

Sunrise School Act 39 Proposal

SIEMENS



Funding Capital Improvements with Guaranteed Savings

Introductions

Rick Gagliardo — Project Manager

Mark Ludrosky — Energy Engineer

Kris Sticinski — Area Sales Manager

Steve Campbell — Service Sales Supervisor

Chris Lawrence — K-12 Account Manager

Proposed Project

Proposed Project Scope	Total Project Cost	Total Projected Energy Cost Savings	Total Projected Natural Gas Cost Savings	Total Projected Electric Cost Savings	Total Projected Water Cost Savings	Total Projected O&M Material Savings	Guaranteed Simple Payback (Years)
Lighting Retrofit	\$175,357	\$16,653	(\$1,165)	\$17,817	\$0	\$2,000	9.4
Lighting Controls	\$37,842	\$7,035	(\$417)	\$7,453	\$0	\$0	5.4
Water Conservation	\$2,119	\$853	\$170	\$0	\$683	\$0	2.5
Automated Controls and Pneum. Repairs	\$195,943	\$4,891	\$3,027	\$1,864	\$0	\$9,846	13.3
Boiler Replacement	\$336,248	\$5,823	\$5,823	\$0	\$0	\$4,561	32.4
Roof Replacement	\$776,264	\$5,182	\$4,406	\$775	\$0	\$0	149.8
Domestic Water & Kitchen Booster Heater Replace	\$57,492	\$1,081	(\$1,911)	\$2,991	\$0	\$0	53.2
Electric Rate Change*	\$0	\$10,363	\$0	\$10,363	\$0	\$0	0.0
Service Contract	\$0	\$0	\$0	\$0	\$0	\$4,589	0.0
Total Building Cost	\$1,581,265	\$51,880	\$9,934	\$41,263	\$683	\$20,996	

*Siemens Intent is to move Sunrise Electric Consumption into another rate category. Moving to this new Rate Category will require negotiation between Sunrise Schools and Duquesne Light with Siemens Support.

In Front of the Wall

FIM

Lighting Retrofit , Lighting Control and Faucet

Aerators

•Impacted Areas:

- Classrooms, Hallways, Office Areas – T12 to T8
- Gymnasium – HID to T8 High Bay Fixtures
- Canopy Fixtures Retro-fitted
- Ceiling Mount and Wall Mount Sensors
- Restroom and Classroom Faucets

•Benefits:

- Improved learning environment
- Longer life equipment
- Greater Efficiency – Reduced Demand
- Reduced Water Volume



Behind the Wall Improvements

FIM Automated Control & Pneumatic Repairs

- Direct Digital Control – Web Capable System
 - Air Handling Unit Control Upgrades – 9 Units
 - Redesign Zone Control
 - Boiler/Chiller Plant
 - Parking Lot Lighting
 - Peak Demand Management
- Pneumatic Control Rehabilitation
- Re-commissioning of 27 Unit Ventilators in Classrooms



Behind the Wall Improvements

FIM Automated Control & Pneumatic Repairs (Continued)

- Benefits
 - Significant Reduction in Repair Costs
 - Improved Occupant Comfort and Indoor Air Quality
 - Reduced Energy Costs
 - Reduced Maintenance



Behind the Wall Improvements

FIM Boiler Replacement – Base Option

- Boiler System Upgrade:
 - Replace One Existing HB Smith Boiler with Two High Efficiency Condensing Gas Boilers
 - Rebuilt Remaining HB Smith Boiler
 - Redesign Heating Loop and New Circulating Pumps
- Benefits:
 - Renewed Boiler Plant Assets
 - Elimination of Manual Adjustment
 - Lower Overall Heating Costs
 - Significant Reduction in Repair Costs

Behind the Wall Improvements

FIM Boiler Replacement – Alternate

- Boiler System Upgrade:
 - Replace Two Existing HB Smith Boiler with Four High Efficiency Condensing Gas Boilers
 - Redesign Heating Loop and New Circulating Pumps
- Benefits:
 - Renewed Boiler Plant Assets
 - Elimination of Manual Adjustment
 - Lower Overall Heating Costs
 - Significant Reduction in Repair Costs

Behind the Wall Improvements

FIM Roof Replacement

- Bayer's Spray Foam/Silicone Polyurethane Roof
 - Remove old roof down to decking – fix rusted metal
 - Install new drains to address pooling issues on roof
 - Apply new roof material in a phased approach and seal daily to ensure a waterproof roof throughout the project.
 - 15 year no leak warranty
- Benefits:
 - Elimination of leaks and interior damage
 - Improved thermal integrity
 - Improved reflectivity for heat dissipation
 - Improved Energy Efficiency

