

Annual Savings Report

State of Ohio Standard Forms and Documents

Project Name Greeneview Local School District

Date September 5, 2018

Project Number 1342

Project Summary	
School District Name	Greeneview Local School District
State Project Number (SN)	1342
Total Project Cost (\$)	\$633,185
Length of Contract Term (years)	15
Projected Annual Savings (\$)	\$42,938
Construction Started / Completed	June 2014 – June 2015
Reporting Year (1, 2, or 3)	3
ESCO Name	Energy Optimizers USA
ESCO Guaranteed Annual Energy Savings (\$)	\$38,081
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At a minimum, the following items must be included in the annual report in order to support the summary table above. Additional information may be included and the items below are in no particular order within your report.

Please check that the following are included in the report.

- ✓ Baseline utility tables (gas, electric, water/sewage, etc.) including rates
- ✓ Actual monthly utility data for the current year
- ✓ List of Adjustments from baseline to current year and the supporting documentation
- ✓ Adjusted utility tables for the current reporting year
- ✓ Conclusion as to whether the project has its savings projection
- ✓ Conclusion as to whether the project has met its guarantee (for projects approved after September 2013)
- ✓ In case of shortfall, what measures are proposed to remedy the shortfall (if applicable)

Prepared By:

K Shalini

Shalini Kumaralingam, Lead Energy Engineer
Energy Optimizers, USA

9/5/2018

Date

Certified By:

Jacob McGrath

Jacob McGrath, Treasurer
Greeneview Local School District

9/5/2018

Date

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1 Annual Savings Summary

Below is a quick overview of the School Performance Energy Contracting Project completed at Greeneview Local Schools.

Greeneview Local Schools	Benchmark	Proposed		Actual Post-Project					Normalized Post-Project		
	Consumption & Costs	Consumption & Costs	Savings	Consumption & Costs	Adjustments	Net	Savings	% Change to Benchmark	Consumption & Costs	Normalized Savings	% Change to Benchmark
Electric											
Annual Usage, kWh	1,879,819	1,502,713	377,106	1,771,040	(82,508)	1,688,532	108,779	-5.8%	1,613,896	265,923	-14.1%
Annual Cost, \$	\$178,762	\$142,901	\$35,861	\$131,204	(\$6,074)	\$125,130	\$47,558	-26.6%	\$154,048	\$24,714	-13.8%
Fuel											
Annual Usage, MMBtu	3,128	2,751	377	2,325	0	2,325	803	-25.7%	2,300	828	-26.5%
Annual Cost, \$	\$18,404	\$16,184	\$2,220	\$16,081	\$0	\$16,081	\$2,324	-12.6%	\$13,532	\$4,872	-26.5%
Total Annual Utility Cost	\$197,166	\$159,085	\$38,081	\$147,284	(\$6,074)	\$141,211	\$49,882	-25.3%	\$167,580	\$29,586	-15.0%
Stipulation/Savings accounted for										\$9,477	
Weather											
Cooling Degree Days, CDD	949			1,202					26.7%		
Heating Degree Days, HDD	5,512			5,636					2.3%		

*Normalized savings are adjusted for pricing, weather conditions, and major facility changes to ensure an "apples to apples" comparison with benchmark data.

**HDD/CDD – Are a measurement of heating and cooling loads and are defined as the amount of degrees per day that the average temperature deviates from 65 F. For example, a cold day with an average temperature of 20 F would have 45 degree-days for that day (65 F – 20 F).

Greeneview Local Schools



OFCC Approved Savings		Guaranteed Savings	Actual Savings	Normalized Savings
Electric	\$ 35,861	\$ 35,861	\$ 47,558	\$ 24,714
Natural Gas	\$ 2,220	\$ 2,220	\$ 2,324	\$ 4,872
Stipulated Savings				\$ 9,477
Total Savings	\$ 38,081	\$ 38,081	\$ 49,882	\$ 39,063

The School has met its savings!

2 Introduction

This report details energy savings only; operations and maintenance savings have not been tabulated.

2.1 Energy Savings Summary,

It was anticipated that the School Energy Performance Contracting Project would save the District \$38,081 in energy per year. In the third year of post-project energy data considered, it has been calculated that the district saved \$39,063 in energy.

Reconciliation Report – Energy Savings Summary

OFCC Approved Savings	Guaranteed Savings	Actual Savings	Normalized Savings
Electric \$ 35,861	\$ 35,861	\$ 47,558	\$ 24,714
Natural Gas \$ 2,220	\$ 2,220	\$ 2,324	\$ 4,872
Stipulated Savings			\$ 9,477
Total Savings \$ 38,081	\$ 38,081	\$ 49,882	\$ 39,063

Note: The table above only includes Energy Savings; it does not include Operations and Maintenance Savings.

3 Post-Project Adjustments

3.1 Stipulated Savings

3.1.1 Elementary School

The Elementary School is currently using more energy than its baseline usage this is because the Elementary School is now being cooled (it wasn't cooled during baseline period). According to the project report only lighting enhancements were implemented which can't be the cause of the increase in energy use. Based on IPMVP option A the lighting savings were stipulated.

