

Energy Benchmarking Report

Stanley-Boyd ES/MS/HS, Stanley, WI (October 2004 through September 2005)

Building Summary:

Building Data			
District	Stanley-Boyd Area SD	School Name	Stanley-Boyd ES/MS/HS
City	Stanley	Zip Code	54768
Year Built	1961	Floor Area (sq. ft.)	207,076
Number of Students	871	Number of PCs	350
Weekly Operating Hours	40	Months Used	9
Cooking?	yes	% AC	30%
Pool?	yes		

Utility Data			
Data End Point	September 2005	Total Cost (\$)	\$236,707 (\$158,722)
Electricity Usage (kWh)	1,630,580	Electricity Cost (\$)	\$105,269 (\$105,458)
Natural Gas Usage (therms)	137,305	Natural Gas Cost (\$)	\$131,439 (\$53,264)

Energy Indicators			
EPA Score	16	Site Energy (kBtu/sf)	93.2
Electric Usage (kWh/sf)	7.9	Weather Adjusted Heating (Btu/sf/hdd)	9.1
Heating Usage (kBtu/sf)	66.3		

Background & Findings:

Wisconsin Focus on Energy supports K-12 schools through its *Schools and Government Program*. Benchmarking schools' energy consumption is a cornerstone of that program. The analysis is provided by Focus on Energy as a service to Wisconsin K-12 public and private schools and its goals are to help you in two ways:

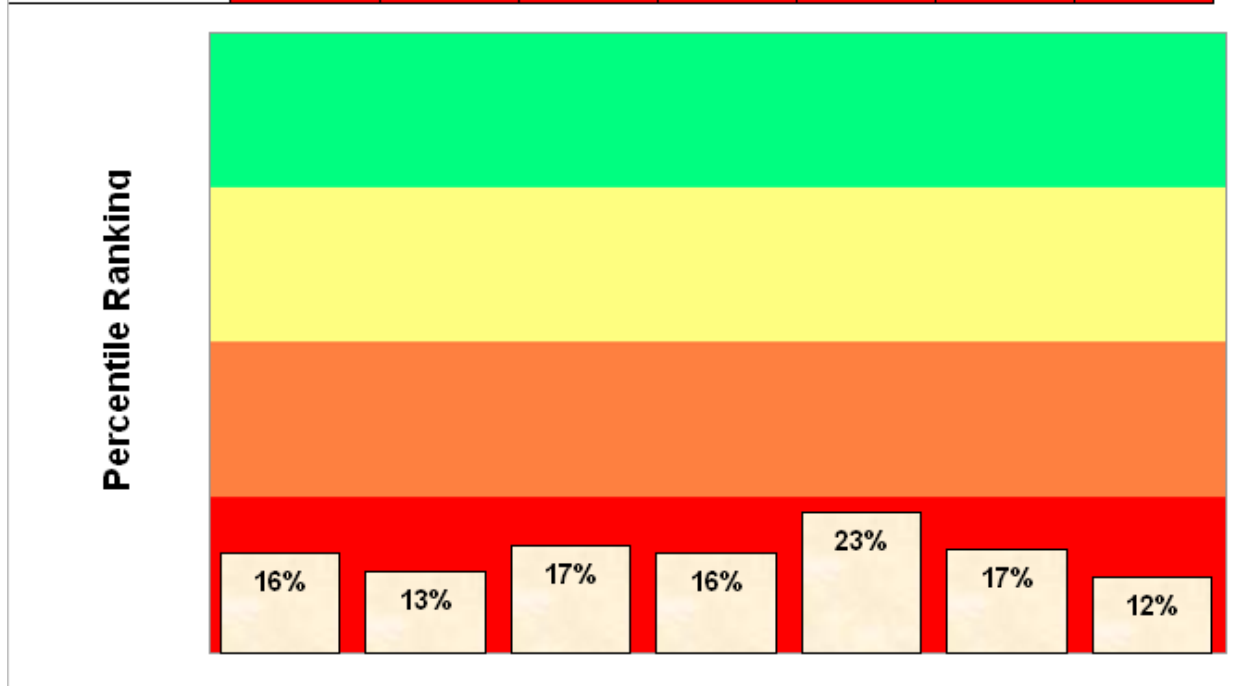
- **Understand** how your buildings are doing relative to other, **similar**, schools
- **Identify and implement** opportunities for improving operations and reducing costs.