Behind the Wall Improvements

FIM Domestic Water, Kitchen Booster Heater Replacement

- Replace existing domestic hot water boiler and oversized storage tank
 - Install AO Smith 100 Gallon fast recovery water heater.
- Replace 65 KW booster heater on the dish washer machine
 - Run a new natural gas heated hot water line from the main equipment room.
- Benefits:
 - Lower heating fuel consumption
 - Electric Demand reduction
 - Reduced Stored hot water volume
 - Improved Energy Efficiency

Recommended, But not Included

FIM Chiller System Replacement and Miscellaneous Upgrades

- Chillers and associated air cooled condensers are original to facility, should be considered for replacement – repair costs are escalating
- Miscellaneous Upgrades:
 - Replace emergency generator transfer switch and connect hot water circulator pump to connected load of the emergency generator
 - Rehabilitate Gymnasium AHU fan shaft and rebalance unit
- Benefits:
 - Asset renewal for Chilled Water System
 - Improved Energy Efficiency
 - Improved safety and building protection during an power outage

Funding Sources

- **Energy and Water**
 - **Electric**
 - **Natural Gas**
 - **Water/Sewer**
- **Operational**
 - **Material**
 - **Outsourced Contracts**
 - **Time and Material Expenses**
 - **Capital Cost Avoidance**
- **Incentives**
 - **Utility – ACT 129**
 - **Est. \$ 19,500**
 - **State and Federal**



Cash Flow Analysis – 16 Year Amortization

Cash Flow Analysis

Financed Project Costs:	<u>\$1,581,265</u>
Finance Term:	<u>16 Years</u>
Annual Interest Rate:	<u>3.1%</u>
Construction Months:	<u>5 Months</u>
Financed Amount	<u>\$1,581,265</u>
Anticipated ACP 129 Rebate	<u>\$ 19,500</u>
Escalation Rate for Annual Fees:	<u>3%</u>

Escalation Rate by Utility/Fuel

Electric:	<u>3%</u>
Natural Gas:	<u>3%</u>
Water:	<u>3%</u>
Operational Savings:	<u>3%</u>

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Second level

Third level

Fourth level

Year	Energy Savings	Operational Savings	Gross Savings	Principal & Interest	On-going Support	Program Costs	Annual Contribution	Annual Net Cashflow	Cumulative Net Cashflow
Const.									
1	\$ 51,880	\$ 20,996	\$ 72,876	\$ 107,276	\$ 10,600	\$ 117,876	\$ 45,000	\$ -	\$ -
2	\$ 53,436	\$ 21,626	\$ 75,062	\$ 109,144	\$ 10,918	\$ 120,062	\$ 45,000	\$ -	\$ -
3	\$ 55,039	\$ 22,275	\$ 77,314	\$ 111,069	\$ 11,246	\$ 122,314	\$ 45,000	\$ 0	\$ 0
4	\$ 56,691	\$ 22,943	\$ 79,634	\$ 113,051	\$ 11,583	\$ 124,634	\$ 45,000	\$ (0)	\$ (0)
5	\$ 58,391	\$ 23,631	\$ 82,023	\$ 115,092	\$ 11,930	\$ 127,023	\$ 45,000	\$ (0)	\$ (0)
6	\$ 60,143	\$ 24,340	\$ 84,483	\$ 124,150	\$ 5,333	\$ 129,483	\$ 45,000	\$ 0	\$ (0)
7	\$ 61,947	\$ 25,070	\$ 87,018	\$ 126,525	\$ 5,493	\$ 132,018	\$ 45,000	\$ 0	\$ 0
8	\$ 63,806	\$ 25,822	\$ 89,628	\$ 128,971	\$ 5,658	\$ 134,628	\$ 45,000	\$ (0)	\$ 0
9	\$ 65,720	\$ 26,597	\$ 92,317	\$ 131,490	\$ 5,828	\$ 137,317	\$ 45,000	\$ (0)	\$ 0
10	\$ 67,692	\$ 27,395	\$ 95,087	\$ 134,084	\$ 6,002	\$ 140,087	\$ 45,000	\$ (0)	\$ 0
11	\$ 69,722	\$ 28,217	\$ 97,939	\$ 136,757	\$ 6,182	\$ 142,939	\$ 45,000	\$ 0	\$ 0
12	\$ 71,814	\$ 29,063	\$ 100,877	\$ 139,510	\$ 6,368	\$ 145,877	\$ 45,000	\$ (0)	\$ (0)
13	\$ 73,968	\$ 29,935	\$ 103,904	\$ 142,345	\$ 6,559	\$ 148,904	\$ 45,000	\$ (0)	\$ (0)
14	\$ 76,188	\$ 30,833	\$ 107,021	\$ 145,265	\$ 6,756	\$ 152,021	\$ 45,000	\$ 0	\$ 0
15	\$ 78,473	\$ 31,758	\$ 110,231	\$ 148,273	\$ 6,958	\$ 155,231	\$ 45,000	\$ 0	\$ 0
16	\$ 80,827	\$ 32,711	\$ 113,538	\$ 151,371	\$ 7,167	\$ 158,538	\$ 45,000	\$ 0	\$ 0

