



*Building Energy Assessment*

*SAU 80 – Shaker Regional School District*

# ***Executive Summary***

# ***Energy Audit Report***

Presented to: SAU 80 – Shaker Regional School District  
58 School Street  
Belmont, New Hampshire 03220

Presented by: McCormick Facilities Management  
8 Main Street  
Dexter, Maine 04930

***February 2010***



## *Building Energy Assessment*

### *SAU 80 – Shaker Regional School District*

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## Energy Assessment and Report

### SAU 80 – Shaker Regional School District

#### Executive Summary

February 16, 2010

SAU 80 – Shaker Regional School District  
Mr. Preston Tuthill  
Chair of the Buildings and Grounds Committee  
58 School Street  
Belmont, NH 03220

RE: Energy Assessment for SAU 80

Dear Mr. Tuthill,

We are pleased to provide our report of the Energy Assessment of the SAU 80 buildings.

We have gathered much information about the subject buildings: how they are used, their general condition, quantity, type, and cost of energy used for lighting, heating, cooling, cooking, and other needs. We performed an intensive visual inspection of each building from the roof to the basement, inside and out, as well as the site. We used instruments such as a light meter to check lighting levels in each space and “flicker checker” to determine ballast type in fluorescent fixtures. We reviewed each building system that contributes to the use of energy. These included the building envelope, lighting and other electrical consuming devices, boilers, air handlers, and other heating and cooling terminal devices, kitchen equipment, water fixtures, and any other items that consume energy.

We obtained actual units of consumption from your business office as well as two-year history of monthly usage from Public Service of New Hampshire and 18 months from Unitel.

All the collected data was entered into our proprietary Energy Management software where we effectively analyze how the buildings are performing and what recommendations could be developed to reduce energy consumption and costs.

The output of our effort presents you a dynamic-interactive inventory of every significant energy related device we could locate, historical energy consumption and costs, identification of inefficient devices, suggestions for replacement, savings that could be achieved, costs for the upgrades, and simple payback periods.

Please keep in mind that this report is the result of an on-site examination of facilities, data provided by your staff, data from other agencies, and the experience, knowledge, and procedures developed by McCormick Facilities Management. These contributors to this report are not fixed. Conclusions and cost estimates (+/- 20%) are as valid as we can make them as of February 2010, given the nature and scope of work.

We have listed 119 Energy Conservation Measures (ECMs). There are likely additional measures that are somewhat smaller in opportunity. Savings estimates assume that they are stand-alone actions. The cumulative impact of completing several (ECMs) will likely have a positive compounding effect to the estimated results. All actions recommended will improve efficiency and reduce the energy consumption of the facilities as well as improving comfort and learning environments.



The five buildings of SAU 80 consist of a reported 221,500 gross square feet. The combined electrical consumption was over 1.2 million kilowatt hours costing nearly \$200,000 in FY09. The SAU 80 buildings also consumed more than 66,000 gallons of #2 heating oil also costing nearly \$200,000 in FY09.

The total energy cost of these entities is over \$390,000 (FY09) annually. In terms of total energy consumption, the Belmont Middle School has the highest total energy consumption at \$2.35 per square foot. The lowest is the Belmont Elementary School at \$1.29 per square foot.

We compared energy consumption and costs to several benchmarks to gauge how your buildings compare to similar ones both regionally and nationally. The first benchmark is one we have developed based on our work with other school departments. The second is an Energy Star rating used by the US Dept. of Energy for schools. The third is the Energy Use Intensity which is used by energy engineers to determine overall energy consumption to a common unit of measure.

Water and sewer units and costs are not included in the following table.

Ranked by Energy Use Intensity, lowest to highest

3 Benchmark Summary		McCormick discovered average		Energy Star USDOE	Energy Use Intensity
School Name	Electricity	Oil	Target		
	5.6 kWh/SF	.33 Gal/SF	75		95
Memorial (Admin) Building	5.29	.18	87		43
Belmont Elementary School	4.21	.21	74		44
Canterbury Elementary School	4.14	.24	78		47
Belmont High School	6.31	.25	81		56
Belmont Middle School	5.96	.47	31		85

Red = Above average, Green = Below average, Gold = Awardable

Included in the report are energy conservation measures of issues we see that can be undertaken to reduce energy consumption and costs. Some recommendations are easily achieved and of little to no cost to implement. Yet others are more complex, require a larger capital expenditure, and have longer payback periods.

The results of our investigation reveal the following:

- The sum of ECMs with a payback of less than 1 year would warrant an estimated expenditure of \$24,807 and reduce energy costs by \$45,398;
- The sum of ECMs with a payback of less than 5 years would warrant an estimated expenditure of \$235,100 and reduce energy costs by \$93,701;
- The sum of ECMs with a payback of less than 10 years would warrant an estimated expenditure of \$647,315 and reduce energy costs by \$77,184;
- **All recommended ECMs would call for an expenditure of \$2,037,472. The total savings is based on the sum of each ECM savings and is estimated to be in the area of \$286,498 annually if all ECMs were implemented.**

**Please note: Actual savings will depend on the number and order of the measures that are implemented. In that we have no idea which ones you will actually implement or in what order, simple payback is affected. Our payback is calculated en masse from the beginning (FY09) energy expenditure. The actual savings per ECM should be recalculated as you choose each ECM expenditure.**



There are a few observations or suggestions that I would like to point out that are not necessarily in the ECM list but would have significant savings for you:

1. SAU 80 should create an energy manager's position to regularly review how energy is being used and deploy methods and technologies to continually reduce energy costs. This position could be an employee of the school or a contract position. It is not likely a full-time requirement. A competent energy manager would pay for their position through savings, on an annual basis. This position, if done correctly, can self-fund itself. A 5% of total energy costs investment would easily achieve a 10% savings on an annual basis.
2. Create a district wide energy policy from the Board of Directors to the individual Building handbooks. All stakeholders must have a guiding document to understand how energy is consumed and thus can be saved. A long-term energy vision similar to your long-term educational plan should be created.
3. Increase maintenance expenditures to properly maintain all operating equipment and systems. This should also include regular "re-commissioning" of each of your buildings. As systems age, they fall out of recommended operating ranges, which decreases efficiencies and thus increases operating costs. Balancing the HVAC systems, adjusting the boilers, and recalibrating the thermostats are just a couple of examples that we discovered that if performed periodically, will optimize the equipment and reduce annual operating costs.
4. Create or purchase tracking software that keeps track of monthly energy consumption in terms of units and dollars. It should create baselines and continually compare to new input data. Put a computer monitor in the lobby of each school that shows how much energy is being consumed at that moment and year to date. Not only will this allow for better trending data, it will also allow the energy manager or business manager better cost control to assure that the correct delivered cost is received.

Please take time to review our efforts. It is our hope that we have met your expectations and provided a valuable working document that will enable SAU 80 to reduce its energy costs and that it be a tool for many years to come.

If you would like a presentation of our report, I would strongly recommend it and be happy to accommodate.

I personally would like to thank you and the all of the leaders in your district for allowing us this opportunity. I would enjoy working with all involved as you move forward with energy reduction projects in the future.

Sincerely,

A handwritten signature in black ink that reads 'Michael McCormick'.

**Michael McCormick** CPE  
Principal in Charge  
McCormick Facilities Management

## Process

SAU 80, like many consumers of electrical power and heating fuel, is struggling to deal with the ever increasing cost of energy and the budget difficulties that it creates. To help control these costs and to use energy more efficiently, an energy inventory report has been developed our firm. Buildings under the management of SAU 80 were reviewed. Site visits, information provided by employees, and data provided by Public Service of New Hampshire and Unitel were reviewed during this process.



Data collection consisted of photographs, field notes, and data from measuring instruments. Our survey collected specific information regarding the type of construction, building envelope, lighting and mechanical systems, energy consumption and usage patterns. This analysis enabled us to develop an inventory of energy consuming devices as well as a list of building components that will be useful in future budget planning and to prioritize implementation of targeted energy performance enhancements.

We also reviewed building use patterns and interviewed the Facility Director and building occupants.

