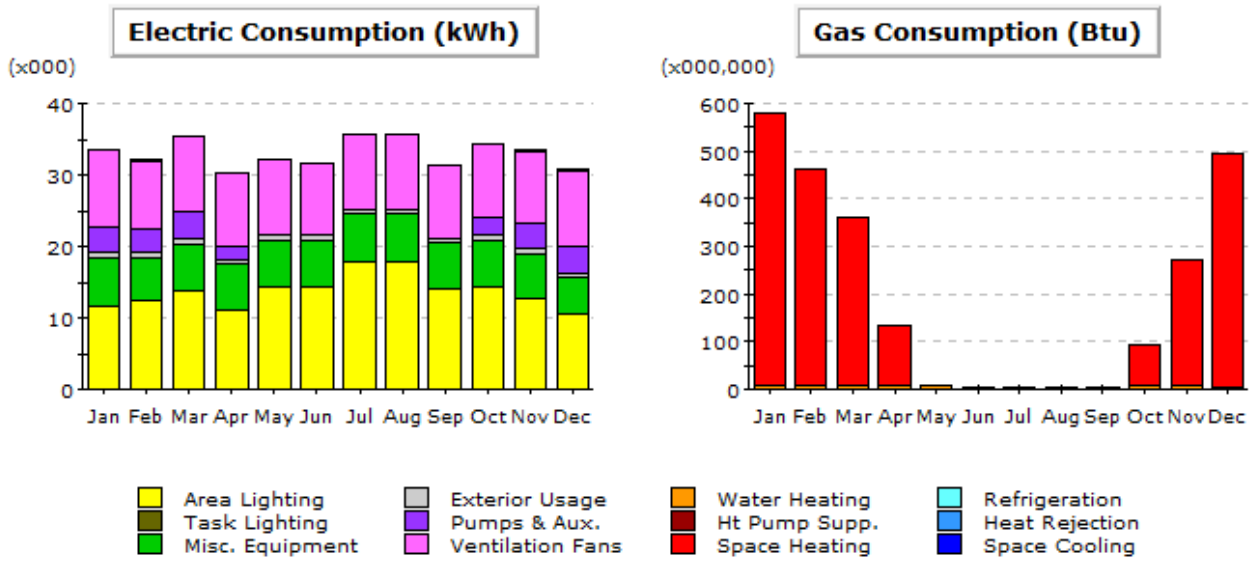
Warren Wolf Elementary School– Energy Modeling Baseline

Warren Wolf Elementary School baseline energy use has been analyzed using eQuest energy simulation software. The New Jersey Clean Energy Protocols require +/- 5% accuracy when simulating baseline annual energy use. To calibrate the model, eTracker weather normalization software was used to establish the relationship between weather and energy use of each building. Shown below are the comparison charts and the modeling software baseline output reports. The reports show that the model baseline produced by DCO Energy is accurate and within acceptable tolerances.





Below is the Monthly Energy Consumption Output for the Warren Wolf Elementary School baseline model.



Electric Consumption (kWh x000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.00	0.00	0.00	0.00	-	-	-	-	-	0.00	0.00	0.00	0.00
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.20	0.16	0.13	0.05	-	-	-	-	-	0.04	0.10	0.18	0.86
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	10.67	9.60	10.56	10.10	10.37	10.04	10.37	10.37	10.04	10.41	10.18	10.64	123.35
Pumps & Aux.	3.70	3.34	3.66	1.84	0.12	0.04	0.04	0.04	0.07	2.38	3.44	3.67	22.35
Ext. Usage	0.74	0.67	0.74	0.72	0.74	0.72	0.74	0.74	0.72	0.74	0.72	0.74	8.72
Misc. Equip.	6.65	6.00	6.65	6.43	6.65	6.43	6.65	6.65	6.43	6.65	6.43	4.95	76.56
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	11.67	12.39	13.70	11.07	14.21	14.37	17.82	17.82	13.99	14.21	12.59	10.66	164.51
Total	33.62	32.17	35.44	30.22	32.09	31.60	35.61	35.62	31.25	34.43	33.46	30.83	396.34

Gas Consumption (Btu x000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	574.2	454.7	353.6	124.8	-	-	-	-	-	84.6	266.1	489.3	2,347.4
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	7.3	7.8	6.8	7.1	8.2	4.8	2.7	2.6	5.4	7.0	6.6	4.3	70.5
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	581.5	462.5	360.4	131.9	8.2	4.8	2.7	2.6	5.4	91.6	272.7	493.6	2,417.9

ENERGY SAVINGS PLAN

SECTION 3 – ENERGY CONSERVATION MEASURES

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Energy Conservation Measure Listing

Below is a listing of all the Energy Conservation Measures that were evaluated for the Brick Township School District ESIP Project.

BRICK TOWNSHIP PUBLIC SCHOOLS ECM MATRIX

ECM #	ECM DESCRIPTION
1	LED Lighting Replacement
2	District Wide Energy Management System
3	Solar PPA
4	Boiler Replacement
5	Unit Ventilator Replacement
6	Eliminate Rooftop Boiler
7	Roof Top Unit Replacement
8	Air Handling Unit Replacement
9	Roof Replacement & Repair
10	Destratification Fans
11	High Efficiency Transformers
12	Plug Load Controls
13	Cooling Tower Replacement
14	Combined Heat and Power
15	Chiller Replacement

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Energy Conservation Measure Breakdown by Building

The matrix below details which ECMs were applied and evaluated by building. It also indicates which ECMs were included in the project and which ECMs were not included in the project.

BRICK TOWNSHIP PUBLIC SCHOOLS ECM MATRIX		Brick Memorial High School	Brick Township High School	Veterans Memorial Middle School	Lake Riviera Middle School	Emma Havens Young Elementary School	Veterans Memorial Elementary School	Warren H. Wolf Elementary School	Osbornville Elementary School	Lanes Mill Elementary School	Midstreams Elementary School	Drum Point Elementary School	Herbertsville Elementary School & Annex	Brick Township Administration Building	Transportation Department & Bus Garage	Receiving Warehouse	Custodial / Maintenance Building
ECM #	ECM DESCRIPTION																
1	LED Lighting Replacement	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
2	District Wide Energy Management System	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
3	Solar PPA	✔	✔					✔	✔	✔		✔	✔		✔		
4	Boiler Replacement	✔		✔	✔	✔				✔	✔	✔		✔			
5	Unit Ventilator Replacement			✔			✔			✔	✔		✔				
6	Eliminate Rooftop Boiler			✔			✔				✔		✔				
7	Roof Top Unit Replacement			✔													
8	Air Handling Unit Replacement						✔										
9	Roof Renovations	✔	✔					✔	✔	✔		✔	✔		✔		
10	Destratification Fans	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔				
11	High Efficiency Transformers	✔	✔	✔			✔										
12	Plug Load Controls	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			
13	Cooling Tower Replacement	✔															
14	Combined Heat and Power	✔	✔														
15	Chiller Replacement	✔															

✔ indicates ECM was evaluated and was included in the ESIP Project

✔ indicates ECM was evaluated and was not included in the ESIP Project

ECM Breakdown by Cost & Savings

BRICK TOWNSHIP PUBLIC SCHOOLS		INCLUDED IN PROJECT	INSTALLED COST	ANNUAL ELECTRIC COST SAVINGS	ANNUAL NATURAL GAS COST SAVINGS	ANNUAL ENERGY COST SAVINGS
ECM #	ENERGY CONSERVATION MEASURE	"Y" OR "N"	$	$	$	$
1	LED Lighting Replacement	Y	$2,196,411	$156,098	-$20,034	$136,064
2	District Wide Energy Management System	Y	$4,622,970	$63,366	$128,078	$191,444
3	Solar PPA	Y	$0	$199,563	$0	$199,563
4	Boiler Replacement	Y	$629,050	$9,802	$13,522	$23,324
5	Unit Ventilator Replacement	N	$0	$0	$0	$0
6	Eliminate Rooftop Boiler	N	$0	$0	$0	$0
7	Roof Top Unit Replacement	N	$0	$0	$0	$0
8	Air Handling Unit Replacement	N	$0	$0	$0	$0
9	Roof Renovations	N	$0	$0	$0	$0
10	Destratification Fans	N	$0	$0	$0	$0
11	High Efficiency Transformers	N	$0	$0	$0	$0
12	Plug Load Controls	Y	$44,574	$3,690	$0	$3,690
13	Cooling Tower Replacement	N	$0	$0	$0	$0
14	Combined Heat and Power	Y	$151,797	$9,461	-$1,915	$7,546
15	Chiller Replacement	N	$0	$0	$0	$0
	TOTALS		$7,644,801	$441,980	$119,652	$561,632

BRICK TOWNSHIP PUBLIC SCHOOLS		INCLUDED IN PROJECT	ELECTRIC CONSUMPTION SAVINGS	ELECTRIC DEMAND SAVINGS	NATURAL GAS SAVINGS	TOTAL SITE ENERGY SAVINGS	TOTAL SOURCE ENERGY SAVINGS
ECM #	ENERGY CONSERVATION MEASURE	"Y" OR "N"	kWh	kW	THERMS	MMBTU	MMBTU
1	LED Lighting Replacement	Y	1,571,807	372	-22,384	3,125	17,912
2	District Wide Energy Management System	Y	626,873	0	148,483	16,987	7,144
3	Solar PPA	Y	0	0	0	0	0
4	Boiler Replacement	Y	109,942	0	14,314	1,807	1,253
5	Unit Ventilator Replacement	N	0	0	0	0	0
6	Eliminate Rooftop Boiler	N	0	0	0	0	0
7	Roof Top Unit Replacement	N	0	0	0	0	0
8	Air Handling Unit Replacement	N	0	0	0	0	0
9	Roof Renovations	N	0	0	0	0	0
10	Destratification Fans	N	0	0	0	0	0
11	High Efficiency Transformers	N	0	0	0	0	0
12	Plug Load Controls	Y	37,301	0	0	127	425
13	Cooling Tower Replacement	N	0	0	0	0	0
14	Combined Heat and Power	Y	106,114	0	-2,027	159	1,209
15	Chiller Replacement	N	0	0	0	0	0
	TOTALS		2,452,037	372	138,386	22,205	27,944

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ECM Breakdown by Building by Cost & Savings

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	INSTALLED COST	ANNUAL ELECTRIC COST SAVINGS	ANNUAL NATURAL GAS COST SAVINGS	ANNUAL ENERGY COST SAVINGS
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	$	$	$	$
1	Brick Memorial High School	LED Lighting Replacement	Y	$483,412	$44,551	($7,191)	$37,360
2	Brick Memorial High School	District Wide Energy Management System	Y	$1,083,424	$4,985	$11,890	$16,875
3	Brick Memorial High School	Solar PPA	Y	$0	$0	$0	$0
4	Brick Memorial High School	Boiler Replacement	Y	$629,050	$9,802	$13,522	$23,324
9	Brick Memorial High School	Roof Renovations	N	$0	$0	$0	$0
10	Brick Memorial High School	Destratification Fans	N	$0	$0	$0	$0
11	Brick Memorial High School	High Efficiency Transformers	N	$0	$0	$0	$0
12	Brick Memorial High School	Plug Load Controls	Y	$10,166	$618	$0	$618
13	Brick Memorial High School	Cooling Tower Replacement	N	$0	$0	$0	$0
14	Brick Memorial High School	Combined Heat and Power	Y	$151,797	$9,461	($1,915)	$7,546
15	Brick Memorial High School	Chiller Replacement	N	$0	$0	$0	$0
	Brick Memorial High School	TOTALS		$2,357,848	$69,417	$16,306	$85,724

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	ELECTRIC CONSUMPTION SAVINGS	ELECTRIC DEMAND SAVINGS	NATURAL GAS SAVINGS
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	kWh	kW	THERMS
1	Brick Memorial High School	LED Lighting Replacement	Y	495,783	98	(7,612)
2	Brick Memorial High School	District Wide Energy Management System	Y	55,912	0	12,586
3	Brick Memorial High School	Solar PPA	Y	0	0	0
4	Brick Memorial High School	Boiler Replacement	Y	109,942	0	14,314
9	Brick Memorial High School	Roof Renovations	N	0	0	0
10	Brick Memorial High School	Destratification Fans	N	0	0	0
11	Brick Memorial High School	High Efficiency Transformers	N	0	0	0
12	Brick Memorial High School	Plug Load Controls	Y	6,932	0	0
13	Brick Memorial High School	Cooling Tower Replacement	N	0	0	0
14	Brick Memorial High School	Combined Heat and Power	Y	106,114	0	(2,027)
15	Brick Memorial High School	Chiller Replacement	N	0	0	0
	Brick Memorial High School	TOTALS		774,684	98	17,261

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	INSTALLED COST	ANNUAL ELECTRIC COST SAVINGS	ANNUAL NATURAL GAS COST SAVINGS	ANNUAL ENERGY COST SAVINGS
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	$	$	$	$
1	Brick Township High School	LED Lighting Replacement	Y	$314,994	$22,284	$0	$22,284
2	Brick Township High School	District Wide Energy Management System	Y	$243,240	$8,278	$8,522	$16,800
3	Brick Township High School	Solar PPA	Y	$0	$97,205	$0	$97,205
9	Brick Township High School	Roof Renovations	N	$0	$0	$0	$0
10	Brick Township High School	Destratification Fans	N	$0	$0	$0	$0
11	Brick Township High School	High Efficiency Transformers	N	$0	$0	$0	$0
12	Brick Township High School	Plug Load Controls	Y	$7,234	$579	$0	$579
14	Brick Township High School	Combined Heat and Power	N	$0	$0	$0	$0
	Brick Township High School	TOTALS		$565,467	$128,347	$8,522	$136,869

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	ELECTRIC CONSUMPTION SAVINGS	ELECTRIC DEMAND SAVINGS	NATURAL GAS SAVINGS
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	kWh	kW	THERMS
1	Brick Township High School	LED Lighting Replacement	Y	213,000	47	0
2	Brick Township High School	District Wide Energy Management System	Y	80,020	0	11,267
3	Brick Township High School	Solar PPA	Y	0	0	0
9	Brick Township High School	Roof Renovations	N	0	0	0
10	Brick Township High School	Destratification Fans	N	0	0	0
11	Brick Township High School	High Efficiency Transformers	N	0	0	0
12	Brick Township High School	Plug Load Controls	Y	5,597	0	0
14	Brick Township High School	Combined Heat and Power	N	0	0	0
	Brick Township High School	TOTALS		298,617	47	11,267

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	INSTALLED COST	ANNUAL ELECTRIC COST SAVINGS	ANNUAL NATURAL GAS COST SAVINGS	ANNUAL ENERGY COST SAVINGS
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	$	$	$	$
1	Veterans Memorial Middle School	LED Lighting Replacement	Y	$245,896	$13,818	($1,927)	$11,891
2	Veterans Memorial Middle School	District Wide Energy Management System	Y	$618,189	$8,814	$14,388	$23,202
4	Veterans Memorial Middle School	Boiler Replacement	N	$0	$0	$0	$0
5	Veterans Memorial Middle School	Unit Ventilator Replacement	N	$0	$0	$0	$0
6	Veterans Memorial Middle School	Eliminate Rooftop Boiler	N	$0	$0	$0	$0
7	Veterans Memorial Middle School	Roof Top Unit Replacement	N	$0	$0	$0	$0
10	Veterans Memorial Middle School	Destratification Fans	N	$0	$0	$0	$0
11	Veterans Memorial Middle School	High Efficiency Transformers	N	$0	$0	$0	$0
12	Veterans Memorial Middle School	Plug Load Controls	Y	$6,061	$663	$0	$663
	Veterans Memorial Middle School	TOTALS		$870,145	$23,296	$12,461	$35,757

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	ELECTRIC CONSUMPTION SAVINGS	ELECTRIC DEMAND SAVINGS	NATURAL GAS SAVINGS
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	kWh	kW	THERMS
1	Veterans Memorial Middle School	LED Lighting Replacement	Y	141,678	43	(2,581)
2	Veterans Memorial Middle School	District Wide Energy Management System	Y	92,151	0	19,272
4	Veterans Memorial Middle School	Boiler Replacement	N	0	0	0
5	Veterans Memorial Middle School	Unit Ventilator Replacement	N	0	0	0
6	Veterans Memorial Middle School	Eliminate Rooftop Boiler	N	0	0	0
7	Veterans Memorial Middle School	Roof Top Unit Replacement	N	0	0	0
10	Veterans Memorial Middle School	Destratification Fans	N	0	0	0
11	Veterans Memorial Middle School	High Efficiency Transformers	N	0	0	0
12	Veterans Memorial Middle School	Plug Load Controls	Y	6,932	0	0
	Veterans Memorial Middle School	TOTALS		240,761	43	16,691

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	INSTALLED COST	ANNUAL ELECTRIC COST SAVINGS	ANNUAL NATURAL GAS COST SAVINGS	ANNUAL ENERGY COST SAVINGS
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	$	$	$	$
1	Lake Riviera Middle School	LED Lighting Replacement	Y	$114,901	$15,623	($2,046)	$13,577
2	Lake Riviera Middle School	District Wide Energy Management System	Y	$488,603	$12,063	$19,252	$31,316
4	Lake Riviera Middle School	Boiler Replacement	N	$0	$0	$0	$0
10	Lake Riviera Middle School	Destratification Fans	N	$0	$0	$0	$0
12	Lake Riviera Middle School	Plug Load Controls	Y	$3,910	$406	$0	$406
	Lake Riviera Middle School	TOTALS		$607,414	$28,092	$17,206	$45,298

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	ELECTRIC CONSUMPTION SAVINGS	ELECTRIC DEMAND SAVINGS	NATURAL GAS SAVINGS
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	kWh	kW	THERMS
1	Lake Riviera Middle School	LED Lighting Replacement	Y	134,855	42	(2,355)
2	Lake Riviera Middle School	District Wide Energy Management System	Y	105,873	0	22,162
4	Lake Riviera Middle School	Boiler Replacement	N	0	0	0
10	Lake Riviera Middle School	Destratification Fans	N	0	0	0
12	Lake Riviera Middle School	Plug Load Controls	Y	3,562	0	0
	Lake Riviera Middle School	TOTALS		244,290	42	19,807

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	INSTALLED COST	ANNUAL ELECTRIC COST SAVINGS	ANNUAL NATURAL GAS COST SAVINGS	ANNUAL ENERGY COST SAVINGS
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	$	$	$	$
1	Emma Havens Young Elementary School	LED Lighting Replacement	Y	$141,465	$8,898	($945)	$7,953
2	Emma Havens Young Elementary School	District Wide Energy Management System	Y	$306,969	$4,817	$6,511	$11,329
4	Emma Havens Young Elementary School	Boiler Replacement	N	$0	$0	$0	$0
10	Emma Havens Young Elementary School	Destratification Fans	N	$0	$0	$0	$0
12	Emma Havens Young Elementary School	Plug Load Controls	Y	$1,760	$156	$0	$156
	Emma Havens Young Elementary School	TOTALS		$450,194	$13,871	$5,566	$19,437

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	ELECTRIC CONSUMPTION SAVINGS	ELECTRIC DEMAND SAVINGS	NATURAL GAS SAVINGS
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	kWh	kW	THERMS
1	Emma Havens Young Elementary School	LED Lighting Replacement	Y	75,197	22	(1,078)
2	Emma Havens Young Elementary School	District Wide Energy Management System	Y	41,271	0	7,426
4	Emma Havens Young Elementary School	Boiler Replacement	N	0	0	0
10	Emma Havens Young Elementary School	Destratification Fans	N	0	0	0
12	Emma Havens Young Elementary School	Plug Load Controls	Y	1,336	0	0
	Emma Havens Young Elementary School	TOTALS		117,804	22	6,348

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	INSTALLED COST	ANNUAL ELECTRIC COST SAVINGS	ANNUAL NATURAL GAS COST SAVINGS	ANNUAL ENERGY COST SAVINGS
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	$	$	$	$
1	Veterans Memorial Elementary School	LED Lighting Replacement	Y	$137,882	$4,685	($1,065)	$3,620
2	Veterans Memorial Elementary School	District Wide Energy Management System	Y	$331,613	$2,341	$18,436	$20,777
5	Veterans Memorial Elementary School	Unit Ventilator Replacement	N	$0	$0	$0	$0
6	Veterans Memorial Elementary School	Eliminate Rooftop Boiler	N	$0	$0	$0	$0
8	Veterans Memorial Elementary School	Air Handling Unit Replacement	N	$0	$0	$0	$0
10	Veterans Memorial Elementary School	Destratification Fans	N	$0	$0	$0	$0
11	Veterans Memorial Elementary School	High Efficiency Transformers	N	$0	$0	$0	$0
12	Veterans Memorial Elementary School	Plug Load Controls	Y	$2,151	$133	$0	$133
	Veterans Memorial Elementary School	TOTALS		$471,645	$7,159	$17,371	$24,530

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	ELECTRIC CONSUMPTION SAVINGS	ELECTRIC DEMAND SAVINGS	NATURAL GAS SAVINGS
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	kWh	kW	THERMS
1	Veterans Memorial Elementary School	LED Lighting Replacement	Y	52,610	17	(1,143)
2	Veterans Memorial Elementary School	District Wide Energy Management System	Y	26,850	0	19,784
5	Veterans Memorial Elementary School	Unit Ventilator Replacement	N	0	0	0
6	Veterans Memorial Elementary School	Eliminate Rooftop Boiler	N	0	0	0
8	Veterans Memorial Elementary School	Air Handling Unit Replacement	N	0	0	0
10	Veterans Memorial Elementary School	Destratification Fans	N	0	0	0
11	Veterans Memorial Elementary School	High Efficiency Transformers	N	0	0	0
12	Veterans Memorial Elementary School	Plug Load Controls	Y	1,526	0	0
	Veterans Memorial Elementary School	TOTALS		80,986	17	18,641

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	INSTALLED COST	ANNUAL ELECTRIC COST SAVINGS	ANNUAL NATURAL GAS COST SAVINGS	ANNUAL ENERGY COST SAVINGS
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	$	$	$	$
1	Warren H. Wolf Elementary School	LED Lighting Replacement	Y	$126,760	$11,392	($2,042)	$9,351
2	Warren H. Wolf Elementary School	District Wide Energy Management System	Y	$215,437	$10,310	$6,607	$16,916
3	Warren H. Wolf Elementary School	Solar PPA	Y	$0	$20,310	$0	$20,310
9	Warren H. Wolf Elementary School	Roof Renovations	N	$0	$0	$0	$0
10	Warren H. Wolf Elementary School	Destratification Fans	N	$0	$0	$0	$0
12	Warren H. Wolf Elementary School	Plug Load Controls	Y	$782	$68	$0	$68
	Warren H. Wolf Elementary School	TOTALS		$342,979	$42,079	$4,565	$46,644

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	ELECTRIC CONSUMPTION SAVINGS	ELECTRIC DEMAND SAVINGS	NATURAL GAS SAVINGS
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	kWh	kW	THERMS
1	Warren H. Wolf Elementary School	LED Lighting Replacement	Y	117,128	14	(2,094)
2	Warren H. Wolf Elementary School	District Wide Energy Management System	Y	106,784	0	6,776
3	Warren H. Wolf Elementary School	Solar PPA	Y	0	0	0
9	Warren H. Wolf Elementary School	Roof Renovations	N	0	0	0
10	Warren H. Wolf Elementary School	Destratification Fans	N	0	0	0
12	Warren H. Wolf Elementary School	Plug Load Controls	Y	700	0	0
	Warren H. Wolf Elementary School	TOTALS		224,612	14	4,682

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	INSTALLED COST	ANNUAL ELECTRIC COST SAVINGS	ANNUAL NATURAL GAS COST SAVINGS	ANNUAL ENERGY COST SAVINGS
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	$	$	$	$
1	Osbornville Elementary School	LED Lighting Replacement	Y	$99,547	$4,463	($817)	$3,646
2	Osbornville Elementary School	District Wide Energy Management System	Y	$207,173	$2,333	$6,566	$8,899
3	Osbornville Elementary School	Solar PPA	Y	$0	$20,149	$0	$20,149
9	Osbornville Elementary School	Roof Renovations	N	$0	$0	$0	$0
10	Osbornville Elementary School	Destratification Fans	N	$0	$0	$0	$0
12	Osbornville Elementary School	Plug Load Controls	Y	$1,369	$96	$0	$96
	Osbornville Elementary School	TOTALS		$308,089	$27,041	$5,749	$32,790

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	ELECTRIC CONSUMPTION SAVINGS	ELECTRIC DEMAND SAVINGS	NATURAL GAS SAVINGS
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	kWh	kW	THERMS
1	Osbornville Elementary School	LED Lighting Replacement	Y	44,831	14	(843)
2	Osbornville Elementary School	District Wide Energy Management System	Y	23,872	0	6,776
3	Osbornville Elementary School	Solar PPA	Y	0	0	0
9	Osbornville Elementary School	Roof Renovations	N	0	0	0
10	Osbornville Elementary School	Destratification Fans	N	0	0	0
12	Osbornville Elementary School	Plug Load Controls	Y	986	0	0
	Osbornville Elementary School	TOTALS		69,689	14	5,933

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	INSTALLED COST	ANNUAL ELECTRIC COST SAVINGS	ANNUAL NATURAL GAS COST SAVINGS	ANNUAL ENERGY COST SAVINGS
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	$	$	$	$
1	Lanes Mill Elementary School	LED Lighting Replacement	Y	$102,189	$4,126	($778)	$3,348
2	Lanes Mill Elementary School	District Wide Energy Management System	Y	$299,085	$992	$7,209	$8,202
3	Lanes Mill Elementary School	Solar PPA	Y	$0	$14,908	$0	$14,908
4	Lanes Mill Elementary School	Boiler Replacement	N	$0	$0	$0	$0
5	Lanes Mill Elementary School	Unit Ventilator Replacement	N	$0	$0	$0	$0
9	Lanes Mill Elementary School	Roof Renovations	N	$0	$0	$0	$0
10	Lanes Mill Elementary School	Destratification Fans	N	$0	$0	$0	$0
12	Lanes Mill Elementary School	Plug Load Controls	Y	$1,369	$97	$0	$97
	Lanes Mill Elementary School	TOTALS		$402,643	$20,124	$6,431	$26,555

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	ELECTRIC CONSUMPTION SAVINGS	ELECTRIC DEMAND SAVINGS	NATURAL GAS SAVINGS
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	kWh	kW	THERMS
1	Lanes Mill Elementary School	LED Lighting Replacement	Y	41,207	12	(768)
2	Lanes Mill Elementary School	District Wide Energy Management System	Y	10,075	0	7,114
3	Lanes Mill Elementary School	Solar PPA	Y	0	0	0
4	Lanes Mill Elementary School	Boiler Replacement	N	0	0	0
5	Lanes Mill Elementary School	Unit Ventilator Replacement	N	0	0	0
9	Lanes Mill Elementary School	Roof Renovations	N	0	0	0
10	Lanes Mill Elementary School	Destratification Fans	N	0	0	0
12	Lanes Mill Elementary School	Plug Load Controls	Y	986	0	0
	Lanes Mill Elementary School	TOTALS		52,268	12	6,346

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	INSTALLED COST	ANNUAL ELECTRIC COST SAVINGS	ANNUAL NATURAL GAS COST SAVINGS	ANNUAL ENERGY COST SAVINGS
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	$	$	$	$
1	Midstreams Elementary School	LED Lighting Replacement	Y	$111,861	$5,299	($976)	$4,323
2	Midstreams Elementary School	District Wide Energy Management System	Y	$299,264	$3,606	$5,795	$9,401
4	Midstreams Elementary School	Boiler Replacement	N	$0	$0	$0	$0
5	Midstreams Elementary School	Unit Ventilator Replacement	N	$0	$0	$0	$0
6	Midstreams Elementary School	Eliminate Rooftop Boiler	N	$0	$0	$0	$0
10	Midstreams Elementary School	Destratification Fans	N	$0	$0	$0	$0
12	Midstreams Elementary School	Plug Load Controls	Y	$3,128	$359	$0	$359
	Midstreams Elementary School	TOTALS		$414,253	$9,264	$4,819	$14,083

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	ELECTRIC CONSUMPTION SAVINGS	ELECTRIC DEMAND SAVINGS	NATURAL GAS SAVINGS
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	kWh	kW	THERMS
1	Midstreams Elementary School	LED Lighting Replacement	Y	52,199	16	(1,008)
2	Midstreams Elementary School	District Wide Energy Management System	Y	36,118	0	5,985
4	Midstreams Elementary School	Boiler Replacement	N	0	0	0
5	Midstreams Elementary School	Unit Ventilator Replacement	N	0	0	0
6	Midstreams Elementary School	Eliminate Rooftop Boiler	N	0	0	0
10	Midstreams Elementary School	Destratification Fans	N	0	0	0
12	Midstreams Elementary School	Plug Load Controls	Y	3,593	0	0
	Midstreams Elementary School	TOTALS		91,910	16	4,977

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	INSTALLED COST	ANNUAL ELECTRIC COST SAVINGS	ANNUAL NATURAL GAS COST SAVINGS	ANNUAL ENERGY COST SAVINGS
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	$	$	$	$
1	Drum Point Elementary School	LED Lighting Replacement	Y	$110,958	$6,428	($1,089)	$5,339
2	Drum Point Elementary School	District Wide Energy Management System	Y	$305,189	$706	$12,542	$13,248
3	Drum Point Elementary School	Solar PPA	Y	$0	$19,602	$0	$19,602
4	Drum Point Elementary School	Boiler Replacement	N	$0	$0	$0	$0
9	Drum Point Elementary School	Roof Renovations	N	$0	$0	$0	$0
10	Drum Point Elementary School	Destratification Fans	N	$0	$0	$0	$0
12	Drum Point Elementary School	Plug Load Controls	Y	$1,760	$118	$0	$118
	Drum Point Elementary School	TOTALS		$417,906	$26,854	$11,453	$38,307

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	ELECTRIC CONSUMPTION SAVINGS	ELECTRIC DEMAND SAVINGS	NATURAL GAS SAVINGS
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	kWh	kW	THERMS
1	Drum Point Elementary School	LED Lighting Replacement	Y	63,204	12	(1,226)
2	Drum Point Elementary School	District Wide Energy Management System	Y	7,010	0	14,124
3	Drum Point Elementary School	Solar PPA	Y	0	0	0
4	Drum Point Elementary School	Boiler Replacement	N	0	0	0
9	Drum Point Elementary School	Roof Renovations	N	0	0	0
10	Drum Point Elementary School	Destratification Fans	N	0	0	0
12	Drum Point Elementary School	Plug Load Controls	Y	1,177	0	0
	Drum Point Elementary School	TOTALS		71,391	12	12,898

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	INSTALLED COST	ANNUAL ELECTRIC COST SAVINGS	ANNUAL NATURAL GAS COST SAVINGS	ANNUAL ENERGY COST SAVINGS
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	$	$	$	$
1	Herbertsville Elementary School & Annex	LED Lighting Replacement	Y	$82,088	$6,283	($586)	$5,697
2	Herbertsville Elementary School & Annex	District Wide Energy Management System	Y	$195,025	$3,099	$6,002	$9,100
3	Herbertsville Elementary School & Annex	Solar PPA	Y	$0	$18,816	$0	$18,816
5	Herbertsville Elementary School & Annex	Unit Ventilator Replacement	N	$0	$0	$0	$0
6	Herbertsville Elementary School & Annex	Eliminate Rooftop Boiler	N	$0	$0	$0	$0
9	Herbertsville Elementary School & Annex	Roof Renovations	N	$0	$0	$0	$0
10	Herbertsville Elementary School & Annex	Destratification Fans	N	$0	$0	$0	$0
12	Herbertsville Elementary School & Annex	Plug Load Controls	Y	$1,760	$151	$0	$151
	Herbertsville Elementary School & Annex	TOTALS		$278,873	$28,349	$5,416	$33,765

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	ELECTRIC CONSUMPTION SAVINGS	ELECTRIC DEMAND SAVINGS	NATURAL GAS SAVINGS
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	kWh	kW	THERMS
1	Herbertsville Elementary School & Annex	LED Lighting Replacement	Y	61,441	12	(932)
2	Herbertsville Elementary School & Annex	District Wide Energy Management System	Y	30,632	0	9,550
3	Herbertsville Elementary School & Annex	Solar PPA	Y	0	0	0
5	Herbertsville Elementary School & Annex	Unit Ventilator Replacement	N	0	0	0
6	Herbertsville Elementary School & Annex	Eliminate Rooftop Boiler	N	0	0	0
9	Herbertsville Elementary School & Annex	Roof Renovations	N	0	0	0
10	Herbertsville Elementary School & Annex	Destratification Fans	N	0	0	0
12	Herbertsville Elementary School & Annex	Plug Load Controls	Y	1,495	0	0
	Herbertsville Elementary School & Annex	TOTALS		93,568	12	8,618

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	INSTALLED COST	ANNUAL ELECTRIC COST SAVINGS	ANNUAL NATURAL GAS COST SAVINGS	ANNUAL ENERGY COST SAVINGS
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	$	$	$	$
1	Brick Township Administration Building	LED Lighting Replacement	Y	$75,443	$5,758	($573)	$5,185
2	Brick Township Administration Building	District Wide Energy Management System	Y	$29,759	$1,021	$4,358	$5,379
4	Brick Township Administration Building	Boiler Replacement	N	$0	$0	$0	$0
12	Brick Township Administration Building	Plug Load Controls	Y	$3,128	$246	$0	$246
	Brick Township Administration Building	TOTALS		$108,330	$7,025	$3,785	$10,810