Energy Conservation Measure Description (Per Building)	Base Year Utility Cost	kBtu per Sq.Ft.	Annual Gas Savings	Annual Electrical Savings	Annual O/M Savings	Cost of ECM	Residual Value of Replaced Equipment	Additional Incurred Life Cycle Cost*	Total Cost of Project	ECM Cost per Sq.Ft.	Simple Payback (Yrs.)
Greeneview Elementary School	\$ 51,922	57.02								73.458	
Lighting Retrofits (Interior)				\$ 7,399	\$ 1,020	\$ 50,669	\$ 180	\$ -	\$ 50,849	\$ 0.21	6.02
Lighting Retrofits (Exterior)				\$ 2,078	\$ 75	\$ 10,480	\$ 600	\$ -	\$ 11,080	\$ 0.04	4.87
Hot Water Circulation Pump Scheduling - High School appl Elementary				\$ 110	\$ 27	\$ 280	\$ -	\$ -	\$ 280	\$ 0.00	2.04
Greeneview Elementary School Totals	\$ 51,922	57.02	\$ -	\$ 9,587	\$ 1,121	\$ 61,429	\$ 780	\$ -	\$ 62,209	\$ 0.84	5.74

Total Stipulated Savings: \$9,477

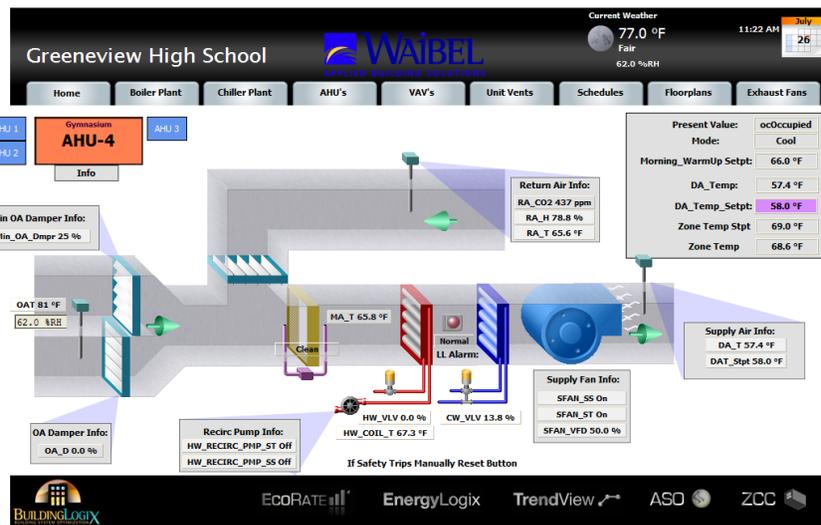
3.2 Changes at the High School

3.2.1 Change in Unit Vent Settings

The High School controls programming has been changed, resulting in the unit vents to run 24x7 as well as switching to heating and cooling mode simultaneously. The savings have been conservatively calculated as seen in the table below.

3.2.2 Change in Cooling Setpoint Temperature

The agreed upon set points upon conclusion of the project were 74°F for cooling and 68°F for heating. Below is a snapshot of the control dashboard for Greeneview High School. In the snapshot, the cooling set point for the zone is set to 69.0°F. The savings have been conservatively calculated as seen in the table below.



Post - Project Electric Usage at High School				
Meter Read Date	Actual Electricity Usage (kWh)	Unit Vents Settings (kWh)	Cooling Set Point (kWh)	Modified Energy (kWh)
08/07/17	95,345	6,865	2,288	86,192
09/07/17	128,356	9,242	3,081	116,034
10/07/17	92,967	6,694	2,231	84,042
11/07/17	87,074	6,269	-	80,805
12/07/17	66,895	4,816	-	62,079
01/07/18	65,355	4,706	-	60,649
02/07/18	74,474	5,362	-	69,112
03/07/18	69,165	4,980	-	64,185
04/07/18	67,395	4,852	-	62,543
05/07/18	74,909	5,393	599	68,916
06/07/17	104,143	7,498	833	95,812
07/07/17	84,977	6,118	680	78,179
	1,011,055	72,796	9,712	928,547

4 Savings Calculations

We at Energy Optimizers, USA find that the most accurate and reliable way of calculating the savings is Option C which is to compare energy usage data from after the project to data from before the project and Option A which is to stipulate the energy usage data. Energy data from the time period after the project has been completed, or the “post-project period” is measured against the energy data from before the project started, the baseline or benchmark time period. These two-time periods are:

Benchmark Time Period:	August 2012 – July 2013
Post-Project Time Period:	June 2017 – May 2018

4.1 Normalized Savings

4.1.1 Need for Normalization

Due to fluctuations in weather and prices in energy, the amount of money spent on energy can change drastically from year-to-year. In order to compare “apples to apples,” normalizing the data for the same weather and energy cost baseline is necessary. For example, if the price of electricity increases from \$0.10/unit to \$0.12/unit from one year to the next, and the owner uses 10% less energy, the overall cost will still increase because of the increased cost per unit.