Energy conservation is a philosophy of effective stewardship of facilities placed in the charge of representatives of the public. It must be a policy of the governing body. There must be an advocate within the administration who:

- leads the energy conservation effort;
- assures that the governing body's energy conservation policies are being carried out;
- reports energy conservation actions and results regularly to the governing body;
- identifies ways for each employee and consumer to participate in energy conservation;
- maintains a current knowledge in this field; and
- identifies creative ways to address energy conservation.

Effective energy conservation must become a way of life for all stakeholders. Although it is not discussed in this report, we would like to point out that there is also a positive long-term impact on the environment when energy savings activities occur that benefits everyone. Carbon and green house gas emissions will too be reduced.

The outcome of this audit has provided an opportunity for directed building modifications that we will refer to as Energy Conservation Measures or ECMs. The term "energy conservation measure" includes installations or modifications of building components or human behavior that are primarily designed to reduce the consumption of fuel oil, electricity, water, increase occupant thermal comfort, and improve the management of energy demands.

The ECMs we are suggesting are considered with economics based on the walkthrough inventory of each building. Any estimates of cost of replacement, upgrade, or installation are approximated and are for reference purposes only. As ECMs are considered for implementation, detailed specifications, designs, and estimates will be required to provide costs at the time the measures will be performed.

Details of these ECM's and our findings and recommendations are contained within this report.

## SAU 80 Building Summaries

### Energy Conservation Measures

Based on data available and provided, four school buildings and an administrative/office building were included in this process. Approximately 119 Energy Conservation Measures (ECMs) were identified, totaling a potential expenditure of slightly more than 2 million dollars. Based on current rate structures and pricing, the estimated annual savings from these actions is \$286,498. This translates into a payback period of a little over 7 years. (actual savings depend on which ECMs are implemented and in what order).

### ECMs Identified by Building

In order to figure total energy consumption so that each building could be compared against the others, we combined the total cost of energy – electricity, heating oil, and propane – and divided that into the square footage of that building. The resulting number represents the total energy consumed per square foot. Using the square footage cost, we were able to compare each building to the other.

Some buildings may appear energy efficient by some benchmarks and not by others. For example, Canterbury Elementary is below its peers in terms of electricity and oil usage and its energy use intensity is ½ the norm for this climate zone. However, we observed several places where cold un-fettered outside air was entering the space and the library heat was uncontrollable. Don't be misled by the benchmarks, if we determined an energy saving opportunity existed, we identified it. Efficiency can always be improved and costs reduced based on the enclosed ECMs.

- The Belmont Middle School (FY09 data) with energy consumptions at \$2.35 per square foot is the largest user of energy in the district, per square foot. The Belmont Elementary School (FY09 data) rated energy consumption at \$1.29 per square foot is the lowest. Memorial (Admin) Building ranked second at \$1.31 per square foot, Canterbury Elementary ranked third at \$1.35, and the High School was fourth for total energy consumption at \$1.70 per square foot.
- Belmont Middle uses 16% less electricity and 66% more heating oil than the High School but yet is 11% smaller in size. This indicates a significant energy usage and that something is amiss.

Of the SAU 80 buildings, the ECMs recommended for Belmont High School would payback in the shortest time: 6.2 years if all were implemented. Next in order are: Belmont Elementary School 6.5 years, Belmont Middle School 6.8 years, Canterbury Elementary 8.2 years and the Memorial (Admin) 14.4 years.



### ECMs Identified by Category (Systems)

The inventory process suggests that an investment on a district-wide basis of \$84,647 in electrical systems would generate savings of \$74,387. An investment of \$1,505,300 in the mechanical systems would generate savings of \$175,009. Further, if SAU 80 were to invest \$447,525 in the building envelope and miscellaneous building procedures would generate savings of \$37,102. (all costs are net costs, assuming rebates from the respective utility at the time of our report).

**District-wide simple payback groups**

\*Totals are based on a sum of individual ECMs with a payback within the specified range

	<b>Installed cost</b>	<b>Annual Savings</b>
<i>Sum of ECMs with payback &lt; 1 yr</i>	\$24,807	\$45,398
<i>Sum of ECMs with payback &lt; 5yrs</i>	\$235,100	\$93,701
<i>Sum of ECMs with payback &lt; 10 yrs</i>	\$647,315	\$77,184
<b><i>Sum of all ECMs</i></b>	<b>\$2,037,472</b>	<b>\$286,498</b>

ECMs Identified by Length of Payback

ECMs are identified that will generate savings with a payback of less than one year. For example, investing \$24,807 in various recommended ECMs throughout SAU 80 will save \$45,398 within one year.

The sum of ECMs with a payback of less than 5 years would require investing \$235,100 that could save \$93,701 annually.

The “District-wide simple payback groups” chart above lists other payback periods and a total if all ECMs were implemented.

### Alternative Energy Opportunities Summary

As part of this report, we explored opportunities for alternative energy at SAU 80 buildings. Some options such as solar light tubes, geo-thermal, wind, and others were explored; however, at this time these technologies did not seem feasible due to high cost to implement yielding very long payback periods.

One option is extremely feasible for the schools of SAU 80, and this is the implementation of wood fuel versus #2 fuel oil for heating. In most cases, wood users will see a decrease of 50% in fuel spending when converting from oil to wood heat. In the case of the SAU 80 schools, the following savings would be realized:

<b>Wood Pellets replacing #2 Heating Oil</b>			
<b>Building</b>	<b>Current fuel consumption</b>	<b>Projected fuel consumption</b>	<b>Projected Payback</b>
Memorial (Admin) Bldg	\$5,774	\$0	Tie this building to the Middle School System
Belmont Elementary	\$27,418	\$13,709	12.9
Belmont Middle	\$86,452	\$43,226	9.4
Belmont High	\$52,070	\$26,035	14.8
Canterbury Elementary	\$20,512	\$10,256	12.9
<b>Total</b>	<b>\$192,225</b>	<b>\$93,226</b>	<b>12.5</b>

In summation, if conversion to wood fired pellet boilers were implemented, the district could reduce its heat spending from \$192,225 to \$93,226 annually resulting in \$93,226 of savings annually. We are suggesting adding the Administrative Building to the heating system of the Middle School. This would be more efficient and eliminate the capital expenditure to replace the 60 year boiler there. The boiler projects at each school have differing payback periods, the longest payback being at the High School with the project paying back in 14.8 years. Combining all pellet projects creates a blended payback period of 12.5 years.

More details of these opportunities have been included in the *Alternative Energy Opportunities* section of each individual report.

**Comparison of Electrical Usage Charts**

For comparison purposes, the SAU 80 buildings have been ranked based on their electrical consumption per square foot and by the cost of electricity per square foot. Figures were used for calculation from the 2009 electrical data provided by Public Service of New Hampshire and Unitel.

Belmont High School has the highest consumption per square foot at 5.64 kilowatt hours, however, due to demand charges, the Middle School had a higher cost per square foot at \$0.91. Controlling demand usage is a simple way to reduce electrical spending. For example, turning equipment on at various times rather than all at once will cut back on high electrical demand, thus reducing cost. Turning off unnecessary lights and devices will also lower demand charges.

