



PERFORMANCE CONTRACTING AGREEMENT

Performance Assurance Report

Town of Willington



Annual Period 1: July 1, 2014 – June 30, 2015

Siemens Industry, Inc.
Canton, MA

PERFORMANCE SOLUTIONS AGREEMENT OVERVIEW

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Annual Period: July 1, 2014 – June 30, 2015

Contract Term Length: 17 Years

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1. Executive Summary

Annual Period 1: July 1, 2014 – June 30, 2015

Siemens Industry (Siemens) is pleased to provide the Town of Willington with this Annual Period 1 performance assurance report. This report details the energy performance of the implemented project by comparing realized energy and cost savings for this annual period to the contract guaranteed savings. In Annual Period 1, the realized savings of \$49,768 exceeded the guaranteed savings of \$42,994 by \$6,276. The realized annual savings consisted of \$34,502 in measured and verified savings and \$14,768 in stipulated energy savings (See Table 1 and Figure 1). Additionally, construction period savings amounted to \$25,362, which is \$7,616 above the guarantee of \$17,746. Therefore, accumulated realized savings through Annual Period 1 totaled \$74,632, exceeding the guaranteed savings of \$60,740 by \$13,892. Table 2 compares realized and guaranteed energy unit savings for the construction period and Annual Period 1. Table 3 lists the realized energy unit savings by facility improvement measure (FIM).

Table 1: Annual Guaranteed and Realized Cost Savings through Annual Period 1

Annual Period	Measured & Verified Savings	Stipulated Savings	Total Realized Savings	Total Guaranteed Savings	Excess/ Shortfall in Savings
Construction	\$16,764	\$8,598	\$25,362	\$17,746	\$7,616
1	\$34,502	\$14,768	\$49,270	\$42,994	\$6,276
Total	\$51,266	\$23,366	\$74,632	\$60,740	\$13,892

Table 2: Annual Guaranteed and Realized Energy Savings through Annual Period 1

	Electric Energy Savings (kWh/yr)	#2 Fuel Oil Savings (Gal/yr)
Guaranteed Construction	62,337	2,321
Realized Construction	92,152	3,250
Guaranteed Annual Periods	153,072	5,700
Realized Annual Period 1	180,203	6,266
Excess/Shortfall Annual Period 1	27,131	566

