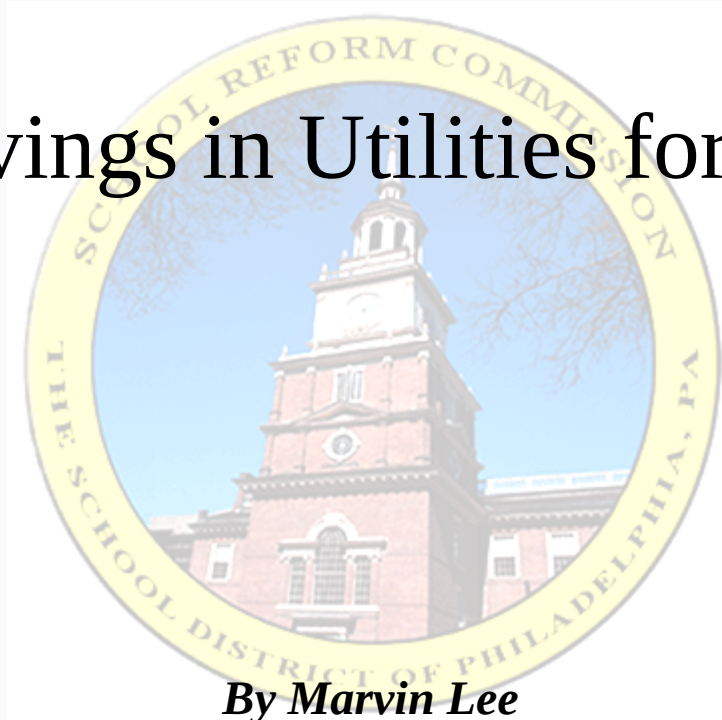


US EPA ARCHIVE DOCUMENT



Cost Savings in Utilities for Dummies



By Marvin Lee

*Financial Director of Facilities Operations
School District of Philadelphia*

May 30, 2012

Background

Profile:

8th Largest School District in the Nation

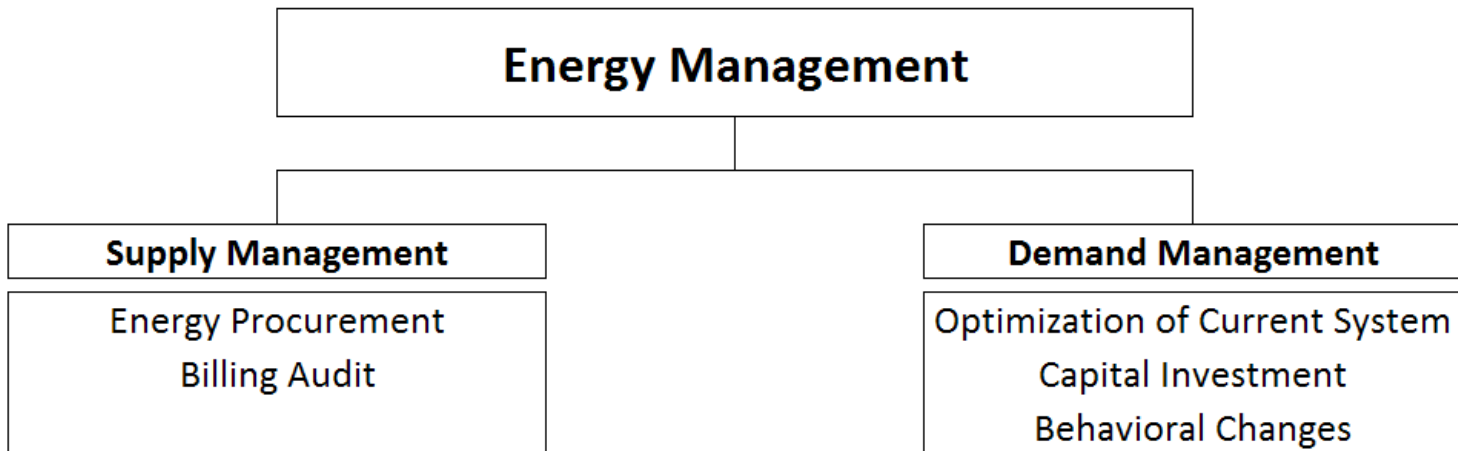
- 250 schools (326 sites / 30 million SF / Average Building Age: 65),
- 150,000+ students,
- 21,000+ employees