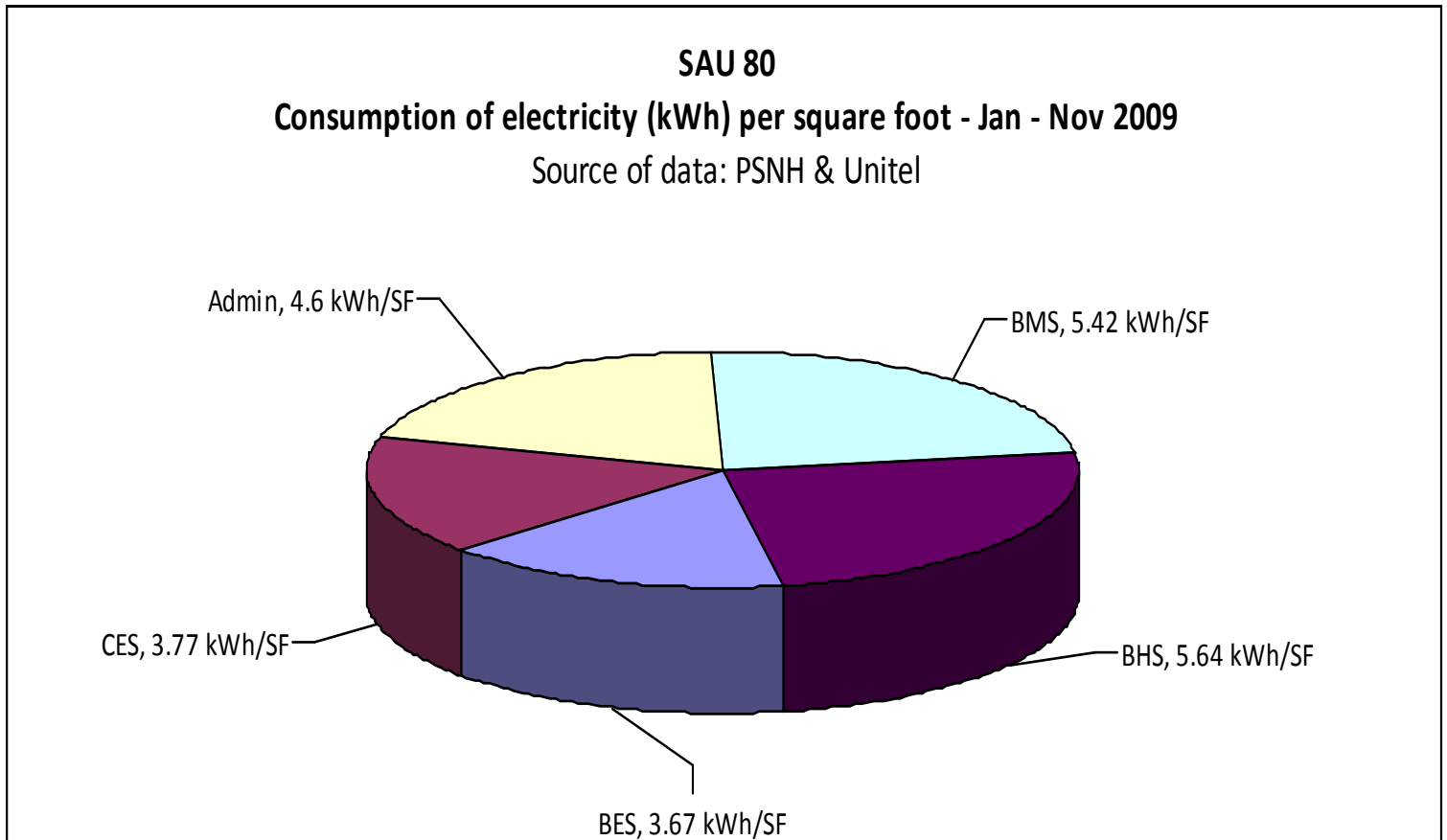
More details of our suggestions are included in the individual building reports.

2009	
BES	3.67
CES	3.77
Admin	4.60
BMS	5.42
BHS	5.64

Ranked according to kWh/SF

2009	
BES	\$ 0.58
CES	\$ 0.61
Admin	\$ 0.68
BHS	\$ 0.87
BMS	\$ 0.91

Ranked according to Cost/SF



### Electricity Consumption Trends

Electrical data for the SAU 80 schools could only be reviewed for the past 2 years. It is difficult to trend only 2 years, 10 is better. This data was compiled into charts and graphs that make it easier to view trends over these years. From FY08 – FY09, the Belmont High School, Belmont Middle School, and Belmont Elementary School were able to reduce their consumption. However, the Memorial (Admin) Building and Canterbury Elementary School increased their electrical use.

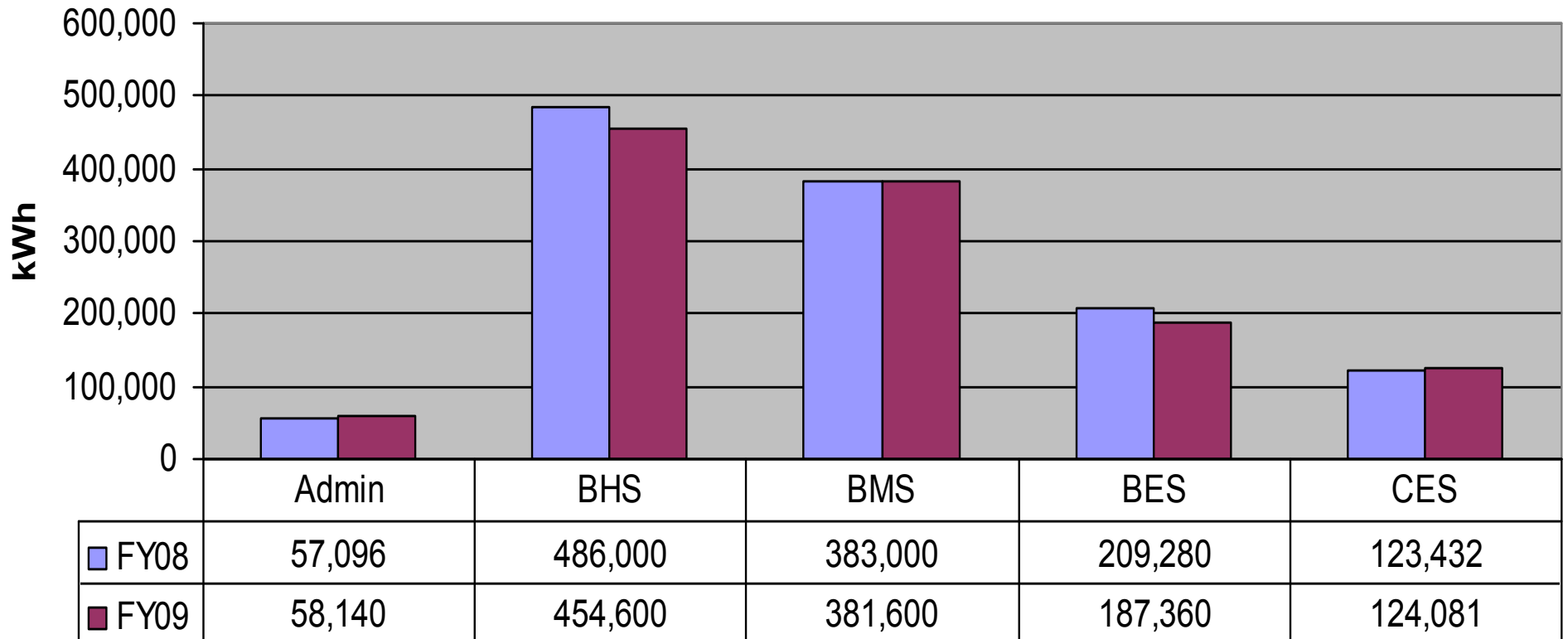
Although the buildings with higher electrical consumption will benefit from lighting upgrades, it is an almost effortless and a free measure to simply turn lights and equipment off when they are not needed. During our visit many lights, computers, and office equipment were left on either after hours or when the rooms were unoccupied. This measure should be implemented in all buildings. By simply being aware of turning lights off will significantly reduce electrical spending and becomes a mindset for all of the building occupants, including the students.

The following data displays the trends of kilowatt hour usage for each of the buildings in SAU 80. Further recommendations for reducing electricity use are outlined in the individual building reports.

<b>SAU 80 Electricity Use by Building : FY08 - FY09</b>					
Source: School Staff					
	FY08	FY09	Total Consumption FY08-FY09	Annual Average	Monthly Average
Admin	57,096	58,140	115,236	57,618	4,802
BHS	486,000	454,600	940,600	470,300	39,192
BMS	383,000	381,600	764,600	382,300	31,858
BES	209,280	187,360	396,640	198,320	16,527
CES	123,432	124,081	247,513	123,757	10,313
<b>Total Consumption for SAU 80: FY08 - FY09</b>			<b>2,464,589</b>	<b>kWh</b>	

### SAU 80 Electricity Use (kWh) by Building: FY08 - FY09

Source of data: School Staff



**Comparison of Fuel Usage Charts**

For comparison purposes, the SAU 80 buildings have been ranked based on their fuel consumption per square foot and by the cost of fuel per square foot. Figures were used for calculation from the 2008 and 2009 fuel data that was provided by school staff.