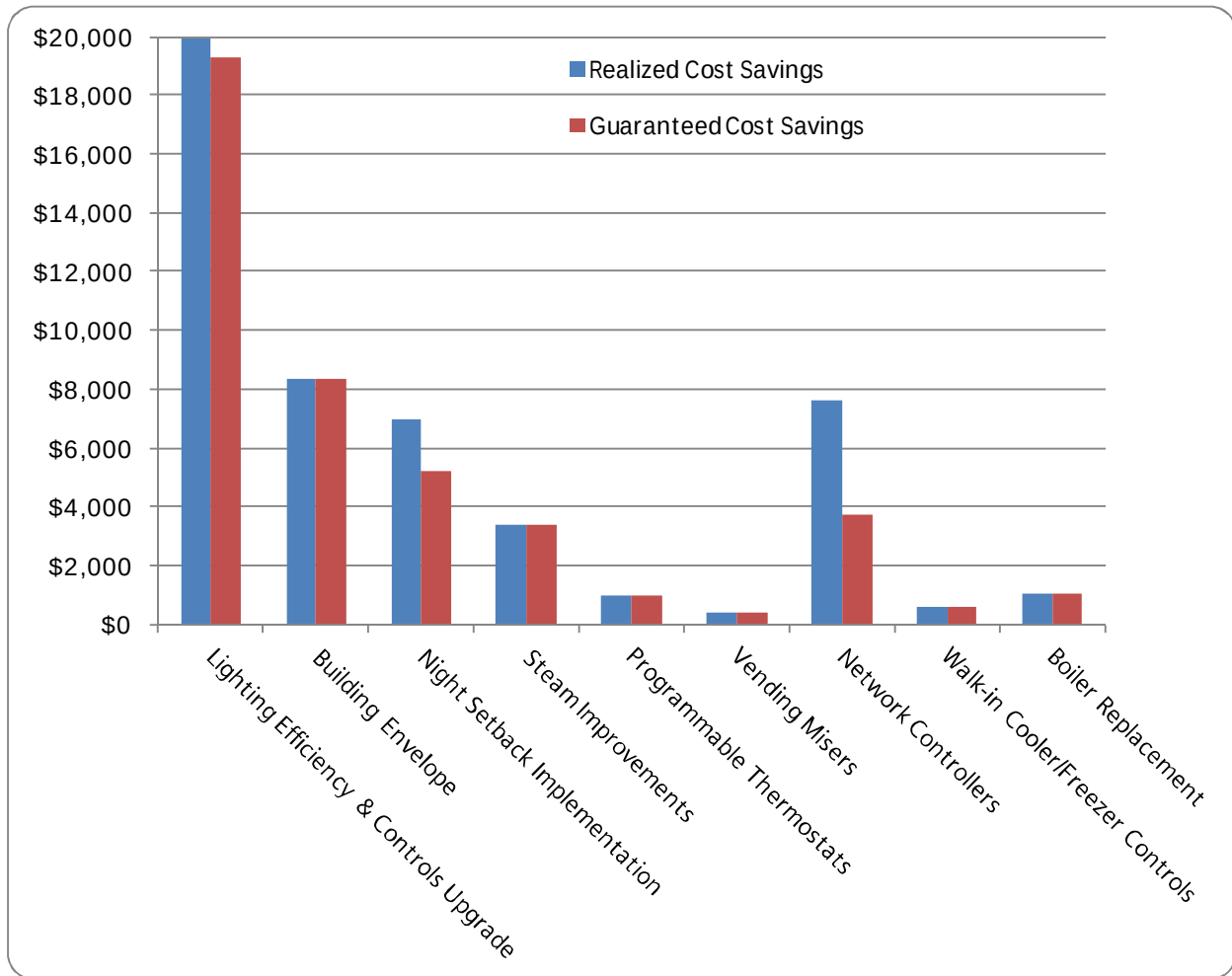


Figure 1: Cost Savings by FIM for Annual Period 1

Table 3: Realized Energy Savings by FIM for Annual Period 1

Facility Improvement Measure	Electric Energy Savings (kWh/yr)	#2 Fuel Oil Savings (Gal/yr)
Lighting Efficiency & Controls Upgrade	122,606	(208)
Building Envelope	4,856	2,450
Night Setback Implementation		2,257
Steam Improvements		1,112
Programmable Thermostats		322
Vending Misers	2,550	
Network Controllers	46,525	
Walk-in Cooler/Freezer Controls	3,666	
Boiler Replacement		333
Total	180,203	6,266

2. Greenhouse Gas Emissions Reduction

The Town of Willington reduced energy use also benefits the environment by reducing the amount of carbon dioxide, nitrogen oxide and sulfur dioxide released into the atmosphere. Figure 2 below shows an annual realized reduction of 349,872 pounds of CO₂, 243 pounds of NO_x and 429 pounds of SO₂. This calculation estimates the project's carbon footprint reduction due to realized electric energy and #2 fuel oil savings.

The calculator used to produce these charts converts the savings information into relevant comparisons including the number of cars removed from the road (29.0), the number of acres preserved from deforestation (1.1), or the railcars of coal burned (0.8). These results can be used to communicate the reduction accomplishments, develop a greenhouse gas reduction strategy, or support a range of initiatives to reduce the overall environmental impact.



Figure 2: Greenhouse Gas Emissions Reduction

3. Performance Assurance Overview

This section of the report provides an overview of the methodology and parameters used to measure and verify savings for this report and are based on the signed contract between the Town of Willington and Siemens Industry, Inc.

3.1. Measurement and Verification Methods

There are five measurement and verification options to measure and verify energy/utility Savings: Option A - Retrofit Isolation: Key Parameter Measurement; Option B - Retrofit Isolation: All Parameter Measurement; Option C - Whole Facility; and, Option D – Calibrated Simulation. Options A through and including D are part of the IPMVP. Option E-Stipulated is based on industry accepted engineering standards and is the Option used for purposes of calculating Operational Savings. The options used in this contract are Option A and Option E.

Option A – Retrofit Isolation: Key Parameter Measurement. Savings are determined by field measurement of the key performance parameter(s) which define the energy use of the FIM's affected system(s) and/or the success of the Project. Measurement frequency ranges from short-term to continuous, depending on the expected variations in the measured parameter and the length of the reporting period. Parameters not selected for field measurement are estimated. Estimates can be based on historical data, manufacturer's specifications, or engineering judgment. Documentation of the source or justification of the estimated parameter is required. The plausible savings error arising from estimation rather than measurement is evaluated. If applicable, the predetermined schedule for data collection, evaluation, and reporting is defined in Exhibit A, Article 3-Performance Assurance Services Program.

Option B – Retrofit Isolation: All Parameter Measurement. Savings are determined by field measurement of the energy use of the FIM-affected system. Measurement frequency ranges from short-term to continuous, depending on the expected variations in the savings and the length of the reporting period. If applicable, the predetermined schedule for data collection, evaluation, and reporting is defined in Exhibit A, Article 3-Performance Assurance Services Program.

Option C – Whole Facility: Savings are determined by measuring energy use at the whole Facility or sub-Facility level. Continuous measurements of the entire Facility's energy use are taken throughout the reporting period. If applicable, the predetermined schedule for data collection, evaluation, and reporting is defined in Exhibit A, Article 3-Performance Assurance Services Program.

Option D – Calibrated Simulation: Savings are determined through simulation of the energy use of the whole Facility, or of a sub-Facility. Simulation routines are demonstrated to adequately model actual energy performance measured in the Facility. This Option usually requires considerable skill in calibrated simulation. If applicable, the predetermined schedule for data collection, evaluation, and reporting is defined in Exhibit A, Article 3-Performance Assurance Services Program.

Option E – Stipulated: This Option is the method of measurement and verification applicable to FIMS consisting either of Operational Savings or where the end use capacity or operational efficiency; demand, energy consumption or power level; or manufacturer's measurements, industry standard efficiencies or operating hours are known in advance, and used in a calculation or analysis method that will stipulate the outcome. Both CLIENT and SIEMENS agree to the stipulated inputs and outcome(s) of the analysis methodology. Based on the established analytical methodology the Savings stipulated will be achieved upon completion of the FIM and no further measurements or calculations will be performed during the Performance Guarantee Period. If applicable, the methodology and calculations to establish Savings value will be defined in Section 4.6 of this Exhibit C.

3.2. Guaranteed Savings

Guaranteed energy and cost savings are shown below in Table 4, Table 5, and Table 6. Please note all guaranteed savings reflect Amendment 1 to the Performance Contracting Agreement, dated June 10, 2014.