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	ELECTRIC CONSUMPTION SAVINGS	ELECTRIC DEMAND SAVINGS	NATURAL GAS SAVINGS
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	kWh	kW	THERMS
1	Brick Township Administration Building	LED Lighting Replacement	Y	57,146	14	(744)
2	Brick Township Administration Building	District Wide Energy Management System	Y	10,305	0	5,661
4	Brick Township Administration Building	Boiler Replacement	N	0	0	0
12	Brick Township Administration Building	Plug Load Controls	Y	2,480	0	0
	Brick Township Administration Building	TOTALS		69,931	14	4,917

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	INSTALLED COST	ANNUAL ELECTRIC COST SAVINGS	ANNUAL NATURAL GAS COST SAVINGS	ANNUAL ENERGY COST SAVINGS
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	$	$	$	$
1	Transportation Department & Bus Garage	LED Lighting Replacement	Y	$20,923	$868	$0	$868
2	Transportation Department & Bus Garage	District Wide Energy Management System	N	$0	$0	$0	$0
3	Transportation Department & Bus Garage	Solar PPA	Y	$0	$8,573	$0	$8,573
9	Transportation Department & Bus Garage	Roof Renovations	N	$0	$0	$0	$0
	Transportation Department & Bus Garage	TOTALS		$20,923	$9,440	$0	$9,440
1	Receiving Warehouse	LED Lighting Replacement	Y	$12,504	$631	$0	$631
2	Receiving Warehouse	District Wide Energy Management System	N	$0	$0	$0	$0
	Receiving Warehouse	TOTALS		$12,504	$631	$0	$631
1	Custodial / Maintenance Building	LED Lighting Replacement	Y	$15,588	$991	$0	$991
2	Custodial / Maintenance Building	District Wide Energy Management System	N	$0	$0	$0	$0
	Custodial / Maintenance Building	TOTALS		$15,588	$991	$0	$991

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	ELECTRIC CONSUMPTION SAVINGS	ELECTRIC DEMAND SAVINGS	NATURAL GAS SAVINGS
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	kWh	kW	THERMS
1	Transportation Department & Bus Garage	LED Lighting Replacement	Y	8,280	3	0
2	Transportation Department & Bus Garage	District Wide Energy Management System	N	0	0	0
3	Transportation Department & Bus Garage	Solar PPA	Y	0	0	0
9	Transportation Department & Bus Garage	Roof Renovations	N	0	0	0
	Transportation Department & Bus Garage	TOTALS		8,280	3	0
1	Receiving Warehouse	LED Lighting Replacement	Y	4,968	2	0
2	Receiving Warehouse	District Wide Energy Management System	N	0	0	0
	Receiving Warehouse	TOTALS		4,968	2	0
1	Custodial / Maintenance Building	LED Lighting Replacement	Y	8,280	3	0
2	Custodial / Maintenance Building	District Wide Energy Management System	N	0	0	0
	Custodial / Maintenance Building	TOTALS		8,280	3	0

DCO Energy Efficiency Division
100 Lenox Drive
Lawrenceville, NJ 08648

ECM Breakdown by Building by Greenhouse Gas Reductions

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	Reduction of CO_2	Reduction of No_x	Reduction of SO_2	Reduction of Hg
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	LBS	LBS	LBS	LBS
1	Brick Memorial High School	LED Lighting Replacement	Y	664,530	1,318	3,223	0
2	Brick Memorial High School	District Wide Energy Management System	Y	232,242	272	363	0
3	Brick Memorial High School	Solar PPA	Y	0	0	0	0
4	Brick Memorial High School	Boiler Replacement	Y	334,586	440	715	0
9	Brick Memorial High School	Roof Renovations	N	0	0	0	0
10	Brick Memorial High School	Destratification Fans	N	0	0	0	0
11	Brick Memorial High School	High Efficiency Transformers	N	0	0	0	0
12	Brick Memorial High School	Plug Load Controls	Y	10,537	19	45	0
13	Brick Memorial High School	Cooling Tower Replacement	N	0	0	0	0
14	Brick Memorial High School	Combined Heat and Power	Y	137,580	278	690	0
15	Brick Memorial High School	Chiller Replacement	N	0	0	0	0
	Brick Memorial High School	TOTALS		1,379,475	2,328	5,035	0
1	Brick Township High School	LED Lighting Replacement	Y	323,760	596	1,385	0
2	Brick Township High School	District Wide Energy Management System	Y	253,450	328	520	0
3	Brick Township High School	Solar PPA	Y	0	0	0	0
9	Brick Township High School	Roof Renovations	N	0	0	0	0
10	Brick Township High School	Destratification Fans	N	0	0	0	0
11	Brick Township High School	High Efficiency Transformers	N	0	0	0	0
12	Brick Township High School	Plug Load Controls	Y	8,507	16	36	0
14	Brick Township High School	Combined Heat and Power	N	0	0	0	0
	Brick Township High School	TOTALS		585,717	940	1,941	0
1	Veterans Memorial Middle School	LED Lighting Replacement	Y	185,153	373	921	0
2	Veterans Memorial Middle School	District Wide Energy Management System	Y	365,552	435	599	0
4	Veterans Memorial Middle School	Boiler Replacement	N	0	0	0	0
5	Veterans Memorial Middle School	Unit Ventilator Replacement	N	0	0	0	0
6	Veterans Memorial Middle School	Eliminate Rooftop Boiler	N	0	0	0	0
7	Veterans Memorial Middle School	Roof Top Unit Replacement	N	0	0	0	0
10	Veterans Memorial Middle School	Destratification Fans	N	0	0	0	0
11	Veterans Memorial Middle School	High Efficiency Transformers	N	0	0	0	0
12	Veterans Memorial Middle School	Plug Load Controls	Y	10,537	19	45	0
	Veterans Memorial Middle School	TOTALS		561,242	828	1,565	0
1	Lake Riviera Middle School	LED Lighting Replacement	Y	177,426	356	877	0
2	Lake Riviera Middle School	District Wide Energy Management System	Y	420,222	500	688	0
4	Lake Riviera Middle School	Boiler Replacement	N	0	0	0	0
10	Lake Riviera Middle School	Destratification Fans	N	0	0	0	0
12	Lake Riviera Middle School	Plug Load Controls	Y	5,414	10	23	0
	Lake Riviera Middle School	TOTALS		603,062	866	1,588	0

Note:

- **Factors used to calculate Greenhouse Gas Reductions are as follows:**
  - ***CO2 = (1.52*kWh Savings) + (11.7*Therm Savings)***
  - ***NOx = (0.0028*kWh Savings) + (0.0092*Therm Savings)***
  - ***SO2 = (0.0065*kWh Savings)***
  - ***Hg = (0.0000000356* kWh Savings)***

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	Reduction of CO_2	Reduction of Nox	Reduction of SO_2	Reduction of Hg
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	LBS	LBS	LBS	LBS
1	Emma Havens Young Elementary School	LED Lighting Replacement	Y	101,687	201	489	0
2	Emma Havens Young Elementary School	District Wide Energy Management System	Y	149,616	184	268	0
4	Emma Havens Young Elementary School	Boiler Replacement	N	0	0	0	0
10	Emma Havens Young Elementary School	Destratification Fans	N	0	0	0	0
12	Emma Havens Young Elementary School	Plug Load Controls	Y	2,030	4	9	0
	Emma Havens Young Elementary School	TOTALS		253,333	388	766	0
1	Veterans Memorial Elementary School	LED Lighting Replacement	Y	66,594	137	342	0
2	Veterans Memorial Elementary School	District Wide Energy Management System	Y	272,285	257	175	0
5	Veterans Memorial Elementary School	Unit Ventilator Replacement	N	0	0	0	0
6	Veterans Memorial Elementary School	Eliminate Rooftop Boiler	N	0	0	0	0
8	Veterans Memorial Elementary School	Air Handling Unit Replacement	N	0	0	0	0
10	Veterans Memorial Elementary School	Destratification Fans	N	0	0	0	0
11	Veterans Memorial Elementary School	High Efficiency Transformers	N	0	0	0	0
12	Veterans Memorial Elementary School	Plug Load Controls	Y	2,320	4	10	0
	Veterans Memorial Elementary School	TOTALS		341,199	398	526	0
1	Warren H. Wolf Elementary School	LED Lighting Replacement	Y	153,535	309	761	0
2	Warren H. Wolf Elementary School	District Wide Energy Management System	Y	241,591	361	694	0
3	Warren H. Wolf Elementary School	Solar PPA	Y	0	0	0	0
9	Warren H. Wolf Elementary School	Roof Renovations	N	0	0	0	0
10	Warren H. Wolf Elementary School	Destratification Fans	N	0	0	0	0
12	Warren H. Wolf Elementary School	Plug Load Controls	Y	1,063	2	5	0
	Warren H. Wolf Elementary School	TOTALS		396,189	672	1,460	0
1	Osbornville Elementary School	LED Lighting Replacement	Y	58,280	118	291	0
2	Osbornville Elementary School	District Wide Energy Management System	Y	115,565	129	155	0
3	Osbornville Elementary School	Solar PPA	Y	0	0	0	0
9	Osbornville Elementary School	Roof Renovations	N	0	0	0	0
10	Osbornville Elementary School	Destratification Fans	N	0	0	0	0
12	Osbornville Elementary School	Plug Load Controls	Y	1,498	3	6	0
	Osbornville Elementary School	TOTALS		175,343	250	453	0
1	Lanes Mill Elementary School	LED Lighting Replacement	Y	53,649	108	268	0
2	Lanes Mill Elementary School	District Wide Energy Management System	Y	98,548	94	65	0
3	Lanes Mill Elementary School	Solar PPA	Y	0	0	0	0
4	Lanes Mill Elementary School	Boiler Replacement	N	0	0	0	0
5	Lanes Mill Elementary School	Unit Ventilator Replacement	N	0	0	0	0
9	Lanes Mill Elementary School	Roof Renovations	N	0	0	0	0
10	Lanes Mill Elementary School	Destratification Fans	N	0	0	0	0
12	Lanes Mill Elementary School	Plug Load Controls	Y	1,498	3	6	0
	Lanes Mill Elementary School	TOTALS		153,695	205	340	0

Note:

- **Factors used to calculate Greenhouse Gas Reductions are as follows:**
  - ***CO2 = (1.52*kWh Savings) + (11.7*Therm Savings)***
  - ***NOx = (0.0028*kWh Savings) + (0.0092*Therm Savings)***
  - ***SO2 = (0.0065*kWh Savings)***
  - ***Hg = (0.0000000356* kWh Savings)***

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	Reduction of CO_2	Reduction of Nox	Reduction of SO_2	Reduction of Hg
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	LBS	LBS	LBS	LBS
1	Midstreams Elementary School	LED Lighting Replacement	Y	67,549	137	339	0
2	Midstreams Elementary School	District Wide Energy Management System	Y	124,924	156	235	0
4	Midstreams Elementary School	Boiler Replacement	N	0	0	0	0
5	Midstreams Elementary School	Unit Ventilator Replacement	N	0	0	0	0
6	Midstreams Elementary School	Eliminate Rooftop Boiler	N	0	0	0	0
10	Midstreams Elementary School	Destratification Fans	N	0	0	0	0
12	Midstreams Elementary School	Plug Load Controls	Y	5,462	10	23	0
	Midstreams Elementary School	TOTALS		197,935	303	597	0
1	Drum Point Elementary School	LED Lighting Replacement	Y	81,726	166	411	0
2	Drum Point Elementary School	District Wide Energy Management System	Y	175,906	150	46	0
3	Drum Point Elementary School	Solar PPA	Y	0	0	0	0
4	Drum Point Elementary School	Boiler Replacement	N	0	0	0	0
9	Drum Point Elementary School	Roof Renovations	N	0	0	0	0
10	Drum Point Elementary School	Destratification Fans	N	0	0	0	0
12	Drum Point Elementary School	Plug Load Controls	Y	1,788	3	8	0
	Drum Point Elementary School	TOTALS		259,420	319	464	0
1	Herbertsville Elementary School & Annex	LED Lighting Replacement	Y	82,486	163	399	0
2	Herbertsville Elementary School & Annex	District Wide Energy Management System	Y	158,296	174	199	0
3	Herbertsville Elementary School & Annex	Solar PPA	Y	0	0	0	0
5	Herbertsville Elementary School & Annex	Unit Ventilator Replacement	N	0	0	0	0
6	Herbertsville Elementary School & Annex	Eliminate Rooftop Boiler	N	0	0	0	0
9	Herbertsville Elementary School & Annex	Roof Renovations	N	0	0	0	0
10	Herbertsville Elementary School & Annex	Destratification Fans	N	0	0	0	0
12	Herbertsville Elementary School & Annex	Plug Load Controls	Y	2,272	4	10	0
	Herbertsville Elementary School & Annex	TOTALS		243,053	341	608	0
1	Brick Township Administration Building	LED Lighting Replacement	Y	78,157	153	371	0
2	Brick Township Administration Building	District Wide Energy Management System	Y	81,897	81	67	0
4	Brick Township Administration Building	Boiler Replacement	N	0	0	0	0
12	Brick Township Administration Building	Plug Load Controls	Y	3,770	7	16	0
	Brick Township Administration Building	TOTALS		163,825	241	455	0
1	Transportation Department & Bus Garage	LED Lighting Replacement	Y	12,586	23	54	0
2	Transportation Department & Bus Garage	District Wide Energy Management System	N	0	0	0	0
3	Transportation Department & Bus Garage	Solar PPA	Y	0	0	0	0
9	Transportation Department & Bus Garage	Roof Renovations	N	0	0	0	0
	Transportation Department & Bus Garage	TOTALS		12,586	23	54	0
1	Receiving Warehouse	LED Lighting Replacement	Y	7,551	14	32	0
2	Receiving Warehouse	District Wide Energy Management System	N	0	0	0	0
	Receiving Warehouse	TOTALS		7,551	14	32	0
1	Custodial / Maintenance Building	LED Lighting Replacement	Y	12,586	23	54	0
2	Custodial / Maintenance Building	District Wide Energy Management System	N	0	0	0	0
	Custodial / Maintenance Building	TOTALS		12,586	23	54	0

Note:

- **Factors used to calculate Greenhouse Gas Reductions are as follows:**
  - ***CO2 = (1.52*kWh Savings) + (11.7*Therm Savings)***
  - ***NOx = (0.0028*kWh Savings) + (0.0092*Therm Savings)***
  - ***SO2 = (0.0065*kWh Savings)***
  - ***Hg = (0.0000000356* kWh Savings)***

ECM Budgeting Narrative

Detailed plans, schematics and specifications for Brick Township School District were not available to deliver a cost estimate for each ECM. The budgetary costs carried in the project are based on good faith estimates, contractor supplied budgets for similar ECMs on other recent projects and a database of actual installed costs for various ECMs.

BRICK TOWNSHIP PUBLIC SCHOOLS		INCLUDED IN PROJECT	INSTALLED COST
ECM #	ENERGY CONSERVATION MEASURE	"Y" OR "N"	$
1	LED Lighting Replacement	Y	$2,196,411
2	District Wide Energy Management System	Y	$4,622,970
3	Solar PPA	Y	$0
4	Boiler Replacement	Y	$629,050
5	Unit Ventilator Replacement	N	$0
6	Eliminate Rooftop Boiler	N	$0
7	Roof Top Unit Replacement	N	$0
8	Air Handling Unit Replacement	N	$0
9	Roof Renovations	N	$0
10	Destratification Fans	N	$0
11	High Efficiency Transformers	N	$0
12	Plug Load Controls	Y	$44,574
13	Cooling Tower Replacement	N	$0
14	Combined Heat and Power	Y	$151,797
15	Chiller Replacement	N	$0
	TOTALS		$7,644,801

ECM Purchasing Method

Each of the ECMs will be procured per applicable public bid and purchasing laws. The table below indicates the purchasing method used for each CM.

BRICK TOWNSHIP PUBLIC SCHOOLS		PURCHASING METHOD
ECM #	ENERGY CONSERVATION MEASURE	
1	LED Lighting Replacement	COOPERATIVE
2	District Wide Energy Management System	COOPERATIVE
3	Solar PPA	RFQ
4	Boiler Replacement	DESIGN, BID, BUILD
5	Unit Ventilator Replacement	N/A
6	Eliminate Rooftop Boiler	N/A
7	Roof Top Unit Replacement	N/A
8	Air Handling Unit Replacement	N/A
9	Roof Renovations	N/A
10	Destratification Fans	N/A
11	High Efficiency Transformers	N/A
12	Plug Load Controls	COOPERATIVE
13	Cooling Tower Replacement	N/A
14	Combined Heat and Power	DESIGN, BID, BUILD
15	Chiller Replacement	N/A

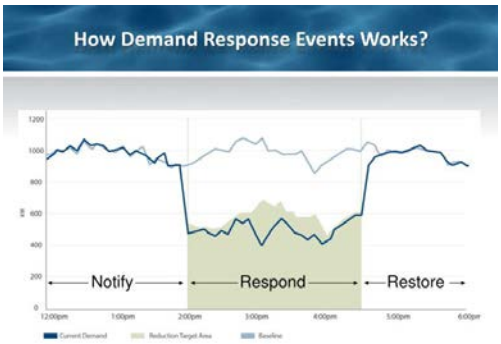
Demand Response & Project Incentives Analysis

Demand Response

Demand Response (DR) is a voluntary Pennsylvania-Jersey-Maryland (PJM) Interconnection program that allows end use customers to reduce their electricity usage during periods of higher power prices. In exchange, end-use customers are compensated through PJM members known as Curtailment Service Providers (CSPs) for decreasing their electricity use when requested by PJM.

Common reduction strategies used in Demand Response include:

- Manual or automatic load drop
- Energy management systems
- Load shedding strategies
- Lighting control strategies
- Backup generation



Benefits of the program include:

- Significant source of new revenue
- Helps to ensure local grid reliability
- Reduces the need for new environmentally taxing energy generation

In the base product, customers commit to reducing their load at the direction of PJM during emergency conditions during the summer months. In the Capacity Performance product, the customer will need to be able to reduce load when directed during the entire year.

DCO Energy will work with Brick BOE and their current Demand Response provider at the conclusion of the ESIP Project to determine the value of future demand response payments based on the enhanced Energy Management System and other ECMs installed.

DCO Energy Efficiency Division
100 Lenox Drive
Lawrenceville, NJ 08648

Pay for Performance Incentives

Brick Township School District is eligible for Pay for Performance Incentives. The P4P Guidelines require that a building be over the threshold of 200 kW based on the 12 months of utility bills submitted with the application. P4P Incentives will be applied for at Brick Memorial High School, Veterans Memorial Middle School, and Lake Rivera Middle School. The P4P Guidelines were used to calculate incentive values. The program incentives would pay $0.44 for each kWh saved and $5.00 for each Therm saved.

NEW JERSEY'S CLEAN ENERGY PROGRAM
P4P
PAY FOR PERFORMANCE

Based on the estimated kWh and Therm savings at the 3 schools listed above, Brick BOE could realize a potential incentive of $823,079. However, due to limitations of the P4P Program and the prescriptive nature of the approval process, only 50% of this potential incentives are being carried in the project for debt service repayment. Should the incentive programs remain unchanged up to the payment of Incentive #3 under the P4P Program, DCO Energy will guarantee the incentives carried in the project. However, DCO will not guarantee that the Incentive Programs will remain. Should the Incentive programs be cancelled or substantially change, the amount carried in the debt service will be at the risk of Brick BOE.

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	TYPE OF INCENTIVE	ESTIMATED INCENTIVE AMOUNT	SIMPLE PAYBACK WITH INCENTIVES
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	SELECT	$$	YEARS
1	Brick Memorial High School	LED Lighting Replacement	Y	NJ P4P	$180,085	8.1
2	Brick Memorial High School	District Wide Energy Management System	Y	NJ P4P	$87,531	59.0
3	Brick Memorial High School	Solar PPA	Y		FALSE	0.0
4	Brick Memorial High School	Boiler Replacement	Y	NJ P4P	$119,944	21.8
9	Brick Memorial High School	Roof Renovations	N		$0	0.0
10	Brick Memorial High School	Destratification Fans	N		$0	0.0
11	Brick Memorial High School	High Efficiency Transformers	N	NONE	$0	0.0
12	Brick Memorial High School	Plug Load Controls	Y	NJ P4P	$3,050	11.5
13	Brick Memorial High School	Cooling Tower Replacement	N	NJ P4P	$0	0.0
14	Brick Memorial High School	Combined Heat and Power	Y	NJ P4P	$36,556	15.3
15	Brick Memorial High School	Chiller Replacement	N	NJ P4P	$0	0.0
	Brick Memorial High School	TOTALS			$427,167	0.0
1	Veterans Memorial Middle School	LED Lighting Replacement	Y	NJ P4P	$49,433	16.5
2	Veterans Memorial Middle School	District Wide Energy Management System	Y	NJ P4P	$136,906	20.7
4	Veterans Memorial Middle School	Boiler Replacement	N	NJ P4P	$0	0.0
5	Veterans Memorial Middle School	Unit Ventilator Replacement	N	NJ P4P	$0	0.0
6	Veterans Memorial Middle School	Eliminate Rooftop Boiler	N	NJ P4P	$0	0.0
7	Veterans Memorial Middle School	Roof Top Unit Replacement	N	NJ P4P	$0	0.0
10	Veterans Memorial Middle School	Destratification Fans	N		$0	0.0
11	Veterans Memorial Middle School	High Efficiency Transformers	N	NONE	$0	0.0
12	Veterans Memorial Middle School	Plug Load Controls	Y	NJ P4P	$3,050	4.5
	Veterans Memorial Middle School	TOTALS			$189,390	0.0
1	Lake Riviera Middle School	LED Lighting Replacement	Y	NJ P4P	$47,561	5.0
2	Lake Riviera Middle School	District Wide Energy Management System	Y	NJ P4P	$157,394	10.6
4	Lake Riviera Middle School	Boiler Replacement	N	NJ P4P	$0	0.0
10	Lake Riviera Middle School	Destratification Fans	N		$0	0.0
12	Lake Riviera Middle School	Plug Load Controls	Y	NJ P4P	$1,567	5.8
	Lake Riviera Middle School	TOTALS			$206,522	0.0

ECM 1 – LED Lighting Replacement

Background & Existing Conditions

Lighting retrofits can greatly reduce energy consumption and lower energy bills, while maintaining lighting levels and quality by upgrading lighting components to more efficient and advanced technologies. Upgrading technologies can also offer employees greater control over lighting, allowing for additional energy savings

Improvements in lighting technologies have led to increased lifetimes for components that will result in fewer failures and lengthen the time between maintenance activities.

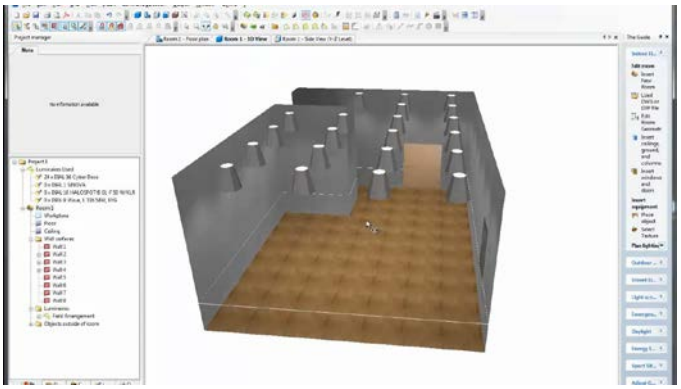
The implementation of a routine maintenance program in addition to the lighting retrofit will greatly simplify the maintenance practices and reduce the operational costs.

Several new LED lighting lamp and fixture products are now available that were not viable a few years ago. While conventional HID fixtures are controlled only by photocell and timer technologies to turn either on and off, the use of LED fixtures and digital technology allows additional trimming and the use of motion/occupancy-based controls to limit the output of exterior fixtures when sufficient natural lighting is present or for periods when the parking lots and authority grounds are unoccupied. The replacement of existing fixture heads with premium efficiency / LED-based fixtures is the basis of this listed ECM.

Lighting Level Testing and Commissioning

Assuring that the lighting levels of the interior and exterior spaces are a critical component of lighting retrofit project. Each space being retrofitted will have lighting levels measured and recorded during the design phase of the project.

The lighting system will be designed to assure that the lighting levels meet code and either meet or exceed the existing levels. Lighting measurements will be taken per IES Standards.



When the retrofit has been completed, the lighting levels in each space will be measured again to assure compliance with the system design. All documentation will be delivered to Brick Township School District for approval and record.

Scope of Work

- Retrofit the existing fixtures with new LED Bulbs.
    - Disconnect power at the breaker panel for the existing fixture circuit
    - Remove and dispose of existing bulbs and ballasts in a responsible manner
    - Install new ballast
    - Install new sockets (as necessary)
    - Install new bulbs
    - Test new fixture for operation and performance
    - Test existing space for proper lighting levels
    - All Retrofit Components will be UL Listed
    - Bid documents will call for UL Inspection of each retrofitted fixture
    - All Classrooms and Office spaces will be provided with Occupancy Sensors

Please see Appendix I for lighting line-by-lines for each building

ECM Calculations

Energy Savings from the installation of new LED lighting is based on the reduction in electric power (Watts) from the existing bulbs/fixtures to new LED bulbs/fixture. Brick Memorial HS, Lake Riviera Middle School, Veterans Memorial Middle School, Emma Havens Young, Veterans Memorial Elementary, Warren Wolf, Osbornville, Lanes Mill, Midstreams, Drum Point, Herbertsville, and the Administration Building were modeled using eQuest. These buildings were modeled because the Energy Savings Plan evaluated multiple ECMs and modeling would more accurately reflect the energy savings by simulating the interactive effects of those ECMs. The modeled savings produced by eQuest are shown below.

LED Lighting Replacement Savings

BUILDING	SQFT	kWh SAVINGS	THERMS SAVINGS
Brick Memorial High School	275,846	495,783	(7,612)
Brick Township High School	216,326		
Veterans Memorial Middle School	134,300	141,678	(2,581)
Lake Riviera Middle School	129,208	134,855	(2,355)
Emma Havens Young Elementary School	68,247	75,197	(1,078)
Veterans Memorial Elementary School	62,739	52,610	(1,143)
Warren H. Wolf Elementary School	57,618	117,128	(2,094)
Osbornville Elementary School	46,743	44,831	(843)
Lanes Mill Elementary School	44,883	41,207	(768)
Midstreams Elementary School	43,808	52,199	(1,008)
Drum Point Elementary School	43,073	63,204	(1,226)
Herbertsville Elementary School & Annex	27,857	61,441	(932)
Brick Township Administration Building	29,399	57,146	(744)
Transportation Department & Bus Garage	6,900		
Receiving Warehouse	9,900		
Custodial / Maintenance Building	6,500		

Modeled W/ft2		
BUILDING	**BASELINE**	**PROPOSED**
Brick Memorial High School	0.830	0.272
Veterans Memorial Middle School	0.830	0.272
Lake Riviera Middle School	0.830	0.255
Emma Havens Young Elementary School	0.790	0.266
Veterans Memorial Elementary School	0.687	0.215
Warren H. Wolf Elementary School	1.186	0.386
Osbornville Elementary School	0.758	0.253
Lanes Mill Elementary School	0.676	0.221
Midstreams Elementary School	0.830	0.237
Drum Point Elementary School	0.714	0.226
Herbertsville Elementary School & Annex	0.878	0.279
Brick Township Administration Building	1.186	0.386

ECM Calculations

Energy Savings from the installation of new LED lighting is based on the reduction in electric power (Watts) from the existing bulbs/fixtures to new LED bulbs/fixture. Brick Township High School, Transportation, Maintenance, and the Receiving Warehouse were not modeled using eQuest. The Energy Savings Plan evaluated few ECMs for the facilities and modeling would deliver more accurate savings estimates than the BPU approved Calculations. The savings for these buildings are shown below and were derived from the lighting line-by-line. Please see the lighting line-by-line appendix for details.

LED Lighting Replacement Savings												
BUILDING	**SQFT**	**SPACE**	**kW_{base}**	**LPD_{base}**	**kW_{inst}**	**LPD_{inst}**	**ΔkW**	**IF**	**CF**	**EFLH**	**Demand Savings (kW)**	**Energy Savings**
Brick Township High School	216,326	INTERIOR	121	0.55934099	50	0.23113264	71	0.15	0.57	1440	46.5	213,000
		EXTERIOR		0		0	0	0.15	0.57	1440	0.0	0
		SPECIAL		0		0	0	0.15	0.57	1440	0.0	0
Transportation Department & Bus Garage	6,900	INTERIOR	8	1.15942029	3	0.43478261	5	0.15	0.57	1440	3.3	8,280
		EXTERIOR		0		0	0	0.15	0.57	1440	0.0	0
		SPECIAL		0		0	0	0.15	0.57	1440	0.0	0
Receiving Warehouse	9,900	INTERIOR	6	0.60606061	3	0.3030303	3	0.15	0.57	1440	2.0	4,968
		EXTERIOR		0		0	0	0.15	0.57	1440	0.0	0
		SPECIAL		0		0	0	0.15	0.57	1440	0.0	0
Custodial / Maintenance Building	6,500	INTERIOR	8	1.23076923	3	0.46153846	5	0.15	0.57	1440	3.3	8,280
		EXTERIOR		0		0	0	0.15	0.57	1440	0.0	0
		SPECIAL		0		0	0	0.15	0.57	1440	0.0	0

ECM 2 – District Wide Energy Management System

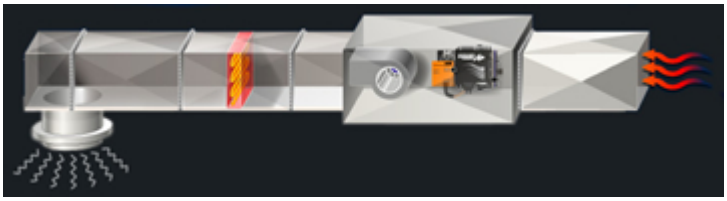
Background & Existing Conditions

Energy Management Systems (EMS) are systems comprised of sensors, operators, processors, and a front-end user interface that controls and monitors electrical and mechanical building systems. Such systems provide automated control and monitoring of the heating, cooling, ventilation, lighting and performance of a building or group of buildings. The energy management system will provide Brick Township School District with continuous monitoring & reporting of the Electric and Gas Meters.

Having building systems monitored from a central location enables the operator to receive alerts and predict future problems or troublesome conditions. The data obtained from these can be used to produce a trend analysis and annual consumption forecasts. Advanced control strategies implemented using these systems such as time scheduling, optimum start and stop, night set-back, demand-controlled ventilation, and peak demand limiting. The auditor will be able to use the EMS to diagnose current building system problems as well as tailor specific energy savings strategies that utilize the full capability of the given EMS.

The new District Wide EMS will remove existing pneumatics and, replace or integrate existing proprietary systems with new DDC Controls. Control strategies will be designed and programmed into the system to maintain building comfort while operating the building mechanical system in the most efficient manner possible. Strategies include:

1. Occupancy Scheduling
2. Building Wide Night Set Back
3. Morning Warm Up
4. Individual Room Temperature Set Point Control
5. Supply Air Temperature Reset
6. Chilled & Heating Supply Water Temperature Resets
7. Economizer Control
8. CO2 Ventilation Control

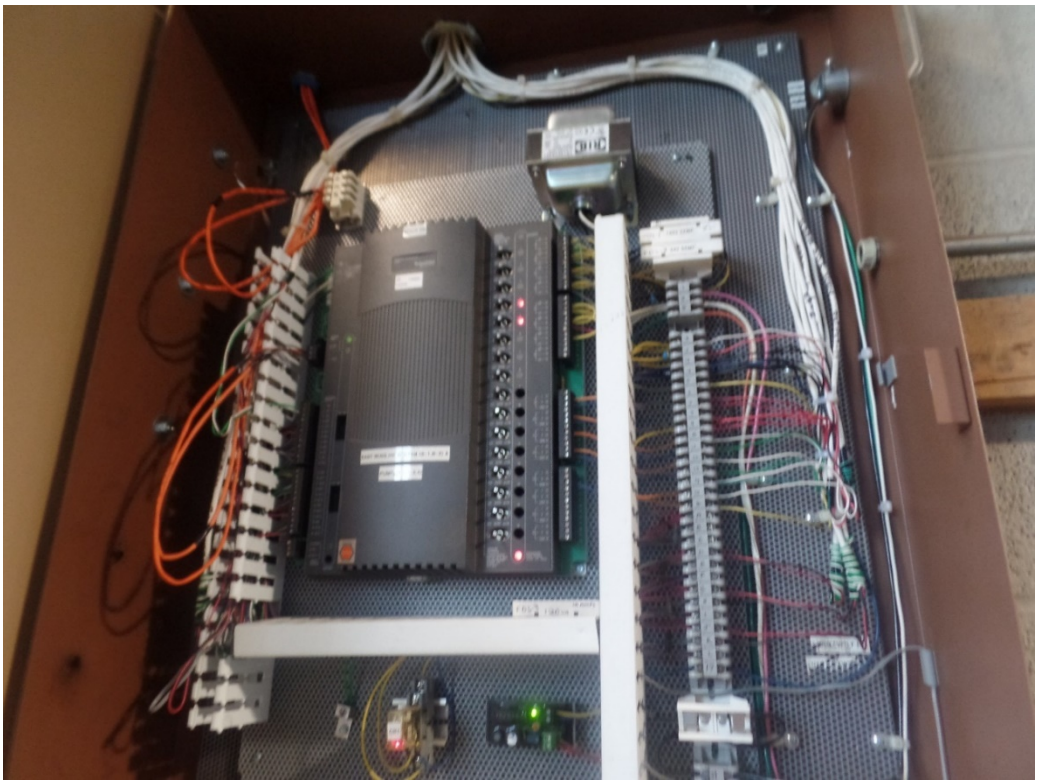


Scope of Work – District Wide Energy Management System

- Energy Management System shall be accessible via the Internet.
- User shall have the ability to view the system graphics, change set points, perform overrides, view schedules, change schedules, view alarms, acknowledge alarms, view trend information as well as print, save & e-mail trend information.
- A Secure Internet Connection to the Brick Township School District's Network shall be provided and managed by the Brick Township School District's IT Department.
- 3-D Graphics Package is provided for navigating the Energy Management System as well as viewing floor plans, system graphics and equipment graphics.
- New server will be provided to host the new Web Based, District Wide Energy Management System
- The new Web Based, Campus Wide Energy Management System will reside on the Brick Township School District Network and access to the system will be controlled by the Brick Township School District.
- All new controls will be Open Protocol and all software will be open source. All configuration software and programming tools will be free and the property of the Brick Township School District.
- The Brick Township School District Facilities Staff and IT Staff will receive full training on the operation of the system.