The Belmont Middle School has the highest consumption of fuel of the SAU 80 buildings at .44 gallons per square foot, whereas the Admin Building had the lowest consumption at .19 gallons of fuel per square foot. Many measures have been suggested to help lower fuel consumption which includes tightening of the building envelope and upgrading doors and windows. It is also important to maintain the building equipment thoroughly and properly to get the best results in all the buildings.

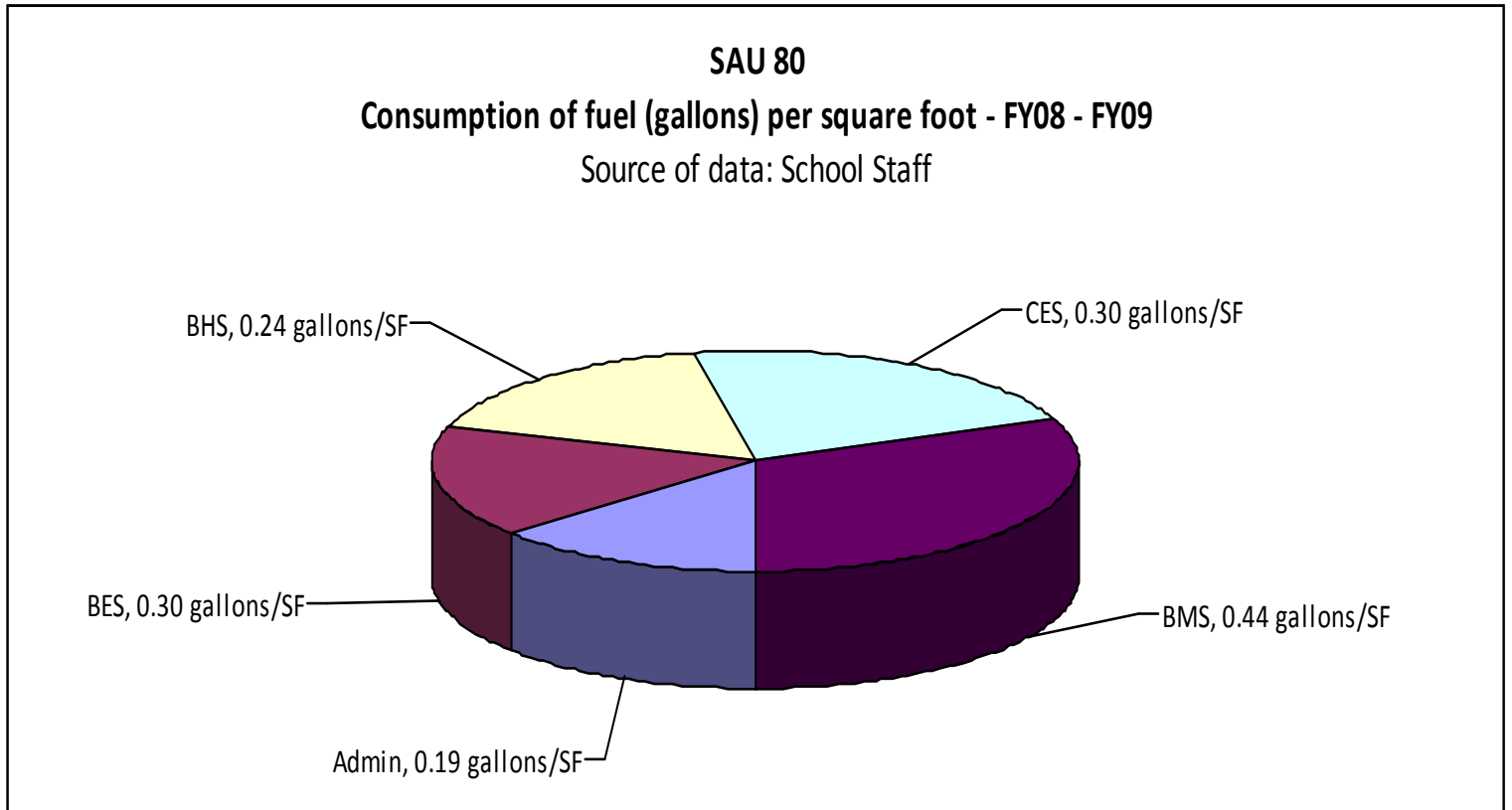
Further details of these measures can be found in the individual building reports.

FY08-FY09	
Admin	0.19
BES	0.23
BHS	0.24
CES	0.30
BMS	0.44

} Ranked according to Gal/SF

FY08-FY09	
Admin	\$ 0.52
BES	\$ 0.58
BHS	\$ 0.61
CES	\$ 0.75
BMS	\$ 1.14

} Ranked according to Cost/SF





**Total Energy Consumption Rates per Square Foot**

Although it is important to look at the electrical and fuel usage as they stand alone at each of the buildings, it is just as important to consider the total energy use at each building. By combining electricity and heating oil, use, the following calculations show a total energy usage per square foot for each of the SAU 80 Buildings (note: propane is not included in this chart. The district uses 2,500 gallons of propane, mostly for cooking).

We have made several recommendations for upgrades and building improvements, as well as suggestions for overall building policies that will help SAU 80 to lower their energy costs.

The Belmont Middle School spends the most per square foot in total energy at \$2.35 per square foot. Belmont Middle uses 16% less electricity and 66% more heating oil than the High School but yet is 11% smaller in size.

The Belmont High School spent the second highest in fuel, but was still less than the Middle school by over 10,000 gallons.

District-wide, SAU 80 spends \$1.74 per square foot for energy.

Specifics of the recommendations to reduce energy and suggestions are outlined in the individual building reports.

SAU 80  
 SUMMARY of ENERGY CONSUMPTION DATA

Sorted by total energy		Electricity			Oil			TOTAL ENERGY	Cost per SF
Buildings	Square Feet	FY09 kWh	Rate kWh	Cost	FY09 Gal	Rate Gal	Cost		
Belmont Elementary School	44,500	187,360	\$0.1589	\$29,772	9,497	\$2.8870	\$27,418	\$57,189	\$1.29
Administrative Building	11,000	58,140	\$0.1478	\$8,593	2,000	\$2.8870	\$5,774	\$14,367	\$1.31
Canterbury Elementary School	30,000	124,081	\$0.1614	\$20,027	7,105	\$2.8870	\$20,512	\$40,539	\$1.35
Belmont High School	72,000	454,600	\$0.1545	\$70,236	18,036	\$2.8870	\$52,070	\$122,306	\$1.70
Belmont Middle School	64,000	381,600	\$0.1671	\$63,765	29,945	\$2.8870	\$86,452	\$150,217	\$2.35
<b>Total</b>	<b>221,500</b>	<b>1,205,781</b>	<b>\$0.1596</b>	<b>\$192,392</b>	<b>66,583</b>	<b>\$2.8870</b>	<b>\$192,225</b>	<b>\$384,618</b>	<b>\$1.74</b>

### Energy Star Rating Summary

Energy Star is a benchmarking program offered by the US Dept. of Energy. It collects data we input for specific geographic regions and compares the results. If a school maintains a 75 rating or higher, consecutively, it can receive recognition and a plaque for the lobby. The recognition is nice to show to the community that continued improvement is being made to reduce energy costs and carbon footprint.

Based on the Energy Star Target Finder, we used data provided by the SAU 80 staff and information we collected to calculate an Energy Star Rating.

Memorial (Admin) Building rated an 87, Belmont High School an 81, and Canterbury Elementary School a 78 which would qualify for Energy Star recognition if it is maintained for 3 consecutive years. Belmont Elementary School rated a 74, just below the target, and Belmont Middle School rated only a 31.

We believe that the Admin. Building rating is inaccurate, mostly due to the fact that oil consumption is combined with the middle school and accurate data is not available. This may also be contributing to the low middle school rating, falsely indicating it is using more than its share of oil. Further fuel tracking should be implemented in order to reevaluate the Energy Star Rating for these buildings.