- Utilities Profile:

- Electricity: \$28M
- Natural Gas: \$12M
- Fuel Oil: \$13M
- Water/ Sewer: \$6M
- Steam: \$1M

Total: \$60M

Our View of Energy Management



Our Approach:

Low Hanging Fruit First
Limited Human Interaction
3 Years or Less ROI on Projects

Limited Risk, Guaranteed Savings
Little or No Cost

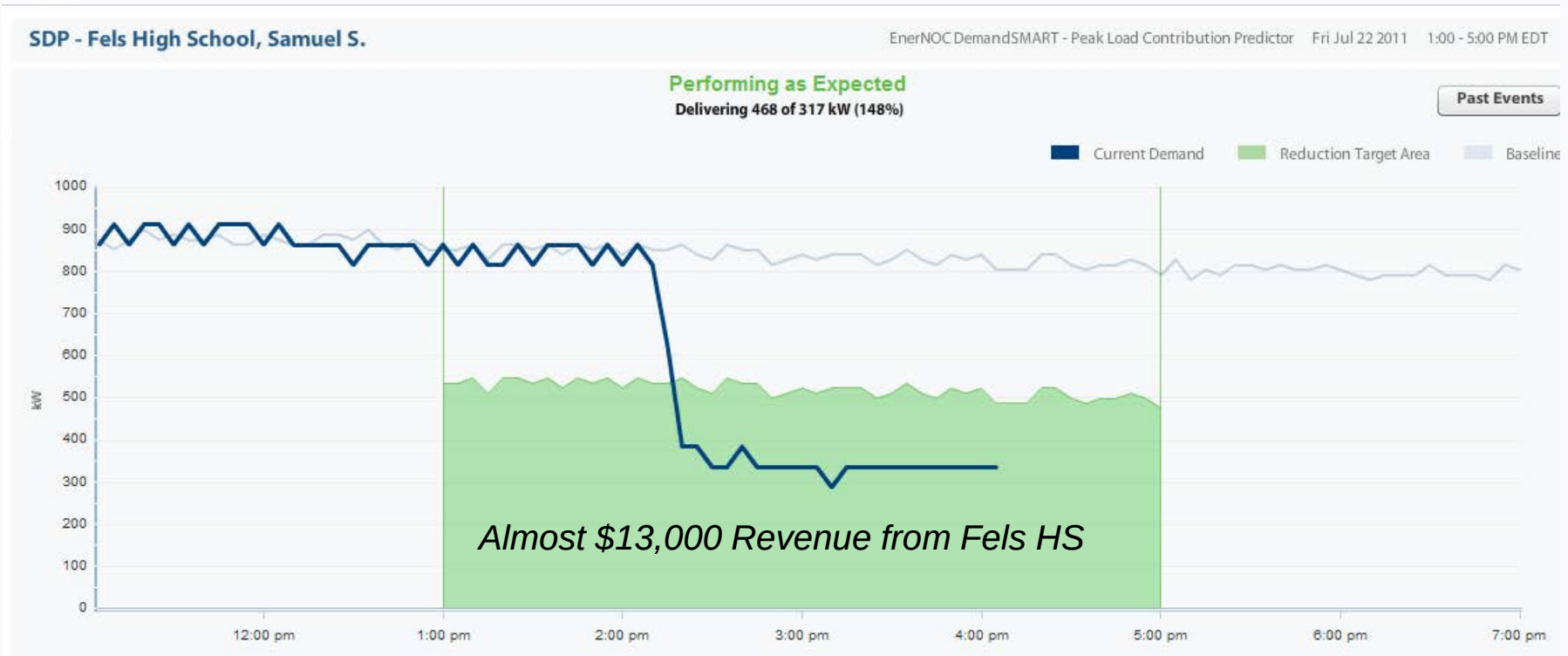


Demand Response Program

Name of Initiative											Utility Type		
Demand Response Program											Electricity		
Description													
PJM Demand Response programs offer financial incentives to electricity users to reduce their electricity consumption in response to a utility's need for power due to a high and/or system-wide demand for electricity or emergencies that could affect the balance of electricity supply and demand. Curtailment Service Provider (CSP) will help you set up: Baseline: Last year's Peak Load Contribution (PLC) Nomination: Usually 50% of the Last Year's Peak Load Contribution Receives Payments just by pledging / Generally no penalty for non-performance, either													
Historical Frequencies in PJM		Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
		# Events	4	3	0	0	2	2	1	0	0	1	1
Degree of Difficulty (Conceptual)				Degree of Difficulty (Procurement)				Degree of Difficulty (Execution)					
1 2 3 4 5 6 7 8 9 10				1 2 3 4 5 6 7 8 9 10				1 2 3 4 5 6 7 8 9 10					
Financial Investment Needed				Estimated Savings / Revenue				Actual Savings / Revenue Phila. SD Generated					
\$0.00 (if you do it yourself)				\$40,758 / MW in FY11 \$51,708 / MW in FY12 \$90,642 / MW in FY13				\$520K in FY11 (Actual) \$750K in FY12 (Projected) \$1.1M in FY13 (Projected)					

Demand Response Program

Actual Performance @ Fels High School on 7/22/2011



Demand Response Program

Note:

Check with your local utilities for availability of programs.

Revenue Split Rate is Negotiable.

Perfect way to generate revenue if you have a Building Control System

*SDP relied on employees to reduce consumption on event day
Compliance Rate (SDP): 87%*

Latest check Received (5/8/12)

Marvin Lee School District of Philadelphia 400 N. Broad Street 3rd Floor Philadelphia, PA 19130		Your Earnings this Period: \$ 154,423.33	
STATEMENT Statement Date: 5/8/2012 Program: PJM EnerNOC DemandSMART - PJM Emergency Load Response Account ID: 053206 Check Number: 000101579		SUMMARY CAPACITY PAYMENTS TOTAL: \$119,566.21 ENERGY PAYMENTS TOTAL: \$34,856.13	