*Operational savings includes current service contract valued at \$4,489 and \$16,407 in avoided annual repair costs.

Cash Flow Analysis – 20 Year Amortization

Cash Flow Analysis

Financed Project Costs:	<u>\$1,668,233</u>
Finance Term:	<u>20 Years</u>
Annual Interest Rate:	<u>4.9%</u>
Construction Period:	<u>5 Months</u>
Financed Amount	<u>\$1,668,233</u>
Anticipated ACP Rebate	<u>\$ 19,500</u>
Escalation Rate for Annual Fees:	<u>3%</u>

Escalation Rate by Utility/Fuel	
Electric:	<u>3%</u>
Natural Gas:	<u>3%</u>
Water:	<u>3%</u>
Operational Savings:	<u>3%</u>

Click to edit Master text styles
 Second level
 Third level
 Fourth level

Year	Energy Savings	Operational Savings	Gross Savings	Principal & Interest	On-going Support	Program Costs	Annual Contribution	Annual Net Cashflow	Cumulative Net Cashflow
Const.									
1	\$ 54,711	\$ 20,996	\$ 75,707	\$ 110,107	\$ 10,600	\$ 120,707	\$ 45,000	\$ -	\$ -
2	\$ 56,352	\$ 21,626	\$ 77,978	\$ 112,060	\$ 10,918	\$ 122,978	\$ 45,000	\$ 0	\$ 0
3	\$ 58,043	\$ 22,275	\$ 80,318	\$ 114,072	\$ 11,246	\$ 125,318	\$ 45,000	\$ 0	\$ 0
4	\$ 59,784	\$ 22,943	\$ 82,727	\$ 116,144	\$ 11,583	\$ 127,727	\$ 45,000	\$ 0	\$ 0
5	\$ 61,578	\$ 23,631	\$ 85,209	\$ 118,279	\$ 11,930	\$ 130,209	\$ 45,000	\$ (0)	\$ 0
6	\$ 63,425	\$ 24,340	\$ 87,765	\$ 127,432	\$ 5,333	\$ 132,765	\$ 45,000	\$ 0	\$ 0
7	\$ 65,328	\$ 25,070	\$ 90,398	\$ 129,905	\$ 5,493	\$ 135,398	\$ 45,000	\$ 0	\$ 0
8	\$ 67,288	\$ 25,822	\$ 93,110	\$ 132,452	\$ 5,658	\$ 138,110	\$ 45,000	\$ 0	\$ 0
9	\$ 69,306	\$ 26,597	\$ 95,903	\$ 135,076	\$ 5,828	\$ 140,903	\$ 45,000	\$ 0	\$ 0
10	\$ 71,385	\$ 27,395	\$ 98,780	\$ 137,778	\$ 6,002	\$ 143,780	\$ 45,000	\$ 0	\$ 0
11	\$ 73,527	\$ 28,217	\$ 101,744	\$ 140,561	\$ 6,182	\$ 146,744	\$ 45,000	\$ (0)	\$ 0
12	\$ 75,733	\$ 29,063	\$ 104,796	\$ 143,428	\$ 6,368	\$ 149,796	\$ 45,000	\$ (0)	\$ 0
13	\$ 78,005	\$ 29,935	\$ 107,940	\$ 146,381	\$ 6,559	\$ 152,940	\$ 45,000	\$ 0	\$ 0
14	\$ 80,345	\$ 30,833	\$ 111,178	\$ 149,423	\$ 6,756	\$ 156,178	\$ 45,000	\$ (0)	\$ 0
15	\$ 82,755	\$ 31,758	\$ 114,514	\$ 152,555	\$ 6,958	\$ 159,514	\$ 45,000	\$ (0)	\$ 0
16	\$ 85,238	\$ 32,711	\$ 117,949	\$ 155,782	\$ 7,167	\$ 162,949	\$ 45,000	\$ 0	\$ 0
17	\$ 87,795	\$ 33,692	\$ 121,488	\$ 159,105	\$ 7,382	\$ 166,488	\$ 45,000	\$ (0)	\$ 0
18	\$ 90,429	\$ 34,703	\$ 125,132	\$ 162,529	\$ 7,604	\$ 170,132	\$ 45,000	\$ (0)	\$ 0
19	\$ 93,142	\$ 35,744	\$ 128,886	\$ 166,054	\$ 7,832	\$ 173,886	\$ 45,000	\$ 0	\$ 0
20	\$ 95,936	\$ 36,817	\$ 132,753	\$ 169,686	\$ 8,067	\$ 177,753	\$ 45,000	\$ 0	\$ 0