**Energy Star rating averaged for FY08 and 09**

	<u>Area</u>	<u>Rating*</u>	<u>Qualifies Energy Star</u>	<u>Current Energy Cost</u>	<u>Target* Energy Cost</u>	<u>Diff</u>
Belmont Elementary School	44,500	74	N	\$68,955	\$61,064	\$7,891
Belmont High School	72,000	81	Y	\$128,654	\$125,510	\$3,144
Belmont Middle School	64,000	31	N	\$157,645	\$93,224	\$64,421
Canterbury Elementary School	30,000	78	Y	\$49,176	\$46,145	\$3,031
Memorial (Admin) Building	11,000	87	Y	\$14,367	\$13,115	\$1,252

\*Source: Energy Star Target Finder

The Target Energy Cost indicates what the annual energy cost would be if a 30% reduction was achieved as a result of concerted conservation efforts.

**Energy Conservation Summary**  
**SAU 80 - Shaker Regional School District**

**Sorted by Building**

<u>Building</u>	<u>Category</u>	<u>ECM #</u>	<u>Installed Cost</u>	<u>Annual Savings</u>	<u>Simple Payback</u>
Admin	Building & Misc	ECM 13	\$250	\$500	0.50
Admin	Electrical	ECM 3	\$975	\$977	1.00
Admin	Mechanical	ECM 4	\$500	\$225	2.22
Admin	Building & Misc	ECM 10	\$500	\$200	2.50
Admin	Electrical	ECM 1	\$7,325	\$2,468	2.97
Admin	Mechanical	ECM 6	\$1,600	\$400	4.00
Admin	Electrical	ECM 2	\$215	\$36	5.97
Admin	Mechanical	ECM 8	\$7,000	\$1,000	7.00
Admin*	Mechanical	Alternate - 7*	\$11,000	\$1,500	7.33
Admin	Building & Misc	ECM 9	\$2,200	\$150	14.67
Admin	Mechanical	ECM 5	\$10,000	\$500	20.00
Admin	Building & Misc	ECM 12	\$21,600	\$1,000	21.60
Admin	Mechanical	ECM 7	\$53,000	\$1,500	35.33
Admin	Building & Misc	ECM 11	\$38,000	\$1,000	38.00
<b>Admin Subtotal</b>			<b>\$143,165</b>	<b>\$9,956</b>	<b>14.38</b>

\*Alternate is not included in totals



<u>Building</u>	<u>Category</u>	<u>ECM #</u>	<u>Installed Cost</u>	<u>Annual Savings</u>	<u>Simple Payback</u>
BES	Electrical	ECM 1	\$2,130	\$5,093	0.42
BES	Electrical	ECM 2	\$500	\$1,000	0.50
BES	Building & Misc	ECM 23	\$400	\$400	1.00
BES	Electrical	ECM 5	\$400	\$275	1.45
BES	Mechanical	ECM 10	\$3,500	\$1,500	2.33
BES	Electrical	ECM 6	\$7,800	\$3,300	2.36
BES	Mechanical	ECM 11	\$9,500	\$4,000	2.38
BES	Mechanical	ECM 9	\$4,500	\$1,568	2.87
BES	Building & Misc	ECM 21	\$1,600	\$480	3.33
BES	Electrical	ECM 4	\$350	\$100	3.50
BES	Mechanical	ECM 7	\$3,500	\$1,000	3.50
BES	Mechanical	ECM 15	\$8,500	\$2,350	3.62
BES	Mechanical	ECM 8	\$2,000	\$500	4.00
BES	Mechanical	ECM 12	\$12,500	\$3,000	4.17
BES	Electrical	ECM 3	\$1,600	\$350	4.57
BES	Mechanical	ECM 17	\$450	\$75	6.00
BES	Mechanical	ECM 14	\$7,500	\$1,250	6.00
BES	Mechanical	ECM 16	\$20,000	\$2,800	7.14
BES	Mechanical	ECM 19	\$7,500	\$1,000	7.50
BES	Building & Misc	ECM 22	\$3,200	\$350	9.14
BES	Building & Misc	ECM 20	\$4,500	\$450	10.00
BES	Mechanical	ECM 13	\$155,000	\$12,000	12.92
BES	Mechanical	ECM 18	\$32,000	\$1,900	16.84
<b>BES Subtotal</b>			<b>\$288,930</b>	<b>\$44,741</b>	<b>6.46</b>

<u>Building</u>	<u>Category</u>	<u>ECM #</u>	<u>Installed Cost</u>	<u>Annual Savings</u>	<u>Simple Payback</u>
BHS	Electrical	ECM 3	\$0	\$200	0.00
BHS	Electrical	ECM 8	\$0	\$500	0.00
BHS	Electrical	ECM 2	\$3,555	\$10,576	0.34
BHS	Electrical	ECM 1	\$3,475	\$3,481	1.00
BHS	Electrical	ECM 9	\$2,000	\$2,000	1.00
BHS	Mechanical	ECM 17	\$5,000	\$5,000	1.00
BHS	Mechanical	ECM 22	\$2,500	\$1,750	1.43
BHS	Electrical	ECM 7	\$1,800	\$900	2.00
BHS	Electrical	ECM 6	\$6,600	\$3,000	2.20
BHS	Mechanical	ECM 13	\$3,500	\$1,500	2.33
BHS	Electrical	ECM 5	\$900	\$350	2.57
BHS	Mechanical	ECM 14	\$10,500	\$3,920	2.68
BHS	Mechanical	ECM 12	\$4,500	\$1,568	2.87
BHS	Mechanical	ECM 11	\$2,000	\$600	3.33
BHS	Building & Misc	ECM 24	\$2,800	\$800	3.50
BHS	Mechanical	ECM 10	\$3,500	\$1,000	3.50
BHS	Mechanical	ECM 15	\$10,000	\$2,750	3.64
BHS	Mechanical	ECM 20	\$8,500	\$2,168	3.92
BHS	Electrical	ECM 4	\$1,800	\$400	4.50
BHS	Mechanical	ECM 23	\$450	\$75	6.00
BHS	Mechanical	ECM 18	\$5,000	\$800	6.25
BHS	Mechanical	ECM 19	\$750	\$100	7.50
BHS	Mechanical	ECM 21	\$5,000	\$500	10.00
BHS	Mechanical	ECM 16	\$325,000	\$22,000	14.77
<b>BHS Subtotal</b>			<b>\$409,130</b>	<b>\$65,938</b>	<b>6.20</b>

<u>Building</u>	<u>Category</u>	<u>ECM #</u>	<u>Installed Cost</u>	<u>Annual Savings</u>	<u>Simple Payback</u>
BMS	Electrical	ECM 1	\$11,937	\$13,708	0.87
BMS	Electrical	ECM 6	\$200	\$1,000	0.20
BMS	Electrical	ECM 3	\$570	\$2,061	0.28
BMS	Electrical	ECM 2	\$3,195	\$7,538	0.42
BMS	Electrical	ECM 7	\$450	\$450	1.00
BMS	Electrical	ECM 8	\$3,200	\$2,400	1.33
BMS	Mechanical	ECM 21	\$2,500	\$1,750	1.43
BMS	Electrical	ECM 33	\$1,800	\$900	2.00
BMS	Mechanical	ECM 12	\$3,500	\$1,500	2.33
BMS	Mechanical	ECM 13	\$9,250	\$3,920	2.36
BMS	Mechanical	ECM 18	\$6,000	\$2,500	2.40
BMS	Mechanical	ECM 11	\$4,500	\$1,568	2.87
BMS	Building & Misc	ECM 30	\$5,000	\$1,568	3.19
BMS	Mechanical	ECM 10	\$2,000	\$600	3.33
BMS	Electrical	ECM 5	\$10,000	\$3,000	3.33
BMS	Building & Misc	ECM 32	\$2,700	\$784	3.44
BMS	Mechanical	ECM 22	\$4,000	\$1,154	3.47
BMS	Electrical	ECM 4	\$350	\$100	3.50
BMS	Mechanical	ECM 16	\$350	\$100	3.50
BMS	Mechanical	ECM 9	\$3,500	\$1,000	3.50
BMS	Mechanical	ECM 14	\$10,000	\$2,750	3.64
BMS	Mechanical	ECM 24	\$450	\$75	6.00
BMS	Mechanical	ECM 19	\$14,000	\$2,168	6.46
BMS	Building & Misc	ECM 31	\$52,500	\$6,980	7.52
BMS	Mechanical	ECM 25	\$13,600	\$1,750	7.77
BMS	Mechanical	ECM 23	\$57,400	\$6,400	8.97
BMS	Mechanical	ECM 20	\$20,000	\$2,200	9.09
BMS	Mechanical	ECM 15	\$375,000	\$39,900	9.40
BMS	Building & Misc	ECM 28	\$3,000	\$300	10.00
BMS	Mechanical	ECM 17	\$5,000	\$350	14.29
BMS	Mechanical	ECM 26	\$5,000	\$350	14.29
BMS	Mechanical	ECM 27	\$4,500	\$300	15.00
BMS	Building & Misc	ECM 29	\$186,000	\$9,000	20.67
<b>BMS Subtotal</b>			<b>\$821,452</b>	<b>\$120,124</b>	<b>6.84</b>