Normalization is accomplished by adjusting the savings figures by a ratio of the benchmark heating or cooling demand and the post-project heating or cooling demand. Also, the benchmark energy cost rate is multiplied by the energy saved. These two steps remove the variables of weather and energy cost from the savings figures so that they are comparable to the anticipated savings. In turn, this allows us to determine the accurate amount of energy that was saved due to the School Energy Performance Contracting project.

4.1.2 Usage Dependency

The first step is separating each respective energy usage by two or three categories, namely Weather-dependent, Occupancy-dependent, and/or Independent use. These dependency percentages were determined using “Energy Explorer,” regression model software developed by Dr. Kelly Kissock at the University of Dayton. The percentages will allow the energy usage that is dependent on the weather to be normalized with respect to changes in weather from year to year. These percentages determined using “Energy Explorer” for the district are displayed in the table below. If the regression model provided a bad fit, R² value less than 0.75, for the electricity usage, it was assumed that the usage was 79% independent and 21% weather dependent. Below is a table reflecting the usage dependency:

Pre and Post Project Energy Usage Dependence Percentages

Pre - Project						
Greeneview Local Schools	Electric			Natural Gas		
	Ind %	Wea %	Occ %	Ind %	Wea %	Occ %
Greeneview High School	79.0%	21.0%	0.0%	6.9%	93.1%	0.0%
Greeneview Middle School	79.0%	21.0%	0.0%			
Greeneview Elementary School	64.0%	26.1%	10.0%			
Board of Education	79.0%	21.0%	0.0%			

Post - Project						
Greeneview Local Schools	Electric			Natural Gas		
	Ind %	Wea %	Occ %	Ind %	Wea %	Occ %
Greeneview High School	79.0%	21.0%	0.0%	19.4%	48.6%	32.0%
Greeneview Middle School	79.0%	21.0%	0.0%			
Greeneview Elementary School	79.0%	21.0%	0.0%			
Board of Education	79.0%	21.0%	0.0%			

The following was assumed if the R² value of the regression model was below 0.75.

Criteria	Electric			Natural Gas		
	Ind %	Wea %	Occ %	Ind %	Wea %	Occ %
Building with Cooling	79.0%	21.0%	0.0%	8.0%	92.0%	0.0%

4.1.3 Weather Differences

To adjust for differences in weather, it is necessary to determine the annual heating and cooling demand. Energy Optimizers, USA chooses to use heating degree days (HDD) and cooling degree days (CDD) for this measurement, as degree days are a great representation of the typical heating/cooling requirements for a building.

For example, the process of calculating the annual heating degree days is:

When the average outdoor air temperature (T_{oa}) is less than the balance point temperature (T_{bal} - the outdoor air temperature at which heating/cooling is initiated), calculate the difference between the balance point temperature and average outdoor air temperature.

Sum that difference up for all days in the given year.

This equates to the heating degree days per year and gives us an estimate of the annual heating energy use for a given location and balance temperature. The calculation for heating degree days is represented in the equation below; the process is nearly identical for cooling degree days.

$$\text{Heating Degree Days} = \sum_{i=1}^{365} (T_{bal} - T_{oa,i})$$

The heating and cooling degree days for the both time periods are displayed in the table below.

Weather Data	Baseline	Post Project	% Change to Baseline
Cooling Degree Days CDD	949	1,202	26.7%
Heating Degree Days HDD	5,512	5,636	2.3%

Using the heating and cooling degree days for each time period, as well as the Baseline Energy Signature breakdown from the initial analysis of the District's energy use, we were able to determine how much of the total energy was used for heating or cooling the facility. The percentage breakdown allows us to adjust the weather dependent portion of the usage with the ratio of heating/cooling degree days of the two time periods, which enables us to calculate the normalized post-project savings. This, in turn, will allow us to see how well the project has performed in comparison to the anticipated savings.

4.1.4 Electricity

Now that the heating and cooling degree days have been determined, it is possible to normalize the energy savings to determine just how much energy and money the project saved the district. To adjust for the electricity cost per unit change from the benchmark to the post-project time frame, we will multiple the weather normalized savings by the benchmark electricity cost per unit. The calculations and results are displayed below.