Scope of Work – Brick Township High School

- Upgrade network to integrate to the new District Wide Energy Management System
- The following Units/Systems have existing Jersey State Controls with local Temperature, Humidity, and CO2 zone sensors/control. These Units/Systems will be integrated into the new District Wide Energy Management System
    - (79) DX-Hot Water Unit Ventilators
    - (31) Packaged Rooftop Units
    - (2) Boiler Plants
    - (8) Hot Water Heating Air Handling Units
    - (2) DX-Hot Water Air Handling Units
    - (1) Multi-Zone Air Handling Units
    - (22) Baseboard Zones
- (25) Window Air Conditioners
    - New relay wired to a local controller to enable/disable the WAC unit based on the building occupied/unoccupied schedule.
- Administration/Guidance Office control upgrades
    - New thermostats to control space temperature in each office



Scope of Work – Brick Township Memorial High School

- Upgrade network to integrate to the new District Wide Energy Management System
- Boiler Plant
    - New Open Protocol Controller
    - Integration of new Boiler Control Panel
    - Water & OA Temperature Sensors
    - System Pressure Sensors
    - Boiler Sequence of Operations to include, but not limited to:
        - Occupied/Unoccupied control – Boilers to turn off during unoccupied mode
        - OA Supply Water Temperature setpoint Reset Schedule
- (2) Existing Chiller Plants
    - Integrate the existing chiller plant controls into the new District Wide Energy Management System
    - Chiller Plant Sequence of Operations to include, but not limited to:
        - Occupied/Unoccupied control – Chillers to turn off during unoccupied mode
        - OA Supply Water Temperature setpoint Reset Schedule
- (14) Chilled Water-Hot Water Air Handling Units
    - New Open Protocol Controller
    - Existing AHUs are pneumatically controlled
    - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
    - Install new Open Protocol Controller
    - New Modulating OA Damper Actuator
    - RA, OA & SA Temperature Sensors
    - SA Humidity Sensor
    - Freezestat
    - New Supply Fan VFD
    - AHU Sequence of Operations to include, but not limited to:
        - Occupied/Unoccupied control – Units to turn off during unoccupied mode
        - OA Damper to operate based on CO2 Setpoint

- (116) New VAV Boxes
    - Existing VAV is pneumatically controlled
    - VAVs will be replaced with new VAVs with Open Protocol Controls
    - BB provides zone heating control for the many zones served by the (14) CHW-HW AHUs
    - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
    - Install new control valve
    - Install new zone temp sensor
    - Integrate the BB zones into the EMS
- (70) Hot Water Baseboard Zones
    - Existing BB is pneumatically controlled
    - BB provides zone heating control for the many zones served by the (18) CHW-HW AHUs
    - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
    - Install new control valve
    - Install new zone temp sensor
    - Integrate the BB zones into the EMS


- (42) Cabinet Unit Heaters
    - Existing CUHs are pneumatically controlled
    - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
    - Install new line voltage thermostat
- (24) Unit Ventilators (Science Wing)
    - Existing UV contains DDC Controls & End Devices
    - Install new Open Protocol Controller as required to include additional hardwired points
    - Wall Mounted Temperature, Humidity and CO2 Sensor

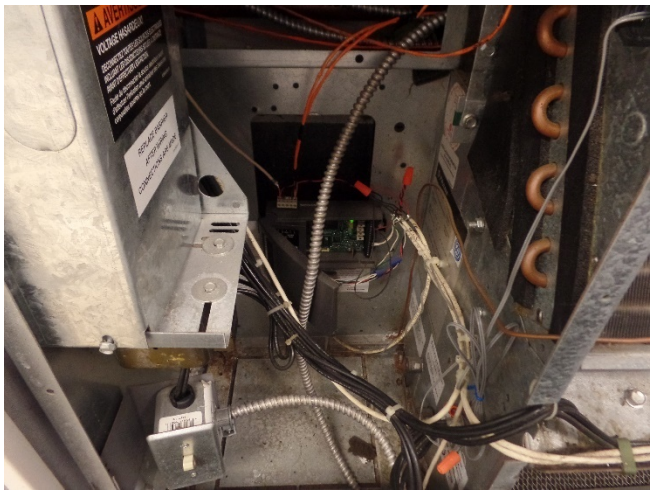
  - UV Sequence of Operations to include, but not limited to:
    - Occupied/Unoccupied control – Units to turn off during unoccupied mode
    - OA Damper to operate based on CO2 Setpoint
- (6) Heating Only Hot Water Air Handling Units
  - Existing AHUs are pneumatically controlled
  - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
  - Install new Open Protocol Controller
  - New 2-Way Hot Water Coil Control Valve
  - New Modulating OA Damper Actuator
  - Discharge Air Temperature Sensor
  - Freezestat
  - Fan Start/Stop Relay
  - Fan Status Current Sensor
  - Wall Mounted Temperature, Humidity and CO2 Sensor
  - AHU Sequence of Operations to include, but not limited to:
    - Occupied/Unoccupied control – Units to turn off during unoccupied mode
    - OA Damper to operate based on CO2 Setpoint

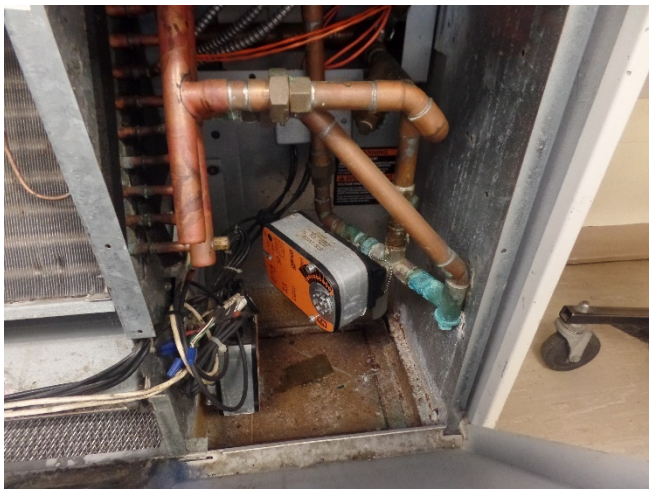
- (7) DX-HW Air Handling Unit
  - Install new Open Protocol Controller
  - New 2-Way Hot Water Coil Control Valve
  - Condensing Unit Start/Stop Relay
  - New Modulating OA Damper Actuator
  - Discharge Air Temperature Sensor
  - Freezestat
  - Fan Start/Stop Relay
  - Fan Status Current Sensor
  - Wall Mounted Temperature, Humidity and CO2 Sensor
  - AHU Sequence of Operations to include, but not limited to:
    - Occupied/Unoccupied control – Units to turn off during unoccupied mode
    - OA Damper to operate based on CO2 Setpoint

- (11) Packaged Rooftop Units
    - Install new Open Protocol Controller as required to include additional hardwired points
    - Wall Mounted Temperature, Humidity and CO2 Sensor
    - RTU Sequence of Operations to include, but not limited to:
        - Occupied/Unoccupied control – Units to turn off during unoccupied mode
        - OA Damper to operate based on CO2 Setpoint

Scope of Work – Lake Rivera Middle School

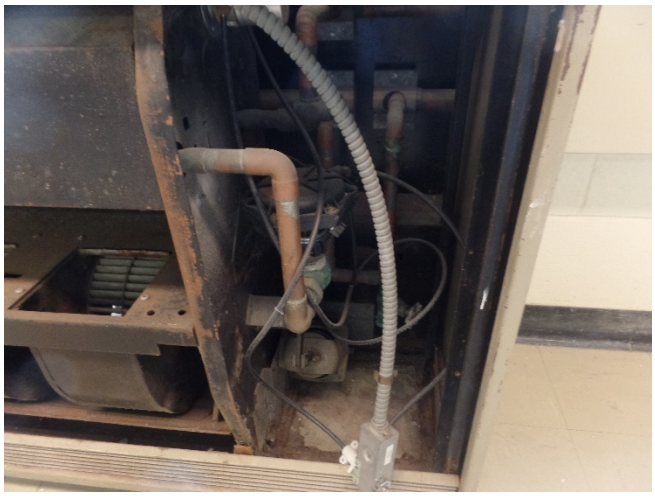
- Upgrade network to integrate to the new District Wide Energy Management System
- (3) Boiler Plants
    - o New Open Protocol Controller
    - o Integration of new Boiler Control Panel
    - o Water & OA Temperature Sensors
    - o System Pressure Sensors
    - o Supply Water Flow Sensor
    - o Boiler Sequence of Operations to include, but not limited to:
        - Occupied/Unoccupied control – Boilers to turn off during unoccupied mode
        - OA Supply Water Temperature setpoint Reset Schedule
- (35) Unit Ventilators
    - o Existing UV contains DDC Controls & End Devices
    - o Install new Open Protocol Controller as required to include additional hardwired points
    - o Wall Mounted Temperature, Humidity and CO2 Sensor
    - o UV Sequence of Operations to include, but not limited to:
        - Occupied/Unoccupied control – Units to turn off during unoccupied mode
        - OA Damper to operate based on CO2 Setpoint





- (36) Unit Ventilators
    - o Existing UV are pneumatically controlled
    - o Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
    - o Install new Open Protocol Controller
    - o New 2-Way Hot Water Coil Control Valve
    - o New Modulating OA Damper Actuator

- Discharge Air Temperature Sensor
- Freezestat
- Fan Start/Stop Relay
- Fan Status Current Sensor
- Wall Mounted Temperature, Humidity and CO2 Sensor
- UV Sequence of Operations to include, but not limited to:
  - Occupied/Unoccupied control – Units to turn off during unoccupied mode
  - OA Damper to operate based on CO2 Setpoint



- (3) Packaged Rooftop Units
  - Install new Open Protocol Controller as required to include additional hardwired points
  - Wall Mounted Temperature, Humidity and CO2 Sensor
  - RTU Sequence of Operations to include, but not limited to:
    - Occupied/Unoccupied control – Units to turn off during unoccupied mode
    - OA Damper to operate based on CO2 Setpoint
- (6) Heating Only Hot Water Air Handling Units & (4) Exhaust Fans
  - Existing AHUs are pneumatically controlled
  - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
  - Install new Open Protocol Controller
  - New 2-Way Hot Water Coil Control Valve
  - New Modulating OA Damper Actuator
  - Discharge Air Temperature Sensor
  - Freezestat
  - Fan Start/Stop Relay
  - Fan Status Current Sensor

  - Wall Mounted Temperature, Humidity and CO2 Sensor
  - AHU Sequence of Operations to include, but not limited to:
    - Occupied/Unoccupied control – Units to turn off during unoccupied mode
    - OA Damper to operate based on CO2 Setpoint

- (1) DX-HW Air Handling Unit (Serves 2nd Floor Hallway)
  - Existing AHU is pneumatically controlled
  - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
  - Install new Open Protocol Controller
  - New 2-Way Hot Water Coil Control Valve
  - Condensing Unit Start/Stop Relay
  - New Modulating OA Damper Actuator
  - Discharge Air Temperature Sensor
  - Freezestat
  - Fan Start/Stop Relay
  - Fan Status Current Sensor
  - Wall Mounted Temperature, Humidity and CO2 Sensor
  - AHU Sequence of Operations to include, but not limited to:
    - Occupied/Unoccupied control – Units to turn off during unoccupied mode
    - OA Damper to operate based on CO2 Setpoint
- (16) Hot Water Baseboard Zones
  - Existing BB is pneumatically controlled
  - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
  - Install new standalone valve/thermostat control

- (28) Ductless Split Systems
  - Existing split systems provide cooling in classrooms and offices where UVs provide heating.
  - Existing units operate standalone.
  - Install Start/Stop Relay for Split System to operate from the local controller in the UV.
  - EMS will only enable/disable the split systems based on occupied/unoccupied schedules. Split Systems will operate via unit controls to maintain temperature setpoint.

- (24) Cabinet Unit Heaters
  - Existing CUHs are pneumatically controlled
  - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
  - Install new line voltage thermostat

- (3) Self Contained Unit Ventilators
  - Existing UV are pneumatically controlled
  - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
  - Install new Open Protocol Controller
  - New 2-Way Hot Water Coil Control Valve
  - Compressor start/stop relay
  - New Modulating OA Damper Actuator

- Discharge Air Temperature Sensor
- Freezestat
- Fan Start/Stop Relay
- Fan Status Current Sensor
- Wall Mounted Temperature, Humidity and CO2 Sensor
- UV Sequence of Operations to include, but not limited to:
  - Occupied/Unoccupied control – Units to turn off during unoccupied mode
  - OA Damper to operate based on CO2 Setpoint

- (21) Window Air Conditioners
  - New relay wired to a local controller to enable/disable the WAC unit based on the building occupied/unoccupied schedule.

Scope of Work – Veterans Memorial Middle School

- Upgrade network to integrate to the new District Wide Energy Management System
- (4) Boiler Plants
    - o New Open Protocol Controller
    - o Integration of new Boiler Control Panel
    - o Water & OA Temperature Sensors
    - o System Pressure Sensors
    - o Supply Water Flow Sensor and System BTU Monitoring
    - o Boiler Sequence of Operations to include, but not limited to:
        - Occupied/Unoccupied control – Boilers to turn off during unoccupied mode
        - OA Supply Water Temperature setpoint Reset Schedule
- (29) Unit Ventilators
    - o Existing UV contains DDC Controls & End Devices
    - o Install new Open Protocol Controller as required to include additional hardwired points
    - o Wall Mounted Temperature, Humidity and CO2 Sensor
    - o UV Sequence of Operations to include, but not limited to:
        - Occupied/Unoccupied control – Units to turn off during unoccupied mode
        - OA Damper to operate based on CO2 Setpoint

- (39) Unit Ventilators
    - o Existing UV are pneumatically controlled
    - o Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
    - o Install new Open Protocol Controller
    - o New 2-Way Hot Water Coil Control Valve
    - o New Modulating OA Damper Actuator

- Discharge Air Temperature Sensor
- Freezestat
- Fan Start/Stop Relay
- Fan Status Current Sensor
- Wall Mounted Temperature, Humidity and CO2 Sensor
- UV Sequence of Operations to include, but not limited to:
  - Occupied/Unoccupied control – Units to turn off during unoccupied mode
  - OA Damper to operate based on CO2 Setpoint

- (8) Packaged Rooftop Units
  - Install new Open Protocol Controller as required to include additional hardwired points
  - Wall Mounted Temperature, Humidity and CO2 Sensor
  - RTU Sequence of Operations to include, but not limited to:
    - Occupied/Unoccupied control – Units to turn off during unoccupied mode
    - OA Damper to operate based on CO2 Setpoint

- (7) Heating Only Hot Water Air Handling Units
  - Existing AHUs are pneumatically controlled

- Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
- Install new Open Protocol Controller
- New 2-Way Hot Water Coil Control Valve
- New Modulating OA Damper Actuator
- Discharge Air Temperature Sensor
- Freezestat
- Fan Start/Stop Relay
- Fan Status Current Sensor
- Wall Mounted Temperature, Humidity and CO2 Sensor
- AHU Sequence of Operations to include, but not limited to:
  - Occupied/Unoccupied control – Units to turn off during unoccupied mode
  - OA Damper to operate based on CO2 Setpoint

- (1) DX-HW Air Handling Unit (Serves Main Office)
  - Existing AHU is pneumatically controlled
  - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
  - Install new Open Protocol Controller
  - New 2-Way Hot Water Coil Control Valve
  - Condensing Unit Start/Stop Relay
  - New Modulating OA Damper Actuator
  - Discharge Air Temperature Sensor

  - Freezestat
  - Fan Start/Stop Relay
  - Fan Status Current Sensor
  - Wall Mounted Temperature, Humidity and CO2 Sensor
  - AHU Sequence of Operations to include, but not limited to:
    - Occupied/Unoccupied control – Units to turn off during unoccupied mode
    - OA Damper to operate based on CO2 Setpoint

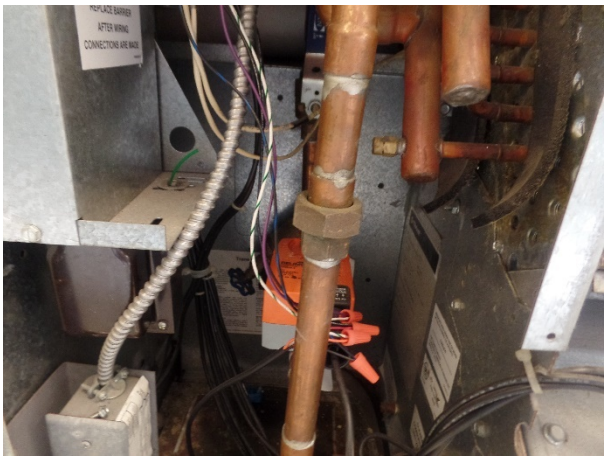
- (6) Ductless Split Systems
  - Existing units operate standalone.
  - Install Start/Stop Relay for Split System to operate from the local controller in the UV.
  - EMS will only enable/disable the split systems based on occupied/unoccupied schedules. Split Systems will operate via unit controls to maintain temperature setpoint.

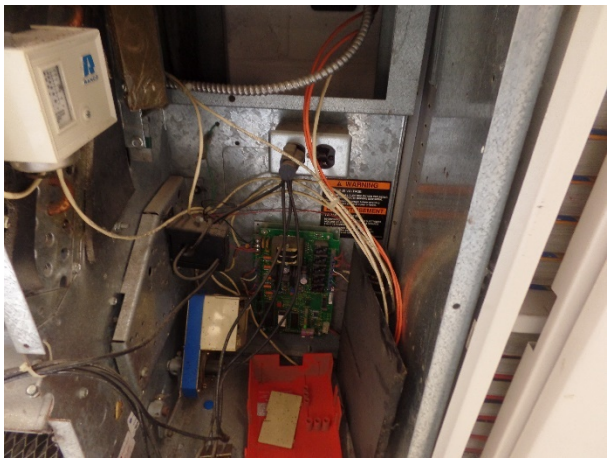
- (3) Fan Coil Units
  - Existing FCUs are pneumatically controlled
  - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
  - Install new Open Protocol Controller & Wall Mounted Temp Sensor
  - Existing control valve can be disabled in the open position
  - EMS will cycle the FCU fan to maintain space temp setpoint
  - FCU Sequence of Operations to include, but not limited to:
    - Occupied/Unoccupied control – Units to turn off during unoccupied mode
- (6) VAV Boxes
  - Existing VAVs are pneumatically controlled
  - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
  - Install new Open Protocol Controller w/ Integral Acuator

  - New 2-Way Hot Water Coil Control Valve
  - Wall Mounted Temperature, Humidity and CO2 Sensor
- (34) Window Air Conditioners
  - New relay wired to a local controller to enable/disable the WAC unit based on the building occupied/unoccupied schedule.

Scope of Work – Osbornville Elementary School

- Upgrade network to integrate to the new District Wide Energy Management System
- (1) Existing Boiler Plants
  - Integrate the existing boiler plant controls into the new District Wide Energy Management System
  - Boiler Sequence of Operations to include, but not limited to:
    - Occupied/Unoccupied control – Boilers to turn off during unoccupied mode
    - OA Supply Water Temperature setpoint Reset Schedule
- (31) Unit Ventilators
  - Existing UV contains DDC Controls & End Devices
  - Install new Open Protocol Controller as required to include additional hardwired points
  - Wall Mounted Temperature, Humidity and CO2 Sensor
  - UV Sequence of Operations to include, but not limited to:
    - Occupied/Unoccupied control – Units to turn off during unoccupied mode
    - OA Damper to operate based on CO2 Setpoint





- (2) Packaged Rooftop Units
  - Install new Open Protocol Controller as required to include additional hardwired points
  - Wall Mounted Temperature, Humidity and CO2 Sensor

  - RTU Sequence of Operations to include, but not limited to:
    - Occupied/Unoccupied control – Units to turn off during unoccupied mode
    - OA Damper to operate based on CO2 Setpoint

- (15) Ductless Split Systems
  - Existing units operate standalone.
  - Install Start/Stop Relay for Split System to operate from the local controller in the UV.
  - EMS will only enable/disable the split systems based on occupied/unoccupied schedules. Split Systems will operate via unit controls to maintain temperature setpoint.

- (10) Window Air Conditioners
  - New relay wired to a local controller to enable/disable the WAC unit based on the building occupied/unoccupied schedule.

Scope of Work – Emma Havens Young Elementary School

- Upgrade network to integrate to the new District Wide Energy Management System
- (1) Boiler Plant
    - New Open Protocol Controller
    - Integration of new Boiler Control Panel
    - Variable Volume Pump Control
    - Water & OA Temperature Sensors
    - System Pressure Sensors
    - Supply Water Flow Sensor and System BTU Monitoring
    - Boiler Sequence of Operations to include, but not limited to:
        - Occupied/Unoccupied control – Boilers to turn off during unoccupied mode
        - OA Supply Water Temperature setpoint Reset Schedule
- (48) Unit Ventilators
    - Existing UV are pneumatically controlled
    - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
    - Install new Open Protocol Controller
    - New 2-Way Hot Water Coil Control Valve
    - New Modulating OA Damper Actuator
    - Discharge Air Temperature Sensor
    - Freezestat
    - Fan Start/Stop Relay
    - Fan Status Current Sensor
    - Wall Mounted Temperature, Humidity and CO2 Sensor
    - UV Sequence of Operations to include, but not limited to:
        - Occupied/Unoccupied control – Units to turn off during unoccupied mode
        - OA Damper to operate based on CO2 Setpoint

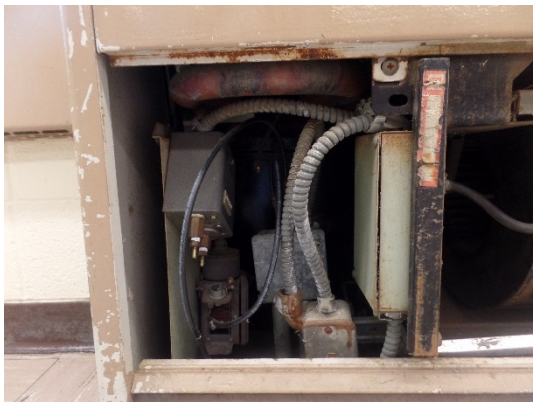
- (3) Heating Only Hot Water Air Handling Units
  - Existing AHUs are pneumatically controlled
  - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
  - Install new Open Protocol Controller
  - New 2-Way Hot Water Coil Control Valve
  - New Modulating OA Damper Actuator
  - Discharge Air Temperature Sensor
  - Freezestat
  - Fan Start/Stop Relay
  - Fan Status Current Sensor
  - Wall Mounted Temperature, Humidity and CO2 Sensor
  - AHU Sequence of Operations to include, but not limited to:
    - Occupied/Unoccupied control – Units to turn off during unoccupied mode
    - OA Damper to operate based on CO2 Setpoint

- (7) Ductless Split Systems
  - Existing units operate standalone.
  - Install Start/Stop Relay for Split System to operate from the local controller in the UV.
  - EMS will only enable/disable the split systems based on occupied/unoccupied schedules. Split Systems will operate via unit controls to maintain temperature setpoint.

- (11) Hot Water Baseboard Zones
  - Existing BB is pneumatically controlled
  - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
  - Install new standalone valve/thermostat control
- (25) Window Air Conditioners
  - New relay wired to a local controller to enable/disable the WAC unit based on the building occupied/unoccupied schedule.
- (4) Cabinet Unit Heaters
  - Existing CUHs are pneumatically controlled
  - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
  - Install new line voltage thermostat

Scope of Work – Drum Point Elementary School

- Upgrade network to integrate to the new District Wide Energy Management System
- (1) Boiler Plant
    - New Open Protocol Controller
    - Integration of new Boiler Control Panel
    - Water & OA Temperature Sensors
    - System Pressure Sensors
    - Supply Water Flow Sensor and System BTU Monitoring
    - Boiler Sequence of Operations to include, but not limited to:
        - Occupied/Unoccupied control – Boilers to turn off during unoccupied mode
        - OA Supply Water Temperature setpoint Reset Schedule
- (34) Unit Ventilators
    - Existing UV are pneumatically controlled
    - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
    - Install new Open Protocol Controller
    - New 2-Way Hot Water Coil Control Valve
    - New Modulating OA Damper Actuator
    - Discharge Air Temperature Sensor
    - Freezestat
    - Fan Start/Stop Relay
    - Fan Status Current Sensor
    - Wall Mounted Temperature, Humidity and CO2 Sensor
    - UV Sequence of Operations to include, but not limited to:
        - Occupied/Unoccupied control – Units to turn off during unoccupied mode
        - OA Damper to operate based on CO2 Setpoint



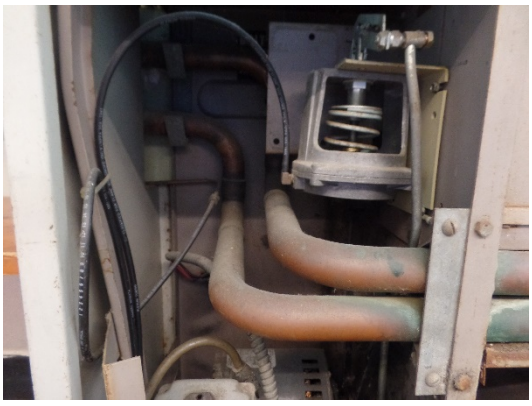

- (2) Heating Only Hot Water Air Handling Units
  - Existing AHUs are pneumatically controlled
  - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
  - Install new Open Protocol Controller
  - New 2-Way Hot Water Coil Control Valve
  - New Modulating OA Damper Actuator
  - Discharge Air Temperature Sensor
  - Freezestat
  - Fan Start/Stop Relay
  - Fan Status Current Sensor
  - Wall Mounted Temperature, Humidity and CO2 Sensor
  - AHU Sequence of Operations to include, but not limited to:
    - Occupied/Unoccupied control – Units to turn off during unoccupied mode
    - OA Damper to operate based on CO2 Setpoint

- (18) Ductless Split Systems
  - Existing units operate standalone.
  - Install Start/Stop Relay for Split System to operate from the local controller in the UV.
  - EMS will only enable/disable the split systems based on occupied/unoccupied schedules. Split Systems will operate via unit controls to maintain temperature setpoint.

- (14) Hot Water Baseboard Zones
  - Existing BB is pneumatically controlled
  - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
  - Install new standalone valve/thermostat control
- (1) Cabinet Unit Heater
  - Existing CUHs are pneumatically controlled
  - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
  - Install new line voltage thermostat

Scope of Work – Lanes Mill Elementary School

- Upgrade network to integrate to the new District Wide Energy Management System
- (1) Boiler Plant
    - New Open Protocol Controller
    - Integration of new Boiler Control Panel
    - Water & OA Temperature Sensors
    - System Pressure Sensors
    - Supply Water Flow Sensor and System BTU Monitoring
    - Boiler Sequence of Operations to include, but not limited to:
        - Occupied/Unoccupied control – Boilers to turn off during unoccupied mode
        - OA Supply Water Temperature setpoint Reset Schedule
- (35) Unit Ventilators
    - Existing UV are pneumatically controlled
    - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
    - Install new Open Protocol Controller
    - New 2-Way Hot Water Coil Control Valve
    - New Modulating OA Damper Actuator
    - Discharge Air Temperature Sensor
    - Freezestat
    - Fan Start/Stop Relay
    - Fan Status Current Sensor
    - Wall Mounted Temperature, Humidity and CO2 Sensor
    - UV Sequence of Operations to include, but not limited to:
        - Occupied/Unoccupied control – Units to turn off during unoccupied mode
        - OA Damper to operate based on CO2 Setpoint



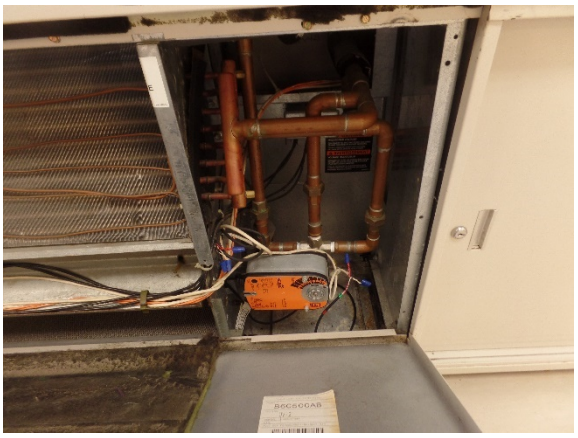
- (2) Heating Only Hot Water Air Handling Units
  - Existing AHUs are pneumatically controlled
  - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
  - Install new Open Protocol Controller
  - New 2-Way Hot Water Coil Control Valve
  - New Modulating OA Damper Actuator
  - Discharge Air Temperature Sensor
  - Freezestat
  - Fan Start/Stop Relay
  - Fan Status Current Sensor
  - Wall Mounted Temperature, Humidity and CO2 Sensor
  - AHU Sequence of Operations to include, but not limited to:
    - Occupied/Unoccupied control – Units to turn off during unoccupied mode
    - OA Damper to operate based on CO2 Setpoint
- (14) Ductless Split Systems
  - Existing units operate standalone.
  - Install Start/Stop Relay for Split System to operate from the local controller in the UV.
  - EMS will only enable/disable the split systems based on occupied/unoccupied schedules. Split Systems will operate via unit controls to maintain temperature setpoint.

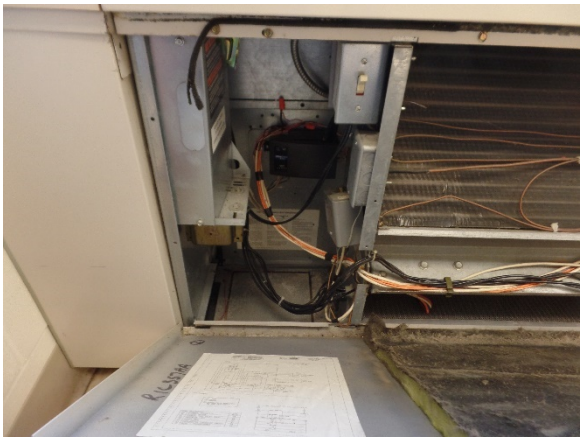
- (16) Hot Water Baseboard Zones
  - Existing BB is pneumatically controlled
  - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
  - Install new standalone valve/thermostat control
- (7) Cabinet Unit Heaters
  - Existing CUHs are pneumatically controlled
  - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
  - Install new line voltage thermostat

Scope of Work – Herbertsville Elementary School

- Upgrade network to integrate to the new District Wide Energy Management System
- (2) Existing Boiler Plants
    - Integrate the existing boiler plant controls into the new District Wide Energy Management System
    - Boiler Sequence of Operations to include, but not limited to:
        - Occupied/Unoccupied control – Boilers to turn off during unoccupied mode
        - OA Supply Water Temperature setpoint Reset Schedule
- (12) Unit Ventilators
    - Existing UV are pneumatically controlled
    - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
    - Install new Open Protocol Controller
    - New 2-Way Hot Water Coil Control Valve
    - New Modulating OA Damper Actuator
    - Discharge Air Temperature Sensor
    - Freezestat
    - Fan Start/Stop Relay
    - Fan Status Current Sensor
    - Wall Mounted Temperature, Humidity and CO2 Sensor
    - UV Sequence of Operations to include, but not limited to:
        - Occupied/Unoccupied control – Units to turn off during unoccupied mode
        - OA Damper to operate based on CO2 Setpoint

- (4) Unit Ventilators
  - Existing UV contains DDC Controls & End Devices
  - Install new Open Protocol Controller as required to include additional hardwired points
  - Wall Mounted Temperature, Humidity and CO2 Sensor
  - UV Sequence of Operations to include, but not limited to:
    - Occupied/Unoccupied control – Units to turn off during unoccupied mode
    - OA Damper to operate based on CO2 Setpoint





- (5) Packaged Rooftop Units
  - Install new Open Protocol Controller as required to include additional hardwired points
  - Wall Mounted Temperature, Humidity and CO2 Sensor
  - RTU Sequence of Operations to include, but not limited to:
    - Occupied/Unoccupied control – Units to turn off during unoccupied mode
    - OA Damper to operate based on CO2 Setpoint

- (4) Ductless Split Systems
  - Existing units operate standalone.
  - Install Start/Stop Relay for Split System to operate from the local controller in the UV.
  - EMS will only enable/disable the split systems based on occupied/unoccupied schedules. Split Systems will operate via unit controls to maintain temperature setpoint.

