

CLEARResult



Liberty UtilitiesSM
California Pacific Electric Company

Tahoe Truckee USD

Energy benchmarking report

Sponsored by Liberty Utilities • Provided by CLEARresult • February 24th, 2014

PREPARED BY:

David Goett
512.327.9200
dgoett@clearresult.com

CLEARresult
4301 Westbank Drive
Building A – Suite 250
Austin, TX 78746

PREPARED FOR

Tahoe Truckee Unified School District
11603 Donner Pass Road
Truckee, CA 96161
530.582.2500

Table of Contents

Executive summary 3

Introduction..... 4

 The benchmarking process..... 4

 CLEARResult’s regional energy performance databases and data modeling process 4

 Energy performance benchmarks used in the study 4

 Background information 5

Current energy use charts 6

 Correlation with building characteristics 6

 Comparison with schools in local region 7

 Percentiles of schools in local region 8

 Breakdown of electricity versus natural gas 9

 Energy usage profile for Tahoe Truckee USD..... 10

 Medians for local region..... 11

 Comparison between your buildings 12

 Targeting schools for further assessment 13

 Correlation with EPA portfolio manager ratings..... 14

 Comparison with local school districts..... 15

Energy costs 16

Historical energy use charts..... 17

 Change in energy use by district..... 17

 Change in energy use by school..... 18

 Change in EPA portfolio manager score by school 19

Detailed energy performance analysis of schools 20

Current energy use tables 22

 Energy performance by school type..... 22

 Energy performance by quartiles 23

Translating the numbers into savings 24

 Targeting energy cost savings 25

Calculating energy cost savings 26

Greenhouse gas emissions 28

Appendix 29

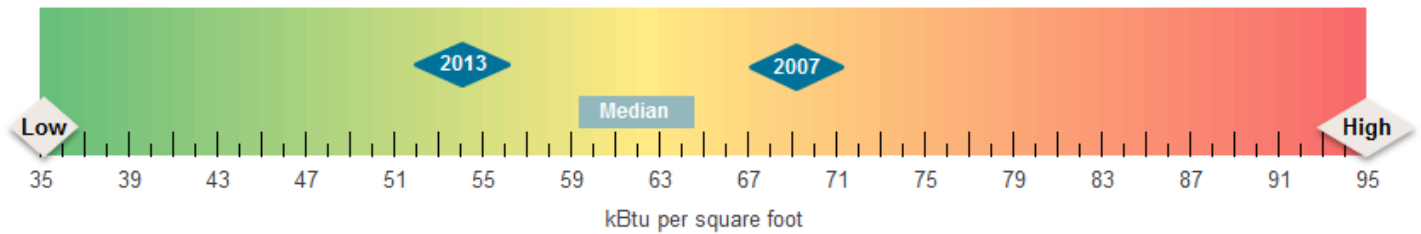
 Energy performance charts for individual schools 29

Executive summary

The executive summary provides an overview of your schools' performance in this energy benchmarking analysis compared to other K-12 schools in your climate zone:

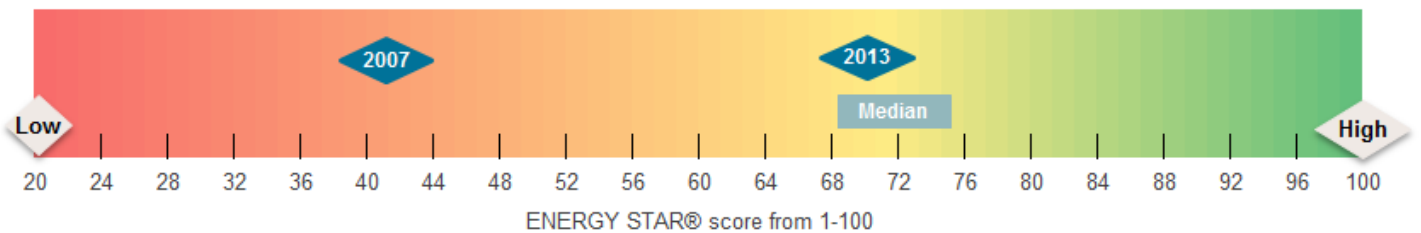
From January 2013-December 2013, Tahoe Truckee USD consumed **54.3** kBtu per square foot, which falls below the local median for K-12 schools in your climate zone (i.e., **62.7** kBtu per square foot), and is also less than its 2007 benchmarking study (i.e., **69.0** kBtu per square foot).