Table 4: Guaranteed Energy Savings by Annual Period

Performance Period	Electric Energy Savings (kWh)	#2 Fuel Oil Savings (Gal/yr)
Construction Period	62,337	2,321
Annual Periods 1 - 17	153,072	5,700

Table 5: Guaranteed Annual Energy Savings by FIM (Units) for Annual Periods 1 through 17

Facility Improvement Measure	Electric Energy Savings (kWh/yr)	#2 Fuel Oil Savings (Gal/yr)
Lighting Retrofit	119,124	(211)
Building Envelope	4,856	2,450
Night Setback Implementation		1,694
Steam Improvements		1,112
Programmable Thermostats		322
Vending Misers	2,550	
Network Controllers	22,876	
Cooler Controls	3,666	
Boiler Replacement		333
Total	153,072	5,700

Table 6: Guaranteed Annual Cost Savings by FIM for Annual Period 1

Facility Improvement Measure	M & V Option	Guaranteed Savings
Lighting Retrofit	A	\$19,290
Building Envelope	E	\$8,345
Night Setback Implementation	A	\$5,219
Steam Improvements	E	\$3,425
Programmable Thermostats	E	\$992
Vending Misers	E	\$403
Network Controllers	A	\$3,717
Cooler Controls	E	\$579
Boiler Replacement	E	\$1,024
Total		\$42,994

3.3. Utility Rate Structures and Escalation Rates

Utility rates used to calculate dollar savings for this report are the baseline year unit rates shown in Table 7. Per the contract, an escalation rate of 4% will be applied to the baseline rate for each utility in future annual periods.

Table 7: Contract Utility Rates for Annual Period 1

Location	Electricity (\$/kWh)	#2 Fuel Oil (\$/Gal)
Center School	\$0.158	\$3.080
Hall School	\$0.158	\$3.080
Town Offices	\$0.201	\$3.080
Senior Center	\$0.182	\$3.080
DPW Garage	\$0.175	

3.4. Baseline Utility Data

Table 8 outlines the utility consumption that occurred during the baseline period, which was September 2010 through August 2011.

Table 8: Baseline Consumption

Location	Electric Energy Savings (kWh/yr)	#2 Fuel Oil Savings (Gal/yr)
Center School	156,600	11,901
Hall School	349,440	19,479
Town Offices	71,944	2,380
Senior Center	34,294	2,270
DPW Garage	29,520	2,324
Total	641,798	38,354

3.5. Baseline Operating Data

The baseline operating data, shown in Table 9 and Table 10, reflects the operating parameters that were in effect during the baseline period prior to project implementation.

Table 9: Baseline Operating Hours

Location	Occupied Hrs/ Weekday	#of Days/ Week	Occupied Hrs/ Weekend	Total Hrs/ Week	Total Weeks/ Year
Center School	24	5	Varies	120	52
Hall School	24	5	Varies	120	52
Town Offices	24	5	24	168	52
Senior Center	24	5	24	168	52
DPW Garage	24	5	24	168	52

Table 10: Baseline Operating Temperatures

Location	Occupied Heating (Deg F)	Unoccupied Heating (Deg F)	Occupied Cooling (Deg F)	Unoccupied Cooling (Deg F)
Center School	75	74	74	74
Hall School	72	72	74	74
Town Offices	70	70	74	74
Senior Center	74	74	74	74
DPW Garage	66	66	N/A	N/A

3.6. Contracted Baseline Operating Data

The guaranteed savings from the facility improvement measures provided under this contract are based on the implementation and maintenance of the specific operating parameters outlined in Table 11 and Table 12.

Table 11: Contracted Baseline Operating Hours

Location	Occupied Hrs/ Weekday	#of Days/ Week	Occupied Hrs/ Weekend	Total Hrs/ Week	Total Weeks/ Year
Center School	10	5	0	50	52
Hall School	11	5	16	71	52
Town Offices	10	5	0	50	52
Senior Center	10	5	10	60	52
DPW Garage	24	5	48	168	52

Table 12: Contracted Baseline Operating Temperatures

Location	Occupied Heating (Deg F)	Unoccupied Heating (Deg F)	Occupied Cooling (Deg F)	Unoccupied Cooling (Deg F)
Center School	72	60	74	80
Hall School	72	60	74	80
Town Offices	70	60	74	80
Senior Center	74	60	74	80
DPW Garage	66	60	N/A	N/A

4. Performance Assurance Results

4.1. Summary of Realized and Guaranteed Annual Savings

Total realized savings for Annual Period 1 were \$49,174 and were comprised of \$34,406 of Option A and \$14,768 in Option E savings, as shown in Table 13. Total realized savings are in excess of the guaranteed savings of \$42,994 by \$6,180. Figure 3 compares realized and guaranteed savings by location for this annual period. The following sections detail the Option A and E savings.

Table 13: Realized and Guaranteed Savings by Guarantee Type for Annual Period 1

Guarantee Type	Realized Savings	Guaranteed Savings	Excess/ Shortfall in Savings
Option A Savings	\$34,502	\$28,226	\$6,276
Option E Savings	\$14,768	\$14,768	\$0
Total Savings	\$49,270	\$42,994	\$6,276