- (8) Hot Water Baseboard Zones
  - Existing BB is pneumatically controlled
  - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
  - Install new standalone valve/thermostat control
- (13) Window Air Conditioners
  - New relay wired to a local controller to enable/disable the WAC unit based on the building occupied/unoccupied schedule.
- (3) Cabinet Unit Heaters
  - Existing CUHs are pneumatically controlled
  - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
  - Install new line voltage thermostat

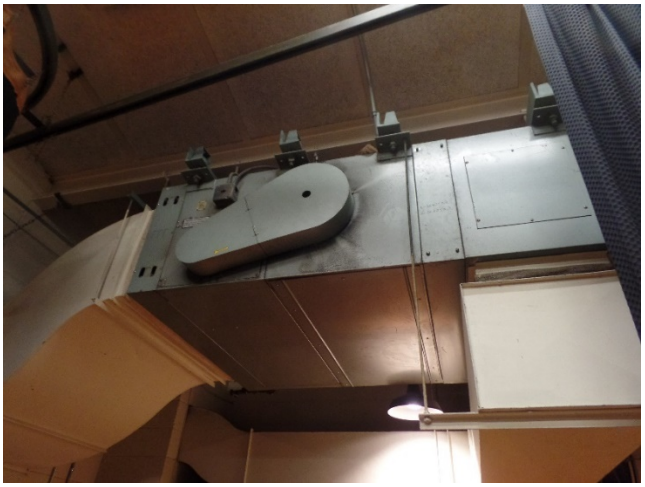
Scope of Work – Midstreams Elementary School

- Upgrade network to integrate to the new District Wide Energy Management System
- (3) Boiler Plants
  - New Open Protocol Controller
  - Integration of new Boiler Control Panel
  - Water & OA Temperature Sensors
  - System Pressure Sensors

  - Supply Water Flow Sensor and System BTU Monitoring
  - Boiler Sequence of Operations to include, but not limited to:
    - Occupied/Unoccupied control – Boilers to turn off during unoccupied mode
    - OA Supply Water Temperature setpoint Reset Schedule
- (33) Unit Ventilators
  - Existing UV are pneumatically controlled
  - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
  - Install new Open Protocol Controller
  - New 2-Way Hot Water Coil Control Valve
  - New Modulating OA Damper Actuator
  - Discharge Air Temperature Sensor
  - Freezestat
  - Fan Start/Stop Relay
  - Fan Status Current Sensor
  - Wall Mounted Temperature, Humidity and CO2 Sensor
  - UV Sequence of Operations to include, but not limited to:
    - Occupied/Unoccupied control – Units to turn off during unoccupied mode
    - OA Damper to operate based on CO2 Setpoint

- (2) Heating Only Hot Water Air Handling Units
  - Existing AHUs are pneumatically controlled
  - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
  - Install new Open Protocol Controller
  - New 2-Way Hot Water Coil Control Valve
  - New Modulating OA Damper Actuator
  - Discharge Air Temperature Sensor
  - Freezestat

  - Fan Start/Stop Relay
  - Fan Status Current Sensor
  - Wall Mounted Temperature, Humidity and CO2 Sensor
  - AHU Sequence of Operations to include, but not limited to:
    - Occupied/Unoccupied control – Units to turn off during unoccupied mode
    - OA Damper to operate based on CO2 Setpoint



- (1) Packaged Rooftop Unit
  - Install new Open Protocol Controller as required to include additional hardwired points
  - Wall Mounted Temperature, Humidity and CO2 Sensor
  - RTU Sequence of Operations to include, but not limited to:
    - Occupied/Unoccupied control – Units to turn off during unoccupied mode
    - OA Damper to operate based on CO2 Setpoint
- (11) Ductless Split Systems
  - Existing units operate standalone.
  - Install Start/Stop Relay for Split System to operate from the local controller in the UV.
  - EMS will only enable/disable the split systems based on occupied/unoccupied schedules. Split Systems will operate via unit controls to maintain temperature setpoint.
- (13) Hot Water Baseboard Zones
  - Existing BB is pneumatically controlled
  - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
  - Install new standalone valve/thermostat control
- (7) Cabinet Unit Heaters
  - Existing CUHs are pneumatically controlled

  - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
  - Install new line voltage thermostat
- (16) Window Air Conditioners
  - New relay wired to a local controller to enable/disable the WAC unit based on the building occupied/unoccupied schedule.

Scope of Work – Veterans Memorial Elementary School

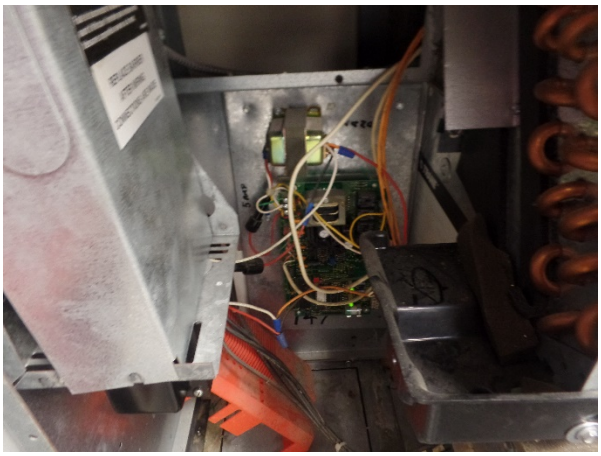
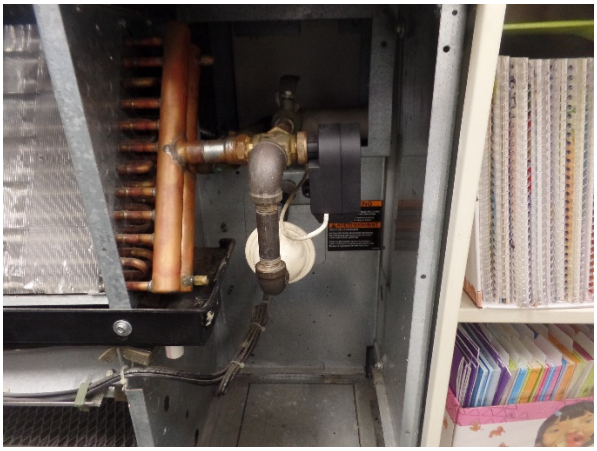
- Upgrade network to integrate to the new District Wide Energy Management System
- (1) Existing Boiler Plants
  - Integrate the existing boiler plant controls into the new District Wide Energy Management System
  - Boiler Sequence of Operations to include, but not limited to:
    - Occupied/Unoccupied control – Boilers to turn off during unoccupied mode
    - OA Supply Water Temperature setpoint Reset Schedule
- (38) Unit Ventilators
  - Existing UV are pneumatically controlled
  - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
  - Install new Open Protocol Controller
  - New 2-Way Hot Water Coil Control Valve
  - New Modulating OA Damper Actuator
  - Discharge Air Temperature Sensor
  - Freezestat
  - Fan Start/Stop Relay
  - Fan Status Current Sensor
  - Wall Mounted Temperature, Humidity and CO2 Sensor
  - UV Sequence of Operations to include, but not limited to:
    - Occupied/Unoccupied control – Units to turn off during unoccupied mode
    - OA Damper to operate based on CO2 Setpoint
- (7) Air Handling Units
  - Existing AHUs are pneumatically controlled
  - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
  - Install new Open Protocol Controller
  - New 2-Way Hot Water Coil Control Valve
  - New Modulating OA Damper Actuator
  - Discharge Air Temperature Sensor
  - Freezestat

- Fan Start/Stop Relay
- Fan Status Current Sensor
- Controls for (9) electric reheat coils for the Media Center AHU
- Wall Mounted Temperature, Humidity and CO2 Sensor
- AHU Sequence of Operations to include, but not limited to:
  - Occupied/Unoccupied control – Units to turn off during unoccupied mode
  - OA Damper to operate based on CO2 Setpoint

- (13) Ductless Split Systems
  - Existing units operate standalone.
  - Install Start/Stop Relay for Split System to operate from the local controller in the UV.
  - EMS will only enable/disable the split systems based on occupied/unoccupied schedules. Split Systems will operate via unit controls to maintain temperature setpoint.
- (6) Cabinet Unit Heaters
  - Existing CUHs are pneumatically controlled
  - Remove existing pneumatic end devices. Cut & cap pneumatic tubing in place
  - Existing control valve can be disabled in the open position
  - New controls to be installed to control the CUH locally to cycle the fan to maintain space temp setpoint

Scope of Work – Warren H. Wolf Elementary School

- Upgrade network to integrate to the new District Wide Energy Management System
- (1) Existing Boiler Plant
    - Integrate the existing boiler plant controls into the new District Wide Energy Management System
    - Boiler Sequence of Operations to include, but not limited to:
        - Occupied/Unoccupied control – Boilers to turn off during unoccupied mode
        - OA Supply Water Temperature setpoint Reset Schedule
- (19) Unit Ventilators
    - Existing UV contains DDC Controls & End Devices
    - Install new Open Protocol Controller as required to include additional hardwired points
    - Wall Mounted Temperature, Humidity and CO2 Sensor
    - UV Sequence of Operations to include, but not limited to:
        - Occupied/Unoccupied control – Units to turn off during unoccupied mode
        - OA Damper to operate based on CO2 Setpoint

- (9) Packaged Rooftop Units
    - Install new Open Protocol Controller as required to include additional hardwired points
    - Wall Mounted Temperature, Humidity and CO2 Sensor
    - RTU Sequence of Operations to include, but not limited to:
        - Occupied/Unoccupied control – Units to turn off during unoccupied mode
        - OA Damper to operate based on CO2 Setpoint
- (18) Window Air Conditioners
    - New relay wired to a local controller to enable/disable the WAC unit based on the building occupied/unoccupied schedule.

- (6) Ductless Split Systems
  - Existing units operate standalone.
  - Install Start/Stop Relay for Split System to operate from the local controller in the UV.
  - EMS will only enable/disable the split systems based on occupied/unoccupied schedules. Split Systems will operate via unit controls to maintain temperature setpoint.

Scope of Work – Administration Building

- Integrate existing system to the new District Wide Energy Management System

ECM Calculations

Lake Riviera Middle School, Veterans Memorial Middle School, Emma Havens Young, Veterans Memorial Elementary, Warren Wolf, Osbornville, Lanes Mill, Midstreams, Drum Point, Herbertsville, and the Administration Building were modeled using eQuest. These buildings were modeled because the Energy Savings Plan evaluated multiple ECMs and modeling would more accurately reflect the energy savings by simulating the interactive effects of those ECMs. The modeled savings produced by eQuest are shown below. Also note that the savings for Lake Riviera, Veterans Memorial, Osbornville, Emma Havens Young, Herbertsville, Midstreams and Warren Wolf has increase to account for the controlling of the Window Air Conditioners. This was derived assuming each WAC uses 1,100 watts and ran for 1,920 hours (16 weeks of the year, 5 days per week, 24 hours per day) and the new controls will reduce the run hours to 12 hours per day for a total of 960 hours.

EMS Savings			
BUILDING	**SQFT**	**kWh SAVINGS**	**THERMS SAVINGS**
Brick Memorial High School	275,846	55,912	12,586
Brick Township High School	216,326		
Veterans Memorial Middle School	134,300	92,151	19,272
Lake Riviera Middle School	129,208	105,873	22,162
Emma Havens Young Elementary School	68,247	41,271	7,426
Veterans Memorial Elementary School	62,739	26,850	19,784
Warren H. Wolf Elementary School	57,618	106,784	6,776
Osbornville Elementary School	46,743	23,872	2,424
Lanes Mill Elementary School	44,883	10,075	7,114
Midstreams Elementary School	43,808	36,118	5,985
Drum Point Elementary School	43,073	7,010	14,124
Herbertsville Elementary School & Annex	27,857	30,632	9,550
Brick Township Administration Building	29,399	10,305	5,661

ECM Calculations

Brick Memorial High School, Brick Township High School, Transportation, Maintenance, and the Receiving Warehouse were not modeled using eQuest. The Energy Savings Plan evaluated few ECMs for the facilities and modeling would deliver more accurate savings estimates than the BPU approved Calculations. The savings for these buildings are shown below and were calculated per BPU Protocols shown below.

$$\text{Cooling Energy Savings (kWh)} = (((T_c*(H+5)+S_c*(168-(H+5)))/168)-T_c)*(P_c*Cap_{hp}*12*EFLH_c/EER_{hp})$$

$$\text{Heating Energy Savings (kWh)} = (((T_h*(H+5)+S_h*(168-(H+5)))/168)-T_h)*(P_h*Cap_{hp}*12*EFLH_h/EER_{hp})$$

$$\text{Heating Energy Savings (Therms)} = (T_h-(T_h*(H+5)+S_h*(168-(H+5)))/168)*(P_h*Cap_h*EFLH_h/AFUE_h/100{,}000)$$

Definition of Variables

T_h = Heating Season Facility Temp. (°F)
T_c = Cooling Season Facility Temp. (°F)
S_h = Heating Season Setback Temp. (°F)
S_c = Cooling Season Setup Temp. (°F)
H = Weekly Occupied Hours
Cap_{hp} = Connected load capacity of heat pump/AC (Tons) – Provided on Application.
Cap_h = Connected heating load capacity (Btu/hr) – Provided on Application.
$EFLH_c$ = Equivalent full load cooling hours
$EFLH_h$ = Equivalent full load heating hours
P_h = Heating season percent savings per degree setback
P_c = Cooling season percent savings per degree setup
$AFUE_h$ = Heating equipment efficiency – Provided on Application.
EER_{hp} = Heat pump/AC equipment efficiency – Provided on Application

Occupancy Controlled Thermostat Savings Calculation	
Th	70
Tc	72
Sh	60
Sc	80
H	56
EFLHc	381
EFLHh	900
Ph	0.03
Pc	0.06
AFUEh	0.87
EERhp	8

Demand Control Ventilation Calculation
HVACe=Building Electric Load * 38%
HVACg=Building Gas Load * 82%

Algorithms

Electric Savings (kWh) = $0.05*HVAC_E$

Gas Savings (Therms) = $0.05*HVAC_G$

EMS Savings					
BUILDING	**SQFT**	**CAPhp**	**CAPh**	**HVACe**	**HVACg**
Brick Township High School	216,326	458	5,700,000	0	0

EMS Savings					
BUILDING	**SQFT**	**Cooling Energy Savings (kWh)**	**Heating Energy Savings (Th)**	**Total Electric Savings (kWh)**	**Total Gas Savings (Th)**
Brick Township High School	216,326	80,020	11,267	80,020	11,267

ECM 3 – Solar PPA

Background & Existing Conditions

A Solar Power Purchase Agreement (SPPA) is a financial arrangement in which a third-party developer owns, operates, and maintains the photovoltaic (PV) system, and a host customer agrees to site the system on its roof or elsewhere on its property and purchases the system's electric output from the solar services provider for a predetermined period. This financial arrangement allows the host customer to receive stable, and sometimes lower cost electricity, while the solar services provider or another party acquires valuable financial benefits such as tax credits and income generated from the sale of electricity to the host customer.

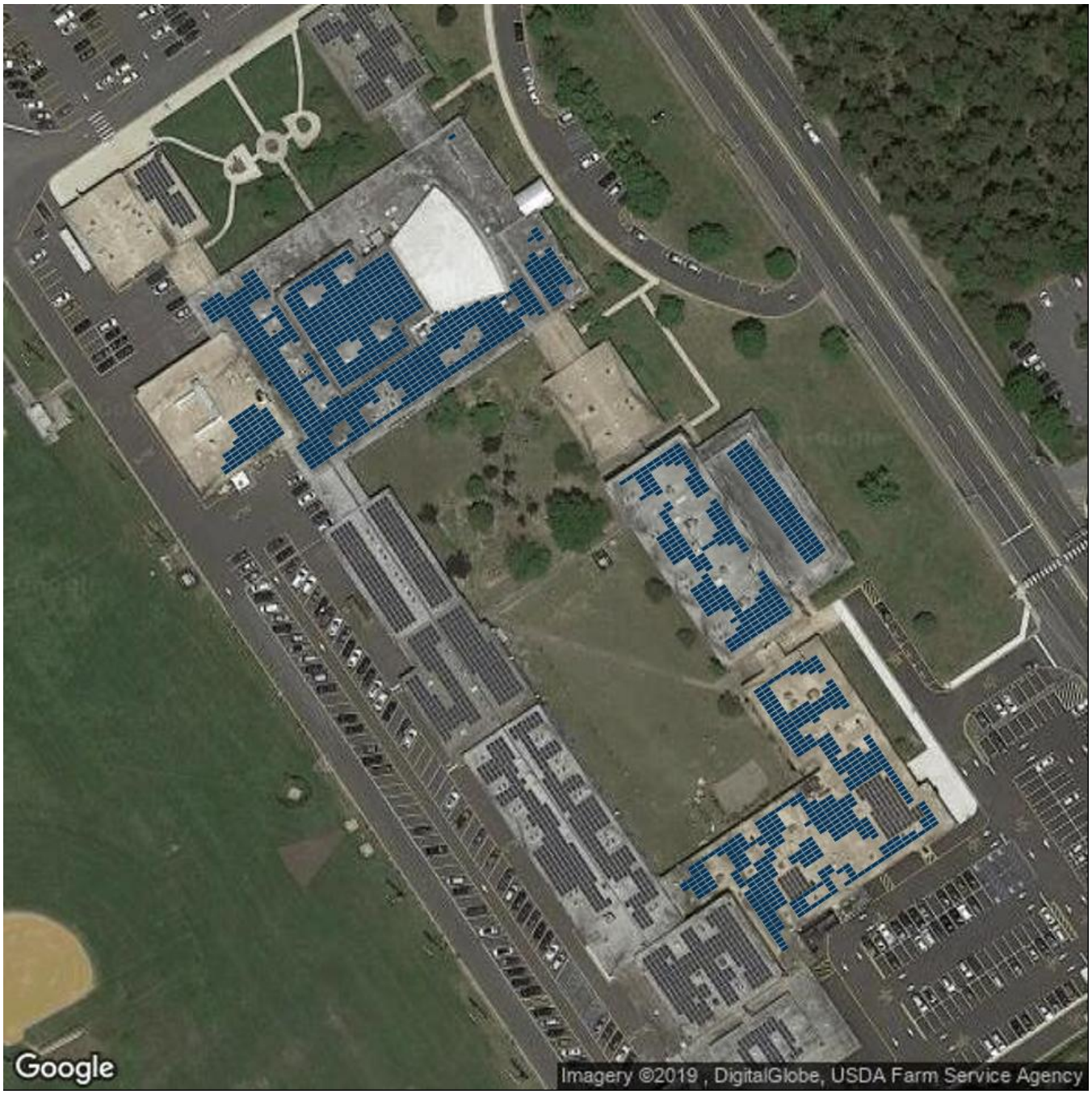
With this business model, the host customer buys the services produced by the PV system rather than the PV system itself. This framework is referred to as the "solar services" model, and the developers who offer SPPAs are known as solar services providers. SPPA arrangements enable the host customer to avoid many of the traditional barriers to adoption for organizations looking to install solar systems: high up-front capital costs; system performance risk; and complex design and permitting processes. In addition, SPPA arrangements can be cash flow positive for the host customer from the day the system is commissioned.

- No upfront capital cost.
- Predictable energy pricing.
- No system performance or operating risk.
- Projects can be cash flow positive from day one.
- Visibly demonstrable environmental commitment.
- Potential reduction in carbon footprint

Scope of Work

- Installation of the Solar PV System shall be in accordance with NFPA 70. NEC 2011. ARTICLE 690.Solar Photovoltaic (PV) Systems.
- The following is the potential layout of the Solar Arrays for each Building.
- PPA Firm will receive any incentives available
- PPA Firm will be responsible for any structural changes necessary to install roof panels

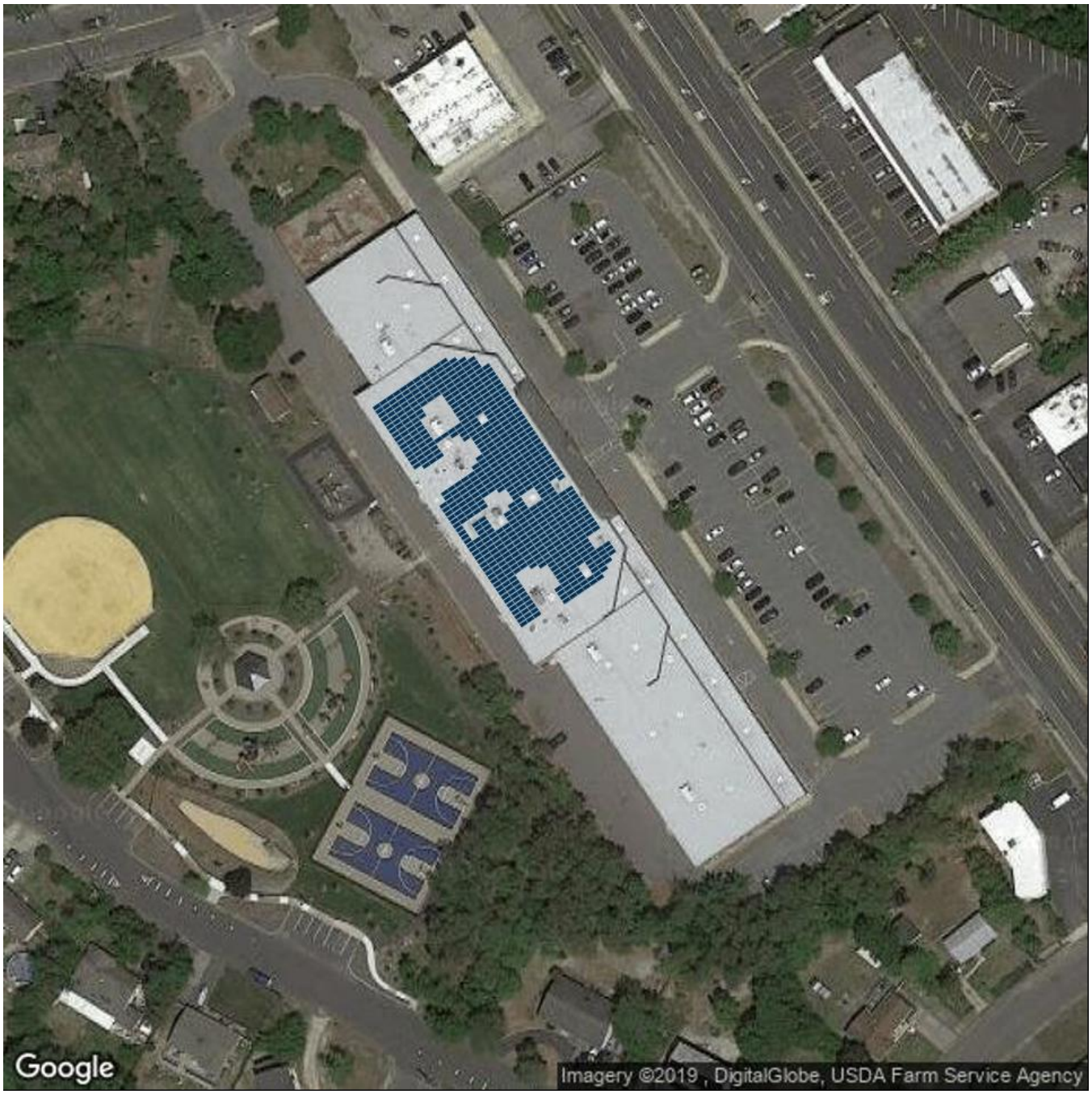
Scope of Work – Brick Township High School



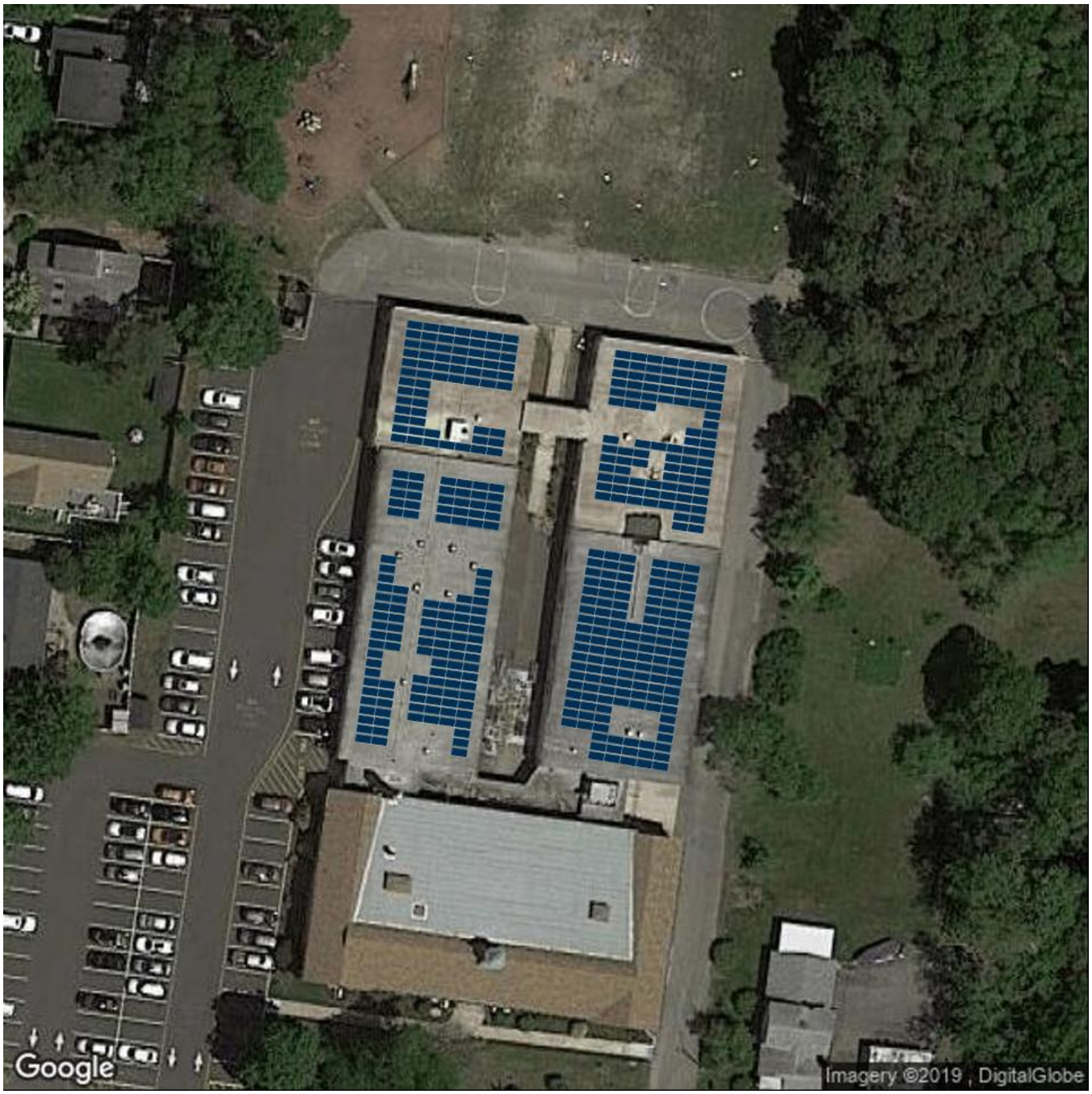
Note:

Brick Township High School will have both roof mounted systems (shown above) and Carport Canopies (not shown)

Scope of Work – Warren H. Wolf Elementary School



Scope of Work – Osbornville Elementary School

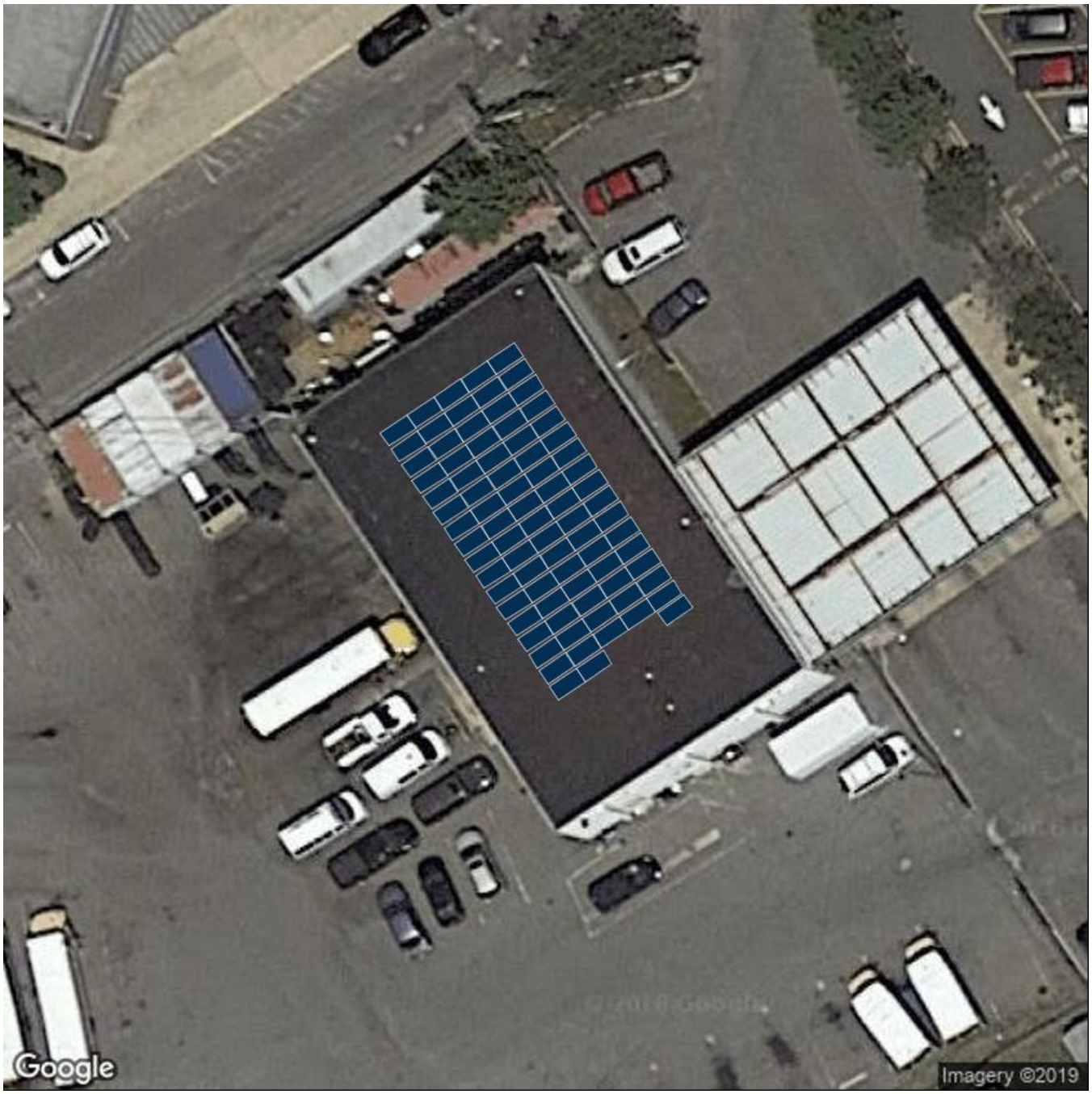


Scope of Work – Lanes Mill Elementary School

Scope of Work – Drum Point Elementary School

Scope of Work – Herbertsville Elementary School

Scope of Work – Transportation Building



ECM Calculations

The energy savings from this ECM are a result of the reduced electrical cost from the PPA for the kWh generated by the solar panels. The Solar PPA Rate and kWh generation shown below are based on the bid results of Solar PPA RFP that was awarded to Brightcore Energy. A comparison was done to assure that the generated kWh did not exceed the post-project estimated energy consumption.

Solar PPA - Rates & Savings

BUILDING	SQFT	MOUNTING CATEGORY	kWh GENERATED	$$/kWh RATES		SAVINGS	TOTAL SAVINGS
				UTILITY	SOLAR PPA		
Brick Township High School	216,326	Roof	468,263	$0.120	$0.013	$50,104	**$97,205**
		Ground		$0.120	$0.013		
		Canopy	440,198	$0.120	$0.013	$47,101	
Warren H. Wolf Elementary School	57,618	Roof	189,809	$0.120	$0.013	$20,310	**$20,310**
		Ground		$0.120	$0.013	$0	
		Canopy		$0.120	$0.013	$0	
Osbornville Elementary School	46,743	Roof	188,308	$0.120	$0.013	$20,149	**$20,149**
		Ground		$0.120	$0.013	$0	
		Canopy		$0.120	$0.013	$0	
Lanes Mill Elementary School	44,883	Roof	139,328	$0.120	$0.013	$14,908	**$14,908**
		Ground		$0.120	$0.013	$0	
		Canopy		$0.120	$0.013	$0	
Drum Point Elementary School	43,073	Roof	202,081	$0.110	$0.013	$19,602	**$19,602**
		Ground		$0.110	$0.013	$0	
		Canopy		$0.110	$0.013	$0	
Herbertsville Elementary School & Annex	27,857	Roof	175,854	$0.120	$0.013	$18,816	**$18,816**
		Ground		$0.120	$0.013	$0	
		Canopy		$0.120	$0.013	$0	
Transportation Department & Bus Garage	6,900	Roof	80,117	$0.120	$0.013	$8,573	**$8,573**
		Ground		$0.120	$0.013	$0	
		Canopy		$0.120	$0.013	$0	

15 Year Solar Savings Analysis

The 15 Year analysis escalates the electric costs 2.2% per year per BPU guidelines and the Solar PPA rate 0.0% per year per the bid results. The Solar PPA Savings each year increases because the difference in the electric costs increases year-on-year. However, escalation rates used are per BPU guidelines and the solar PPA Contract. Below are the 15 Year calculations for each school and the total 15 Year Analysis.