Weather Normalized Electricity Usage Calculations

Non-Weather Normalized Data			
Electricity Usage Data	Baseline	Post-Project	Change from Baseline
Annual kWh Usage	1,879,819	1,688,532	-10.2%
Annual kWh Cost	\$178,762	\$125,130	(\$53,632)
Average Cost per kWh	\$0.10	\$0.07	-22.1%
Electrical kBtu/SqFt	26.63	23.92	-10.2%

Weather Normalized Data			
Electricity Usage Data	Baseline	Post-Project	Change from Baseline
Independent kWh Usage	1,485,057	1,333,940	-10.2%
Weather-Dependent kWh Usage	394,762	354,592	-10.2%
Electrical kWh/CDD	415.98	295	-29.1%
Weather Normalized kWh	1,879,819	1,613,896	-14.1%
Total Electrical kWh/CDD	1,981	1,343	-32.2%

4.1.5 Natural Gas Usage

The same process that was completed to ascertain the normalized electricity savings has been executed for the natural gas side of the savings venture. The calculations and savings associated are shown below. The savings is as shown below

Non-Weather Normalized Data			
Heating Fuel Usage Data	Baseline	Post-Project	Change from Baseline
Annual MMBtu Usage	3,128	2,325	-25.7%
Annual MMBtu Cost	\$18,404	\$16,081	(\$2,324)
Average Cost per MMBtu	\$5.88	\$6.92	17.6%
Heating Fuel kBtu/SqFt	12.98	9.65	-25.7%

Weather Normalized Data			
Heating Fuel Usage Data	Baseline	Post-Project	Change from Baseline
Independent MMBtu Usage	216	1,195	453.7%
Weather-Dependent MMBtu Usage	2,912	1,130	-61.2%
Heating Fuel MMBtu/HDD	0.53	0.20	-62.1%
Weather Normalized MMBtu	3,128	2,300	-26.5%
Total Heating Fuel MMBtu/HDD	0.57	0.41	-28.1%

4.1.6 Savings Summary

Total Summarized Savings

OFCC Approved Savings		Guaranteed Savings	Actual Savings	Normalized Savings
Electric	\$ 35,861	\$ 35,861	\$ 47,558	\$ 24,714
Natural Gas	\$ 2,220	\$ 2,220	\$ 2,324	\$ 4,872
Stipulated Savings				\$ 9,477
Total Savings	\$ 38,081	\$ 38,081	\$ 49,882	\$ 39,063

5 Operational and Maintenance Savings

Greeneview Local Schools approves that Energy Optimizers, USA has met the guaranteed operations and maintenance savings of \$13,100.

Prepared By:

K Shalini

Shalini Kumaralingam, Lead Energy Engineer
Energy Optimizers, USA

9/5/2018

Date

Certified By:

Jacob McGrath

Jacob McGrath, Treasurer
Greeneview Local School District

9/5/2018

Date

6 Proposed Measures for Shortfall in Savings

This project does not include any shortfalls in savings.

The School has met its savings!

7 Appendices

7.1 District Reconciliation Analysis

Greeneview Local Schools



District Summary

Reconciliation Report: HVAC, Weather and Price Normalized

Baseline Energy Use Time Period: August 2012 - July 2013

Post-Project Energy Use Time Period: June 2017 - May 2018

Note: Energy savings figures only reflect (12) months of post-project data.

Weather Data	Cooling Degree Days (CDD)	Baseline: 949	Post Project: 1,202	Difference from Baseline: 26.7%
Weather Stn. Location:	Heating Degree Days (HDD)	Baseline: 5,512	Post Project: 5,636	Difference from Baseline: 2.3%

ENERGY USAGE COMPARISON

Electricity Usage Data

Non-Weather Normalized Data			
Electricity Usage Data	Baseline	Post-Project	Change from Baseline
Annual kWh Usage	1,879,819	1,688,532	-10.2%
Annual kWh Cost	\$178,762	\$125,130	(\$53,632)
Average Cost per kWh	\$0.10	\$0.07	-22.1%
Annual kW Usage (Demand)	-	-	-
Average Cost per kW	-	-	-
Electrical kBtu/SqFt	26.63	23.92	-10.2%

Weather Normalized Data			
Electricity Usage Data	Baseline	Post-Project	Change from Baseline
Independent kWh Usage	1,485,057	1,333,940	-10.2%
Weather-Dependent kWh Usage	394,762	354,592	-10.2%
Electrical kWh/CDD	415.98	295	-29.1%
Weather Normalized kWh	1,879,819	1,613,896	-14.1%
Total Electrical kWh/CDD	1,981	1,343	-32.2%

Heating Fuel Usage Data

Non-Weather Normalized Data			
Heating Fuel Usage Data	Baseline	Post-Project	Change from Baseline
Annual MMBtu Usage	3,128	2,325	-25.7%
Annual MMBtu Cost	\$18,404	\$16,081	(\$2,324)
Average Cost per MMBtu	\$5.88	\$6.92	17.6%
Heating Fuel kBtu/SqFt	12.98	9.65	-25.7%

Weather Normalized Data			
Heating Fuel Usage Data	Baseline	Post-Project	Change from Baseline
Independent MMBtu Usage	216	1,195	453.7%
Weather-Dependent MMBtu Usage	2,912	1,130	-61.2%
Heating Fuel MMBtu/HDD	0.53	0.20	-62.1%
Weather Normalized MMBtu	3,128	2,300	-26.5%
Total Heating Fuel MMBtu/HDD	0.57	0.41	-28.1%