EnerNOC Inc. 101 Federal Street Suite 1100 Boston, MA 02110		Silicon Valley Bank Pittsburgh, PA 60-160/433	
DATE 5/8/2012		CHECK NUMBER 000101579	
PAY One hundred fifty-four thousand four hundred twenty-three and 33 / 100 Dollars Only		AMOUNT 154,423.33	
TO THE ORDER OF School District of Philadelphia		 VOID AFTER 90 DAYS	

Energy Procurement

Name of Initiative		Utility Type	
Energy Procurement Program		Electricity / Natural Gas	
Description		Electricity (HT) Generation 60% Other Components: Capacity, Supplier Margins, etc 20% Distribution / Transmission 20% Natural Gas Commodity 50% Transportation 20% Distribution 30%	
Electricity: Electricity Utility has historically been vertically integrated - owning and operating the entire electric system: Generation / Transmission / Distribution Generation is open to competition in deregulated markets Pricing Structure for both Utilities: Fixed / Block and Index / Index Procurement Method: Conventional RFP / Request for Pricing / Reverse Auction, etc			
Degree of Difficulty (Conceptual)		Degree of Difficulty (Procurement)	
1 2 3 4 5 6 7 8 9 10		1 2 3 4 5 6 7 8 9 10	
Financial Investment Needed		Estimated Savings / Revenue	
\$0.00 (if you do it yourself)		Varies by region	
		Degree of Difficulty (Execution)	
		1 2 3 4 5 6 7 8 9 10	
		Actual Savings / Revenue Phila. SD Generated	
		Compared to Default Supplier	
		Electricity: 21% or \$6 million	

Deregulation by States



Energy Procurement

Note:

Timing is perfect as the Natural Gas and Electricity prices are near 8-year lows

Procurement process must be flexible enough to react to the energy market

Many consulting services companies available to perform this service

Electricity Procurement Performance

2010 vs 2011

Monthly Savings

	2010	2011		
January	2,284,195	2,220,677	Actual	63,518.00
February	2,369,905	2,115,531	Actual	254,373.74
March	2,234,426	1,869,518	Actual	364,907.97
April	2,157,248	1,805,012	Actual	352,235.86
May	2,296,234	1,795,021	Actual	501,213.00
June	2,606,385	2,052,356	Actual	554,029.00
July	2,454,890	1,874,441	Actual	580,449.00
August	2,269,301	1,641,023	Actual	628,278.00
September	2,510,233	1,859,549	Actual	650,684.00
October	2,438,128	1,774,271	Actual	663,857.00
November	2,246,331	1,648,039	Actual	598,292.00
December	2,564,707	1,772,738	Actual	791,969.00
Total	28,431,983	22,428,177		6,003,806.57