Brick Township High School			
YEAR	$$/kWh RATES		SAVINGS
	UTILITY	SOLAR PPA	
1	$0.120	$0.0130	$97,205
2	$0.123	$0.0130	$99,604
3	$0.125	$0.0130	$102,055
4	$0.128	$0.0130	$104,560
5	$0.131	$0.0130	$107,120
6	$0.134	$0.0130	$109,736
7	$0.137	$0.0130	$112,410
8	$0.140	$0.0130	$115,143
9	$0.143	$0.0130	$117,936
10	$0.146	$0.0130	$120,791
11	$0.149	$0.0130	$123,708
12	$0.152	$0.0130	$126,689
13	$0.156	$0.0130	$129,736
14	$0.159	$0.0130	$132,850
15	$0.163	$0.0130	$136,033

Warren H. Wolf Elementary School			
YEAR	$$/kWh RATES		SAVINGS
	UTILITY	SOLAR PPA	
1	$0.120	$0.0130	$20,310
2	$0.123	$0.0130	$20,811
3	$0.125	$0.0130	$21,323
4	$0.128	$0.0130	$21,846
5	$0.131	$0.0130	$22,381
6	$0.134	$0.0130	$22,928
7	$0.137	$0.0130	$23,486
8	$0.140	$0.0130	$24,057
9	$0.143	$0.0130	$24,641
10	$0.146	$0.0130	$25,237
11	$0.149	$0.0130	$25,847
12	$0.152	$0.0130	$26,470
13	$0.156	$0.0130	$27,106
14	$0.159	$0.0130	$27,757
15	$0.163	$0.0130	$28,422

Osbornville Elementary School			
YEAR	$$/kWh RATES		SAVINGS
	UTILITY	SOLAR PPA	
1	$0.120	$0.0130	$20,149
2	$0.123	$0.0130	$20,646
3	$0.125	$0.0130	$21,154
4	$0.128	$0.0130	$21,673
5	$0.131	$0.0130	$22,204
6	$0.134	$0.0130	$22,746
7	$0.137	$0.0130	$23,301
8	$0.140	$0.0130	$23,867
9	$0.143	$0.0130	$24,446
10	$0.146	$0.0130	$25,038
11	$0.149	$0.0130	$25,642
12	$0.152	$0.0130	$26,260
13	$0.156	$0.0130	$26,892
14	$0.159	$0.0130	$27,538
15	$0.163	$0.0130	$28,197

Lanes Mill Elementary School			
YEAR	$$/kWh RATES		SAVINGS
	UTILITY	SOLAR PPA	
1	$0.120	$0.0130	$14,908
2	$0.123	$0.0130	$15,276
3	$0.125	$0.0130	$15,652
4	$0.128	$0.0130	$16,036
5	$0.131	$0.0130	$16,429
6	$0.134	$0.0130	$16,830
7	$0.137	$0.0130	$17,240
8	$0.140	$0.0130	$17,659
9	$0.143	$0.0130	$18,088
10	$0.146	$0.0130	$18,525
11	$0.149	$0.0130	$18,973
12	$0.152	$0.0130	$19,430
13	$0.156	$0.0130	$19,897
14	$0.159	$0.0130	$20,375
15	$0.163	$0.0130	$20,863

Drum Point Elementary School			
YEAR	$$/kWh RATES		SAVINGS
	UTILITY	SOLAR PPA	
1	$0.110	$0.0130	$19,602
2	$0.112	$0.0130	$20,091
3	$0.115	$0.0130	$20,591
4	$0.117	$0.0130	$21,101
5	$0.120	$0.0130	$21,624
6	$0.123	$0.0130	$22,157
7	$0.125	$0.0130	$22,702
8	$0.128	$0.0130	$23,260
9	$0.131	$0.0130	$23,829
10	$0.134	$0.0130	$24,411
11	$0.137	$0.0130	$25,006
12	$0.140	$0.0130	$25,614
13	$0.143	$0.0130	$26,235
14	$0.146	$0.0130	$26,870
15	$0.149	$0.0130	$27,519

Herbertsville Elementary School & Annex			
YEAR	$$/kWh RATES		SAVINGS
	UTILITY	SOLAR PPA	
1	$0.120	$0.0130	$18,816
2	$0.123	$0.0130	$19,281
3	$0.125	$0.0130	$19,755
4	$0.128	$0.0130	$20,240
5	$0.131	$0.0130	$20,736
6	$0.134	$0.0130	$21,242
7	$0.137	$0.0130	$21,760
8	$0.140	$0.0130	$22,289
9	$0.143	$0.0130	$22,829
10	$0.146	$0.0130	$23,382
11	$0.149	$0.0130	$23,947
12	$0.152	$0.0130	$24,524
13	$0.156	$0.0130	$25,113
14	$0.159	$0.0130	$25,716
15	$0.163	$0.0130	$26,332

Transportation Department & Bus Garage			
YEAR	$$/kWh RATES		SAVINGS
	UTILITY	SOLAR PPA	
1	$0.120	$0.0130	$8,573
2	$0.123	$0.0130	$8,784
3	$0.125	$0.0130	$9,000
4	$0.128	$0.0130	$9,221
5	$0.131	$0.0130	$9,447
6	$0.134	$0.0130	$9,678
7	$0.137	$0.0130	$9,913
8	$0.140	$0.0130	$10,154
9	$0.143	$0.0130	$10,401
10	$0.146	$0.0130	$10,653
11	$0.149	$0.0130	$10,910
12	$0.152	$0.0130	$11,173
13	$0.156	$0.0130	$11,441
14	$0.159	$0.0130	$11,716
15	$0.163	$0.0130	$11,997

15 YEAR TOTAL SAVINGS ANALYSIS								
YEAR	Brick Township HS	Warren Wolf ES	Osbornville ES	Lanes Mill ES	Drum Point ES	Herbertsville ES	Transportation	TOTAL
1	$97,205	$20,310	$20,149	$14,908	$19,602	$18,816	$8,573	$199,563
2	$99,604	$20,811	$20,646	$15,276	$20,091	$19,281	$8,784	$204,492
3	$102,055	$21,323	$21,154	$15,652	$20,591	$19,755	$9,000	$209,530
4	$104,560	$21,846	$21,673	$16,036	$21,101	$20,240	$9,221	$214,678
5	$107,120	$22,381	$22,204	$16,429	$21,624	$20,736	$9,447	$219,940
6	$109,736	$22,928	$22,746	$16,830	$22,157	$21,242	$9,678	$225,317
7	$112,410	$23,486	$23,301	$17,240	$22,702	$21,760	$9,913	$230,813
8	$115,143	$24,057	$23,867	$17,659	$23,260	$22,289	$10,154	$236,430
9	$117,936	$24,641	$24,446	$18,088	$23,829	$22,829	$10,401	$242,170
10	$120,791	$25,237	$25,038	$18,525	$24,411	$23,382	$10,653	$248,036
11	$123,708	$25,847	$25,642	$18,973	$25,006	$23,947	$10,910	$254,032
12	$126,689	$26,470	$26,260	$19,430	$25,614	$24,524	$11,173	$260,160
13	$129,736	$27,106	$26,892	$19,897	$26,235	$25,113	$11,441	$266,422
14	$132,850	$27,757	$27,538	$20,375	$26,870	$25,716	$11,716	$272,822
15	$136,033	$28,422	$28,197	$20,863	$27,519	$26,332	$11,997	$279,363

- Please note that the values shown in the “TOTAL” column match the values in the “Solar PPA Savings” column on Form VI

ECM 4 – Boiler Replacement

Background & Existing Conditions

There are several schools that have existing boiler systems that would benefit from the increased efficiency of new Condensing Boilers. Those schools are as follows:

Brick Memorial High School has (2) existing boiler plants. The main boiler plant has (2) hot water 6300 MBH Weil-McLain cast iron sectional boilers that are original to the building and (2) 20 HP constant volume pumps. A recent boiler efficiency test was not conducted. An existing efficiency of 78% is being used for energy savings.

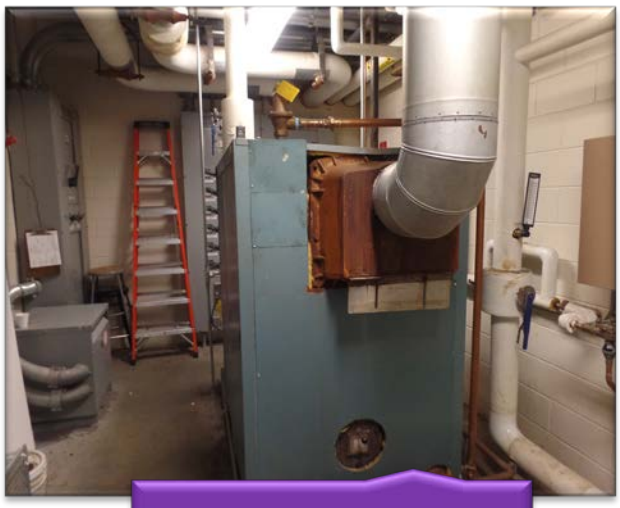
BMHS Main Boilers

BMHS Boiler Label

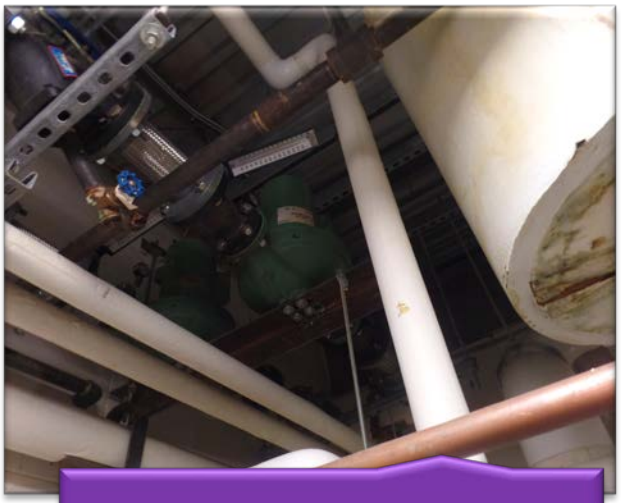
BMHS Main Boiler Plant Pumps

Brick Memorial High School's second boiler plant has (1) 1800 MBH HB Smith model 28A-S7W-6 cast iron sectional boiler and (2) 7.5 HP constant volume pumps. A recent boiler efficiency test was not conducted. An existing efficiency of 78% is being used for energy savings.

BMHS 2nd Boiler Plant



BMHS 2nd Boiler Plant



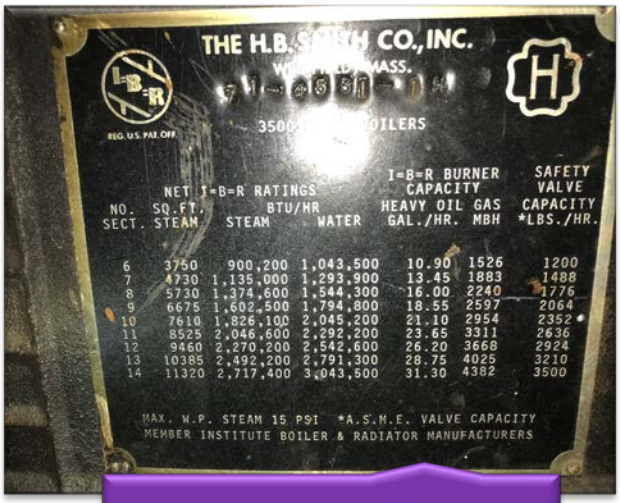
BMHS 2nd Boiler Plant Pumps

Veterans Memorial Middle School has (4) existing boiler plants. The main boiler plant has (2) hot water 2500 MBH HB Smith cast iron sectional boilers and (2) 15 HP constant volume pumps. A recent boiler efficiency test was not conducted. An existing efficiency of 78% is being used for energy savings.

VMMS Main Boilers

VMMS Main Boilers

VMMS Main Boiler Pumps



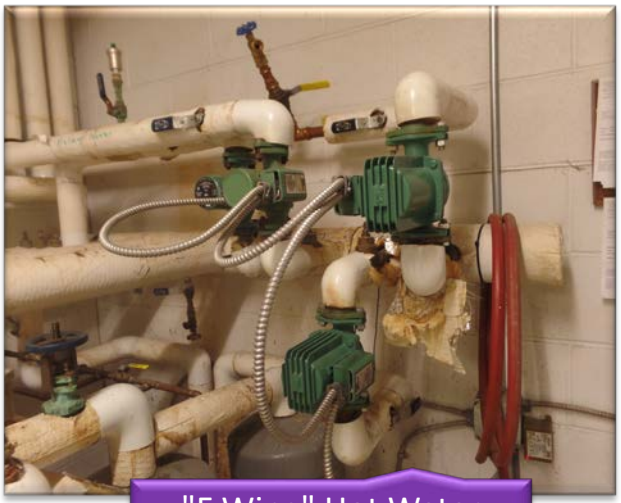
VMMS Main Boilers

Veterans Memorial Middle School “Blue Wing” has a (1) rooftop Hydrotherm hot water boiler. The capacity of the boiler is unknown as the unit label is illegible. DCO Energy sized the boiler using eQuest Energy Modeling Software. A recent boiler efficiency test was not conducted. An existing efficiency of 78% is being used for energy savings.

VMMS Rooftop Boiler

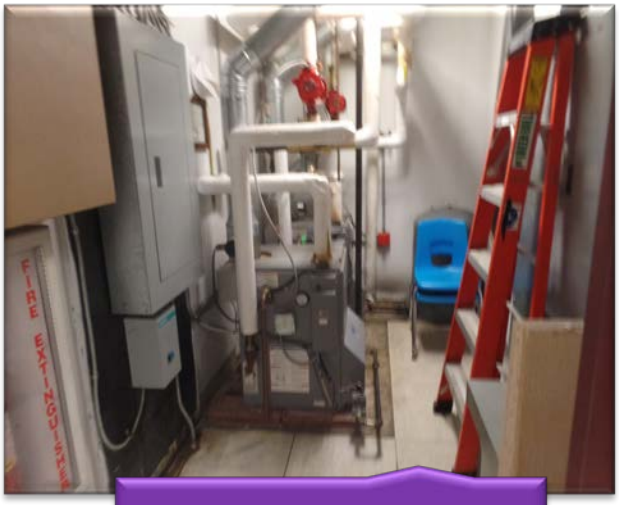
Veterans Memorial Middle School “F Wing” has a (2) 100 MBH Weil McLain hot water boilers and (3) 1 HP constant volume pumps. A recent boiler efficiency test was not conducted. An existing efficiency of 78% is being used for energy savings.

"F Wing" Boilers



"F Wing" Hot Water Pumps

Veterans Memorial Middle School “100 Wing” has a (2) Weil McLain hot water boilers and (2) 3 HP constant volume pumps. A recent boiler efficiency test was not conducted. An existing efficiency of 78% is being used for energy savings.

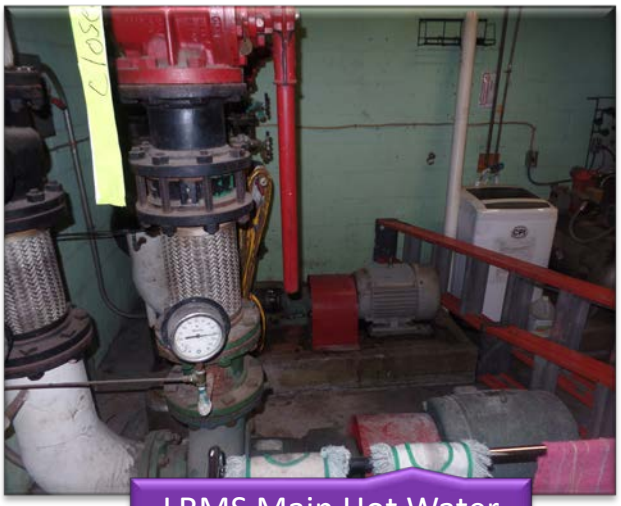


"100 Wing" Boiler

"100 Wing" Boiler

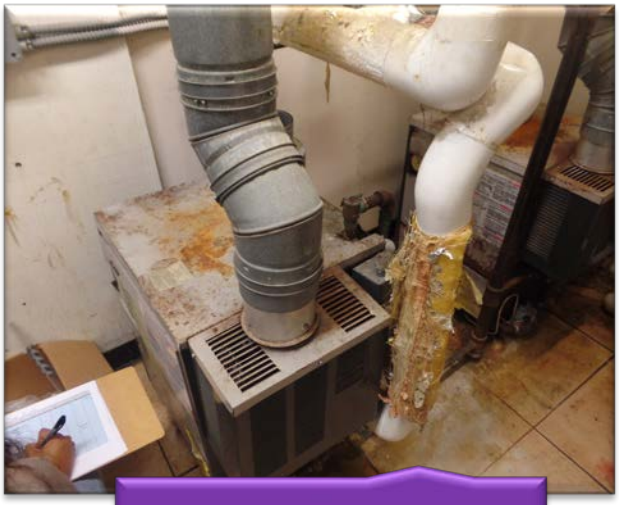
Lake Riviera Middle School has (3) existing boiler plants. The main boiler plant has (2) hot water 1500 MBH Superior fire/tube boilers and (2) 15 HP constant volume pumps. A recent boiler efficiency test was not conducted. An existing efficiency of 70% is being used for energy savings.

LRMS Main Boilers



LRMS Main Hot Water Pumps

Lake Riviera Middle School 2nd Boiler Plant has a (2) 120 MBH Slantfin hot water boilers and (2) 3 HP constant volume pumps. A recent boiler efficiency test was not conducted. An existing efficiency of 78% is being used for energy savings.



LRMS 2nd Boiler Plant

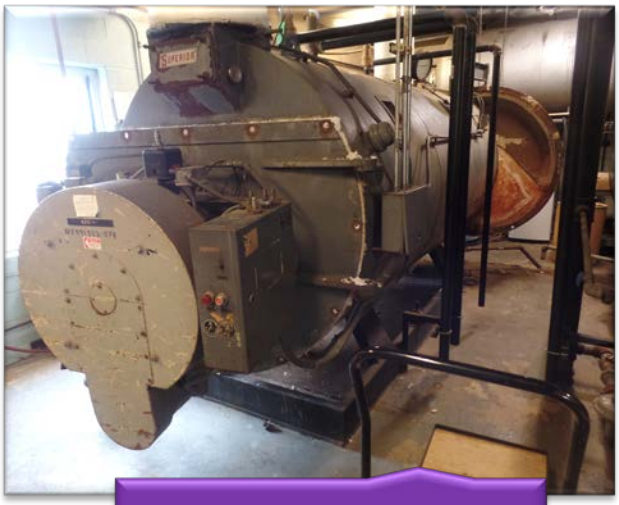
LRMS 2nd Boiler Pumps

Lake Riviera Middle School 3rd Boiler Plant has a (3) 300 MBH MultiTemp hot water boilers and (2) 3 HP constant volume pumps. A recent boiler efficiency test was not conducted. An existing efficiency of 78% is being used for energy savings.

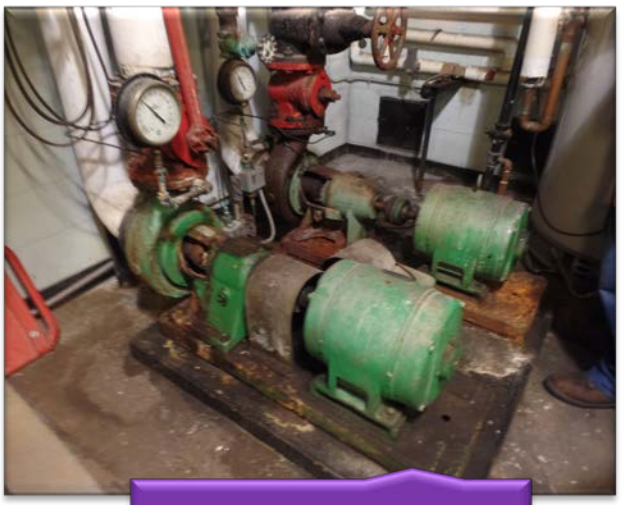
LRMS 3rd Boiler Plant

LRMS 3rd Boiler Pumps

Emma Havens Young Elementary School has (2) hot water 1500 MBH Superior fire/tube boilers and (2) 15 HP constant volume pumps. A recent boiler efficiency test was not conducted. An existing efficiency of 78% is being used for energy savings.



EHYES Boilers



EHYES Hot Water Pumps

Lanes Mill Elementary School has (2) hot water 2600 MBH Superior fire/tube boilers and (2) 7.5 HP constant volume pumps. A recent boiler efficiency test was not conducted. An existing efficiency of 78% is being used for energy savings.

LMES Boilers

LMES Hot Water Pumps

Midstreams Elementary School has (1) hot water 1300 MBH HB Smith cast iron sectional boiler, (1) 1000 MBH HB Smith cast iron sectional boiler and (4) 15 HP constant volume pumps. A recent boiler efficiency test was not conducted. An existing efficiency of 78% is being used for energy savings.

MES Main Boilers


MES Main Boilers

NOTE: Boiler Room will require asbestos abatement

Midstreams Elementary School has a (2) rooftop Hydrotherm hot water boiler. The capacity of the boiler is unknown as the unit label is illegible. DCO Energy sized the boiler using eQuest Energy Modeling Software. A recent boiler efficiency test was not conducted. An existing efficiency of 78% is being used for energy savings.

No Picture Available.

Drum Point Elementary School has (2) hot water 1500 MBH HB Smith cast iron sectional boiler, (1) 1000 MBH Weil McLain cast iron sectional boiler, (2) 10 HP constant volume pumps and (2) 2 HP constant volume pumps. A recent boiler efficiency test was not conducted. An existing efficiency of 78% is being used for energy savings.

DPES Main Boilers

DPES Main Boilers

DPES Main Boilers

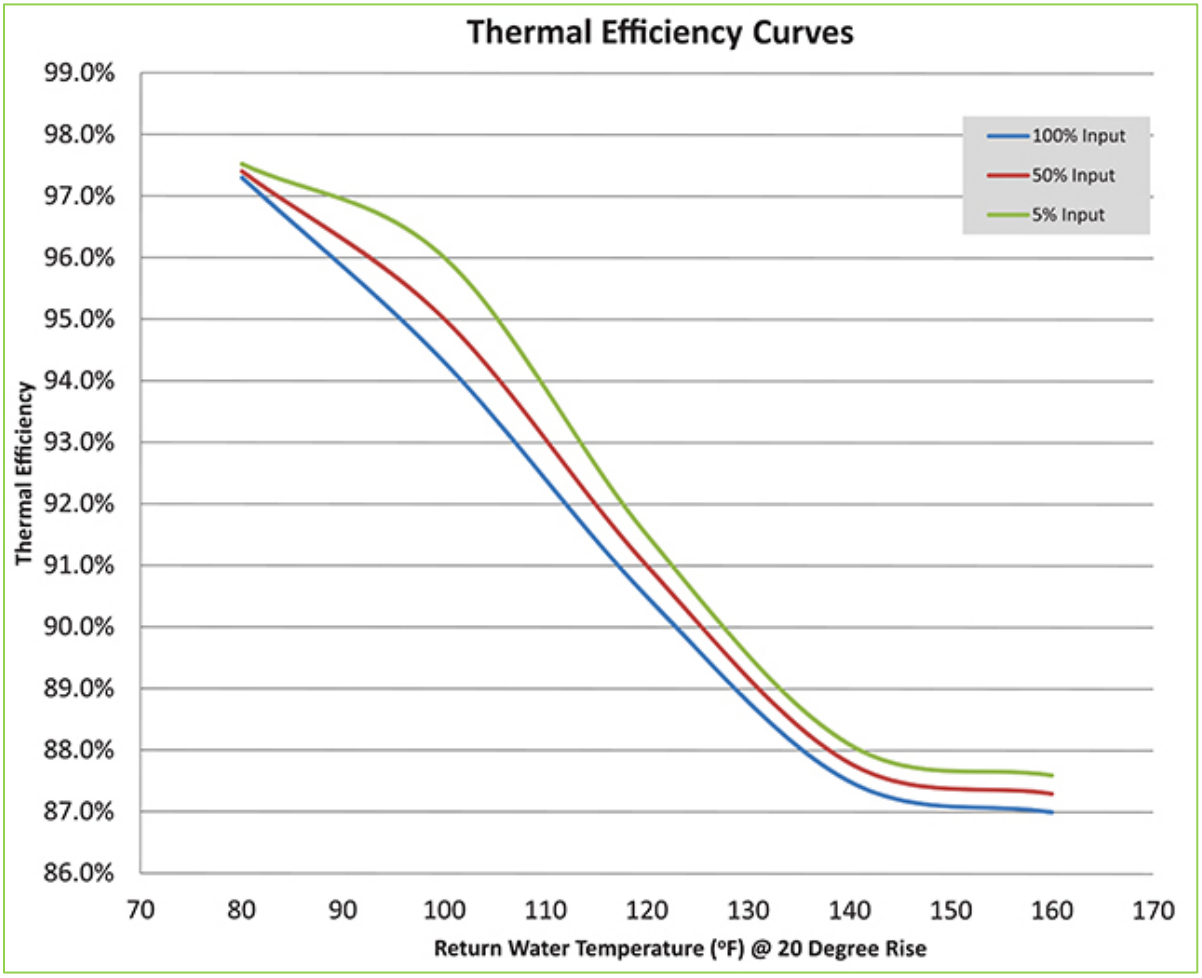
NOTE: Boiler Room will require asbestos abatement

Brick Township Administration Building has (2) hot water Weil McLain cast iron sectional boilers, (2) 10 HP constant volume pumps and (2) 5 HP constant volume pumps. A recent boiler efficiency test was not conducted. An existing efficiency of 78% is being used for energy savings.

Admin Boiler

Admin Boiler

Older boiler systems have efficiencies in the range of 56%–75%. A condensing boiler hot water heating system can achieve efficiencies as high as 97%, converting nearly all of the fuel to useful heat. A new high-efficiency heating system will reduce natural gas consumption and pollution.

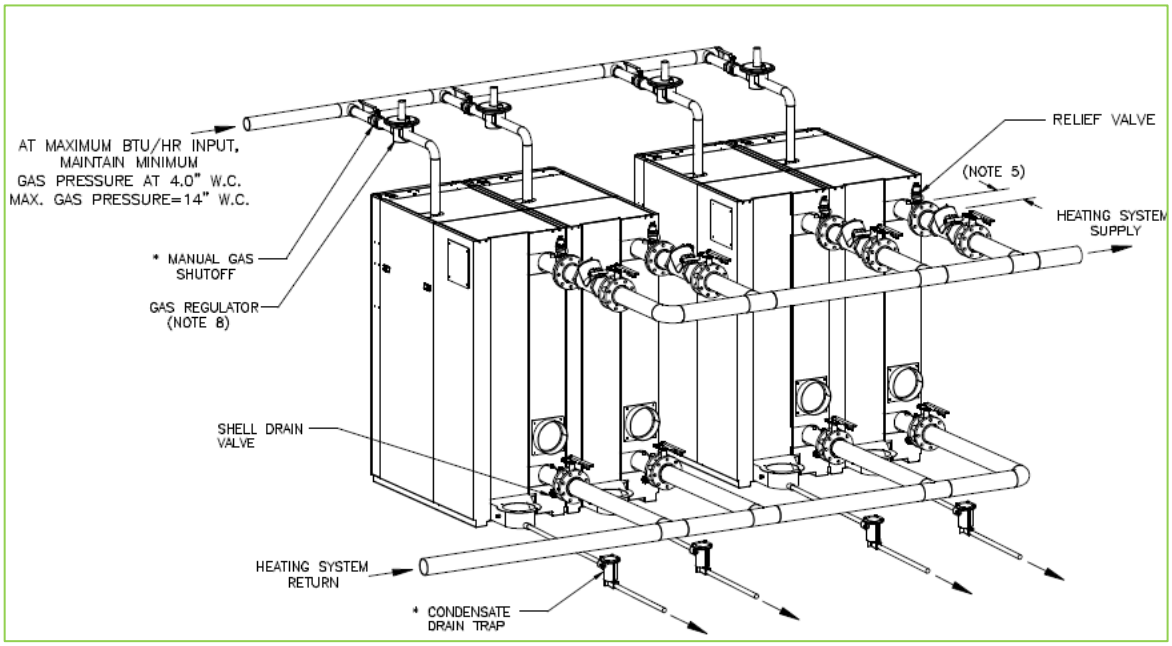


Scope of Work

Replace the existing boilers with condensing boilers capable of efficiencies upwards of 97%. The piping arrangement of the boilers will be Variable Primary with a variable frequency drive to modulate the hot water flow throughout the building.

- Demolish Existing Boiler Plant
  - Remove Asbestos as required
  - Disconnect power at the Boiler
  - Disconnect Natural Gas service at the Boiler
  - Disconnect existing Hot Water Piping
  - Remove existing and responsibly dispose of pumps
  - Remove existing and responsibly dispose of boilers
  - Note:
    - All demolished equipment will become the property of the demolition contractor.

- Furnish and Install new Condensing Boilers
- Furnish and install new concrete housekeeping pads for Boilers
- Install new piping in a Variable/Primary configuration
- Install new pipe, valves, & fittings
- Install insulation on new piping
- Install necessary sensor, wells, and flow meters as required for complete system. Sensors, wells, and flow meters will be provided by the EMS Contractor.
- Install new flue, venting to the side of the building
- Re-use existing louvers and combustion air system and connect to the new boilers.
- Install new VFD System Pumps
- Reconnect existing hot water piping to the new Boiler Plant.
- Installation check, start-up, performance test, & functional testing on the new heating hot water system.
- Note:
    - Cost of new DDC Controls for the Boiler Plant is carried in ECM #2.



ECM Calculations

Lake Riviera Middle School, Veterans Memorial Middle School, Emma Havens Young, Veterans Memorial Elementary, Warren Wolf, Osbornville, Lanes Mill, Midstreams, Drum Point, Herbertsville, and the Administration Building were modeled using eQuest. These buildings were modeled because the Energy Savings Plan evaluated multiple ECMs and modeling would more accurately reflect the energy savings by simulating the interactive effects of those ECMs. The modeled savings produced by eQuest are shown below. The condensing boilers were modeled at 87% efficiency at 160F return water. The default eQuest condensing boiler efficiency curve increases efficiency as return water temperature decreases. The existing buildings have hot water reset – 165F supply at 20F ambient to 135F supply at 55F ambient. A 15:1 turndown ratio was used to limit cycling losses. Constant speed hot water pumps were converted to variable speed. The simulation results from the higher efficiency units are shown below.

Boiler Replacement Savings			
BUILDING	**SQFT**	**kWh SAVINGS**	**THERMS SAVINGS**
Brick Memorial High School	275,846		474
Brick Township High School	216,326		
Veterans Memorial Middle School	134,300	5,700	1,627
Lake Riviera Middle School	129,208	28,214	6,634
Emma Havens Young Elementary School	68,247	12,579	4,012
Veterans Memorial Elementary School	62,739		
Warren H. Wolf Elementary School	57,618		
Osbornville Elementary School	46,743		
Lanes Mill Elementary School	44,883	11,856	2,486
Midstreams Elementary School	43,808	11,750	5,184
Drum Point Elementary School	43,073	876	133
Herbertsville Elementary School & Annex	27,857		
Brick Township Administration Building	29,399	17,501	2,527
Transportation Department & Bus Garage	6,900		
Receiving Warehouse	9,900		
Custodial / Maintenance Building	6,500		

ECM 5 – Unit Ventilator Replacement

ECM WAS EVALUATED BUT WAS NOT INCLUDED IN THE ESIP PROJECT

Background & Existing Conditions

Superior indoor air quality can help ensure a healthier and higher performance learning environment for students and staff, and the choice of ventilation equipment plays a big role in the quality of the indoor air. Proper ventilation with outdoor air is a key component for good indoor air quality in schools and classrooms since indoor air may be two to five times more polluted than outdoor air, and there are large populations of children who may be more susceptible to indoor pollutants than the general population. The high occupant densities of schools and classrooms often makes it challenging for building designers to incorporate ventilation systems that provide adequate outdoor ventilation air (in compliance with the industry's ventilation standard, ASHRAE 62-2013), while providing buildings with good indoor air quality and minimized costs. Increased outdoor air ventilation rates can result in high heating and air-conditioning costs, and may contribute to indoor moisture problems in some geographic locations. Excessive indoor moisture can lead to mold growth, which is often a significant indoor air quality problem. Indoor mold has been identified by the U.S. EPA as one of the major indoor environmental triggers for asthma. High efficiency unit ventilator systems have been identified as equipment which potentially can address technical and financial issues associated with outdoor air ventilation in schools.




Scope of Work

- Coordinate installation time and duration to ensure operations are unaffected
- Remove and properly dispose of existing unit ventilators
- Ensure wall penetration for outdoor air intake is large enough for ventilation compliant with code (may require masonry work and new shelving to accommodate larger louver)
- Install new hot water supply/return piping
- Install new unit ventilators with new hot water modulating valves, hot water coils and DDC controllers per manufacturer's specifications
- Installation test and functional check
- ***The scope of work for Unit Ventilator replacement does not include budget dollars to replace the existing shelving in any of the classrooms.***

ECM Calculations

Lake Riviera Middle School, Veterans Memorial Middle School, Emma Havens Young, Veterans Memorial Elementary, Warren Wolf, Osbornville, Lanes Mill, Midstreams, Drum Point, Herbertsville, and the Administration Building were modeled using eQuest. These buildings were modeled because the Energy Savings Plan evaluated multiple ECMs and modeling would more accurately reflect the energy savings by simulating the interactive effects of those ECMs. The modeled savings produced by eQuest are shown below.