Savings Summary

	Proposed Savings - Unit	Proposed Savings Cost	Bill to Bill Savings by Unit	Bill to Bill Savings Cost	Normalized Savings - Unit	Normalized Savings Cost
Electrical Savings - kWh	377,106	\$35,861	500,112	\$47,558	265,923	\$24,714
Heating Fuel Savings - MMBtu	377	\$2,220	395	\$2,324	828	\$4,872

TOTAL SAVINGS:

Anticipated Savings	\$38,081	Bill to Bill Comparison Savings	\$49,882	Total Normalized Savings	\$39,063
				Normalized Savings	\$29,586
				ES Stipulated Lighting Savings	\$9,477

7.2 District Utility Analysis



Greeneview Local Schools

District Summary

Post Project Period August 2017 - July 2017

FACILITY LOCATION NAME	FACILITY SIZE (S.F.)	ANNUAL ELECTRIC		ANNUAL KW	COST/ KWH	KBTU/ SF	ANNUAL FUEL (Total)		COST/ MMBTU	KBTU/ SF	TOTAL	TOTAL	TOTAL	
		KWH	COST				MMBTU	COST (Total)			ANNUAL COST	KBTU/SF	\$/SF	
1	Greeneview High School	92,592	928,547	\$ 68,732	0.0	\$ 0.074	34.23	2,325	\$ 16,081	\$ 6.92	25.11	\$ 84,813	59.34	\$ 0.92
2	Greeneview Middle School	64,571	645,625	\$ 46,414	0.0	\$ 0.072	34.13	-	\$ -	\$ -	-	\$ 46,414	34.13	\$ 0.72
3	Board of Education	5,304	114,360	\$ 9,984	672.2	\$ 0.087	73.59	-	\$ -	\$ -	-	\$ 9,984	73.59	\$ 1.88
District Totals		240,923	1,688,532	\$ 125,130	672.2	\$ 0.074	23.92	2,325	\$ 16,081	\$ 6.92	9.65	\$ 141,211	33.57	\$ 0.59

Baseline Period August 2012 - July 2013

FACILITY LOCATION NAME	FACILITY SIZE (S.F.)	ANNUAL ELECTRIC		ANNUAL KW	COST/ KWH	KBTU/ SF	ANNUAL FUEL (Total)		COST/ MMBTU	KBTU/ SF	TOTAL	TOTAL	TOTAL	
		KWH	COST				MMBTU	COST (Total)			ANNUAL COST	KBTU/SF	\$/SF	
1	Greeneview High School	92,592	1,115,930	\$ 102,372	3197.5	\$ 0.092	41.13	3,128	\$ 18,404	\$ 5.88	33.78	\$ 120,776	74.92	\$ 1.30
2	Greeneview Middle School	64,571	648,400	\$ 63,024	1965.8	\$ 0.097	34.27	-	\$ -	\$ -	-	\$ 63,024	34.27	\$ 0.98
3	Board of Education	5,304	115,489	\$ 13,367	435.9	\$ 0.116	74.31	-	\$ -	\$ -	-	\$ 13,367	74.31	\$ 2.52
District Totals		240,923	1,879,819	\$ 178,762	5599.2	\$ 0.095	26.63	3,128	\$ 18,404	\$ 5.88	12.98	\$ 197,166	39.61	\$ 0.82

Weather Normalized Utility Summary

Weather Normalized Totals Post Project	240,923	1,333,940	\$ 98,853	\$ 0.074	5.54	18.90	186	\$ 1,286	\$ 6.92	0.77	\$ 100,139	19.67	\$ 0.42
Weather Normalized Totals Baseline	240,923	1,485,057	\$ 141,222	\$ 0.095	6.16	21.04	250	\$ 1,472	\$ 5.88	1.04	\$ 142,694	22.08	\$ 0.59

2017-2018 - Heating Degree Days
 2012-2013 - Heating Degree Days
 2017-2018 - Cooling Degree Days
 2012-2013 - Cooling Degree Days

	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Total
2017-2018 - Heating Degree Days	48	11	34	102	295	664	1,094	1,190	740	848	560	50	5,636
2012-2013 - Heating Degree Days	12	1	1	99	390	733	819	1,031	988	929	399	109	5,512
2017-2018 - Cooling Degree Days	232	299	224	134	59	2	0	0	6	0	13	233	1,202
2012-2013 - Cooling Degree Days	195	278	254	89	8	0	0	0	0	0	14	111	949