<u>Building</u>	<u>Category</u>	<u>ECM #</u>	<u>Installed Cost</u>	<u>Annual Savings</u>	<u>Simple Payback</u>
CES	Electrical	ECM 2	\$2,470	\$3,222	0.77
CES	Electrical	ECM 4	\$250	\$250	1.00
CES	Building & Misc	ECM 25	\$3,675	\$3,000	1.23
CES	Electrical	ECM 1	\$4,900	\$2,952	1.66
CES	Mechanical	ECM 8	\$4,250	\$2,000	2.13
CES	Electrical	ECM 3	\$3,900	\$1,800	2.17
CES	Mechanical	ECM 18	\$5,000	\$1,500	3.33
CES	Mechanical	ECM 17	\$500	\$125	4.00
CES	Mechanical	ECM 6	\$2,000	\$500	4.00
CES	Mechanical	ECM 19	\$4,000	\$1,000	4.00
CES	Building & Misc	ECM 22	\$1,100	\$250	4.40
CES	Building & Misc	ECM 24	\$15,000	\$3,000	5.00
CES	Mechanical	ECM 9	\$3,000	\$500	6.00
CES	Mechanical	ECM 16	\$3,000	\$500	6.00
CES	Mechanical	ECM 5	\$4,000	\$625	6.40
CES	Mechanical	ECM 13	\$8,000	\$1,200	6.67
CES	Building & Misc	ECM 23	\$20,000	\$3,000	6.67
CES	Mechanical	ECM 12	\$7,500	\$1,000	7.50
CES	Mechanical	ECM 15	\$1,250	\$125	10.00
CES	Building & Misc	ECM 20	\$13,500	\$1,350	10.00
CES	Mechanical	ECM 7	\$20,000	\$2,000	10.00
CES	Mechanical	ECM 14	\$155,000	\$12,000	12.92
CES	Mechanical	ECM 11	\$6,500	\$400	16.25
CES	Mechanical	ECM 10	\$16,000	\$900	17.78
CES	Building & Misc	ECM 21	\$70,000	\$2,540	27.56
<b>CES Subtotal</b>			<b>\$374,795</b>	<b>\$45,739</b>	<b>8.19</b>

**Energy Conservation Summary**  
**SAU 80 - Shaker Regional School District**

**Sorted by Category**

<u>Building</u>	<u>Category</u>	<u>ECM #</u>	<u>Installed Cost</u>	<u>Annual Savings</u>	<u>Simple Payback</u>
Admin	Building & Misc	ECM 13	\$250	\$500	0.50
Admin	Building & Misc	ECM 10	\$500	\$200	2.50
Admin	Building & Misc	ECM 9	\$2,200	\$150	14.67
Admin	Building & Misc	ECM 12	\$21,600	\$1,000	21.60
Admin	Building & Misc	ECM 11	\$38,000	\$1,000	38.00
Admin	Electrical	ECM 3	\$975	\$977	1.00
Admin	Electrical	ECM 1	\$7,325	\$2,468	2.97
Admin	Electrical	ECM 2	\$215	\$36	5.97
Admin	Mechanical	ECM 4	\$500	\$225	2.22
Admin	Mechanical	ECM 6	\$1,600	\$400	4.00
Admin	Mechanical	ECM 8	\$7,000	\$1,000	7.00
Admin*	Mechanical	Alternate - 7*	\$11,000	\$1,500	7.33
Admin	Mechanical	ECM 5	\$10,000	\$500	20.00
Admin	Mechanical	ECM 7	\$53,000	\$1,500	35.33
<b>Admin Subtotal</b>			<b>\$143,165</b>	<b>\$9,956</b>	

\*Alternate is not included in totals

<u>Building</u>	<u>Category</u>	<u>ECM #</u>	<u>Installed Cost</u>	<u>Annual Savings</u>	<u>Simple Payback</u>
BES	Building & Misc	ECM 23	\$400	\$400	1.00
BES	Building & Misc	ECM 21	\$1,600	\$480	3.33
BES	Building & Misc	ECM 22	\$3,200	\$350	9.14
BES	Building & Misc	ECM 20	\$4,500	\$450	10.00
BES	Electrical	ECM 1	\$2,130	\$5,093	0.42
BES	Electrical	ECM 2	\$500	\$1,000	0.50
BES	Electrical	ECM 5	\$400	\$275	1.45
BES	Electrical	ECM 6	\$7,800	\$3,300	2.36
BES	Electrical	ECM 4	\$350	\$100	3.50
BES	Electrical	ECM 3	\$1,600	\$350	4.57
BES	Mechanical	ECM 10	\$3,500	\$1,500	2.33
BES	Mechanical	ECM 11	\$9,500	\$4,000	2.38
BES	Mechanical	ECM 9	\$4,500	\$1,568	2.87
BES	Mechanical	ECM 7	\$3,500	\$1,000	3.50
BES	Mechanical	ECM 15	\$8,500	\$2,350	3.62
BES	Mechanical	ECM 8	\$2,000	\$500	4.00
BES	Mechanical	ECM 12	\$12,500	\$3,000	4.17
BES	Mechanical	ECM 17	\$450	\$75	6.00
BES	Mechanical	ECM 14	\$7,500	\$1,250	6.00
BES	Mechanical	ECM 16	\$20,000	\$2,800	7.14
BES	Mechanical	ECM 19	\$7,500	\$1,000	7.50
BES	Mechanical	ECM 13	\$155,000	\$12,000	12.92
BES	Mechanical	ECM 18	\$32,000	\$1,900	16.84
<b>BES Subtotal</b>			<b>\$288,930</b>	<b>\$44,741</b>	



<u>Building</u>	<u>Category</u>	<u>ECM #</u>	<u>Installed Cost</u>	<u>Annual Savings</u>	<u>Simple Payback</u>
BHS	Building & Misc	ECM 24	\$2,800	\$800	3.50
BHS	Electrical	ECM 3	\$0	\$200	0.00
BHS	Electrical	ECM 8	\$0	\$500	0.00
BHS	Electrical	ECM 2	\$3,555	\$10,576	0.34
BHS	Electrical	ECM 1	\$3,475	\$3,481	1.00
BHS	Electrical	ECM 9	\$2,000	\$2,000	1.00
BHS	Electrical	ECM 7	\$1,800	\$900	2.00
BHS	Electrical	ECM 6	\$6,600	\$3,000	2.20
BHS	Electrical	ECM 5	\$900	\$350	2.57
BHS	Electrical	ECM 4	\$1,800	\$400	4.50
BHS	Mechanical	ECM 17	\$5,000	\$5,000	1.00
BHS	Mechanical	ECM 22	\$2,500	\$1,750	1.43
BHS	Mechanical	ECM 13	\$3,500	\$1,500	2.33
BHS	Mechanical	ECM 14	\$10,500	\$3,920	2.68
BHS	Mechanical	ECM 12	\$4,500	\$1,568	2.87
BHS	Mechanical	ECM 11	\$2,000	\$600	3.33
BHS	Mechanical	ECM 10	\$3,500	\$1,000	3.50
BHS	Mechanical	ECM 15	\$10,000	\$2,750	3.64
BHS	Mechanical	ECM 20	\$8,500	\$2,168	3.92
BHS	Mechanical	ECM 23	\$450	\$75	6.00
BHS	Mechanical	ECM 18	\$5,000	\$800	6.25
BHS	Mechanical	ECM 19	\$750	\$100	7.50
BHS	Mechanical	ECM 21	\$5,000	\$500	10.00
BHS	Mechanical	ECM 16	\$325,000	\$22,000	14.77
<b>BHS Subtotal</b>			<b>\$409,130</b>	<b>\$65,938</b>	