*Operational savings includes current service contract valued at \$4,489 and \$16,407 in avoided annual repair costs.

Project Management Approach



Project Manager

- Certified, experienced professional
- Expertise matched to specific final project scope
- Prepares schedules, communication and implementation plans
- Primary point of contact for Client, 24/7 accessibility
- Assures all defined Stakeholder goals are being achieved

Implementation

- Procurement strategies utilize formal, documented, ethical processes
- Weekly project meetings and ongoing communication with Client
- Ongoing safety monitoring and risk management
- Resource management of subcontractors, material, etc.
- Ongoing quality control and defined commissioning
- Accurate and timely documentation, reporting, billing, etc.

Project Results and Performance

- All work meets or exceeds project specifications
- Operation and maintenance manuals, as-built drawings
- Ongoing measurement and verification of performance and savings
- Client training on all installed equipment and systems
- All work is reviewed for acceptance with Client
- No Change Orders

Maintenance, Operations, and Training

Maintenance and Operations Plan

- [Click to edit Master text styles](#)
- Custom designed technical support programs
- **Second level** Local based maintenance services
- **Third level** 24/7 service and 4 hour emergency response
- **Fourth level** Span of control over delivery
- **Fifth level** Measurement and Verification of Savings

Training

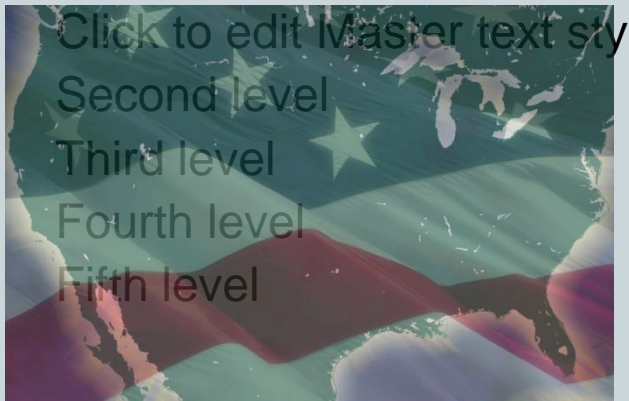
- Structured format of detailed maintenance routines, tasks, and required tools
- Manufacturers recommended procedures and instructions

Delivery Methods

- Standard Courses
- Custom Designed Courses
- Locally Presented Seminars on HVAC and Controls
- Local Office Delivered Training
- Self-Instruction Materials



Who we are: Siemens in the US



**U.S. Fast Facts
Fiscal Year 2011:**

Revenues	\$22 Billion
Employees	60,000
Locations	795
R & D	\$1.6 billion
Global HQs	9
Patents	11,700

For 162 years, Siemens has built a reputation for leading-edge innovation and the quality of its products, services and solutions.

Siemens has been providing building performance, safety and security solutions to the world's most famous buildings and institutions since 1891, including the Empire State Building, The White House and Disney World.

Successfully implementation of over \$3 billion Energy Performance Contracts, helping over 1,750 customers.

Annually launch > 1,000 collaborative research & development projects with universities and Institutes some including: Carnegie Mellon, MIT, University of Pennsylvania, University of Maryland, etc.

Bridgeville, PA Office – 85 employees

Next Steps

Status	Process Steps
✓	Introduce Concept
✓	Share Information
✓	Initial Walkthrough
✓	Present Preliminary Approach
✓	Concept Approval
✓	Procurement – Request for Qualification
✓	Detailed Analysis
✓	Present Solution
Next	Solution Approved by Board
	Delivery and Implementation