7.3 High School Utility Analysis – Adjusted Data

Greeneview High School		
Facility Size	92,592	

Post Project Data	Electricity				Fuel				Summary	
	Meter Read Date	Energy (kWh)	Cost (\$)	Cost/ kWh	Meter Read Date	Fuel (MMBtu)	Cost (\$)	Cost/ MMBtu	Total (\$)	\$/SF
	08/07/17	86,192	\$5,983	\$ 0.069	8/1/17	91.7	\$638	\$ 6.96	\$6,621	\$ 0.07
	09/07/17	116,034	\$7,937	\$ 0.068	9/1/17	140.6	\$969	\$ 6.89	\$8,906	\$ 0.10
	10/07/17	84,042	\$6,214	\$ 0.074	10/1/17	61.2	\$425	\$ 6.95	\$6,639	\$ 0.07
	11/07/17	80,805	\$6,010	\$ 0.074	11/1/17	121.3	\$839	\$ 6.91	\$6,849	\$ 0.07
	12/07/17	62,079	\$4,891	\$ 0.079	12/1/17	223.3	\$1,518	\$ 6.80	\$6,409	\$ 0.07
	01/07/18	60,649	\$4,784	\$ 0.079	1/1/18	336.0	\$2,331	\$ 6.94	\$7,115	\$ 0.08
	02/07/18	69,112	\$5,162	\$ 0.075	2/1/18	448.2	\$3,019	\$ 6.74	\$8,181	\$ 0.09
	03/07/18	64,185	\$5,138	\$ 0.080	3/1/18	259.5	\$1,866	\$ 7.19	\$7,004	\$ 0.08
04/07/18	62,543	\$5,006	\$ 0.080	4/1/18	323.9	\$2,192	\$ 6.77	\$7,198	\$ 0.08	
05/07/18	68,916	\$5,148	\$ 0.075	5/1/18	229.8	\$1,583	\$ 6.89	\$6,731	\$ 0.07	
06/07/17	95,812	\$6,644	\$ 0.069	6/1/17	74.9	\$597	\$ 7.98	\$7,241	\$ 0.08	
07/07/17	78,179	\$5,815	\$ 0.074	7/1/17	14.5	\$104	\$ 7.20	\$5,919	\$ 0.06	
Totals	928,547	68,732	\$ 0.074		2,325	16,081	\$ 6.917	\$84,813	\$ 0.92	

Baseline Pre-Project Data	Electricity				Fuel				Summary	
	Meter Read Date	Energy (kWh)	Cost (\$)	Cost/ kWh	Meter Read Date	Fuel (MMBtu)	Cost (\$)	Cost/ MMBtu	Total (\$)	\$/SF
	08/06/12	90,114	\$7,706	\$ 0.086	08/01/12	16.0	\$98	\$ 6.12	\$7,804	\$ 0.08
	09/06/12	104,123	\$9,761	\$ 0.094	09/01/12	19.0	\$114	\$ 6.00	\$9,875	\$ 0.11
	10/05/12	106,566	\$10,409	\$ 0.098	10/01/12	60.0	\$383	\$ 6.38	\$10,791	\$ 0.12
	11/06/12	106,367	\$9,769	\$ 0.092	11/01/12	336.0	\$1,864	\$ 5.55	\$11,633	\$ 0.13
	12/04/12	88,965	\$8,346	\$ 0.094	12/01/12	468.0	\$2,717	\$ 5.81	\$11,063	\$ 0.12
	01/06/13	98,967	\$8,528	\$ 0.086	01/01/13	519.0	\$3,217	\$ 6.20	\$11,745	\$ 0.13
	02/06/13	95,739	\$8,397	\$ 0.088	02/01/13	560.0	\$3,321	\$ 5.93	\$11,718	\$ 0.13
	03/06/13	82,924	\$7,624	\$ 0.092	03/01/13	465.0	\$2,664	\$ 5.73	\$10,288	\$ 0.11
	04/05/13	83,286	\$7,573	\$ 0.091	04/01/13	401.0	\$2,280	\$ 5.69	\$9,852	\$ 0.11
	05/06/13	87,937	\$8,289	\$ 0.094	05/01/13	215.0	\$1,314	\$ 6.11	\$9,603	\$ 0.10
	06/06/13	101,941	\$9,443	\$ 0.093	06/01/13	50.0	\$314	\$ 6.28	\$9,757	\$ 0.11
07/05/13	69,001	\$6,528	\$ 0.095	07/01/13	19.0	\$119	\$ 6.25	\$6,646	\$ 0.07	
Totals	1,115,930	102,372	\$ 0.092		3,128.0	\$ 18,404	\$ 5.88	\$120,776	\$ 1.30	