We based our analysis on the description of your school that you provided us — size, number of students, types of heating & cooling, cooking facilities, number of PCs, etc. We also used your most recent available utility bills to assess your electricity and heating fuel consumption. We then compared this information against two sets of school energy data.

Your *Focus on Energy Schools and Government* benchmarks are presented below and explained on the following pages.

Summary Graph: Stanley-Boyd ES/MS/HS, Stanley, WI

Schools	U.S. EPA Portfolio Manager Score	Wisconsin State Schools (annual data)					
		Total Energy Use kBtu/sq.ft.	Electric Use kWh/sq.ft.	Heating Fuel Use kBtu/sq.ft.	Weather Adjusted Heating Fuel Use Btu/sq.ft./HDD	Total Energy Cost \$/sq.ft.	Total Energy Cost \$/student
Average:	50	67.7	5.4	48.7	7.1	\$0.87	\$151
You:	16	93.2	7.9	66.3	9.1	\$1.14	\$272



TRC Energy Services is under contract to WECC to manage its Schools Energy Benchmarking Program

U.S. EPA Portfolio Manager Score:

Portfolio Manager is a benchmarking model based on a national set of data from K-12 schools. It is provided by the U.S. Environmental Protection Agency's ENERGY STAR® Program. The impact of factors outside of your control (e.g., location, occupancy, and fuel type) are removed, providing a 1-100 ranking of a school's energy performance relative to the national school building market. A score of 50 represents the national average, and a score of 100 is best. Measured energy consumption forms the basis of the ranking and is the only true measure of performance.

Your school's *Portfolio Manager* score of 16 places it above 16% of K-12 schools nationwide.

Wisconsin Schools (Annual Data):

The second data set is made up solely of Wisconsin K-12 schools for which Focus on Energy has obtained building characteristics and at least one-year's energy consumption data. Within this data set, we compared your school's annual energy use to others on the basis of the elements listed below. These comparisons allow you to see how you're doing relative to other buildings designed and constructed to the same Wisconsin codes, operating under the same Wisconsin Department of Public Instruction regulations and schedules, and operating under similar weather conditions — in other words, 'apples-to-apples.' Since each indicator below is shown on a *per square foot* or *per student* basis, you can compare yourself to different sized schools.

Total energy use — Wisconsin Average: 67.7 kBtu/sq.ft.

This shows how much total energy — heating, cooling (if any), lights, cooking, computers, etc. — your school consumes each year.

Your school's total energy use of 93.2 kBtu per square foot per year is lower than 15% of Wisconsin K-12 schools.

This is a good indicator of how well, overall, your school is performing. However, it doesn't help you find **where** in your building to look for improvement opportunities. The two factors below can help with that.

Electric use — Wisconsin Average: 5.4 kWh/sq.ft.

When looking solely at electric consumption, you eliminate the effects of your heating plant. You're now seeing how well the building does with its lights, cooling and cafeteria systems (if any), and what's referred to as "plug load." Plug load is just that — anything that plugs into a socket. In schools, the major plug loads are generally computers (including monitors, printers and copiers), refrigerators, coffee machines, fans, shop equipment, and projectors. If electric consumption is much higher than average, but heating fuel use (see below) is average or better, then you can focus your efforts on the electric-powered elements listed above.

Your school's electric consumption of 7.9 kWh per square foot per year is lower than 15% of Wisconsin schools.

Heating fuel use — Wisconsin Average: 48.7 kBtu/sq.ft. or 7.1 Btu/sq.ft./HDD

Reviewing these indicators is relatively straightforward. If your school's use is much higher than average, an audit of your heating system along with your building envelope — doors, windows, roof — is recommended. This factor is 'fuel-neutral.' That is, it works for either fuel oil or natural gas heating systems. Heating fuel use changes with local weather conditions from year to year. That is why a weather adjusted benchmark is shown below.

Your heating fuel use of 66 kBtu per square foot per year is lower than 15% of other Wisconsin schools in the database. Your weather adjusted heating fuel use of 9.1 Btu per square foot per heating degree day is lower than 25% of other Wisconsin schools.

Energy cost — Wisconsin Averages: \$0.87/sq.ft. or \$151/student

Cost is the bottom line. These numbers help you understand how much — in terms of budget — that you have to gain through energy efficiency improvements.

Your annual energy cost of \$1.14 per square foot is lower than 15% of other Wisconsin schools. Your cost expressed on a per student basis of \$272 is lower than 10% of other Wisconsin schools.