Utilities Billing Audit

Name of Initiative		Utility Type
Utilities Billing Audit		All Utilities
Description		
Average error rate in utilities billing: 0.5%		
Cause: Complicated Tariff Rates Meter Malfunction Calculation Errors Other: State Tax, etc	Total Refund during: 7/1/2010 - 12/31/2011 (18 months)	
	Gas	5 counts / \$958K
	Electricity	8 counts / \$650K
	Water	1 count / \$180K
	Utilities generally would not find the errors and voluntarily refund the money	
Degree of Difficulty (Conceptual)	Degree of Difficulty (Procurement)	Degree of Difficulty (Execution)
1 2 3 4 5 6 7 8 9 10	1 2 3 4 5 6 7 8 9 10	1 2 3 4 5 6 7 8 9 10
Financial Investment Needed	Estimated Savings / Revenue	Actual Savings / Revenue Phila. SD Generated
Up to 50% of the savings	.5% - 3% in the first year .3% - .5% after the first year	\$1.8 million in the first 18 months

Utilities Billing Audit

Note:

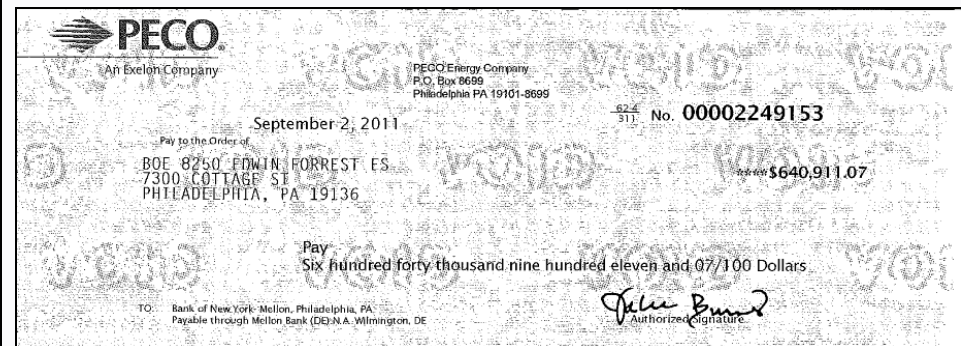
Added Value:

Tariff Optimization, Cost and Consumption Analysis by account, etc

*Shared Savings is the best way:
Companies usually ask for 50% of the savings for the amount discovered and anticipated savings for 12 months.*

Shared Savings rate is negotiable

Example of Actual Check Received





Other Cost Saving Initiatives in FY11

- Natural Gas Conversion Projects
 - Completed 9 Conversions from Oil to Interruptible Gas in FY11
 - Natural Gas is a cheaper source of heating: \$22 / MMBtu (IT Gas) vs. \$8 / MMBtu (Oil)
 - Financed by the local Gas Company / ROI: Approximately 3 years
 - Anticipated annual savings in Heating after payback period (3 years): **\$520K+**
- Storm Water Credit Submission
 - Philadelphia Water Department levies Sewer charges based on impervious area
 - Credits available if an entity provides evidence that some areas are not impervious
 - Investment: \$25K for survey and filing applications / Recurring Credits obtained: **\$180K+**
- In-sourcing Energy Management
 - Successfully in-sourced energy management
 - Cost savings: **\$623K+**



How to Get Energy Mgmt Initiatives Started

- Talk to your local utilities (Marketing Department)
- Talk to Energy Management Consulting Companies
- Attend Energy Seminars / Conventions
- Buy-in from Management is Crucial
- Talk to Peers
 - Marvin Lee, Director of Facilities Financial Operations
 - mlee2@philasd.org / 215-400-5628