7.4 High School Utility Analysis – Actual Data

Greeneview High School

Post Project Data	Electricity				Fuel			
	Meter Read	Energy (kWh)	Cost (\$)	Cost/kWh	Meter Read	Fuel (MMBtu)	Cost (\$)	Cost/MMBtu
	08/07/17	95,345	\$6,619	\$ 0.069	8/1/17	91.7	\$638	\$ 6.96
	09/07/17	128,356	\$8,780	\$ 0.068	9/1/17	140.6	\$969	\$ 6.89
	10/07/17	92,967	\$6,874	\$ 0.074	10/1/17	61.2	\$425	\$ 6.95
	11/07/17	87,074	\$6,476	\$ 0.074	11/1/17	121.3	\$839	\$ 6.91
	12/07/17	66,895	\$5,270	\$ 0.079	12/1/17	223.3	\$1,518	\$ 6.80
	01/07/18	65,355	\$5,155	\$ 0.079	1/1/18	336.0	\$2,331	\$ 6.94
	02/07/18	74,474	\$5,563	\$ 0.075	2/1/18	448.2	\$3,019	\$ 6.74
	03/07/18	69,165	\$5,537	\$ 0.080	3/1/18	259.5	\$1,866	\$ 7.19
04/07/18	67,395	\$5,395	\$ 0.080	4/1/18	323.9	\$2,192	\$ 6.77	
05/07/18	74,909	\$5,595	\$ 0.075	5/1/18	229.8	\$1,583	\$ 6.89	
06/07/17	104,143	\$7,222	\$ 0.069	6/1/17	74.9	\$597	\$ 7.98	
07/07/17	84,977	\$6,321	\$ 0.074	7/1/17	14.5	\$104	\$ 7.20	
Totals	1,011,055	\$74,806	\$ 0.074		2,324.9	\$16,081	\$ 6.92	

7.5 Middle School Utility Analysis

Greeneview Middle School	
Facility Size	64,571

Post Project Data	Electricity				Summary	
	Meter Read Date	Energy (kWh)	Cost (\$)	Cost/kWh	Total (\$)	\$/SF
	08/01/17	63,810	\$4,301	\$ 0.067	\$4,301	\$ 0.07
	09/01/17	72,537	\$4,933	\$ 0.068	\$4,933	\$ 0.08
	10/01/17	57,855	\$4,155	\$ 0.072	\$4,155	\$ 0.06
	11/01/17	55,210	\$4,112	\$ 0.074	\$4,112	\$ 0.06
	12/01/17	46,600	\$3,401	\$ 0.073	\$3,401	\$ 0.05
	01/01/18	47,823	\$3,425	\$ 0.072	\$3,425	\$ 0.05
	02/01/18	47,523	\$3,573	\$ 0.075	\$3,573	\$ 0.06
	03/01/18	45,449	\$3,417	\$ 0.075	\$3,417	\$ 0.05
04/01/18	41,286	\$3,104	\$ 0.075	\$3,104	\$ 0.05	
05/01/18	44,510	\$3,247	\$ 0.073	\$3,247	\$ 0.05	
06/25/17	63,504	\$4,470	\$ 0.089	\$4,470	\$ 0.07	
07/29/17	59,518	\$4,275	\$ 0.100	\$4,275	\$ 0.07	
Totals	645,625	\$46,414	\$ 0.072	\$46,414	\$ 0.72	

Baseline Pre-Project Data	Electricity				Summary	
	Meter Read Date	Energy (kWh)	Cost (\$)	Cost/kWh	Total (\$)	\$/SF
	08/03/12	34,960	\$3,936	\$ 0.113	\$3,936	\$ 0.06
	09/06/12	79,840	\$7,961	\$ 0.100	\$7,961	\$ 0.12
	10/03/12	61,760	\$6,978	\$ 0.113	\$6,978	\$ 0.11
	11/05/12	70,640	\$7,057	\$ 0.100	\$7,057	\$ 0.11
	12/04/12	55,280	\$5,398	\$ 0.098	\$5,398	\$ 0.08
	01/04/13	50,080	\$4,383	\$ 0.088	\$4,383	\$ 0.07
	02/05/13	54,880	\$4,741	\$ 0.086	\$4,741	\$ 0.07
	03/05/13	46,400	\$4,264	\$ 0.092	\$4,264	\$ 0.07
04/03/13	43,680	\$3,992	\$ 0.091	\$3,992	\$ 0.06	
05/03/13	45,840	\$4,389	\$ 0.096	\$4,389	\$ 0.07	
06/04/13	59,680	\$5,634	\$ 0.094	\$5,634	\$ 0.09	
07/03/13	45,360	\$4,292	\$ 0.095	\$4,292	\$ 0.07	
Totals	648,400	\$63,024	\$ 0.097	\$63,024	\$ 0.98	

7.6 Elementary School Utility Analysis

Greeneview Elementary School	
Facility Size	73,456

Post Project Data	Electricity				Summary	
	Meter Read Date	Energy (kWh)	Cost (\$)	Cost/kWh	Total (\$)	\$/SF
	08/01/17	48,948	\$3,918	\$ 0.080	\$3,918	\$ 0.05
	09/01/17	59,385	\$4,632	\$ 0.078	\$4,632	\$ 0.06
	10/01/17	52,862	\$4,156	\$ 0.079	\$4,156	\$ 0.06
	11/01/17	52,312	\$4,115	\$ 0.079	\$4,115	\$ 0.06
	12/01/17	65,972	\$4,658	\$ 0.071	\$4,658	\$ 0.06
	01/01/18	91,072	\$6,076	\$ 0.067	\$6,076	\$ 0.08
	02/01/18	74,907	\$5,440	\$ 0.073	\$5,440	\$ 0.07
	03/01/18	60,606	\$4,514	\$ 0.074	\$4,514	\$ 0.06
04/01/18	55,117	\$4,060	\$ 0.074	\$4,060	\$ 0.06	
05/01/18	49,866	\$3,819	\$ 0.077	\$3,819	\$ 0.05	
06/25/17	50,285	\$3,611	\$ 0.072	\$3,611	\$ 0.05	
07/29/17	43,698	\$3,347	\$ 0.077	\$3,347	\$ 0.05	
Totals	705,030	\$52,346	\$ 0.074	\$52,346	\$ 0.71	