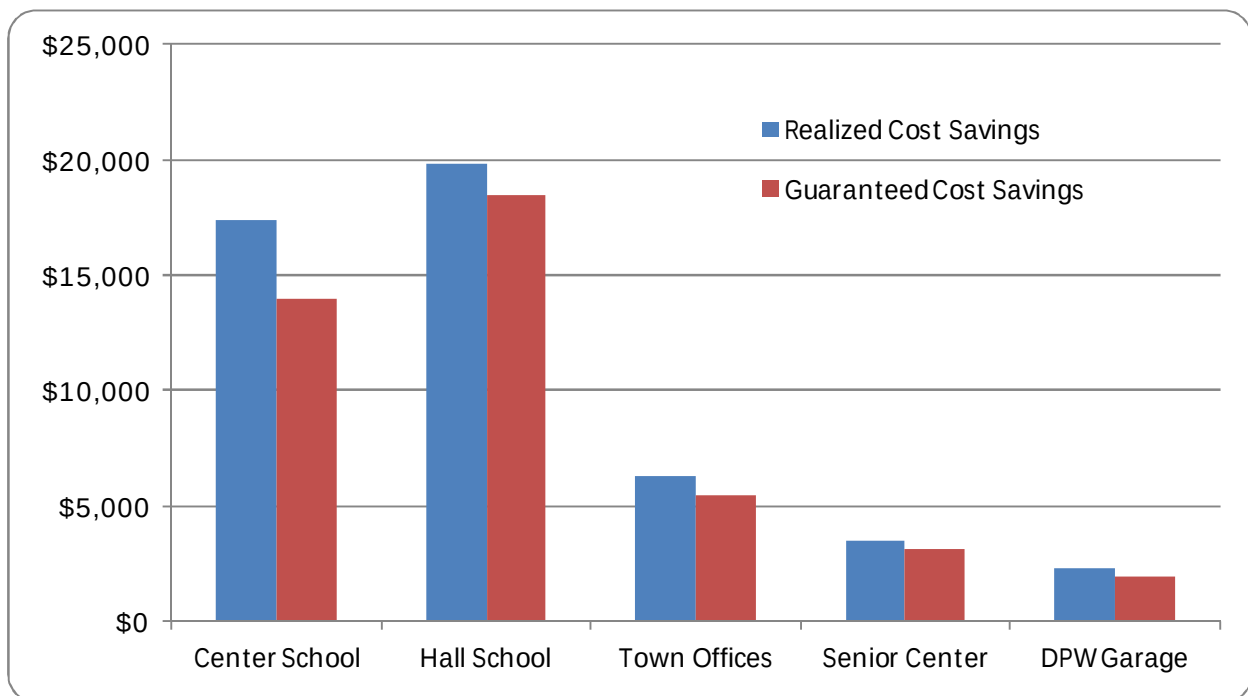


Figure 3: Realized and Guaranteed Cost Savings by Location for Annual Period 1

4.2. Option A Energy Savings

Option A savings are verified based on measurement of one key parameter taken after substantial completion of each facility improvement measure (FIM) and the estimated savings are included as ongoing realized savings in each subsequent annual period. Table 14 below summarizes Option A savings realized during the current annual period and shows that total Option A savings amounted to \$34,502, which is \$6,276 above the guaranteed Option A savings (\$28,226).

Table 14: Summary of Option A Savings for Annual Period 1

Facility Improvement Measure	#2 Fuel Oil Savings (Gal/yr)	Realized Cost Savings (\$)	Guaranteed Cost Savings (\$)	Excess/ Shortfall in Savings (\$)
Lighting Efficiency & Controls Upgrade	(208)	\$19,946	\$19,290	\$657
Night Setback Implementation	2,257	\$6,953	\$5,219	\$1,734
Network Controllers		\$7,602	\$3,717	\$3,885
Total	2,049	\$34,502	\$28,226	\$6,276

4.2.1. Lighting Retrofit

Energy savings resulting from the lighting retrofit were verified based upon a one-time measurement of the lighting power capacity under existing conditions, a one-time measurement of the lighting power capacity upon completion of the lighting retrofit project and agreed-upon annual operating hours. Lighting retrofit savings (listed in Table 15 and Table 16 by location) amounted to \$19,946, which is \$657 greater than the guarantee of \$19,290.

Table 15: Lighting Energy Savings for Annual Period 1

Location	Realized Electric Energy Savings (kWh/yr)	Guaranteed Electric Energy Savings (kWh/yr)	As-Built EMC Electric Calculated (kWh/yr)	Guaranteed Heating Penalty Oil (Gal/yr)	Realized Heating Penalty Oil (Gal/yr)	Guaranteed Heating Penalty Propane (Gal/yr)	Realized Heating Penalty Propane (Gal/yr)
Center School	25,043	25,979	29,240	(49)	(47)		
Hall School	57,387	57,449	57,943	(109)	(108)		
Town Offices	18,043	17,704	22,657	(36)	(34)		
Senior Center	9,206	7,147	7,428	(17)	(19)		
DPW Garage	12,927	10,845	11,679			0	(9)
Total	122,606	119,124	128,946	(211)	(208)	0	(9)

Table 16: Lighting Cost Savings for Annual Period 1

Location	Realized Electric Energy Savings (\$)	Guaranteed Electric Energy Savings (\$)	Excess/ Shortfall in Savings (\$)
Center School	\$3,811	\$3,954	(\$143)
Hall School	\$8,736	\$8,742	(\$6)
Town Offices	\$3,521	\$3,449	\$72
Senior Center	\$1,616	\$1,247	\$369
DPW Garage	\$2,262	\$1,898	\$364
Total	\$19,946	\$19,290	\$657

4.2.2. Night Setback Implementation

Night setback implementation savings result from scheduling occupied and unoccupied heating temperature set points. Previously, there was no night setback control in place. Energy savings due to the reduction in fuel use was verified by trending space temperatures during the heating season for a short-term using the Energy Management System (EMS). Pre-retrofit (baseline) and post-retrofit (contracted baseline) operating hours and temperatures are listed in Sections 3.5 and 3.6, respectively.

Realized night setback savings summed to \$6,953, or \$1,734 above the guaranteed \$5,219 (see Table 17). Trends from 4 temperature sensors at each school were analyzed for a 20-day period in January. The average minimum space temperature during unoccupied periods in the short-term trended was used as the unoccupied temperature set point at each school in order to calculate savings. The guarantee was based on a setback temperature of 67°F. The average actual setback temperature was 63.2°F at Center School and 67.9°F at Hall School (see Table 18). If the schools were setback to 60°F as contracted, cost savings would total \$13,472 with \$5,967 due to Center School and \$7,504 due to Hall School.