Unit Ventilator Replacement Savings			
BUILDING	**SQFT**	**kWh SAVINGS**	**THERMS SAVINGS**
Brick Memorial High School	275,846		
Brick Township High School	216,326		
Veterans Memorial Middle School	134,300	9,315	(137)
Lake Riviera Middle School	129,208		
Emma Havens Young Elementary School	68,247		
Veterans Memorial Elementary School	62,739	4,569	(87)
Warren H. Wolf Elementary School	57,618		
Osbornville Elementary School	46,743		
Lanes Mill Elementary School	44,883	1,855	(27)
Midstreams Elementary School	43,808	1,742	(22)
Drum Point Elementary School	43,073		
Herbertsville Elementary School & Annex	27,857	1,156	(8)
Brick Township Administration Building	29,399		
Transportation Department & Bus Garage	6,900		
Receiving Warehouse	9,900		
Custodial / Maintenance Building	6,500		

ECM 6 – Eliminate Rooftop Boilers

ECM WAS EVALUATED BUT WAS NOT INCLUDED IN THE ESIP PROJECT

Background & Existing Conditions

Veterans Memorial Middle School, Veterans Memorial Elementary School, Herbertsville Elementary School, and Midstreams Elementary School all contain rooftop boilers that the district would very much like to eliminate in the ESIP project. These units are difficult to maintain and are past their useful life.

Scope of Work

At Veterans Memorial Middle School and Midstreams Elementary School, the cost and savings or eliminating the rooftop boilers are covered in the Boiler Replacement ECM. At each of those schools the new boiler plants will be sized for and extended to the those areas of the building served by the RTU Boilers

At Herbertsville Elementary School and Veterans Memorial Elementary School, the existing boiler plants will be upsized with a new boiler extended to those areas of the building served by the RTU Boilers**.**

ECM Calculations

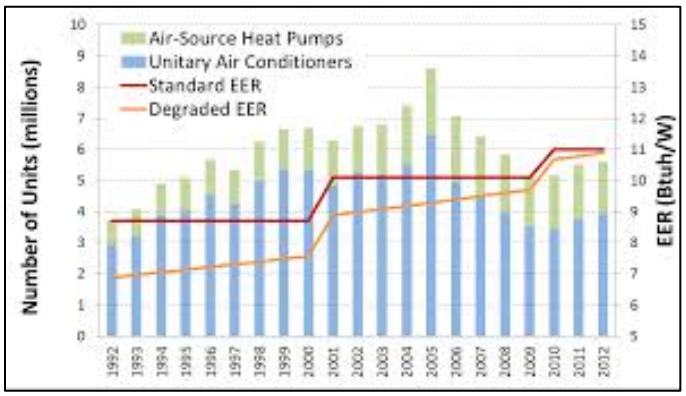
No savings were calculated based on eliminating the rooftop boilers.

DCO Energy Efficiency Division
100 Lenox Drive
Lawrenceville, NJ 08648

ECM 7 – Roof Top Unit Replacement

ECM WAS EVALUATED BUT WAS NOT INCLUDED IN THE ESIP PROJECT

Background & Existing Conditions



Many commercial buildings are operating with older and inefficient HVAC systems. The average life expectancy of commercial HVAC RTU equipment is 10 to 15 years—which means that many commercial buildings are ready for new natural gas rooftop units. Technology improvements and demand have led to greater energy efficiency and more choices in systems. Installing new, higher efficiency units will provide energy savings as well as deliver enhanced technology and controls of the RTUs when compared to the existing units.

Scope of Work

Install new packaged rooftop units.

- Conduct through structural integrity if roof or dunnage mounted equipment
- Conduct integrity test of pad mounted equipment
- Repair or replace structural system for new roof mounted equipment
- Coordinate installation time and duration to ensure operations are unaffected
- Develop site crane plan for all lifts required
- Set adapter curbs (if required)
- Lift (or set) new RTUs into place
- Ensure any flashing is properly sealed to roof structure
- Connect new ductwork transitions
- Connect electrical system to new HVAC
- Provide new DDC controls for HVAC system
- Start-up of HVAC of equipment by manufacturer
- Provide efficiency test of new system
- Test and commission new HVAC system

ECM 8 – Air Handling Unit Replacement

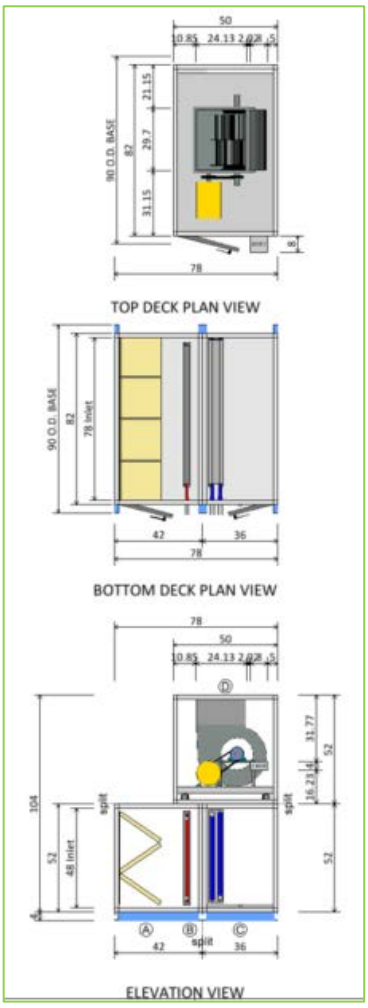
ECM WAS EVALUATED BUT WAS NOT INCLUDED IN THE ESIP PROJECT

Background & Existing Conditions

The (5) Air Handling Units at Veterans Memorial Elementary School have hot water heating and DX Cooling. They are past their useful life and the district would benefit from the installation of new units. New Air Handling Units would have variable speed fans for single zone VAV operation and would have high efficiency DX cooling.

Scope of Work

- Demolish existing (5) Air Handling Units
  - Disconnect power
  - Disconnect existing hot water piping
  - Disconnect existing chilled water piping
  - Disconnect existing supply and outside air ductwork
  - Remove existing Exhaust Fans and associated ductwork
  - Remove existing control panels and control accessories
- Furnish and Install (5) new Air Handling Units to replace the existing units. In general, new Air Handling Units to have the following:
  - Mixing Box
  - Filter
  - Hot Water Heating Coil
  - DX Cooling Coil
  - Supply Fan
- Reconnect existing supply ductwork to the new units
- Connect existing return and exhaust ductwork to new units
- Reconnect existing hot water piping and chilled water to the new units
- Note:
  - Cost of new DDC Controls for each AHU is carried in ECM #2



ECM 9 – Roof Renovations

ECM WAS EVALUATED BUT WAS NOT INCLUDED IN THE ESIP PROJECT

Background & Existing Conditions

It is important that any rooftop Solar project being installed in the district be constructed on roofing systems with warranties that meet or exceed the length of the Power Purchase Agreements. This ECM will provide all necessary roofing renovations needed to extend the roof warranties beyond 15 years.

All roofing systems require regularly scheduled inspections and preventive maintenance at least twice per year, preferably in the spring and fall. Without routine inspections, what may seem to be minor roofing issues can lead to expensive, time-consuming repairs from damage or water infiltration that can accelerate the aging and deterioration of a roofing system. In turn, this can ultimately lead to a need to replace the roofing system prematurely. Renovation has a number of other benefits.

It is much less expensive than replacing a roof with a comparable one, and represents an excellent value by protecting an existing investment. There is little disruption to those using the building, since little or no roof membrane is removed; furthermore, using low odor cold process restoration eliminates noxious fumes (and the risk of fire) and alleviates building occupants' health concerns related to roof work. The renovation process can often be repeated, truly maximizing the roof's life. Reusing the existing roof saves tear-off and disposal costs, as well as being environmentally responsible.

Scope of Work

Repair each of the roofs as required in order to provide 15 years of warranty for each of those roofs. The following scope of work was provided by Tremco based on their detailed survey of each roof in conjunction with the location of the proposed solar panel arrays.

Brick Township High School

Roof Area 4 – 31,000 Sq Ft – Recent renovations just completed. No renovation required
Roof Area 4A – 3,100 Sq Ft
Roof Area 6 – 9,500 Sq Ft – Recent renovations just completed. No renovation required
Roof Area 11 – 6,200 Sq Ft
Roof Area 12 – 14,500 Sq Ft
Roof Area 14 – 27,500 Sq Ft
Roof Area 20 – 9,700 Sq Ft
Approximately 61,000 Sq Ft to Be Renovated.

Osbornville Elementary School

Roof Area 2 – 8,100 Sq Ft
Roof Area 3 – 6,500 Sq Ft
Roof Area 5 & 7 – 5,400 Sq Ft
Roof Area 11 – 3,700 Sq Ft
Approximately 23,700 Sq Ft to Be Renovated.

Lanes Mill Elementary School

Roof Area A – 31,000 – Recent renovations just completed. No renovation required

Warren H Wolf School

Roof Area 3 – Recent renovations just completed. No renovation required

Drum Point Elementary School

Roof Area B – 30,000 – Recent renovations just completed. No renovation required

Herbertsville Elementary School

Roof Area B –4,150 Sq Ft
Roof Area D –10,500 Sq Ft – Recent renovations just completed. No renovation required
Roof Area F – 3,200 Sq Ft – Recent renovations just completed. No renovation required
Roof Area H – 3,400 Sq Ft

EPDM Roof Area – 6,100 Sq Ft – Recent renovations just completed. No renovation required
Garage Roof Area – 1,700 Sq Ft

Approximately 9,250 Sq Ft to Be Renovated.

Transportation Building

Roof Area A – 6,150 Sq Ft to be coated with Alphaguard MTS coating.

Approximately 6,150 Sq Ft to Be Renovated.

Energy Savings Calculations

No savings has been applied to the roof renovations.

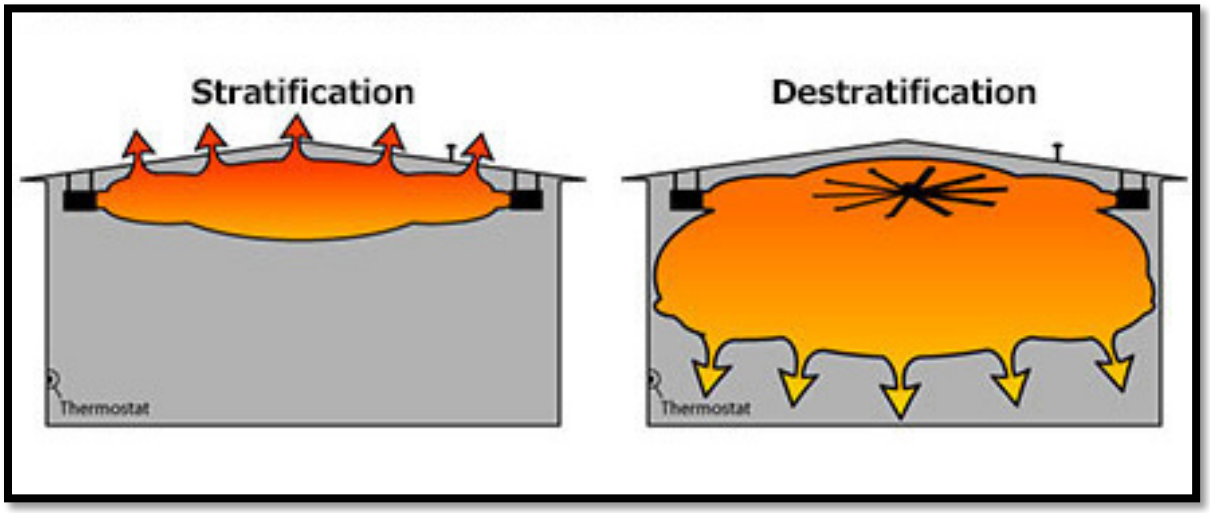
ECM 10 – Destratification Fans

ECM WAS EVALUATED BUT WAS NOT INCLUDED IN THE ESIP PROJECT

Background & Existing Conditions

Large indoor spaces with high ceilings such as a gymnasium are prone to a condition called stratification. Stratification is a common property of air to separate due to temperature difference. Typically, a layer of warm air will sit on top of a layer of cold air. The lower cold air causes discomfort for occupants of the space as well as increased energy usage of air handling systems to overcome this condition. Destratification fans provide the turbulence in the space necessary for warm and cold air to mix. The result is a blended comfortable air temperature with less usage of the rooms HVAC systems.

A destratification fan can efficiently heat large spaces by slowly moving large volumes of warm air off the ceiling without creating a draft. The steady mixing of air creates a uniform temperature throughout the space, which helps the HVAC maintain the same thermostat setpoint with less effort, resulting in energy savings.



ECM Calculations

Destratification Fan Savings									
BUILDING	SQFT	Area	Space SQFT	HVAC % of Building Gas Use	Estimated Space Heating (Therm)	HVAC Heating % of Building Electric Use (kWh)	HVAC Fan % of Building Electric Use	Estimated Space Fan Use (kWh)	Ceiling Height (ft)
Brick Memorial High School	275,846	Gym 1	6,000	95%	3,860	0%	15%	0	26
Brick Memorial High School	275,846			0%	0	0%	15%	0	26
Brick Memorial High School	275,846			0%	0	0%		0	
Brick Township High School	216,326	Gym 1	6,000	95%	5,505	0%	15%	0	26
Brick Township High School	216,326								
Brick Township High School	216,326								
Veterans Memorial Middle School	134,300	Gym 1	3,000	95%	2,953	0%	15%	0	26
Veterans Memorial Middle School	134,300								
Veterans Memorial Middle School	134,300								
Lake Riviera Middle School	129,208	Gym 1	3,000	95%	1,892	0%	15%	0	26
Lake Riviera Middle School	129,208								
Lake Riviera Middle School	129,208								
Emma Havens Young Elementary School	68,247	Gym 1	2,000	95%	2,325	0%	15%	0	26
Emma Havens Young Elementary School	68,247								
Emma Havens Young Elementary School	68,247								
Veterans Memorial Elementary School	62,739	Gym 1	3,000	95%	4,532	0%	15%	0	26
Veterans Memorial Elementary School	62,739								
Veterans Memorial Elementary School	62,739								
Warren H. Wolf Elementary School	57,618	Gym 1	6,000	95%	4,468	0%	15%	0	26
Warren H. Wolf Elementary School	57,618								
Warren H. Wolf Elementary School	57,618								
Osbornville Elementary School	46,743	Gym 1	3,000	95%	2,843	0%	15%	0	26
Osbornville Elementary School	46,743								
Osbornville Elementary School	46,743								
Lanes Mill Elementary School	44,883	Gym 1	3,000	95%	3,389	0%	15%	0	26
Lanes Mill Elementary School	44,883								
Lanes Mill Elementary School	44,883								
Midstreams Elementary School	43,808	Gym 1	3,000	95%	4,066	0%	15%	0	26
Midstreams Elementary School	43,808								
Midstreams Elementary School	43,808								
Drum Point Elementary School	43,073	Gym 1	3,000	95%	5,087	0%	15%	0	26
Drum Point Elementary School	43,073								
Drum Point Elementary School	43,073								
Herbertsville Elementary School & Annex	27,857	Gym 1	6,000	95%	7,983	0%	15%	0	26
Herbertsville Elementary School & Annex	27,857								
Herbertsville Elementary School & Annex	27,857								

Destratification Fan Savings									
BUILDING	SQFT	Floor to Ceiling deltaT (F)	HVAC Energy Savings (%)	Total DeStrat Fans (#)	DeStrat Fan Power (W)	DeStrat Fan Run Hours (hrs)	DeStrat Fan Energy (kWh)	Energy Savings (kWh)	Energy Savings (Therm)
Brick Memorial High School	275,846	14.4	23.3%	6	30	4,380	788	(788)	899
Brick Memorial High School	275,846	14.4	23.3%				0	0	0
Brick Memorial High School	275,846	14.4	23.3%				0	0	0
Brick Township High School	216,326	14.4	23.3%	6	30	4,380	788	(788)	1,283
Brick Township High School	216,326								
Brick Township High School	216,326								
Veterans Memorial Middle School	134,300	14.4	23.3%	6	30	4,380	788	(788)	688
Veterans Memorial Middle School	134,300								
Veterans Memorial Middle School	134,300								
Lake Riviera Middle School	129,208	14.4	23.3%	6	30	4,380	788	(788)	441
Lake Riviera Middle School	129,208	14.4	23.3%						
Lake Riviera Middle School	129,208	14.4	23.3%						
Emma Havens Young Elementary School	68,247	14.4	23.3%	2	30	4,380	263	(263)	542
Emma Havens Young Elementary School	68,247	14.4	23.3%						
Emma Havens Young Elementary School	68,247	14.4	23.3%						
Veterans Memorial Elementary School	62,739	14.4	23.3%	3	30	4,380	394	(394)	1,056
Veterans Memorial Elementary School	62,739	14.4	23.3%						
Veterans Memorial Elementary School	62,739	14.4	23.3%						
Warren H. Wolf Elementary School	57,618	14.4	23.3%	3	30	4,380	394	(394)	1,041
Warren H. Wolf Elementary School	57,618	14.4	23.3%						
Warren H. Wolf Elementary School	57,618	14.4	23.3%						
Osbornville Elementary School	46,743	14.4	23.3%	3	30	4,380	394	(394)	663
Osbornville Elementary School	46,743	14.4	23.3%						
Osbornville Elementary School	46,743	14.4	23.3%						
Lanes Mill Elementary School	44,883	14.4	23.3%	3	30	4,380	394	(394)	790
Lanes Mill Elementary School	44,883	14.4	23.3%						
Lanes Mill Elementary School	44,883	14.4	23.3%						
Midstreams Elementary School	43,808	14.4	23.3%	3	30	4,380	394	(394)	947
Midstreams Elementary School	43,808	14.4	23.3%						
Midstreams Elementary School	43,808	14.4	23.3%						
Drum Point Elementary School	43,073	14.4	23.3%	3	30	4,380	394	(394)	1,185
Drum Point Elementary School	43,073	14.4	23.3%						
Drum Point Elementary School	43,073	14.4	23.3%						
Herbertsville Elementary School & Annex	27,857	14.4	23.3%	3	30	4,380	394	(394)	1,860
Herbertsville Elementary School & Annex	27,857	14.4	23.3%						
Herbertsville Elementary School & Annex	27,857	14.4	23.3%						

ECM 11 – High Efficiency Transformers

ECM WAS EVALUATED BUT WAS NOT INCLUDED IN THE ESIP PROJECT

Background & Existing Conditions

High efficiency transformers are designed to improve power quality and reduce electricity waste. Optimized for lowest life cycle cost, the high efficiency transformer reduces waste by as much as 74% while treating power system harmonics in the electrical current that can disrupt equipment operation. They also enhance equipment reliability; lower operating costs and facilitate compliance with IEEE-519 in commercial and industrial facilities.

Quiet operation is ensured through the combination of imbedded structural and acoustic treatments. High efficiency transformers generate lower losses, they reduce power drawn from generating stations resulting in less smog and lower greenhouse gas emissions.

Brick Township School District will realize energy savings and increased reliability from the installation of new, high efficiency transformers. Benefits include:

- Exceeds NEMA TP 1-2002 and CSA C802.2-12 efficiency requirements
- Exceeds NEMA Premium® Efficiency Transformer Program qualification requirements
- Exceeds pre-2016 [10 CFR §431.196 (a)(1)] and post- Jan 1, 2016 [10 CFR §431.196 (a)(2)] U.S. DOE efficiency legislation
- Meets or exceeds previously proposed U.S. DOE efficiency legislation including Candidate Standard Level / Trial Standard Level (CSL/TSL) 3 or 4 efficiencies
- Ultra-low Excitation (no-load) Losses provide high efficiency during periods of light-loading (<15% FL)
- Significantly lower Impedance (load) Losses provide high efficiency, and reduce temperature rise and A/C loading during periods of heavier loading (>15% FL)
- Peak efficiency can be matched to anticipated or measured average

ECM Calculations

Estimated baseline efficiency was assumed to be 3% less than NEMA TP1 2002 rating. This is conservative given the age and loading of the existing transformers. The new, harmonic mitigating transformers are designed to perform at low load conditions. Additional, uncalculated savings will result from improving the power factor at the buildings.

High Efficiency Transformer Savings

BUILDING	TRANSFORMER SIZE (kVA)	QUANTITY	EXISTING EFFICIENCY	NEW EFFICIENCY	kWh SAVINGS PER XFMR	ELECTRIC SAVINGS (kWh)	TOTAL ELECTRIC SAVINGS (kWh)
Brick Memorial High School	15	4	94.0%	97.97%	3,130	12,520	259,910
	30	3	94.5%	98.29%	5,924	17,772	
	45	2	94.7%	98.45%	8,757	17,514	
	75	1	95.0%	98.64%	14,091	14,091	
	113	0	95.0%	98.64%	14,091	0	
	225	1	95.5%	98.97%	39,937	39,937	
	300	0	95.6%	99.04%	39,937	0	
	1,000	2	95.6%	99.04%	52,692	105,384	
	1,500	1	95.6%	99.04%	52,692	52,692	
Brick Township High School	15	0	94.0%	97.97%	3,130	0	108,056
	30	0	94.5%	98.29%	5,924	0	
	45	0	94.7%	98.45%	8,757	0	
	75	1	95.0%	98.64%	14,091	14,091	
	113	1	95.0%	98.64%	14,091	14,091	
	225	1	95.5%	98.97%	39,937	39,937	
	300	1	95.6%	99.04%	39,937	39,937	
	1,000	0	95.6%	99.04%	52,692	0	
	1,500	0	95.6%	99.04%	52,692	0	
Veterans Memorial Middle School	15	0	94.0%	97.97%	3,130	0	109,422
	30	6	94.5%	98.29%	5,924	35,544	
	45	2	94.7%	98.45%	8,757	17,514	
	75	2	95.0%	98.64%	14,091	28,182	
	113	2	95.0%	98.64%	14,091	28,182	
	225	0	95.5%	98.97%	39,937	0	
	300	0	95.6%	99.04%	39,937	0	
	1,000	0	95.6%	99.04%	52,692	0	
	1,500	0	95.6%	99.04%	52,692	0	
Veterans Memorial Elementary School	15	1	94.0%	97.97%	3,130	3,130	58,431
	30	4	94.5%	98.29%	5,924	23,696	
	45	2	94.7%	98.45%	8,757	17,514	
	75	1	95.0%	98.64%	14,091	14,091	
	113	0	95.0%	98.64%	14,091	0	
	225	0	95.5%	98.97%	39,937	0	
	300	0	95.6%	99.04%	39,937	0	
	1,000	0	95.6%	99.04%	52,692	0	
	1,500	0	95.6%	99.04%	52,692	0	

Required vs. PQI Energy Efficiencies [1]

kVA Rating	NEMA TP 1 2002 [2] CSA C802.2	NEMA Premium [2]	DOE 2016 [3]	PQI Z3 exceeds CSL 3 [4]	PQI Z3+	PQI Z4 exceeds CSL 4 [4]
15	97.00	97.90	97.89	97.97	98.25	98.43
30	97.50	98.25	98.23	98.29	98.52	98.68
45	97.70	98.39	98.40	98.45	98.66	98.81
75	98.00	98.60	98.60	98.64	98.82	98.95
112.5	98.20	98.74	98.74	98.77	98.93	99.05
150	98.30	98.81	98.83	98.86	99.01	99.12
225	98.50	98.95	98.94	98.97	99.10	99.20
300	98.60	99.02	99.02	99.04	99.16	99.26
500	98.70	99.09	99.14	99.16	99.26	99.35
750	98.80	99.16	99.23	99.24	99.33	99.41
1000	98.90	99.23	99.28	99.29	99.38	99.45

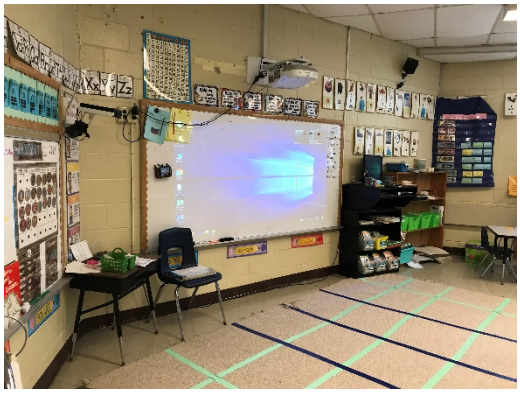
Notes:
[1] Efficiency values are measured at 35% of nameplate rating.
[2] The efficiency of transformers manufactured after January 1, 2007, but before January 1, 2016 must meet the efficiency requirements of NEMA TP 1-2002 (US) or CSA C802.2-12 (Canada).
[3] The efficiency of transformers manufactured after January 1, 2016 must meet the US DOE 2016 efficiency requirements.
[4] PQI Z3 & Z4 efficiencies exceed the requirements of DOE Candidate Standard Level 3 & 4 (CSL 3 & CSL 4) respectively.

ECM 12 – Plug Load Controllers

Background & Existing Conditions

Plug load controllers are smart devices communicating on a wireless network that can be controlled via any web-enabled device. The system allows scheduling of individual, groups, or all pug load controllers to eliminate unnecessary energy use.

Office spaces having numerous copier/printers with standard operating hours are ideal locations for plug controllers. For example, consider an office building that is open weekdays from 7 am to 6 pm and closed on the weekends. A plug load management system can automatically shut off power to devices like computer monitors, printers and vending machines when the office building is not open, reducing energy use by over 60%.



Scope of Work

- Plug load controllers will be installed on viable electronic equipment.
- Connect plug load controllers via the existing WiFi network in each school

ECM Calculations

Plug Load Controllers Savings									
BUILDING	SQFT	DESCRIPTION	QUANTITY	ENERGY (WATTS)	BASELINE HOURS "ON"	SCHEDULED HOURS "ON"	ANNUAL HOURS SAVINGS	kWh SAVINGS	TOTAL SAVINGS (kWh)
Brick Memorial High School	275,846	Copy Machines	7	40	8,760	2,400	6,360	1,781	6,932
		Printers	42	15	8,760	2,400	6,360	4,007	
		TVs	3	60	8,760	2,400	6,360	1,145	
Brick Township High School	216,326	Copy Machines	13	40	8,760	2,400	6,360	3,307	5,597
		Printers	24	15	8,760	2,400	6,360	2,290	
		TVs	0	60	8,760	2,400	6,360	0	
Veterans Memorial Middle School	134,300	Copy Machines	7	40	8,760	2,400	6,360	1,781	6,932
		Printers	14	15	8,760	2,400	6,360	1,336	
		TVs	10	60	8,760	2,400	6,360	3,816	
Lake Riviera Middle School	129,208	Copy Machines	5	40	8,760	2,400	6,360	1,272	3,562
		Printers	12	15	8,760	2,400	6,360	1,145	
		TVs	3	60	8,760	2,400	6,360	1,145	
Emma Havens Young Elementary School	68,247	Copy Machines	3	40	8,760	2,400	6,360	763	1,336
		Printers	6	15	8,760	2,400	6,360	572	
		TVs	0	60	8,760	2,400	6,360	0	
Veterans Memorial Elementary School	62,739	Copy Machines	3	40	8,760	2,400	6,360	763	1,526
		Printers	8	15	8,760	2,400	6,360	763	
		TVs	0	60	8,760	2,400	6,360	0	
Warren H. Wolf Elementary School	57,618	Copy Machines	2	40	8,760	2,400	6,360	509	700
		Printers	2	15	8,760	2,400	6,360	191	
		TVs	0	60	8,760	2,400	6,360	0	
Osbornville Elementary School	46,743	Copy Machines	2	40	8,760	2,400	6,360	509	986
		Printers	5	15	8,760	2,400	6,360	477	
		TVs	0	60	8,760	2,400	6,360	0	
Lanes Mill Elementary School	44,883	Copy Machines	2	40	8,760	2,400	6,360	509	986
		Printers	5	15	8,760	2,400	6,360	477	
		TVs	0	60	8,760	2,400	6,360	0	
Midstreams Elementary School	43,808	Copy Machines	4	40	8,760	2,400	6,360	1,018	3,593
		Printers	7	15	8,760	2,400	6,360	668	
		TVs	5	60	8,760	2,400	6,360	1,908	
Drum Point Elementary School	43,073	Copy Machines	2	40	8,760	2,400	6,360	509	1,177
		Printers	7	15	8,760	2,400	6,360	668	
		TVs	0	60	8,760	2,400	6,360	0	
Herbertsville Elementary School & Annex	27,857	Copy Machines	4	40	8,760	2,400	6,360	1,018	1,495
		Printers	5	15	8,760	2,400	6,360	477	
		TVs	0	60	8,760	2,400	6,360	0	
Brick Township Administration Building	29,399	Copy Machines	6	40	8,760	2,400	6,360	1,526	2,480
		Printers	10	15	8,760	2,400	6,360	954	
		TVs	0	60	8,760	2,400	6,360	0	

ECM 13 – Cooling Tower Replacement

ECM WAS EVALUATED BUT WAS NOT INCLUDED IN THE ESIP PROJECT

Background & Existing Conditions

High Density Polyethylene (HDPE) is the optimum material for cooling tower construction. The material is molded into a totally seamless shell, which will never leak, unlike conventional cooling towers which require many panels, joints, seams, seam gaskets, caulking and hundreds of bolts or other fasteners to maintain the integrity of the product. A HDPE structural shell will never rust, chip, crack or ever need painting or further protective coatings. The structural shell is warranted for 15 years which is much longer than other available cooling towers.

The existing cooling tower at Brick memorial high school was observed to have water leakage, algae growth and is also constant volume fan speed.

Existing Cooling Tower at Brick Memorial High School

Scope of Work

Install HDPE, induced draft, open cell tower at Brick Memorial High School with VFD Fan Operation

- Demolition of existing equipment
- Examine and adequately size exhaust systems
- Install new cooling tower based upon reexamined cooling load
- Install all necessary piping, valves, electrical and control wiring
- ATC connection to the existing building management system (BMS)

ECM 14 – Combined Heat & Power

Background & Existing Conditions

CHP offers energy and environmental benefits over electric-only and thermal-only systems in both central and distributed power generation applications. CHP systems have the potential for a wide range of applications and the higher efficiencies result in lower emissions than separate heat and power generation.

The simultaneous production of useful thermal and electrical energy in CHP systems lead to increased fuel efficiency. CHP units can be strategically located at the point of energy use. Such onsite generation avoids the transmission and distribution losses associated with electricity purchased via the grid from central stations. CHP is versatile and can be coupled with existing and planned technologies for many different applications in the industrial, commercial, and residential sectors.

The Cogeneration unit will act as the first stage of boiler to be activated upon a call for heat. In addition to providing hot water for heating the school it also generates electricity for operating efficiencies up to 82%. The cogeneration unit can also be used for load curtailment in the summer for additional revenue through the demand response program.

Scope of Work

- Furnish and Install a new 35 kW CHP at Brick Township High School
  - Radiator
  - Heat Exchanger
  - System Pumps
  - Electric Submeter
  - Ethylene Glycol System (CHP Loop ONLY)
- Both CHP units will be connected to specific circuits within the building to provide multiple points of resiliency within the facility.
- Connect Gas Service to the new CHP Unit
- Install Power Wiring from the new CHP to the location show on right.
- Furnish and install new concrete housekeeping pads
- Install new piping and connect to the heating hot water system
- Install insulation on new piping
- Install necessary sensor, wells, and flow meters as required for complete system. Sensors, wells, and flow meters will be provided by the EMS Contractor.
- Install new CHP System Pumps
- Installation check, start-up, performance test, & functional testing on the new 10 kW CHP System

- Tie into emergency generator to shut down the CHP in the case that the emergency generator runs.

ECM Calculations

Equivalent Full Road Hours were calculated based on the amount of hours the CHP would operate when the Temperature outside is below 55 degrees.

CHP Proposed System		
Manufacturer	Aegis	
Model		
Fuel	Natural Gas	
Generator Type	Gas Internal Combustion Engine	
Gross Power Output	35.0	kW
Net Power Output	34.6	kW
Quantity	1	
Engine Electrical Efficiency (LHV)	31.5%	
Availability	35%	
Annual Full Load Run Hours	3,066	hrs
Parasitic Load	1%	
Fuel Input (LHV)	107.5	MBH
Fuel Input (HHV)	119.1	MBH
Exhaust Heat Recovery	53.5%	
Engine Jacket Heat Recovery	0.0%	
Thermal Efficiency	53.5%	
Total Heat Recovery (LHV)	57.3	MBH
Nameplate Efficiency	85.0%	
Overall Annual Efficiency (HHV)	147.3%	
Maintenance Cost	$0.000	$/kWh

CHP Calculations

Building Loads	Annual Total	Monthly Average	
Peak Power Demand	698		
Average Monthly Peak Power Demand	0	526	kW
Power Usage	1,987,752	165,646	kWh
Load Factor		44%	
On-Site CHP			
Gas Input (HHV)	3,651	304	Therm
Total Power Provided	106,114	8,843	kWh
Total HR Available (LHV)	176	15	MMBTU
Heat Recovery Utilized by Heating Load		100%	
HW Displaced by CHP	176	15	MMBTU
Heat Recovery Utilized by DHW Load		0%	
DHW Displaced by CHP	0	0	MMBTU
CHP Natural Gas Cost	$3,449	$287	
CHP Maintenance Cost	$0	$0	
Existing Boiler Efficiency	85%		
Proposed Boiler Efficiency	87%		
Existing DHW Steam HX Efficiency	N/A		
Remaining Load			
Percent Steam Load Offset by Boiler			
Boiler Savings	2,027		Therm
Proposed Boiler Gas Use	0		Therm
Total HTHW Savings			Therm
HTHW Cost Savings	$0		
Boiler Natural Gas Savings	$1,915		
Electrical Energy Savings	$12,784		
Electrical Demand Savings	$2,230		
Total Electrical Savings	$15,014		

ECM 15 - Chiller Replacement

ECM WAS EVALUATED BUT WAS NOT INCLUDED IN THE ESIP PROJECT

Background & Existing Conditions

The existing air cooled chiller at Brick Memorial High School is a Trane Model RTAC170 with a rated capacity of 170 tons an estimated efficiency of 1.25 kW/ton. This chiller is approaching the end of its useful life and replacing/servicing the unit has become expensive and problematic for the district.