Baseline Pre-Project Data	Electricity				Summary	
	Meter Read Date	Energy (kWh)	Cost (\$)	Cost/kWh	Total (\$)	\$/SF
	08/10/12	14,400	\$1,542	\$ 0.107	\$1,542	\$ 0.02
	09/12/12	27,520	\$2,997	\$ 0.109	\$2,997	\$ 0.04
	10/10/12	26,560	\$2,894	\$ 0.109	\$2,894	\$ 0.04
	11/09/12	32,640	\$3,545	\$ 0.109	\$3,545	\$ 0.05
	12/08/12	33,280	\$3,486	\$ 0.105	\$3,486	\$ 0.05
	01/10/13	30,400	\$2,939	\$ 0.097	\$2,939	\$ 0.04
	02/11/13	37,440	\$3,608	\$ 0.096	\$3,608	\$ 0.05
	03/11/13	32,960	\$3,304	\$ 0.100	\$3,304	\$ 0.04
04/10/13	31,200	\$3,130	\$ 0.100	\$3,130	\$ 0.04	
05/10/13	29,600	\$2,972	\$ 0.100	\$2,972	\$ 0.04	
06/10/13	22,880	\$2,308	\$ 0.101	\$2,308	\$ 0.03	
07/11/13	11,840	\$1,216	\$ 0.103	\$1,216	\$ 0.02	
Totals	330,720	\$33,941	\$ 0.103	\$33,941	\$ 0.46	

7.7 Board of Education

Board of Education	
Facility Size	5,304

Post Project Data	Electricity					Summary	
	Meter Read Date	Energy (kWh)	Cost (\$)	Cost/kWh	Demand (kW billed)	Total (\$)	\$/SF
	08/01/17	5,080	\$693	\$ 0.136	49.5	\$693	\$ 0.13
	09/01/17	7,600	\$573	\$ 0.075	79.4	\$573	\$ 0.11
	10/01/17	6,320	\$1,241	\$ 0.196	77.0	\$1,241	\$ 0.23
	11/01/17	4,880	\$532	\$ 0.109	86.6	\$532	\$ 0.10
	12/01/17	11,600	\$876	\$ 0.076	37.7	\$876	\$ 0.17
	01/01/18	20,640	\$1,318	\$ 0.064	43.8	\$1,318	\$ 0.25
	02/01/18	18,960	\$1,211	\$ 0.064	43.8	\$1,211	\$ 0.23
	03/01/18	12,320	\$787	\$ 0.064	43.8	\$787	\$ 0.15
	04/01/18	11,200	\$1,033	\$ 0.092	43.8	\$1,033	\$ 0.19
	05/01/18	6,320	\$628	\$ 0.099	67.8	\$628	\$ 0.12
	6/31/2017	4,560	\$606	\$ 0.133	49.5	\$606	\$ 0.11
	07/29/17	4,880	\$485	\$ 0.099	49.5	\$485	\$ 0.09
	Totals	114,360	\$9,984	\$ 0.087	672.2	\$9,984	\$ 1.88

Baseline Pre-Project Data	Electricity					Summary	
	Meter Read Date	Energy (kWh)	Cost (\$)	Cost/kWh	Demand (kW billed)	Total (\$)	\$/SF
	08/10/12	6,532	\$969	\$ 0.148	23.1	\$969	\$ 0.18
	09/10/12	5,937	\$959	\$ 0.161	24.2	\$959	\$ 0.18
	10/10/12	4,396	\$876	\$ 0.199	29.9	\$876	\$ 0.17
	11/10/12	6,017	\$962	\$ 0.160	34.0	\$962	\$ 0.18
	12/08/12	10,077	\$1,268	\$ 0.126	49.3	\$1,268	\$ 0.24
	01/10/13	19,253	\$1,723	\$ 0.089	46.3	\$1,723	\$ 0.32
	02/10/13	18,914	\$1,737	\$ 0.092	54.6	\$1,737	\$ 0.33
	03/10/13	14,466	\$1,450	\$ 0.100	52.1	\$1,450	\$ 0.27
	04/10/13	12,346	\$1,247	\$ 0.101	44.1	\$1,247	\$ 0.24
	05/10/13	6,441	\$771	\$ 0.120	32.0	\$771	\$ 0.15
	06/10/13	4,920	\$653	\$ 0.133	26.1	\$653	\$ 0.12
	07/10/13	6,190	\$752	\$ 0.121	20.2	\$752	\$ 0.14
	Totals	115,489	\$13,367	\$ 0.116	435.9	\$13,367	\$ 2.52