Figure 4 and Figure 5 illustrate the temperature variations at Center and Hall Schools, respectively, for a 5-day period in January 2015. From the figures you can see that some of the rooms are not setting back as much as expected, causing a shortfall at Hall School. Matt Jensen, who is a member of the facilities personnel, was informed that this was likely due to problems with individual pneumatic room thermostats, which were not part of this energy project. Siemens suggested having the pneumatic room thermostats calibrated, repaired, and/or replaced in order to achieve more night setback savings. At the time, the schools were looking into having some pneumatic thermostats calibrated and others replaced with programmable thermostats, which is now in progress.

Additionally, Siemens verified that the installed Siemens panels at each school were properly communicating with the pneumatic panels by confirming that the pressure varied based on occupied/unoccupied mode.

Table 17: Night Setback Implementation Savings for Annual Period 1

Location	Realized #2 Fuel Oil Savings (Gal/yr)	Guaranteed #2 Fuel Oil Savings (Gal/yr)	Realized Cost Savings (\$)	Guaranteed Cost Savings (\$)	Excess/ Shortfall in Savings (\$)
Center School	1,418	751	\$4,367	\$2,312	\$2,055
Hall School	840	944	\$2,586	\$2,907	(\$321)
Total	2,257	1,694	\$6,953	\$5,219	\$1,734

Table 18: Average of Minimum Unoccupied Temperatures by Location for Annual Period 1

Location	Art Room	Gym	Classroom A	Classroom B	Average
Center School	66.4	60.4	63.6	62.5	63.2
Hall School	69.2	65.3	67.9	69.0	67.9