<u>Building</u>	<u>Category</u>	<u>ECM #</u>	<u>Installed Cost</u>	<u>Annual Savings</u>	<u>Simple Payback</u>
BMS	Building & Misc	ECM 30	\$5,000	\$1,568	3.19
BMS	Building & Misc	ECM 32	\$2,700	\$784	3.44
BMS	Building & Misc	ECM 31	\$52,500	\$6,980	7.52
BMS	Building & Misc	ECM 28	\$3,000	\$300	10.00
BMS	Building & Misc	ECM 29	\$186,000	\$9,000	20.67
BMS	Electrical	ECM 6	\$200	\$1,000	0.20
BMS	Electrical	ECM 3	\$570	\$2,061	0.28
BMS	Electrical	ECM 2	\$3,195	\$7,538	0.42
BMS	Electrical	ECM 1	\$11,937	\$13,708	0.87
BMS	Electrical	ECM 7	\$450	\$450	1.00
BMS	Electrical	ECM 8	\$3,200	\$2,400	1.33
BMS	Electrical	ECM 33	\$1,800	\$900	2.00
BMS	Electrical	ECM 5	\$10,000	\$3,000	3.33
BMS	Electrical	ECM 4	\$350	\$100	3.50
BMS	Mechanical	ECM 21	\$2,500	\$1,750	1.43
BMS	Mechanical	ECM 12	\$3,500	\$1,500	2.33
BMS	Mechanical	ECM 13	\$9,250	\$3,920	2.36
BMS	Mechanical	ECM 18	\$6,000	\$2,500	2.40
BMS	Mechanical	ECM 11	\$4,500	\$1,568	2.87
BMS	Mechanical	ECM 10	\$2,000	\$600	3.33
BMS	Mechanical	ECM 22	\$4,000	\$1,154	3.47
BMS	Mechanical	ECM 16	\$350	\$100	3.50
BMS	Mechanical	ECM 9	\$3,500	\$1,000	3.50
BMS	Mechanical	ECM 14	\$10,000	\$2,750	3.64
BMS	Mechanical	ECM 24	\$450	\$75	6.00
BMS	Mechanical	ECM 19	\$14,000	\$2,168	6.46
BMS	Mechanical	ECM 25	\$13,600	\$1,750	7.77
BMS	Mechanical	ECM 23	\$57,400	\$6,400	8.97
BMS	Mechanical	ECM 20	\$20,000	\$2,200	9.09
BMS	Mechanical	ECM 15	\$375,000	\$39,900	9.40
BMS	Mechanical	ECM 17	\$5,000	\$350	14.29
BMS	Mechanical	ECM 26	\$5,000	\$350	14.29
BMS	Mechanical	ECM 27	\$4,500	\$300	15.00
<b>BMS Subtotal</b>			<b>\$821,452</b>	<b>\$120,124</b>	



<u>Building</u>	<u>Category</u>	<u>ECM #</u>	<u>Installed Cost</u>	<u>Annual Savings</u>	<u>Simple Payback</u>
CES	Building & Misc	ECM 25	\$3,675	\$3,000	1.23
CES	Building & Misc	ECM 22	\$1,100	\$250	4.40
CES	Building & Misc	ECM 24	\$15,000	\$3,000	5.00
CES	Building & Misc	ECM 23	\$20,000	\$3,000	6.67
CES	Building & Misc	ECM 20	\$13,500	\$1,350	10.00
CES	Building & Misc	ECM 21	\$70,000	\$2,540	27.56
CES	Electrical	ECM 2	\$2,470	\$3,222	0.77
CES	Electrical	ECM 4	\$250	\$250	1.00
CES	Electrical	ECM 1	\$4,900	\$2,952	1.66
CES	Electrical	ECM 3	\$3,900	\$1,800	2.17
CES	Mechanical	ECM 8	\$4,250	\$2,000	2.13
CES	Mechanical	ECM 18	\$5,000	\$1,500	3.33
CES	Mechanical	ECM 17	\$500	\$125	4.00
CES	Mechanical	ECM 6	\$2,000	\$500	4.00
CES	Mechanical	ECM 19	\$4,000	\$1,000	4.00
CES	Mechanical	ECM 9	\$3,000	\$500	6.00
CES	Mechanical	ECM 16	\$3,000	\$500	6.00
CES	Mechanical	ECM 5	\$4,000	\$625	6.40
CES	Mechanical	ECM 13	\$8,000	\$1,200	6.67
CES	Mechanical	ECM 12	\$7,500	\$1,000	7.50
CES	Mechanical	ECM 15	\$1,250	\$125	10.00
CES	Mechanical	ECM 7	\$20,000	\$2,000	10.00
CES	Mechanical	ECM 14	\$155,000	\$12,000	12.92
CES	Mechanical	ECM 11	\$6,500	\$400	16.25
CES	Mechanical	ECM 10	\$16,000	\$900	17.78
<b>CES Subtotal</b>			<b>\$374,795</b>	<b>\$45,739</b>	

**District-wide totals**

\*Totals are based on a sum of individual ECMs with a payback within the specified range

	Installed Cost	Annual Savings	Simple Payback
Building & Misc	\$447,525	\$37,102	12.06
Electrical	\$84,647	\$74,387	1.14
Mechanical	\$1,505,300	\$175,009	8.60



**Energy Conservation Summary**  
**SAU 80 - Shaker Regional School District**  
**Sorted by Payback**

<u>Building</u>	<u>Category</u>	<u>ECM #</u>	<u>Installed Cost</u>	<u>Annual Savings</u>	<u>Simple Payback</u>
Admin	Building & Misc	ECM 13	\$250	\$500	0.50
Admin	Electrical	ECM 3	\$975	\$977	1.00
Admin	Mechanical	ECM 4	\$500	\$225	2.22
Admin	Building & Misc	ECM 10	\$500	\$200	2.50
Admin	Electrical	ECM 1	\$7,325	\$2,468	2.97
Admin	Mechanical	ECM 6	\$1,600	\$400	4.00
Admin	Electrical	ECM 2	\$215	\$36	5.97
Admin	Mechanical	ECM 8	\$7,000	\$1,000	7.00
Admin*	Mechanical	Alternate - 7*	\$11,000	\$1,500	7.33
Admin	Building & Misc	ECM 9	\$2,200	\$150	14.67
Admin	Mechanical	ECM 5	\$10,000	\$500	20.00
Admin	Building & Misc	ECM 12	\$21,600	\$1,000	21.60
Admin	Mechanical	ECM 7	\$53,000	\$1,500	35.33
Admin	Building & Misc	ECM 11	\$38,000	\$1,000	38.00
<b>Admin Subtotal</b>			<b>\$143,165</b>	<b>\$9,956</b>	

\*Alternate is not included in totals

<u>Building</u>	<u>Category</u>	<u>ECM #</u>	<u>Installed Cost</u>	<u>Annual Savings</u>	<u>Simple Payback</u>
BES	Electrical	ECM 1	\$2,130	\$5,093	0.42
BES	Electrical	ECM 2	\$500	\$1,000	0.50
BES	Building & Misc	ECM 23	\$400	\$400	1.00
BES	Electrical	ECM 5	\$400	\$275	1.45
BES	Mechanical	ECM 10	\$3,500	\$1,500	2.33
BES	Electrical	ECM 6	\$7,800	\$3,300	2.36
BES	Mechanical	ECM 11	\$9,500	\$4,000	2.38
BES	Mechanical	ECM 9	\$4,500	\$1,568	2.87
BES	Building & Misc	ECM 21	\$1,600	\$480	3.33
BES	Electrical	ECM 4	\$350	\$100	3.50
BES	Mechanical	ECM 7	\$3,500	\$1,000	3.50
BES	Mechanical	ECM 15	\$8,500	\$2,350	3.62
BES	Mechanical	ECM 8	\$2,000	\$500	4.00
BES	Mechanical	ECM 12	\$12,500	\$3,000	4.17
BES	Electrical	ECM 3	\$1,600	\$350	4.57
BES	Mechanical	ECM 17	\$450	\$75	6.00
BES	Mechanical	ECM 14	\$7,500	\$1,250	6.00
BES	Mechanical	ECM 16	\$20,000	\$2,800	7.14
BES	Mechanical	ECM 19	\$7,500	\$1,000	7.50
BES	Building & Misc	ECM 22	\$3,200	\$350	9.14
BES	Building & Misc	ECM 20	\$4,500	\$450	10.00
BES	Mechanical	ECM 13	\$155,000	\$12,000	12.92
BES	Mechanical	ECM 18	\$32,000	\$1,900	16.84
<b>BES Subtotal</b>			<b>\$288,930</b>	<b>\$44,741</b>	