Scope of Work

- Demolish existing Air Cooled Chiller serving Middle School North and Middle School South
  - Disconnect power at the Chiller
  - Disconnect existing Water Piping
  - Reclaim and responsibly dispose of existing refrigerant
  - Remove existing and responsibly dispose of Chillers
  - Remove existing and responsibly dispose of CHW Pumps
  - Note:
    - Demolished equipment will become the property of the demolition contractor.
- Furnish and Install new Air Cooled Chiller
  - New chillers will be resized to provide the proper amount of cooling for the building
  - Charge new chiller with refrigerant
  - Install new pipe, valves, & fittings
  - Install insulation on new piping
  - Install necessary sensor, wells, and flow meters as required for complete system. Sensors, wells, and flow meters will be provided by the EMS Contractor.
  - Install new VFD System Pumps
  - Reconnect existing chilled water piping to the new Chiller
  - Installation check, start-up, performance test, & functional testing on the chilled water system
- Note:
  - Cost of new DDC Controls for the Chiller Plant is carried in ECM #2.

ECM Calculations

Energy Savings from the installation of new Air Cooled Chillers were calculated using BPU Protocols.

Electric Chillers

The measurement of energy and demand savings for C&I Chillers program is based on algorithms with key variables (i.e., kW/ton, Coincidence Factor, Equivalent Full Load Hours) measured through existing end-use metering of a sample of facilities.

Algorithms

For IPLV:

Demand Savings = Tons PDC X $(IPLV_b - IPLV_q)$

Energy Savings = Tons X EFLH X $(IPLV_b - IPLV_q)$

For FLV:

Demand Savings = Tons PDC X $(FLV_b - FLV_q)$

Energy Savings = Tons X EFLH X $(FLV_b - FLV_q)$

Definition of Variables

Tons = Rated equipment cooling capacity

EFLH = Equivalent Full Load Hours – This represents a measure of chiller use by season determined by measured kWh during the period divided by kW at design conditions from JCP&L measurement data.

PDC = Peak Duty Cycle: fraction of time the compressor runs during peak hours

$IPLV_b$ = Integrated Part Load Value of baseline equipment, kW/Ton. The efficiency of the chiller under partial-load conditions.

Component	Type	Situation	Value	Source
$IPLV_b$ (kW/ton)	Fixed	Air Cooled with Condenser (All)	1.153	ASHRAE 90.1-2007
		Air Cooled w/o Condenser (All)	1.019	
		Water Cooled, reciprocating	0.696	ASHRAE 90.1-2007
		Water Cooled (<150 tons)	0.676	ASHRAE 90.1-2007
		Water Cooled (151 to 300 tons)	0.628	
		Water Cooled, screw/scroll (>300 tons)	0.572	ASHRAE 90.1-2007
		Water Cooled, centrifugal (<150 tons)	0.670	ASHRAE 90.1-2007
		Water Cooled, centrifugal (>=150 tons to 300 tons)	0.596	ASHRAE 90.1-2007
		Water Cooled, centrifugal >300 tons)	0.549	ASHRAE 90.1-2007
FLV_b (kW/ton)	Fixed	Air Cooled with Condenser (All)	1.256	ASHRAE 90.1-2007
		Air Cooled w/o Condenser (All)	1.135	ASHRAE 90.1-2007
		Water Cooled, reciprocating	0.837	ASHRAE 90.1-2007
		Water Cooled (<150 tons)	0.790	ASHRAE 90.1-2007
		Water Cooled (151 to 300 tons)	0.718	ASHRAE 90.1-2007
		Water Cooled, screw/scroll (>300 tons)	0.639	ASHRAE 90.1-2007
		Water Cooled, centrifugal (<150 tons)	0.7034	ASHRAE 90.1-2007
		Water Cooled, centrifugal (>=150 tons to 300 tons)	0.634	ASHRAE 90.1-2007
		Water Cooled, centrifugal >300 tons)	0.577	ASHRAE 90.1-2007
Tons	Variable	All	Varies	From Application
$IPLV_q$ (kW/ton)	Variable	All	Varies	From Application (per AHRI Std. 550/590)
PDC	Fixed	All	67%	Engineering Estimate
EFLH	Fixed	All	1,360	California DEER

Chiller Replacement Savings								
BUILDING	Qty	Tons	EFLH	FLVb	FLVq	PDC	Demand Savings (kW)	Energy Savings (kWh)
Brick Memorial High School	1	170	1,360	1.256	1.05	67%	23	47,627

ENERGY SAVINGS PLAN

SECTION 4 – FINANCIAL ANALYSIS

Form V

FORM V			
ESCO's PROPOSED FINAL PROJECT COST FOR FOR BASE CASE PROJECT ESCO's PRELIMINARY ENERGY SAVINGS PLAN (ESP): BRICK TOWNSHIP PUBLIC SCHOOLS ENERGY SAVING IMPROVEMENT PROGRAM			
ESCO Name: DOC Energy PROPOSED CONSTRUCTION FEES			
	Fee Category	Fees [1] Dollar ($) Value	Percentage of Hard Costs
a)	Estimated Value of Hard Costs [2]	$ 7,644,801	N/A
	Contingency	$ 382,240	
	Total Hard Costs	$ 8,027,041	
	Project Service Fees		
b)	- Investment Grade Energy Audit	$ 160,541	2.00%
c)	- Design Engineering Fees	$ 481,622	6.00%
d)	- Construction Management & Project Administration	$ 602,028	7.50%
e)	- System Commissioning	$ 80,270	1.00%
f)	- Equipment Initial Training Fees	$ 24,081	0.30%
g)	ESCO Profit	$ 321,082	4.00%
h)	ESCO Overhead	$ 240,811	3.00%
i)	Project Service Fees Sub Total [sum lines b) through h)]	$ 1,910,436	16.80%
j)	TOTAL FINANCED PROJECT COSTS: [sum lines a) and i)]	$ 9,937,477	23.80%
PROPOSED ANNUAL SERVICE FEES			
	First Year Annual Service Fees	Fees [1] Dollar ($) Value	Percentage of Hard Costs
A)	SAVINGS GUARANTEE *(OPTION)*	$0	0.00%
B)	Measurement & Verification *(Associated w/ Savings Guarantee Option)*	$38,224	0.50%
C)	ENERGY STAR Services (optional)	$0	0.00%
D)	Post Construction Services (if applicable	$0	0.00%
E)	Performance Monitoring	w/ M&V	0.00%
F)	On-going Training Services	w/ M&V	0.00%
G)	Verification Reports	w/ M&V	0.00%
H)	TOTAL FIRST YEAR ANNUAL SERVICES *[sum lines A) through G)]*	$38,224	0.00%

DCO Energy Efficiency Division
100 Lenox Drive
Lawrenceville, NJ 08648

Form VI

FORM VI - BRICK TOWNSHIP SCHOOL DISTRICT

ESCO's PRELIMINARY ENERGY SAVINGS PLAN (ESP):
ESCO's PRELIMINARY ANNUAL CASH FLOW ANALYSIS FORM
ENERGY SAVING IMPROVEMENT PROGRAM

ESCO Name: DCO Energy

Note: Respondents must use the following assumptions in all financial calculations:

(a) The cost of all types of energy should be assumed to inflate at **2.4% gas, 2.2% electric per year and**

1. Term of Agreement: 20 years
2. Construction Period [2] (months): 12 Months
3. Cash Flow Analysis Format:

Project Cost (1):	**$9,937,477**
COI	**$100,000**
Total Project:	**$10,037,477**

Interest Rate to be Used for Proposal Purposes: **2.50%**

Year	Annual Energy Savings	Solar PPA Savings	Energy Rebates/Incentives	Total Annual Savings	Annual Project Costs	Board Costs	Annual Service Costs	Net Cash-Flow to Client	Cumulative Cash Flow
Installation	$ 224,653			$ 224,653	$ (166,412)			$ 58,241	$ 58,241
Year 1	$ 362,069	$ 199,563	$ 205,770	$ 767,401	$ (765,001)			$ 2,400	$ 60,641
Year 2	$ 370,274	$ 204,492	$ 205,770	$ 780,535	$ (778,135)			$ 2,400	$ 63,041
Year 3	$ 378,665	$ 209,530		$ 588,194	$ (585,794)			$ 2,400	$ 65,441
Year 4	$ 387,246	$ 214,678		$ 601,924	$ (599,524)			$ 2,400	$ 67,841
Year 5	$ 396,023	$ 219,940		$ 615,963	$ (613,563)			$ 2,400	$ 70,241
Year 6	$ 404,998	$ 225,317		$ 630,316	$ (627,916)			$ 2,400	$ 72,641
Year 7	$ 414,178	$ 230,813		$ 644,991	$ (642,591)			$ 2,400	$ 75,041
Year 8	$ 423,566	$ 236,430		$ 659,995	$ (657,595)			$ 2,400	$ 77,441
Year 9	$ 433,167	$ 242,170		$ 675,337	$ (672,937)			$ 2,400	$ 79,841
Year 10	$ 442,986	$ 248,036		$ 691,022	$ (688,622)			$ 2,400	$ 82,241
Year 11	$ 453,027	$ 254,032		$ 707,060	$ (704,660)			$ 2,400	$ 84,641
Year 12	$ 463,297	$ 260,160		$ 723,457	$ (721,057)			$ 2,400	$ 87,041
Year 13	$ 473,801	$ 266,422		$ 740,223	$ (737,823)			$ 2,400	$ 89,441
Year 14	$ 484,542	$ 272,822		$ 757,364	$ (754,964)			$ 2,400	$ 91,841
Year 15	$ 495,528	$ 279,363		$ 774,891	$ (772,491)			$ 2,400	$ 94,241
Year 16	$ 506,763			$ 506,763	$ (504,363)			$ 2,400	$ 96,641
Year 17	$ 518,253			$ 518,253	$ (515,853)			$ 2,400	$ 99,041
Year 18	$ 530,005			$ 530,005	$ (527,605)			$ 2,400	$ 101,441
Year 19	$ 542,023			$ 542,023	$ (539,623)			$ 2,400	$ 103,841
Year 20	$ 554,314			$ 554,314	$ (551,914)			$ 2,400	$ 106,241
Totals	$ 9,034,725	$ 3,563,767	$ 411,540	$ 13,234,685	$ (13,128,444)	$ -	$ -	$ 106,241	

NOTES:
(1) Includes: Hard costs and project service fees defined in ESCO's PROPOSED "FORM V"
(2) No payments are made by the Board during the construction period.
(3) Installation Year payment is Interest Payment

DCO Energy Efficiency Division
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Lawrenceville, NJ 08648

Utility Inflation Worksheet

Utility Costs have been inflated per BPU Guidelines at 2.2% for Electric and 2.4% for Natural Gas. See the worksheet below for the inflation details. Please note that the "Total" column matches the Year 2 through Year 20 Annual Energy Savings column in Form VI.

Utility Inflation Worksheet			
Year	Electric (2.2%)	Gas (2.4%)	Total
2	$247,750.38	$122,523.43	$370,273.81
3	$253,200.88	$125,463.99	$378,664.88
4	$258,771.30	$128,475.13	$387,246.43
5	$264,464.27	$131,558.53	$396,022.80
6	$270,282.49	$134,715.94	$404,998.42
7	$276,228.70	$137,949.12	$414,177.82
8	$282,305.73	$141,259.90	$423,565.63
9	$288,516.46	$144,650.13	$433,166.59
10	$294,863.82	$148,121.74	$442,985.56
11	$301,350.83	$151,676.66	$453,027.48
12	$307,980.54	$155,316.90	$463,297.44
13	$314,756.12	$159,044.50	$473,800.62
14	$321,680.75	$162,861.57	$484,542.32
15	$328,757.73	$166,770.25	$495,527.98
16	$335,990.40	$170,772.74	$506,763.13
17	$343,382.19	$174,871.28	$518,253.47
18	$350,936.59	$179,068.19	$530,004.79
19	$358,657.20	$183,365.83	$542,023.03
20	$366,547.66	$187,766.61	$554,314.27

ENERGY SAVINGS PLAN

SECTION 5 – RISK, DESIGN, & COMPLIANCE

Assessment of Risks, Design & Compliance Issues

Moving from a conceptual design to engineered documents DCO has identified areas of the project that could change during the detailed design. The table below represents potential conceptual areas of concern that will need to be investigated further with a corresponding party responsible for the compliance of each item.

Issue	Category	Responsible Party
Alteration of expected Maintenance and Operational Savings	Risk	Brick Township School District
Disposition of Abandoned Equipment (Steam Piping, Condensate Piping, Oil Tanks, etc.)	Risk	Brick Township School District
New Natural Gas Distribution	Risk	Brick Township School District
Integrity of re-used Infrastructure	Risk	Brick Township School District
Life Safety System Coordination	Risk	Brick Township School District
Coordination with Brick Township School District Information Technology Department	Risk	Brick Township School District
Ventilation Compliance with Code	Compliance	Consulting Engineer
Temperature, Humidity and Air Change Compliance with Code	Compliance	Consulting Engineer
Boiler Capacity and Turndown	Design	Consulting Engineer
Natural Gas Regulator Compliance with Code	Compliance	Consulting Engineer
Undocumented Underground Utilities	Risk	Consulting Engineer
Code Compliance of Existing Electrical Infrastructure	Compliance	Consulting Engineer
Lighting Levels	Compliance	Consulting Engineer

Design Light Consortium rating for bulbs	Compliance	Consulting Engineer
Underwriters Laboratory Testing for retrofitted LED Lighting Systems	Compliance	Consulting Engineer
Lighting Retrofits within hard ceilings for fixtures and occupancy sensors	Risk	Consulting Engineer
Street/Parking Lot Pole Structural Integrity	Risk	Consulting Engineer
Unrealized Energy Savings 1. Energy Modeling 2. Performance Monitoring 3. Capacity of Equipment 4. Efficiency of Equipment 5. Run Hours of Equipment	Risk	DCO/ Consulting Engineer 1. DCO 2. DCO 3. Consulting Engineer / Basis of Design Vendor 4. Consulting Engineer / Basis of Design Vendor 5. Brick Township School District
Existing Plumbing Infrastructure with New Low Flow Devices	Design	Consulting Engineer
Adaptation to New RTUs (Curb, Electric, Ductwork, Condensate)	Design	Consulting Engineer / Basis of Design Manufacture
Structural Loads for Rooftop Equipment Replacement	Design	Consulting Engineer
Transformer Loading	Risk	Consulting Engineer
Site Work for Equipment	Design	Consulting Engineer
Condition of Roof Under Units	Risk	Consulting Engineer
Adequate Crane Lifts & Clearances	Design	Consulting Engineer / Rigger

Physical Space Constraints and Clearance for Equipment Replacement	Design	Consulting Engineer
Refrigerant Reclaim / Refrigerant Disposal	Compliance	Contractor
Existing Tie in Locations	Design	Consulting Engineer
Schedule Oversight	Risk	DCO Energy
Impact of Boiler Flue	Design	Consulting Engineer
Impact of Space Usage During Construction	Risk	Consulting Engineer & Brick Township School District
Scope changes relating to requests by Authorities Having Jurisdiction.	Risk	Brick Township School District (via contingency)
Department of Environmental Protection Permitting	Risk	Consulting Engineer
Modifications of Energy Saving Control Sequences and Setpoints impacting Energy Savings and Incentives	Risk	Brick Township School District
Post Construction Calibration of Sensors, Meters, & Safety Devices	Risk	Brick Township School District
Adequate time and access for bidding contractor site surveys	Risk	Brick Township School District
Utility Interconnection approval for the CHP Unit	Risk	Brick Township School District

Measurement & Verification (M&V) Plan

Our approach to M&V of energy savings aligns with the International Performance Measurement & Verification Protocol. More detailed information may be found at www.ipmvp.org. It's most cost-effective to perform M&V using the least costly option that still adequately documents system performance and permits analysis of savings. This approach lowers the total cost of the program leaving more dollars available to perform more facility improvements. Depending upon which ECMs are implemented by Brick Township School District, the M&V plan proposed by DCO would incorporate one or more of the following options which outlines the four most common approaches for M&V:

Option A – Retrofit Isolation with Key Parameter Measurement	This option is based on a combination of measured and estimated factors when variations in factors are not expected. Measurements are spot or short-term and are taken at the component or system level, both in the baseline and post-installation cases. Measurements should include the key performance parameter(s) which define the energy use of the ECM. Estimated factors are supported by historical or manufacturer's data. Savings are determined by means of engineering calculations of baseline and post-installation energy use based on measured and estimated values.	Direct measurements and estimated values, engineering calculations and/or component or system models often developed through regression analysis. Adjustments to models are not typically required.
Option B – Retrofit Isolation with Parameter Measurement	This option is based on periodic or continuous measurements of energy use taken at the component or system level when variations in factors are expected. Energy or proxies of energy use are measured continuously. Periodic spot or short-term measurements may suffice when variations in factors are not expected. Savings are determined form analysis of baseline and reporting period energy use of proxies of energy use.	Direct measurements, engineering calculations, and/or component or system models often developed through regression analysis. Adjustments to models may be required.
Option C – Utility Data Analysis	This option is based on long-term, continuous, whole-building utility meter, facility level, or sub-meter energy (or water) data. Savings are determined from analysis of baseline and reporting period energy data. Typically, regression analysis is conducted to correlate with and adjust energy use to independent variables such as weather, but simple comparisons may also be used.	Based on regression analysis of utility meter data to account for factors that drive energy use. Adjustments to models are typically required.
Option D – Calibrated Computer Simulation	Computer simulation software is used to model energy performance of a whole-facility (or sub-facility). Models must be calibrated with actual hourly or monthly billing data from the facility. Implementation of simulation modeling requires engineering expertise. Inputs to the model include facility	Based on computer simulation model calibrated with whole-building or end-use metered data or both.

	characteristics; performance specifications of new and existing equipment or systems; engineering estimates, spot-, short-term, or long-term measurements of system components; and long-term whole-building utility meter data. After the model has been calibrated, savings are determined by comparing a simulation of the baseline with either a simulation of the performance period or actual utility data	Adjustments to models are required.

Each of the options can be used for a wide array of energy efficiency upgrades and each has different costs and complexities associated with it. When selecting an M&V approach, the following general rule of thumb can be applied:

OPTION A

- When magnitude of savings is low for the entire project or a portion of the project
- The risk for not achieving savings is low

OPTION B

- For simple equipment replacement projects
- When energy savings values per individual measure are desired
- When interactive effects are to be ignored or are estimated using estimating methods that do not involve long term measurements
- When sub-meters already exist that record the energy use of subsystems under consideration

OPTION C

- For complex equipment replacement and controls projects
- When predicted energy savings are in excess of 10 to 20 percent as compared with the record energy use
- When energy savings per individual measure are not desired
- When interactive effects are to be included
- When the independent variables that affect energy, use are complex and excessively difficult or expensive

OPTION D

- When new construction projects are involved
- When energy savings values per measure are desired
- When Option C tools cannot cost effectively evaluate particular measures or their interactions with the building when complex baseline adjustments are anticipated

DCO will perform measurement and verification of the energy units savings at the conclusion of each month in the first year of the energy units guarantee. After the first year, M&V will be performed and presented within 30 days of year end. Brick Township School District will work with DCO to provide necessary information and provide access to any buildings to allow DCO to properly verify and measure energy savings. DCO's energy guarantee will be based on units of energy saved as determined from the baseline provide in the RFP, or adjusted baseline if original baseline is determined by both parties to be inaccurate.

Adjustments to the baseline and associated savings will be taken for weather, hours of operation, building usage, utility rate increases, code or statute changes, requirements listed in Table 1, and any other actions that adversely affect the savings beyond the control of DCO. Any savings discrepancies will be resolved to the satisfaction of both the Brick Township School District and DCO in a timely manner.

BRICK TOWNSHIP PUBLIC SCHOOLS
MEASUREMENT & VERIFICATION PROTOCOLS

ECM #	ECM DESCRIPTION	IPMVP PROTOCOL OPTION (A, B, C, OR D)
1	LED Lighting Replacement	A
2	District Wide Energy Management System	B
3	Solar PPA	N/A
4	Boiler Replacement	A
5	Unit Ventilator Replacement	N/A
6	Eliminate Rooftop Boiler	N/A
7	Roof Top Unit Replacement	N/A
8	Air Handling Unit Replacement	N/A
9	Roof Renovations	N/A
10	Destratification Fans	N/A
11	High Efficiency Transformers	N/A
12	Plug Load Controls	A
13	Cooling Tower Replacement	N/A
14	Combined Heat and Power	A
15	Chiller Replacement	N/A

Maintenance Plan

Owner Tasks and Responsibilities:

As a general statement, Brick Township School District or its 3rd party service providers shall be responsible for providing ongoing maintenance through the duration of the M&V period. DCO will review operational procedures and schedules associated with such things as the building automation/control upgrades as well as the manufacturers' published requirements for all installed equipment be it: quarterly, semi-annually or annually. In most cases, Brick Township School District is already aware of or self-implementing similar maintenance practices on campus or has contracted a 3rd party for such services. Failure to properly maintain the equipment may cause energy savings goals to fall short.

Specific Areas of Consideration:

In order to sustain energy savings Brick Township School District's Staff will be required to implement new maintenance tasks and even modify existing policies and practices. Outlined are two examples of specific instances.

Example 1. Advanced Building Operations Programming:

Brick Township School District will be given specific training on the changes and advancements in the environmental operations and energy savings strategies. Brick Township School District will be responsible for following the agreed upon guidelines associated with programmed schedules and any use of override functions.

Example 2. Verification of Proper Operations: Mechanical Equipment

Brick Township School District will be required to assure that proper mechanical maintenance continues to be implemented on its mechanical equipment. Example: outside air dampers will require proper operation with the appropriate seals in order to maintain ECM(s) such as demand ventilation. DCO will periodically spot check system operations to verify the Owner or its 3rd party representative is implementing proper maintenance. Any deficiencies that may be identified will be brought to Brick Township School District's attention for correction.

ENERGY SAVINGS PLAN

SECTION 6 – OPERATION & MAINTENANCE

It is critical to the success of achieving continued energy savings that Brick Township School District develop and implement an Operation and Maintenance Plan. In this section are some recommendations for maintenance tasks for various pieces of equipment and systems to assist Brick Township School District and/or 3rd party maintenance contractors.

Air Handling Units

Comprehensive Annual Inspection

1. Record and report abnormal conditions, measurements taken, etc.
2. Review logs for operational problems and trends.
3. General Assembly
   a) Inspect the unit for cleanliness.
   b) Inspect the fan wheel and shaft for wear and clearance.
   c) Check the sheaves and pulleys for wear and alignment.
   d) Check the belts for tension, wear, cracks, and glazing.
   e) Verify tight bolts, set screws, and locking collars.
   f) Check dampers for wear, security and linkage adjustment.
   g) Verify clean condensate pan.
   h) Verify proper operation of the condensate drain.
   i) Verify clean air filters.
   j) Verify clean coils.
   k) Verify proper operation of the spray pump, if applicable.
   l) Verify smooth fan operation.
   m) Log operating conditions after system has stabilized.
   n) Provide a written report of completed work, operating log, and indicate any uncorrected deficiencies detected.
4. Lubrication
   a) Lubricate the fan shaft bearings, if applicable.
   b) Lubricate the motor bearings, if applicable.
5. Controls and Safeties
   a) Test the operation of the low temperature safety device, if applicable.
   b) Test the operation of the high static pressure safety device, if applicable.
   c) Test the operation of the low static pressure safety device, if applicable.
   d) Check the thermal cutout on electric heaters, if applicable.
   e) Check the step controller, if applicable.
   f) Check and record supply air and control air pressure, if applicable.

g) Verify the operation of the control system and dampers while the fan is operating.

6. Motor and Starter
   a) Clean the starter and cabinet.
   b) Inspect the wiring and connections for tightness and signs of overheating and discoloration. This includes wiring to the electric heat, if applicable.
   c) Check the condition of the contacts for wear and pitting.
   d) Check the contactors for free and smooth operation.
   e) Meg the motor and record readings.

Heating Inspection

1. Gas Heat Option
   a) Visually inspect the heat exchanger.
   b) Inspect the combustion air blower fan, and clean, if required.
   c) Lubricate the combustion air blower fan motor, if applicable.
   d) Verify the operation of the combustion air flow-proving device.
   e) Test the operation of the high gas pressure safety device, if applicable. Calibrate, if necessary.
   f) Test the operation of the low gas pressure safety device, if applicable. Calibrate, if necessary.
   g) Verify the operation of the flame detection device.
   h) Test the operation of the high temperature limit switch.
   i) Verify the integrity of the flue system.
   j) Verify the operation of the operating controls.
   k) Verify the burner sequence of operation.
   l) Verify proper gas pressure to the unit and/or at the manifold, if applicable.
   m) Perform combustion test. Make adjustments as necessary.
2. Electric Heat Option
   a) Inspect wiring and connections for tightness and signs of overheating and discoloration.
   b) Check and calibrate operating and safety controls, if applicable.
   c) Verify the operation of the heating elements.
   d) Check voltage and amperage and compare readings with the watt rating on the heater.
3. Hot Water / Steam Heat Option
   a) Inspect control valves and traps.
   b) Check and calibrate all operating and safety controls.
   c) Verify the operation of the heating coils.
   d) Verify the operation of the unit low temperature safety device.

Scheduled Running Inspection

1. Check the general condition of the fan.

2. Verify smooth fan operation.
3. Check and record supply and control air pressure, if applicable.
4. Verify the operation of the control system.
5. Log the operating conditions after the system has stabilized.
6. Review operating procedures with operating personnel.
7. Provide a written report of completed work, operating log, and indicate uncorrected deficiencies detected.

Oil Sample/Spectrographic Analysis

1. Pull oil sample for spectrographic analysis

Refrigerant Sample/Analysis

1. Pull refrigerant sample for spectrographic analysis for contaminants (oil, water, and acid), using approved containers

Boilers

Comprehensive Annual Inspection

1. Record and report abnormal conditions, measurements taken, etc.
2. Review logs for operational problems and trends.
3. General Assembly
   a) Secure and drain the boiler.
   b) Open the fire and water side for cleaning and inspection.
   c) Check heating surfaces and water side for corrosion, pitting, scale, blisters, bulges, and soot.
   d) Inspect refractory.
   e) Clean fire inspection glass.
   f) Check blow-down valve packing, and lubricate.
   g) Check and test boiler blow-down valve.
   h) Perform hydrostatic test, if required.
   i) Verify proper operation of the level float.
   j) Gas Train Burner Assembly
      1. Check the gas train isolation valves for leaks.

2. Check the gas supply piping for leaks.
3. Check the gas pilot solenoid valve for wear and leaks.
4. Check the main gas and the pilot gas regulators for wear and leaks.
5. Test the low gas pressure switch. Calibrate and record setting.
6. Test the high gas pressure switch. Calibrate and record setting.
7. Verify the operation of the burner fan air flow switch.
8. Inspect and clean the burner assembly.
9. Inspect and clean the pilot igniter assembly.
10. Inspect and clean the burner fan.
11. Run the fan and check for vibration.
12. Inspect the flue and flue damper.
13. Burner Control Panel:
    a) Inspect the panel for cleanliness.
    b) Inspect wiring and connections for tightness and signs of overheating and discoloration.

k) Clean burner fan wheel and air dampers. Check fan for vibration.
l) Verify tightness on linkage set screws.
m) Check gas valves for leakage (where test cocks are provided).
n) Verify proper operation of the feed water pump.
o) Verify proper operation of the feed water treating equipment.

4. Controls and Safeties
   a) Disassemble and inspect low water cutoff safety device.
   b) Reassemble boiler low water cutoff safety device with new gaskets.
   c) Clean contacts in program timer, if applicable.
   d) Check the operation of the low water cutoff safety device and feed controls.
   e) Verify the setting and test the operation of the operating and limit controls.
   f) Verify the operation of the water level control.

Startup/Checkout Procedure

1. Verify proper water level in the boiler
2. Test the safety/relief valve after startup (full pressure test).
3. Clean or replace fuel filters.
4. Clean fuel nozzles.
5. Inspect clean, and functionally test the flame scanner and flame safeguard relay.
6. Clean and adjust the ignition electrode.
7. Replace the vacuum tube in the flame safeguard control, if applicable.
8. Perform pilot turn down test.
9. Verify proper steam pressure.

10. Perform combustion test and adjust the burner for maximum efficiency.
11. Test the following items:
    a) Firing rate
    b) Fuel/air ratio
    c) CO2
    d) CO
    e) NOX
    f) Perform smoke test.
12. Review operating procedures
13. Provide a written report of completed work, operating log, and indicate any uncorrected deficiencies detected.

Mid-Season Running Inspection

1. Check the general condition of the unit.
2. Inspect the burner.
3. Adjust the burner controls to obtain proper combustion.
4. Check the operation of the pressure relief valve.
5. Check the operation of the low water cutoff and feed controls.
6. Check the setting and test the operation of the operating and limit controls.
7. Check the operation of the modulating motor.
8. Lift the safety/relief valves with at least 70% of rated pressure.
9. Blow down and try gauge cocks to confirm glass water level.
10. Check and test boiler blow down valve.
11. Log operating conditions after the system has stabilized.
12. Review operating procedures
13. Provide a written report of completed work, operating log, and indicate uncorrected deficiencies detected.

Seasonal Shut-down Procedure

1. Shut down boiler at boiler controls.
2. Shut off fuel lines at main valves.
3. Review operating procedures
4. Provide a written report of completed work, operating log, and indicate any uncorrected deficiencies detected.

Cooling Towers

Startup/Checkout Procedure

1. Fill the basin and verify the float level.
2. Verify the operation of the basin heaters
3. Verify the operation, setpoint, and sensitivity of the basin heater temperature control device.
4. Start the condenser water pumps.
5. Verify the balance of the return water through the distribution boxes.
6. Verify proper operation of the bypass valve(s), if applicable.
7. Operate fan and verify smooth operation.
8. Log operation after system has stabilized.
9. Review operating procedures
10. Provide a written report of completed work, operating log, and indicate uncorrected deficiencies detected.

Comprehensive Annual Inspection

1. Record and report abnormal conditions, measurements taken, etc.
2. Review logs for operational problems and trends.
3. General Assembly
   a) Structure
      1. Disassemble all screens and access panels for inspection.
      2. Inspect the conditions of the slats, if applicable.
      3. Inspect the condition of the tower fill.
      4. Inspect the condition of the support structure.
      5. Inspect the condition of the basins (upper and lower) and/or spray nozzles.
      6. Verify clean basins and strainer(s).
      7. Verify the condition and operation of the basin fill valve system.
   b) Mechanical
      1. Inspect belts for wear, cracks, and glazing.
      2. Verify correct belt tension. Adjust the tension as necessary.
      3. Inspect sheaves and pulleys for wear, condition, and alignment.
      4. Inspect fan shaft and bearings for condition.
      5. Inspect fan assembly for condition, security, and clearances. (e.g. blade tip clearance).
4. Lubrication System

a) Lubricate motor bearings.
b) Lubricate fan shaft bearings.

5. Motor And Starter
   a) Clean the starter and cabinet.
   b) Inspect wiring and connections for tightness and signs of overheating and discoloration.
   c) Check the condition of the contacts for wear and pitting.
   d) Check the contactor(s) for free and smooth operation.
   e) Meg the motor(s) and record readings.
   f) Check disconnect terminal block for wear, tightness and signs of overheating and discoloration.
   g) Check the condition and operation of the basin heater contactor(s).

Shut-Down Procedure

1. Check the general condition of the tower.
2. Turn off electrical power to basin heaters, tower fans, and pipe heaters as necessary.
3. Drain tower and condenser water piping.
4. Review operating procedures
5. Provide a written report of completed work, operating log, and indicate any uncorrected deficiencies detected.

Burners

Gas Train

1. Check the gas train isolation valves for leaks.
2. Check the gas supply piping for leaks.
3. Check the gas pilot solenoid valve for wear and leaks.
4. Check the main gas and the pilot gas regulators for wear and leaks.
5. Test the low gas pressure switch. Calibrate and record setting.
6. Test the high gas pressure switch. Calibrate and record setting.
7. Verify the operation of the burner fan air flow switch.
8. Inspect and clean the burner assembly.
9. Inspect and clean the pilot ignitor assembly.
10. Inspect and clean the burner fan.
11. Run the fan and check for vibration.
12. Inspect the flue and flue damper.

13. Burner Control Panel:
    a) Inspect the panel for cleanliness.
    b) Inspect wiring and connections for tightness and signs of overheating.
14. Clean burner fan wheel and air dampers. Check the fan for vibration.
15. Verify tightness of the linkage set screws.
16. Check the gas valves against leakage (where test cocks are provided

Oil Train

1. Check the gas train isolation valves for leaks.
2. Check the gas supply piping for leaks.
3. Check the gas pilot solenoid valve for wear and leaks.
4. Check the main gas and the pilot gas regulators for wear and leaks.
5. Test the low gas pressure switch. Calibrate and record setting.
6. Test the high gas pressure switch. Calibrate and record setting.
7. Verify the operation of the burner fan air flow switch.
8. Inspect and clean the burner assembly.
9. Inspect and clean the pilot ignitor assembly.
10. Inspect and clean the burner fan.
11. Run the fan and check for vibration.
12. Inspect the flue and flue damper.
13. Burner Control Panel:
    a) Inspect the panel for cleanliness.
    b) Inspect wiring and connections for tightness and signs of overheating.
14. Clean burner fan wheel and air dampers. Check the fan for vibration.
15. Verify tightness of the linkage set screws.
16. Check the gas valves against leakage (where test cocks are provided).