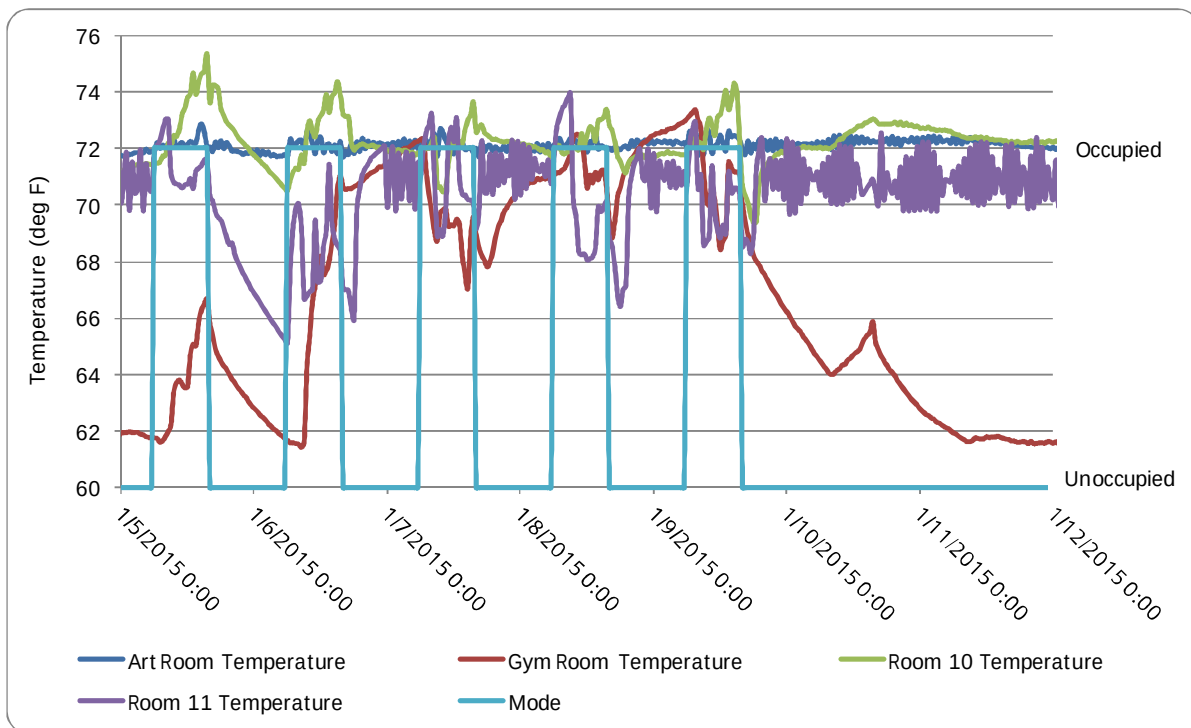


Figure 4: Center School Night Setback for a 5-Day Period in January 2015

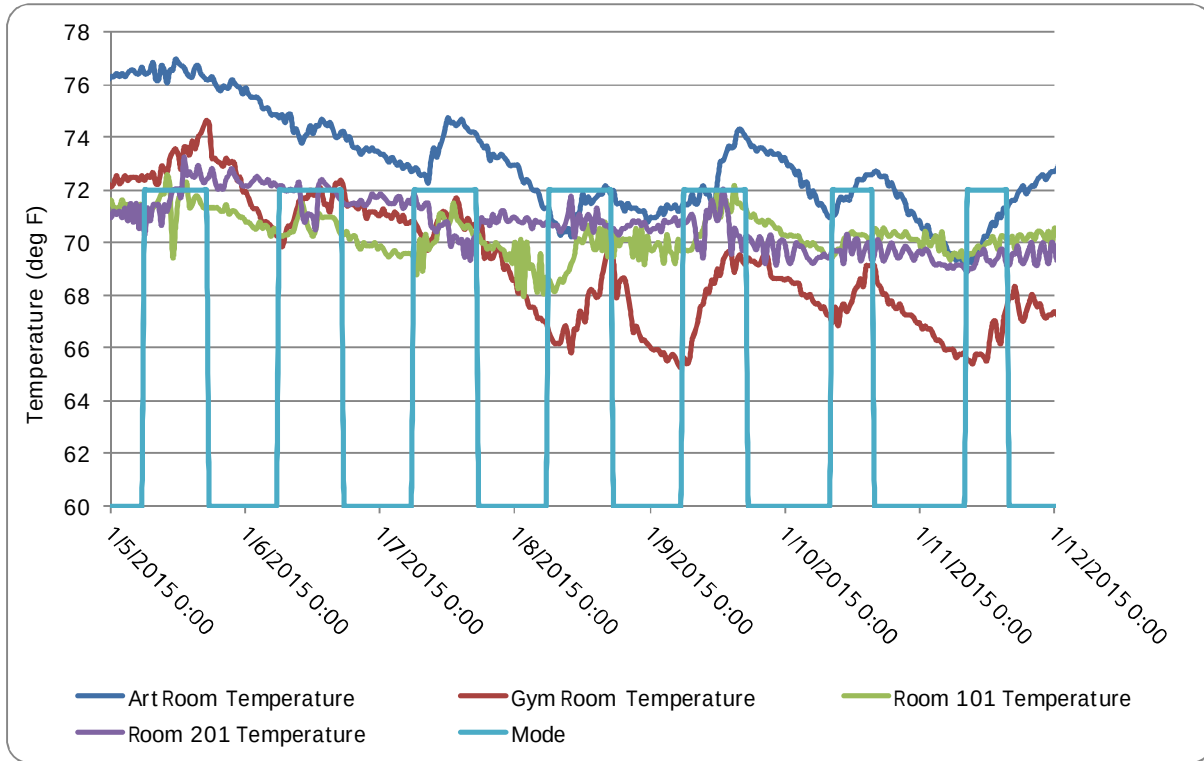


Figure 5: Hall School Night Setback for a 5-Day Period in January 2015

4.2.3. Network Controllers

A new Power Management Network Utility System was installed to measure, manage, and minimize the energy consumed by the network's personal computer (PC) clients through one centralized interface. An energy consumption report generated using Synergy PowerMan Software deduced the kWh savings for each PC as a result of the network controllers. The contracted number of PC's (shown in Table 20) was multiplied by the average electric savings per PC to calculate total electric savings at each location. Realized cost savings for Annual Period 1 totaled \$7,602, or \$3,885 above the guaranteed \$3,717 (see Table 19). The average savings per PC far exceeded expectations at some locations, leading to an excess overall. The Powerman report cannot verify savings due to PC's at the Senior Center or DPW Garage because they are not connected to the Town's network. Therefore, savings for these locations were stipulated to their full guaranteed value. For more information about how Powerman's report was used to calculate savings, see Appendix (Section 6). Please be aware that Powerman's report shows only 232 PC's running on the program now, whereas a total of 420 (including the 10 computers at the Senior Center and DPW Garage) were originally

set-up. Siemens suggests reactivating the software on any PC that currently has it deactivated.

Table 19: Network Controllers Savings for Annual Period 1

Location	Realized Electric Energy Savings (kWh/yr)	Guaranteed Electric Energy Savings (kWh/yr)	Realized Electric Energy Savings (\$)	Guaranteed Electric Energy Savings (\$)	Excess/ Shortfall in Savings (\$)
Center School	15,476	6,118	\$2,445	\$967	\$1,479
Hall School	24,936	14,098	\$3,940	\$2,227	\$1,712
Town Offices	5,582	2,128	\$1,122	\$428	\$694
Senior Center	333	333	\$61	\$61	\$0
DPW Garage	200	200	\$35	\$35	\$0
Totals	46,525	22,876	\$7,602	\$3,717	\$3,885

Table 20: Number of Computers and Average Savings by Location for Annual Period 1

Location	Number of PC's per Contract Amendment	Average Savings per PC (kWh/PC)	Total Savings (kWh)
Center School	100	155	15,476
Hall School	270	92	24,936
Town Offices	40	140	5,582
Senior Center*	3		333
DPW Garage*	7		200
Total	420		46,525

*Total savings were stipulated due to unavailability of data.

4.3. Option E Energy Savings

Option E savings for Annual Period 1 amounted to \$14,768, as shown in Table 21. Energy savings for these measures are stipulated, per the contract, and are based on the predicted savings calculated in the detailed energy audit. No further measurements were taken.

Table 21: Summary of Option E Savings for Annual Period 1

Facility Improvement Measure	Electric Energy Savings (kWh/yr)	#2 Fuel Oil Savings (Gal/yr)	Realized Cost Savings (\$)	Guaranteed Cost Savings (\$)
Building Envelope	4,856	2,450	\$8,345	\$8,345
Center School	1,594	598	\$2,094	\$2,094
Hall School	1,940	1,135	\$3,802	\$3,802
Town Offices		370	\$1,140	\$1,140
Senior Center	1,322	347	\$1,309	\$1,309
Steam Improvements		1,112	\$3,425	\$3,425
Center School		1,112	\$3,425	\$3,425
Programmable Thermostats		322	\$992	\$992
Town Offices		163	\$502	\$502
Senior Center		159	\$490	\$490
Vending Misers	2,550		\$403	\$403
Center School	1,275		\$201	\$201
Hall School	1,275		\$201	\$201
Cooler Controls	3,666		\$579	\$579
Hall School	3,666		\$579	\$579
Boiler Replacement		333	\$1,024	\$1,024
Center School		333	\$1,024	\$1,024
Total	22,144	8,433	\$14,768	\$14,768

4.3.1. Building Envelope

To control air leakage Siemens sealed gaps, cracks, and holes using appropriate materials and systems in structures, such as doors, windows, roof-wall joints, and attics, at the Center School, Hall School, Town Offices, and Senior Center. Energy savings result from reducing outside air infiltration.