<u>Building</u>	<u>Category</u>	<u>ECM #</u>	<u>Installed Cost</u>	<u>Annual Savings</u>	<u>Simple Payback</u>
BHS	Electrical	ECM 3	\$0	\$200	0.00
BHS	Electrical	ECM 8	\$0	\$500	0.00
BHS	Electrical	ECM 2	\$3,555	\$10,576	0.34
BHS	Electrical	ECM 1	\$3,475	\$3,481	1.00
BHS	Electrical	ECM 9	\$2,000	\$2,000	1.00
BHS	Mechanical	ECM 17	\$5,000	\$5,000	1.00
BHS	Mechanical	ECM 22	\$2,500	\$1,750	1.43
BHS	Electrical	ECM 7	\$1,800	\$900	2.00
BHS	Electrical	ECM 6	\$6,600	\$3,000	2.20
BHS	Mechanical	ECM 13	\$3,500	\$1,500	2.33
BHS	Electrical	ECM 5	\$900	\$350	2.57
BHS	Mechanical	ECM 14	\$10,500	\$3,920	2.68
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BHS	Mechanical	ECM 11	\$2,000	\$600	3.33
BHS	Building & Misc	ECM 24	\$2,800	\$800	3.50
BHS	Mechanical	ECM 10	\$3,500	\$1,000	3.50
BHS	Mechanical	ECM 15	\$10,000	\$2,750	3.64
BHS	Mechanical	ECM 20	\$8,500	\$2,168	3.92
BHS	Electrical	ECM 4	\$1,800	\$400	4.50
BHS	Mechanical	ECM 23	\$450	\$75	6.00
BHS	Mechanical	ECM 18	\$5,000	\$800	6.25
BHS	Mechanical	ECM 19	\$750	\$100	7.50
BHS	Mechanical	ECM 21	\$5,000	\$500	10.00
BHS	Mechanical	ECM 16	\$325,000	\$22,000	14.77
<b>BHS Subtotal</b>			<b>\$409,130</b>	<b>\$65,938</b>	

<u>Building</u>	<u>Category</u>	<u>ECM #</u>	<u>Installed Cost</u>	<u>Annual Savings</u>	<u>Simple Payback</u>
BMS	Electrical	ECM 1	\$11,937	\$13,708	0.87
BMS	Electrical	ECM 6	\$200	\$1,000	0.20
BMS	Electrical	ECM 3	\$570	\$2,061	0.28
BMS	Electrical	ECM 2	\$3,195	\$7,538	0.42
BMS	Electrical	ECM 7	\$450	\$450	1.00
BMS	Electrical	ECM 8	\$3,200	\$2,400	1.33
BMS	Mechanical	ECM 21	\$2,500	\$1,750	1.43
BMS	Electrical	ECM 33	\$1,800	\$900	2.00
BMS	Mechanical	ECM 12	\$3,500	\$1,500	2.33
BMS	Mechanical	ECM 13	\$9,250	\$3,920	2.36
BMS	Mechanical	ECM 18	\$6,000	\$2,500	2.40
BMS	Mechanical	ECM 11	\$4,500	\$1,568	2.87
BMS	Building & Misc	ECM 30	\$5,000	\$1,568	3.19
BMS	Mechanical	ECM 10	\$2,000	\$600	3.33
BMS	Electrical	ECM 5	\$10,000	\$3,000	3.33
BMS	Building & Misc	ECM 32	\$2,700	\$784	3.44
BMS	Mechanical	ECM 22	\$4,000	\$1,154	3.47
BMS	Electrical	ECM 4	\$350	\$100	3.50
BMS	Mechanical	ECM 16	\$350	\$100	3.50
BMS	Mechanical	ECM 9	\$3,500	\$1,000	3.50
BMS	Mechanical	ECM 14	\$10,000	\$2,750	3.64
BMS	Mechanical	ECM 24	\$450	\$75	6.00
BMS	Mechanical	ECM 19	\$14,000	\$2,168	6.46
BMS	Building & Misc	ECM 31	\$52,500	\$6,980	7.52
BMS	Mechanical	ECM 25	\$13,600	\$1,750	7.77
BMS	Mechanical	ECM 23	\$57,400	\$6,400	8.97
BMS	Mechanical	ECM 20	\$20,000	\$2,200	9.09
BMS	Mechanical	ECM 15	\$375,000	\$39,900	9.40
BMS	Building & Misc	ECM 28	\$3,000	\$300	10.00
BMS	Mechanical	ECM 17	\$5,000	\$350	14.29
BMS	Mechanical	ECM 26	\$5,000	\$350	14.29
BMS	Mechanical	ECM 27	\$4,500	\$300	15.00
BMS	Building & Misc	ECM 29	\$186,000	\$9,000	20.67
<b>BMS Subtotal</b>			<b>\$821,452</b>	<b>\$120,124</b>	

<u>Building</u>	<u>Category</u>	<u>ECM #</u>	<u>Installed Cost</u>	<u>Annual Savings</u>	<u>Simple Payback</u>
CES	Electrical	ECM 2	\$2,470	\$3,222	0.77
CES	Electrical	ECM 4	\$250	\$250	1.00
CES	Building & Misc	ECM 25	\$3,675	\$3,000	1.23
CES	Electrical	ECM 1	\$4,900	\$2,952	1.66
CES	Mechanical	ECM 8	\$4,250	\$2,000	2.13
CES	Electrical	ECM 3	\$3,900	\$1,800	2.17
CES	Mechanical	ECM 18	\$5,000	\$1,500	3.33
CES	Mechanical	ECM 17	\$500	\$125	4.00
CES	Mechanical	ECM 6	\$2,000	\$500	4.00
CES	Mechanical	ECM 19	\$4,000	\$1,000	4.00
CES	Building & Misc	ECM 22	\$1,100	\$250	4.40
CES	Building & Misc	ECM 24	\$15,000	\$3,000	5.00
CES	Mechanical	ECM 9	\$3,000	\$500	6.00
CES	Mechanical	ECM 16	\$3,000	\$500	6.00
CES	Mechanical	ECM 5	\$4,000	\$625	6.40
CES	Mechanical	ECM 13	\$8,000	\$1,200	6.67
CES	Building & Misc	ECM 23	\$20,000	\$3,000	6.67
CES	Mechanical	ECM 12	\$7,500	\$1,000	7.50
CES	Mechanical	ECM 15	\$1,250	\$125	10.00
CES	Building & Misc	ECM 20	\$13,500	\$1,350	10.00
CES	Mechanical	ECM 7	\$20,000	\$2,000	10.00
CES	Mechanical	ECM 14	\$155,000	\$12,000	12.92
CES	Mechanical	ECM 11	\$6,500	\$400	16.25
CES	Mechanical	ECM 10	\$16,000	\$900	17.78
CES	Building & Misc	ECM 21	\$70,000	\$2,540	27.56
<b>CES Subtotal</b>			<b>\$374,795</b>	<b>\$45,739</b>	

Total number of ECMs (including alternate)

119

**District-wide totals**

\*Totals are based on a sum of individual ECMs with a payback within the specified range

	<b>Installed cost</b>	<b>Annual Savings</b>	<b>Simple Payback</b>
<i>Sum of ECMs with payback &lt; 1 yr</i>	\$24,807	\$45,398	0.55
<i>Sum of ECMs with payback &lt; 5yrs</i>	\$235,100	\$93,701	2.51
<i>Sum of ECMs with payback &lt; 10 yrs</i>	\$647,315	\$77,184	8.39
<b>Sum of all ECMs</b>	<b>\$2,037,472</b>	<b>\$286,498</b>	<b>7.11</b>