Dual Fuel Train

1. Check the gas train isolation valves for leaks.
2. Check the gas supply piping for leaks.
3. Check the gas pilot solenoid valve for wear and leaks.
4. Check the main gas and the pilot gas regulators for wear and leaks.
5. Test the low gas pressure switch. Calibrate and record setting.
6. Test the high gas pressure switch. Calibrate and record setting.
7. Verify the operation of the burner fan air flow switch.
8. Inspect and clean the burner assembly.

9. Inspect and clean the pilot ignitor assembly.
10. Inspect and clean the burner fan.
11. Run the fan and check for vibration.
12. Inspect the flue and flue damper.
13. Burner Control Panel:
    a) Inspect the panel for cleanliness.
    b) Inspect wiring and connections for tightness and signs of overheating.
14. Clean burner fan wheel and air dampers. Check the fan for vibration.
15. Verify tightness of the linkage set screws.
16. Check the gas valves against leakage (where test cocks are provided)

Energy Management System

Maintenance Inspection

1. Review reports for operational problems and trends.
2. Make a back-up copy of the BAS program.
3. Check for loose or damaged parts or wiring.
4. Check for any accumulation of dirt or moisture. Clean if required.
5. Verify proper electrical grounding.
6. Verify control panel power supplies for proper output voltages.
7. Inspect interconnecting cables and electrical connections.
8. Verify that manual override switches are in the desired positions.
9. Check the operation of all binary and analog outputs, if applicable.
10. Calibrate control devices, if applicable.
11. Verify the correct time and date.
12. Check and update the holiday schedules and daylight savings time.
13. Via terminal mode, view the event log and input/output points for any unusual status or override conditions.
14. Clean the external surfaces of the panel enclosure.
15. Review operating program and parameters.
16. Check cable connections for security.
17. Review operating procedures
18. Provide a written report of completed work, and indicate any uncorrected deficiencies detected.

Maintenance Inspection (Control Panels)

1. Control Panel
   a) Verify secure connections on all internal wiring, LAN, and communication links.
   b) Check for loose or damaged parts or wiring.
   c) Check for any accumulation of dirt or moisture. Clean if required.
   d) Remove excessive dust from heat sink surfaces
   e) Verify proper system electrical grounding.
   f) Verify proper output voltages on control panel power supplies.
   g) Check LED Indications to verify proper operation
   h) Verify LAN communications
   i) Verify that cards are seated and secured.
   j) Check wiring trunks and check for possible Error Code Indications
   k) Check voltage level of
   l) Verify the proper operation of critical control processes and points associated with this unit an make adjustments if necessary.
   m) Check Volatile memory available
   n) Cheek Non volatile memory available
   o) Check Processor idle time
   p) Clean external surfaces of the panel enclosure.
   q) Check modem operation, if applicable.
   r) View the event log and input/output points for any unusual status or override conditions.
   s) Verify correct time and date.
   t) Check and update holiday schedules, if applicable, and daylight savings time.
   u) Review operating procedures with operating personnel.
   v) Provide a written report of completed work, and indicate any uncorrected deficiencies detected.

Maintenance Inspection (EMS - Sequence of Operations)

Central Plant

In order to assure effective environmental conditioning while minimizing the cost to operate the equipment, technicians will review operating sequences and practices for the chiller plant. An initial survey of current equipment operating parameters will be conducted within the first 60 days of the contract term during cooling season. This survey will include:

1. Chiller(s) operation
2. Cooling tower(s) operation
3. Pump(s) operation

4. Economizer operation (where applicable)
5. Environmental safety

A detailed report of findings and recommendations for changes, if any, will be made. Agreed upon operational changes which require only adjustment of controls or programming will be made during regularly scheduled maintenance visits as part of this agreement at no additional cost. Any recommended alterations that require addition of devices or equipment will be accompanied by a guaranteed cost proposal reflecting the applicable discounts determined by this agreement.

Building Systems

In order to assure effective environmental conditioning while minimizing the cost to operate the equipment, technicians will review operating sequences and practices for covered airside systems. An initial survey of current systems operating parameters will be conducted within the first 60 days of the contract term, except seasonally operated systems, which will be surveyed during the appropriate operating season. This survey will include:

1. Time schedule(s)
2. Reset schedule(s)
3. Economizer changeover (where applicable)
4. Setpoints
5. Energy Management routines

A detailed report of findings and recommendations for changes, if any, will be made. Agreed upon operational changes which require only adjustment of controls or programming will be made during regularly scheduled maintenance visits as part of this agreement at no additional cost. Any recommended alterations that require addition of devices or equipment will be accompanied by a guaranteed cost proposal reflecting the applicable discounts determined by this agreement.

Fans

Maintenance Procedure

1. Record and report abnormal conditions, measurements taken, etc.
2. Review logs for operational problems and trends.

3. General Assembly
   a) Check the general condition of the unit.
   b) Verify tightness of the fan, fan guards, louvers, etc.
   c) Verify clean burner assembly.
   d) Check sheaves and pulleys for wear and alignment, if applicable.
   e) Check belts for tension, wear, cracks, and/or glazing.
4. Lubrication
   a) Lubricate the fan motor, if applicable.
   b) Lubricate the fan bearings as necessary.
5. Controls and Safeties
   a) Verify proper operation of the temperature control device.
   b) Verify proper operation of the high temperature control device.
   c) Verify proper operation of the fan switch.
   d) Verify proper operation of the pilot safety device, if applicable.
6. Electrical
   a) Inspect wiring and connections for tightness and signs of overheating and discoloration.
7. Startup and Checkout
   a) Start the unit.
   b) Verify proper combustion air to the burner.
   c) Verify proper gas pressure to the burner.
   d) Check the flame for proper combustion.

Comprehensive Annual Inspection

1. Record and report abnormal conditions, measurements taken, etc.
2. Review logs for operational problems and trends.
3. General Assembly
   a) Disassemble all screens and panels necessary to gain access to the fan mechanism.
   b) Disassemble the control mechanism (AVPB only).
   c) Clean all accessible rotor components to include control pitch mechanism (AVPB only).
   d) Inspect blades for wear.
   e) Inspect blade arms for wear (AVPB only).
   f) Check blade tip clearance.
   g) Check for oil leak on the blade bearing housing (AVPB only).
   h) Clean motor and fan housing.
   i) Reassemble all removed screens and plates.
4. Lubrication
   a) Lubricate the motor bearings.
   b) Lubricate the shaft bearings (AVPA only).

5. Controls and Safeties
   a) Test the operation of the high static safety device. Calibrate and record setting.
   b) Test the operation of the low static safety device. Calibrate and record setting.
   c) Test the operation of the vibration safety device. Calibrate and record setting.
   d) Verify the operation of the phase monitor, if applicable.
   e) Inspect pneumatic and electrical controls for condition and calibration.
   f) Verify proper operation.
6. Motor and Starter
   a) Clean the starter and cabinet.
   b) Clean the disconnect switch and cabinet at the fan, if applicable.
   c) Inspect the wiring and connections for tightness and signs of overheating and discoloration.
   d) Check the condition of the contacts for wear and pitting.
   e) Check the contactors for free and smooth operation.
   f) Meg the motor and record readings.
7. Startup / Checkout Procedure
   a) Start the fan.
   b) Verify the operation of the starter.
   c) Check and record supply and control air pressure.
   d) Verify the operation of the control system while the fan is operating.
   e) Log the operating conditions after the system has stabilized.
   f) Review operating procedures with operating personnel.
   g) Provide a written report of completed work, operating log, and indicate any uncorrected deficiencies detected.

Scheduled Running Inspection (fans)

1. Check the general operation of the fan.
2. Check and record supply and control air pressure.
3. Verify the operation of the control system.
4. Log the operating conditions after the system has stabilized.
5. Review operating procedures with operating personnel.
6. Provide a written report of completed work, operating log, and indicate any uncorrected deficiencies detected.

Comprehensive Annual Inspection (fans)

1. Record and report abnormal conditions, measurements taken, etc.
2. Review logs for operational problems and trends.

3. General Assembly
   a) Verify tight bolts, set screws, and locking collars.
   b) Inspect sheaves and pulleys for wear and alignment.
   c) Inspect belts for tension, wear, cracks, and glazing.
   d) Inspect dampers for wear, security, and clearances, if applicable.
   e) Verify clean air filters.
   f) Provide a written report of completed work, operating log, and indicate any uncorrected deficiencies detected.
4. Lubrication
   a) Lubricate fan bearings.
   b) Lubricate motor bearings, if applicable.
5. Controls and Safeties
   a) Verify the operation of the control system while the fan is operating.
   b) Verify the setting of the low temperature safety device, if applicable.
   c) Verify the operation of the pre-heat control device, if applicable.
   d) Verify the operation of the cooling control device, if applicable.
   e) Verify the operation of the re-heat control device, if applicable.
   f) Verify the operation of the humidity control device, if applicable.
6. Motor and Starter
   a) Clean the starter and cabinet.
   b) Inspect the wiring and connections for tightness and signs of overheating and discoloration.
   c) Check the condition of the contacts for wear and pitting.
   d) Check the contactors for free and smooth operation.
   e) Meg the motor and record readings.
   f) Check volts and amps of the motor.

Lubricate/Grease Bearings

1. Lubricate and/or grease bearings according to manufacturer's specifications

MEG Motor

1. Check the integrity of the insulation on the motor windings and the motor leads, using a megohm meter.

Coils

Maintenance Procedure

1. Record and report abnormal conditions.
2. Visually inspect the coil for leaks.
3. Inspect the coil for cleanliness.

Pumps

Annual Inspection

1. Record and report abnormal conditions, measurements taken, etc.
2. Review logs for operational problems and trends.
3. General Assembly
   a) Check motor shaft and pump shaft for alignment, if applicable.
   b) Inspect the coupling for wear.
   c) Verify that the shaft guard is in place and tight, if applicable.
   d) Verify water flow through the pump.
   e) Check for leaks on the mechanical pump seals, if applicable.
   f) Verify proper drip rate on the pump seal packing, if applicable.
   g) Verify smooth operation of the pump.
   h) Provide a written report of completed work, operating log, and indicate any uncorrected deficiencies detected.
4. Lubrication
   a) Lubricate the motor bearings as necessary.
   b) Lubricate the pump bearings as necessary.
5. Motor and Starter
   a) Clean the starter and cabinet.
   b) Inspect wiring and connections for tightness and signs of overheating and discoloration.
   c) Meg the motor.
   d) Verify tight connections on the motor terminals.
   e) Check the condition of the contacts for wear and pitting, if applicable.
   f) Check the contactors for free and smooth operation.
   g) Verify proper volts and amps.

Pump Run Inspection

1. Verify smooth operation of the pump.
2. Check for leaks on the mechanical pump seals, if applicable.
3. Verify proper drip rate on the pump seal packing, if applicable.
4. Provide a written report of completed work, operating log, and indicate any uncorrected deficiencies detected.

Mechanical Starters with Electronic Controls

Comprehensive Annual Maintenance

1. Clean the starter and cabinet.
2. Inspect wiring and connections for tightness and signs of overheating and discoloration.
3. Check condition of the contacts for wear and pitting.
4. Check contactors for free and smooth operation.
5. Check the mechanical linkages for wear, security, and clearances.
6. Verify the overload settings.

VFD Starters

Comprehensive Annual Maintenance

1. Clean the starter and cabinet.
2. Inspect wiring and connections for tightness and signs of overheating and discoloration.
3. Check the tightness of the motor terminal connections.
4. Verify the operation of the cooling loop.
5. Verify proper operation of the frequency drive.

Rooftop Units

Comprehensive Annual Maintenance

1. Record and report abnormal conditions, measurements taken, etc.
2. Review logs for operational problems and trends.

3. General Assembly
   a) Inspect for leaks and report results.
   b) Calculate refrigerant loss rate and report to the customer.
   c) Repair minor leaks as required (e.g. valve packing, flare nuts).
   d) Visually inspect condenser tubes for cleanliness.
4. Controls and Safeties
   a) Inspect the control panel for cleanliness.
   b) Inspect wiring and connections for tightness and signs of overheating and discoloration.
   c) Verify the working condition of all indicator/alarm lights, if applicable.
   d) Test the low water temperature control device. Calibrate and record setting.
   e) Test the low evaporator pressure safety device. Calibrate and record setting.
   f) Test the oil pressure safety device. Calibrate and record setting, if applicable.
   g) Check programmed parameters of RCM control, if applicable.
5. Lubrication System
   a) Check oil level in the compressor.
   b) Test oil for acid content and discoloration. Make recommendations to the customer based on the results of the test.
   c) Verify the operation of the oil heater. Measure amps and compare reading with the watt rating of the heater.

6. Motor and Starter
   a) Clean the starter and cabinet.
   b) Inspect wiring and connections for tightness and signs of overheating and discoloration.
   c) Check condition of the contacts for wear and pitting.
   d) Check the contactors for free and smooth operation.
   e) Check the tightness of the motor terminal connections.
   f) Meg the motor and record readings.
   g) Verify the operation of the electrical interlocks.
   h) Measure voltage and record. Voltage should be nominal voltage ± 10%.

Comprehensive Maintenance Inspection (RTU Heating Cycle)

1. Perform heating inspection/maintenance applicable to the unit (steam/hot water, gas, electric).
2. Verify smooth operation of the fans.
3. Check the belts for tension, wear, cracks, and glazing.
4. Verify clean air filters.
5. Gas Heat Option
   a) Visually inspect the heat exchanger.

b) Inspect the combustion air blower fan, and clean, if required.
c) Lubricate the combustion air blower fan motor, if applicable.
d) Verify the operation of the combustion air flow-proving device.
e) Test the operation of the high gas pressure safety device, if applicable. Calibrate, if necessary.
f) Test the operation of the low gas pressure safety device, if applicable. Calibrate, if necessary.
g) Verify the operation of the flame detection device.
h) Test the operation of the high temperature limit switch. i.. Verify the integrity of the flue system.
i) Verify the operation of the operating controls.
j) Verify the burner sequence of operation.
k) Verify proper gas pressure to the unit and/or at the manifold, if applicable.
l) Perform combustion test. Make adjustments as necessary.

6. Electric Heat Option
   a) Inspect wiring and connections for tightness and signs of overheating and discoloration.
   b) Check and calibrate operating and safety controls, if applicable. c. Verify the operation of the heating elements. d. Check voltage and amperage and compare readings with the watt rating on the heater.

7. Hot Water / Steam Heat Option
   a) Inspect control valves and traps.
   b) Check and calibrate all operating and safety controls.
   c) Verify the operation of the heating coils.
   d) Verify the operation of the unit low temperature safety device.

Mid-Season Cooling Inspection (RTU)

1. Check the general condition of the unit.
2. Log the operating condition after system has stabilized.
3. Verify the operation of the control circuits.
4. Analyze the recorded data. Compare the data to the original design conditions.
5. Review operating procedures with operating personnel.
6. Provide a written report of completed work, operating log, and indicate any uncorrected deficiencies detected.

Comprehensive Maintenance Inspection (RTU - Cooling Cycle)

1. Record and report abnormal conditions, measurements taken, etc.
2. Review logs for operational problems and trends.
3. General Assembly
   a) Inspect for leaks and report results.
   b) Calculate refrigerant loss rate and report to the customer.
   c) Repair minor leaks as required (e.g. valve packing, flare nuts).
   d) Check pulleys and sheaves for wear and alignment.
   e) Check belts for tension, wear, cracks, and glazing.
   f) Verify clean evaporator coil, blower wheel, and condensate pan.
   g) Verify clean air filters.
   h) Verify proper operation of the condensate drain.
   i) Verify proper operation of the dampers and/or inlet guide vanes, if applicable.
4. Controls and Safeties
   a) Inspect the control panel for cleanliness.
   b) Inspect wiring and connections for tightness and signs of overheating and discoloration.
   c) Verify the working condition of all indicator/alarm lights, if applicable.
   d) Test the low evaporator pressure safety device. Calibrate and record setting, if applicable.
   e) Test the high condenser pressure safety device. Calibrate and record setting, applicable.
   f) Test the oil pressure safety device, if applicable. Calibrate and record setting.
   g) Test the high static pressure safety device, if applicable. Calibrate and record setting.
   h) Verify the operation of the static pressure control device, if applicable.
5. Lubrication
   a) Verify the operation of the oil heater, if applicable.
   b) Lubricate the fan bearings as required.
   c) Lubricate the fan motor bearings as required.
   d) Lubricate the damper bearings, if applicable.
6. Motor and Starter
   a) Clean the starter and cabinet.
   b) Inspect wiring and connections for tightness and signs of overheating and discoloration.
   c) Check the condition of the contacts for wear and pitting.
   d) Check the contactors for free and smooth operation.
7. Startup /Checkout Procedure
   a) Verify the operation of the oil heater.
   b) Verify full water system, including the cooling tower and the condenser.
   c) Verify clean cooling tower and strainers.
   d) Test all flow-proving devices on the condenser water circuit.
   e) Start the condenser water pump and the cooling tower fan(s).

f) Verify flow rate through the condenser.
g) Start the unit.
h) Verify smooth operation of the compressor(s) and fan(s).
i) Check the setpoint and sensitivity of the temperature control device.
j) Verify the operation of the condenser water temperature control device.
k) Verify clean condenser using pressure and temperature.
l) Check operation and setup of the Unit Control Module.
m) Check the superheat and subcooling on the refrigeration circuit(s).
n) Log the operating conditions after the system has stabilized.
o) Review operating procedures with operating personnel.
p) Provide a written report of completed work, operating log, and indicate any uncorrected deficiencies detected.

ENERGY SAVINGS PLAN

SECTION 7 – OPTIONAL ENERGY GUARANTEE

OPTIONAL ENERGY GUARANTEE OVERVIEW

NOTE: *The following is meant only to serve as a description of an optional energy guarantee and does not constitute any contractual obligations between the Brick Township School District and DCO. If Brick Township School District chooses to implement an energy guarantee contract, a separate document will be used based on mutual agreement and acceptance of all parties of its terms and conditions.*

A successful energy project consists of a partnership between an ESCO and Owner. Both parties have defined roles and accept their individual responsibilities as well as support any joint initiatives of the program as defined in the RFP and this document. Both DCO and the Brick Township School District will have a role in ongoing maintenance and operations as defined in the agreed-upon energy guarantee contractual documents. Both parties will be required to meet their obligations for the guaranteed energy units savings (referred to as "guarantee or savings") to be achieved and to ensure the guarantee stays intact.

DCO will guarantee Brick Township School District will achieve 100% of the total energy units savings per the provisions of the agreed-upon energy guarantee contractual documents based on the final selection of ECMs and their associated energy savings as measured and verified by the Owner's third-party, independent firm. The energy savings will be in energy units, not dollars as DCO has no control over the costs of utilities. The energy units guarantee contract shall commence thirty (30) days after the start-up and commissioning of the last Energy Conservation Measure (ECM) and be enforced for a period of one (1) year or until terminated by Brick Township School District. The one (1) Year Guarantee is provided by DCO for a cost of $0. The Measurement & Verification required by ESIP Legislation in association with the acceptance of an Energy Savings Guarantee will be provided by DCO Energy at a cost of 0.50% of the Hard Costs of the ECMs as outlined in Form V of the RFP Response (also shown Section 4 of this document).

SAVINGS VERIFICATION

There are events that cause energy savings to change. Brick Township School District and DCO will agree to baseline energy consumption that represents the facility's energy use and cost prior to the date of any Agreement (the "Base Year") and parameters, which affect the energy usage and cost of the facility, including but not limited to, utility rates, local weather profile, facility square footage, environmental conditions, schedules (e.g., lighting, HVAC) and an inventory of equipment in the facility. Energy savings are determined by comparing measured energy use or demand before and after implementation of an energy savings program.

ECM ENERGY SAVINGS = BASELINE ENERGY USE – POST INSTALLATION ENERGY USE +/- ADJUSTMENTS

Changes in estimated energy savings fall into two categories. These categories are Routine Adjustments and Non-Routine Adjustments. Routine Adjustments are expected changes during the savings reporting period to energy governing factors (e.g. weather). DCO uses IPMVP approved mathematical techniques to determine adjustments. Non-Routine Adjustments include energy-governing factors which are not usually expected to change, such as the facility size, the design and operation of installed equipment, occupancy and the type of occupants or any physical changes to the building or equipment that impact the facilities' utility use. These factors will be monitored for change throughout the reporting period.

DCO will perform monthly utility bill analysis and audit reports which compare the current year with base year energy consumption and costs. DCO will perform periodic on-site analysis to determine whether mechanical and electrical systems are operating at optimal efficiency and to assess the occupancy and operational schedules of the buildings.

ENERGY SAVINGS PLAN

APPENDICIES

APPENDIX LIST	
APPENDIX A	Construction Contingency Allowance
APPENDIX B	Operations & Maintenance Savings
APPENDIX C	Project Changes in Financing
APPENDIX D	Incentives in Debt Service
APPENDIX E	Baseline Operating Conditions
APPENDIX F	Lighting Line-By-Line
APPENDIX G	Local Government Energy Audits

ENERGY SAVINGS PLAN

APPENDIX A – CONSTRUCTION CONTINGENCY ALLOWANCE

Appendix A – Construction Contingency Allowance

Experience shows that during the construction phase there are four major categories of potential change of scope issues that benefit from having an appropriate Construction Contingency Allowance (CCA).

- Unknown conditions
- Building inspector's modifications
- Project owner requested changes
- Design clarifications or modifications

Unknown Conditions

Renovations to older facilities have greater potential for revealing unknown. Missing or inaccurate Blueprints, deviations from the original blue prints by the original builder and unknown or undocumented modifications during the life of the facility.

Areas such as behind a wall/roof/equipment or under the slab can bring unforeseen conditions which can delay the new construction and change the anticipated scope of the work. Therefore, it is advisable to dedicate a CCA that is higher than that for new construction.

Building Inspection Modifications

A plan review for the local building jurisdiction reviews the construction documents prior to issuing a building permit. However, there remains the likelihood that the building inspector will request modifications to the plans based upon experience and their interpretation of the applicable building code.

While we can ask for code review and documentation, if you hope to get a Certificate of Occupancy under a tight schedule from this same inspector requested modifications will need to be implemented as successfully appeals take time.

Whether it is adding an extra exit sign, smoke detector or fire extinguisher, or whether it is something more significant, it may require more work from the contractor, thus added expense. The CCA is intended to be the source of funds necessary for these requested modifications.

Project Owner Requested Changes

It is nearly impossible to express your every desire during the design phase. You will always see something during construction that you would like to change.

There is nothing necessarily wrong with that.

The CCA is intended to be the source of funds necessary for these requested changes.

Design Clarifications or Modifications

No designer has ever developed the perfect set of construction documents.

There are always items that can be detailed better or more clearly. The design intent should be adequately reflected in the drawings and specifications so that the contractor can bid and build the ECM to meet the design intent.

However, there will be times during construction when the builder will not be readily able to identify the exact intent of particular details or systems. At that time the builder will submit a Request for Information (RFI) to the designer for clarification or more information. The designer will issue clarifications or directives so that the builder can continue to meet the design intent.

On occasion, the RFI will reveal that something more than was shown in the construction documents is necessary to fulfill the design intent. The clarification or modification may impact the scope of the work to a degree that additional construction costs become necessary.

As long as the design omission is not negligent, the CCA is intended to be the source of funds necessary for these design clarifications or modifications.

Detailed plans, schematics and specifications for Brick Township School District were not available to deliver a cost estimate for each ECM. The budgetary costs carried in the project are based on good faith estimates, contractor supplied budgets for similar ECMs on other recent projects and a database of actual installed costs for various ECMs.

a. Contingency Amount

$382,240

ENERGY SAVINGS PLAN

APPENDIX B – OPERATIONS AND MAINTENANCE SAVINGS

Appendix B – Operation & Maintenance Savings

Operations and Maintenance and other non-energy-related cost savings are allowable in NJ ESIPs, and are defined as reduction in expenses (other than energy cost savings) related to energy and water consuming equipment:

Energy-related cost savings can result from avoided expenditures for operations, maintenance, equipment repair, or equipment replacement due to the ESIP project.

Sources of O&M savings include:

- Termination of service personnel
- Lower maintenance service contract costs
- Decrease in repair costs
    - Avoided repair and replacement costs as a result of replacing old and unreliable equipment
    - Material savings due to new equipment warranties
    - Material savings due to the longer life items not needing replacement
        - In particular, reduction in florescent bulbs due to LED

Termination of service personnel

As a result of the ESIP, a number of the client's maintenance staff members may no longer be required. If there will be a reduction in the government's maintenance staff, O&M savings can be claimed.

A problem could arise if the maintenance staff is not reduced. Then it would be necessary to determine what new O&M responsibilities the facility has taken on, or savings should not be claimed. For example, it could be that a new building was constructed. During the performance period, it is important to establish that any increased maintenance was not due to the equipment installed under the ESIP

Lower maintenance service contract costs

Prior to the implementation of the ESIP mechanical and electrical equipment was maintained by a third party under a maintenance contract. The ESIP replaces the aging equipment with newer, more efficient equipment, which can reduce the service costs to the client.

Decrease in repair costs

The client is responsible for maintenance both before and after the equipment installation. Although there is no reduction in staff for which to claim labor savings, there will be cost savings on replacement materials.

Material-related savings frequently result from lighting and lighting controls projects.

For this project, lighting maintenance savings will result from the following:

1. Reduced material requirements (e.g., lamps)
2. Reduced operating time — Control measures increase equipment life by reducing the burn time of lamps and ballasts
3. Warranty-related savings — newly installed lamps, and fixtures come with a manufacturer warranty of 10 years.

O&M Savings

No O&M Savings were carried in the project.

ENERGY SAVINGS PLAN

APPENDIX C – PROJECT CHANGES IN FINANCING

Appendix C – Project Changes in Financing

The Energy savings plan has been approved using:

Interest rate of: **2.5%**
Term: ..... **20 Years**
Construction Term ..... **12 Months**
Construction Interest Only Payment of **$166,412**
Annual Surplus of no less than **$2,400**

During financing DCO will provide assistance but does not guarantee the timing of savings or incentives.

While beneficial to the client financing changes are the responsibility of the client, bond counsel and/or financial advisor. DCO represents in no way advice on these financial items

Financial items may include but are not limited to:

- Timing of payments
- Splitting payments into bi-annual, tri-annual, etc.
- Coordination with the client's fiscal year
- Local finance board material, forms and presentations
- Multiple tiered interest rates

ENERGY SAVINGS PLAN

APPENDIX D – INCENTIVES IN DEBT SERVICE

DCO Energy Efficiency Division
100 Lenox Drive
Lawrenceville, NJ 08648

Appendix D – Incentives in Debt Service

Based on the estimated kWh and Therm savings at the 3 schools listed below, Brick BOE could realize a potential incentive of $823,079. However, due to limitations of the P4P Program and the prescriptive nature of the approval process, only 50% of this potential incentive is being carried in the project for debt service repayment. Should the incentive programs remain unchanged up to the payment of Incentive #3 under the P4P Program, DCO Energy will guarantee the incentives carried in the project. However, DCO will not guarantee that the Incentive Programs will remain. Should the Incentive programs be cancelled or substantially change, the amount carried in the debt service will be at the risk of Brick BOE.

BRICK TOWNSHIP PUBLIC SCHOOLS			INCLUDED IN PROJECT	TYPE OF INCENTIVE	ESTIMATED INCENTIVE AMOUNT	SIMPLE PAYBACK WITH INCENTIVES
ECM #	BUILDING/FACILITY	ENERGY CONSERVATION MEASURE	"Y" OR "N"	SELECT	$$	YEARS
1	Brick Memorial High School	LED Lighting Replacement	Y	NJ P4P	$180,085	8.1
2	Brick Memorial High School	District Wide Energy Management System	Y	NJ P4P	$87,531	59.0
3	Brick Memorial High School	Solar PPA	Y		FALSE	0.0
4	Brick Memorial High School	Boiler Replacement	Y	NJ P4P	$119,944	21.8
9	Brick Memorial High School	Roof Renovations	N		$0	0.0
10	Brick Memorial High School	Destratification Fans	N		$0	0.0
11	Brick Memorial High School	High Efficiency Transformers	N	NONE	$0	0.0
12	Brick Memorial High School	Plug Load Controls	Y	NJ P4P	$3,050	11.5
13	Brick Memorial High School	Cooling Tower Replacement	N	NJ P4P	$0	0.0
14	Brick Memorial High School	Combined Heat and Power	Y	NJ P4P	$36,556	15.3
15	Brick Memorial High School	Chiller Replacement	N	NJ P4P	$0	0.0
	Brick Memorial High School	TOTALS			$427,167	0.0
1	Veterans Memorial Middle School	LED Lighting Replacement	Y	NJ P4P	$49,433	16.5
2	Veterans Memorial Middle School	District Wide Energy Management System	Y	NJ P4P	$136,906	20.7
4	Veterans Memorial Middle School	Boiler Replacement	N	NJ P4P	$0	0.0
5	Veterans Memorial Middle School	Unit Ventilator Replacement	N	NJ P4P	$0	0.0
6	Veterans Memorial Middle School	Eliminate Rooftop Boiler	N	NJ P4P	$0	0.0
7	Veterans Memorial Middle School	Roof Top Unit Replacement	N	NJ P4P	$0	0.0
10	Veterans Memorial Middle School	Destratification Fans	N		$0	0.0
11	Veterans Memorial Middle School	High Efficiency Transformers	N	NONE	$0	0.0
12	Veterans Memorial Middle School	Plug Load Controls	Y	NJ P4P	$3,050	4.5
	Veterans Memorial Middle School	TOTALS			$189,390	0.0
1	Lake Riviera Middle School	LED Lighting Replacement	Y	NJ P4P	$47,561	5.0
2	Lake Riviera Middle School	District Wide Energy Management System	Y	NJ P4P	$157,394	10.6
4	Lake Riviera Middle School	Boiler Replacement	N	NJ P4P	$0	0.0
10	Lake Riviera Middle School	Destratification Fans	N		$0	0.0
12	Lake Riviera Middle School	Plug Load Controls	Y	NJ P4P	$1,567	5.8
	Lake Riviera Middle School	TOTALS			$206,522	0.0

ENERGY SAVINGS PLAN

APPENDIX E – BASELINE OPERATING CONDITIONS

Appendix E – Operating Conditions

HVAC Schedules

Schedule Name: Global Setpoints			Applicable from:		Year round	to	
	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Hours Occupied	6am-7pm	6am-7pm	6am-7pm	6am-7pm	6am-7pm	8am-3pm	8am-3pm
Occ Heating Set point (F)	70	70	70	70	70	60	60
Unocc Heating Set point (F)	60	60	60	60	60	60	60
Occ Cooling Set point (F)	72	72	72	72	72	72	72
Unocc Cooling Set point (F)	80	80	80	80	80	80	80

Baseline Controls Sequence of Operations

Fan Operation:

- Occupied control (constant, cycle on/off): constant
- Unoccupied control (constant, cycle on/off): cycle on/off
- Notes:

Ventilation:

- Occupied operation
  - Flow per person (cfm):8.5-15cfm/person
  - Minimum supply OA (%): Varies – CO2 control
  - Schedule: OA Dampers will be controlled via the zone occupancy sensors
- Unoccupied operation
  - Flow per person (cfm): 8.5-15cfm/person
  - Minimum supply OA (%): Varies - Closed
  - Schedule: See notes.

Heating Plant:

- Heating enabled
  - Ambient temperature:55 degrees
  - Annual schedule: October 15 – April 15
  - Notes:
- Supply water temperature:
  - Reset schedule:165F supply water at 20F ambient, 120F supply water at 55F ambient.
  - Notes:
- Pumps enabled
  - Enable ambient temperature: 55 degrees
  - Annual schedule:
  - Notes:

Cooling Plant:

- Mechanical cooling enabled
  - Ambient temperature: 57 degrees
  - Annual schedule: May-September
  - Notes:

Economizer Free Cooling:

- Large RTUs have enthalpy economizers while UVs have dry bulb economizing capabilities
- Outside Air Control (OA Temp, OA Enthalpy, Dual Temp, Dual Enthalpy)
- Dry bulb High Limit: 55F, ECO low limit 40F
- Enthalpy High Limit:

Lighting Run Hours – NJ Clean Energy approved run hours will be used. See appendix H for more details.

Building Type	Equivalent Full Load Runtime hours/year, NJ Protocols
Education – Primary School	1,440
Education – Secondary School	2,305
Education – Community College	3,792
Education – University	3,073
Education – Other School	2,305
Grocery	5,824
Lodging Hotel (Guest Rooms)	1,145
Lodging Motel	8,736
Manufacturing – Light Industrial	4,290
Medical – Hospital	8,736
Medical – Clinic	4,212
Office- Large	2,808
Office-Small	2,808
Residential – Common Area	7,665
Residential – Tenant Area & Related	See below
Restaurant – Sit-Down	4,368
Restaurant – Fast-Food	6,188
Retail – 3-Story Large	4,259
Retail – Single-Story Large	4,368
Retail – Small	4,004
Storage Conditioned	4,290
Storage Heated or Unconditioned	4,290
Warehouse	3,900
Average = Miscellaneous	4,242

The Energy savings plan has been approved using the above referenced proposed operating conditions for energy savings calculations. Any deviations from these conditions will require a remodeling of the savings and or baseline.

ENERGY SAVINGS PLAN

APPENDIX F – LIGHTING LINE BY LINE