4.3.2. Steam Improvements

Improvements were made to the steam distribution system, including the replacement of steam traps, the installation of valve jackets, condensate piping insulation, and the replacement of thermostatic radiator valves at Center School. Savings are achieved by not venting steam into the condensate return system and/or to the atmosphere via the boiler feed system.

4.3.3. Programmable Thermostats

Four programmable thermostats were installed at both the Town Offices and Senior Center in order to schedule occupied and unoccupied heating temperature set points by controlling the air handling units.

4.3.4. Vending Misers

Vending machine occupancy controllers were furnished and installed to manage the power consumption of the cold beverage vending machines at Center School and Hall School by reducing electrical consumption during periods of low occupancy.

4.3.5. Cooler Controls

Siemens furnished and installed one CoolTrol Cooler Control Systems that saves energy by controlling a walk-in cooler's freezer door, thermostat, and electronic controlled evaporator fan motors at Hall School.

4.3.6. Boiler Replacement

Replaced existing oil fired steam boiler with a Viessmann oil fired hot water cast iron boiler. Savings result from an increase in combustion efficiency.

5. Construction Savings

Construction period savings are the savings realized between the time a FIM is considered substantially complete and the project as a whole is considered substantially complete. During this time period, the customer has beneficial use of the equipment and, therefore, is realizing energy savings. While final completion was signed on June 30, 2014, the end of the construction period and the beginning of Annual Period 1 is considered to be July 1, 2014. The dates that individual FIMs are considered substantially complete have been taken directly from FIM Substantial Completion Sign-offs.

Construction savings are calculated by prorating Annual Period 1's realized savings by the number of days between when Substantial completion and Final completion were signed (see Table 23). Table 22 summarizes construction savings, which amount to \$25,362, or \$7,616 above the guarantee of \$17,746. Table 24 has a breakdown of energy and cost savings for the construction period by FIM.

Table 22: Realized versus Guaranteed Construction Savings

	Realized Electric Energy Savings (kWh/yr)	Guaranteed Electric Energy Savings (kWh/yr)	Realized #2 Fuel Oil Savings (Gal/yr)	Guaranteed #2 Fuel Oil Savings (Gal/yr)	Realized Cost Savings (\$)	Guaranteed Cost Savings (\$)	Excess/ Shortfall in Savings (\$)
Construction Period	92,152	62,337	3,250	2,321	\$25,362	\$17,746	\$7,616

Table 23: Construction Period for each FIM

Facility Improvement Measure	FIM Substantial Completion	FIM Final Completion	Days	% of Year
Lighting Efficiency & Controls Upgrade	12/6/2013	7/1/2014	207	57%
Center School	12/6/2013	7/1/2014	207	57%
Hall School	12/6/2013	7/1/2014	207	57%
Town Offices	12/6/2013	7/1/2014	207	57%
Senior Center	12/6/2013	7/1/2014	207	57%
DPW Garage	12/6/2013	7/1/2014	207	57%
Building Envelope	11/7/2013	7/1/2014	236	65%
Center School	11/7/2013	7/1/2014	236	65%
Hall School	11/7/2013	7/1/2014	236	65%
Town Offices	11/7/2013	7/1/2014	236	65%
Senior Center	11/7/2013	7/1/2014	236	65%
Night Setback Implementation	1/27/2014	7/1/2014	155	42%
Center School	1/27/2014	7/1/2014	155	42%
Hall School	1/27/2014	7/1/2014	155	42%
Steam Improvements	11/11/2013	7/1/2014	232	64%
Center School	11/11/2013	7/1/2014	232	64%
Programmable Thermostats	2/17/2014	7/1/2014	134	37%
Town Offices	2/17/2014	7/1/2014	134	37%
Senior Center	2/17/2014	7/1/2014	134	37%
Vending Misers	11/5/2013	7/1/2014	238	65%
Center School	11/5/2013	7/1/2014	238	65%
Hall School	11/5/2013	7/1/2014	238	65%
Network Controllers	3/3/2014	7/1/2014	120	33%
Center School	3/3/2014	7/1/2014	120	33%
Hall School	3/3/2014	7/1/2014	120	33%
Town Offices	3/3/2014	7/1/2014	120	33%
Senior Center	3/3/2014	7/1/2014	120	33%
DPW Garage	3/3/2014	7/1/2014	120	33%
Walk-in Cooler/Freezer Controls	10/23/2013	7/1/2014	251	69%
Hall School	10/23/2013	7/1/2014	251	69%
Boiler Replacement *	N/A	N/A	0	0%
Center School	N/A	N/A	0	0%

*No construction savings were taken for the Boiler Replacement. As noted in subsection ECM #CS7 of Article 1 in Exhibit A of Amendment 1, actual substantial completion was (as expected) after final completion.

Table 24: Realized Energy and Cost Construction Period Savings

Facility Improvement Measure	Annual Electric Energy Savings (kWh/yr)	Construction Period Electric Energy Savings (kWh/yr)	Annual #2 Fuel Oil Savings (Gal/yr)	Construction Period #2 Fuel Oil Savings (Gal/yr)	Annual Cost Savings (\$)	Construction Period Savings (\$)
Lighting Efficiency & Controls Upgrade	122,606	69,533	(208)	(118)	\$19,946	\$11,312
Center School	25,043	14,202	(47)	(27)	\$3,811	\$2,161
Hall School	57,387	32,545	(108)	(61)	\$8,736	\$4,954
Town Offices	18,043	10,233	(34)	(19)	\$3,521	\$1,997
Senior Center	9,206	5,221	(19)	(11)	\$1,616	\$917
DPW Garage	12,927	7,331			\$2,262	\$1,283
Building Envelope	4,856	3,140	2,450	1,584	\$8,345	\$5,396
Center School	1,594	1,031	598	387	\$2,094	\$1,354
Hall School	1,940	1,254	1,135	734	\$3,802	\$2,458
Town Offices			370	239	\$1,140	\$737
Senior Center	1,322	855	347	224	\$1,309	\$847
Night Setback Implementation			2,257	959	\$6,953	\$2,953
Center School			1,418	602	\$4,367	\$1,854
Hall School			840	357	\$2,586	\$1,098
Steam Improvements			1,112	707	\$3,425	\$2,177
Center School			1,112	707	\$3,425	\$2,177
Programmable Thermostats			322	118	\$992	\$364
Town Offices			163	60	\$502	\$184
Senior Center			159	58	\$490	\$180
Vending Misers	2,550	1,663			\$403	\$263
Center School	1,275	831			\$201	\$131
Hall School	1,275	831			\$201	\$131
Network Controllers	46,525	15,296			\$7,602	\$2,499
Center School	15,476	5,088			\$2,445	\$804
Hall School	24,936	8,198			\$3,940	\$1,295
Town Offices	5,582	1,835			\$1,122	\$369
Senior Center	333	109			\$61	\$20
DPW Garage	200	66			\$35	\$11
Walk-in Cooler/Freezer Controls	3,666	2,521			\$579	\$398
Hall School	3,666	2,521			\$579	\$398
Boiler Replacement*			333	0	\$1,024	\$0
Center School			333	0	\$1,024	\$0
Total	180,203	92,152	6,266	3,250	\$49,270	\$25,362

*No construction savings were taken for the Boiler Replacement. As noted in subsection ECM #CS7 of Article 1 in Exhibit A of Amendment 1, actual substantial completion was (as expected) after final completion.

6. Appendix

Powerman's report includes information about PC activity for each PC at each location. Table 25 is a specific location report, using the Town Hall as an example. Electric energy savings per PC is calculated using the formula below, which is then used to find average electric energy savings per PC for each location.

$$\text{Electric energy savings per PC} = (\text{Pre-retrofit waste hours/day} - \text{Post-retrofit waste hours/day}) \times \text{kWh/PC} \times \text{Days reporting}$$

where,

Pre-retrofit waste hours/machine/day = 5 hours

Post-retrofit waste hours/machine/day = Total inactive hours/Days reporting

Days reporting = sum of the days each computer was in use

kWh/PC = amount of energy a PC would normally use in an hour = 0.11 kWh

Table 25: Example of Powerman's Report for a Specific Location, Town Hall

Site Description	Computer Name	Other Active Hours	Inactive Logged On Hours	Inactive Logged Off Hours	Total Inactive Hours	Total Active Hours	Days Reporting
Town Hall	TOB-ASSESSOR-2	0	5,041.5	66.5	5,108.0	1,221.25	365
Town Hall	THSELECTMANASST	0	1,134.75	3	1,137.75	52	365
Town Hall	TOB-TAX-COUNTER	0	1,036.25	25	1,061.25	413.5	272
Town Hall	TOB-LAND-PC1	0	421.25	567	988.25	544.25	365
Town Hall	TOB-AA	0	594	70	664	1,272.75	365
Town Hall	TAX-COLLECTOR	0	369.75	39.5	409.25	1009	365
Town Hall	TOB-CLERK-02	0	396.5	12.25	408.75	858.25	331
Town Hall	TOB-LANDUSE-01	0	343.75	57.25	401	902.75	365
Town Hall	TOB-WYFSS-01	0	265.5	18	283.5	732.75	365
Town Hall	TOB-CLERK-01	0	197	28.75	225.75	1129	338
Town Hall	THSELECTMAN7	0	209.75	3.5	213.25	453.5	365
Town Hall	TOB-TAX-KIOSK	5,266.25	165	17	182	5,323.25	272
Town Hall	TOB-LANDUSE-02	0	135.5	27.25	162.75	1,273	338
Town Hall	TOB-TAXOFF-02	0	121.5	22.25	143.75	920.5	365
Town Hall	TOB-REC-01	0	107.5	27.5	135	882.5	365
Town Hall	HRPDESK	46.25	92	26.75	118.75	1655	365
Town Hall	TOB-SELECT-03	0	104.25	7.75	112	157.75	272
Town Hall	TREASURER-PC	53.25	100.75	7.25	108	1,292.75	365
Town Hall	TOB-LAND-KIOSK	0	75.5	11.25	86.75	49.5	365
Town Hall	THHPDAGATA	48.75	83.5	2.25	85.75	296.5	365
Town Hall	TOB-ASSESS-PUB	4,720.25	68.25	2.5	70.75	5,003.5	316
Town Hall	TOB-LANDUSE-K2	0	65.75	2.75	68.5	63	338
Town Hall	CONTROLLER-PC	111.5	20.75	29	49.75	1781	365
Town Hall	TOB-FISCAL-01	146.75	14.5	35	49.5	945.25	260
Town Hall	THHUDA	0	4.5	0.25	4.75	11.75	365
Town Hall	TOB-LT-FINANCE1	0	1.25	2.25	3.5	12.25	365
Town Hall	THTAXINCOUNTER	110.5	0	0	0	217.5	365
Total hours (2015)		10,503.5	11,170.5	1,111.75	12,282.25	28,474	9,307