Energy use index



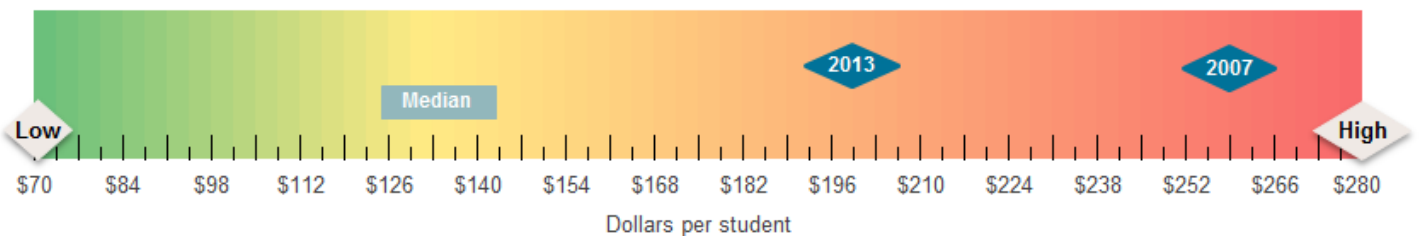
From January 2013-December 2013, Tahoe Truckee USD scored an average of **71** out of 100 in EPA portfolio manager, which is similar to the local median for K-12 schools in your climate zone (i.e., **72** out of 100), and is much better than its 2007 benchmarking study (i.e., **41** out of 100).

EPA portfolio manager rating



From January 2013-December 2013, Tahoe Truckee USD spent **\$200** on energy costs per student, which exceeds the local median for K-12 schools in your climate zone (i.e., **\$133** per student), but is less than its 2007 benchmarking study (i.e., **\$259** per student).

Energy cost per student



Overall, Tahoe Truckee USD is performing better than other districts in your climate zone, and has improved its energy performance since 2007. Even with the efficiency gains, there is always room for improvement and likely are many opportunities for additional energy-improvements at your individual campus sites.

Introduction

Benchmarking the energy performance of your schools is the first step in determining where and how to implement energy improvements within your district. This energy benchmarking report compares your schools' energy performance against each other and against regional and national databases and will help you identify which of your schools have the greatest opportunities for energy and cost savings.

THE BENCHMARKING PROCESS

CLEAResult's regional energy performance databases and data modeling process

The energy and building data you provided – e.g. twelve months of utility bills, school square footages, and number of students – is entered into CLEAResult's energy performance database. This database contains building characteristics and energy usage information from hundreds of schools that CLEAResult has benchmarked in your climate region. Filters are placed on database records in your climate zone to provide a basis for comparison of energy performance.

After uploading your information into the database for your region, a software model calculates the following energy benchmarks for each of your schools: annual energy use per square foot (energy use index), annual energy cost per square foot (energy cost index), and annual energy cost per student. The model then compares your calculated energy benchmarks to other schools in your climate region. The model only compares those schools of similar type and heat source (e.g. gas-heated high schools are only compared to other gas-heated high schools, etc.).

Energy performance benchmarks used in the study

- **Energy use index (kBtu/sq.ft):** Also known as site energy or EUI, Energy use index is one of the most common ways to compare energy consumption between schools. This metric includes twelve months of energy consumption data as reported on your monthly utility bills converted to units of kBtu, divided by the total square footage of the school.
- **Energy cost index (\$/sq.ft):** Potential to reduce energy costs is a prime motivator for investment in energy efficiency upgrades. This metric includes twelve months of energy costs as reported on your monthly utility bills, divided by the total square footage of the school campus. Energy cost index is a simple way to compare how much it costs to operate each of your schools.
- **Energy cost per student (\$/student):** Another excellent way to compare the cost of operations and maintenance at schools is by student. This metric includes twelve months of energy costs as reported on your monthly utility bills, divided by the number of students enrolled at the school. Energy cost per student can help identify schools that are overcrowded or have excess capacity.
- **Portfolio manager rating (1-100):** An online benchmarking tool that uses a mathematical algorithm to rank energy performance on a scale of 1 to 100, EPA portfolio manager incorporates *both* energy consumption data and building characteristics – such as year built, square footage, and weather – into its calculations. A score of 50 indicates that the school is performing better than half of K-12 schools nationwide. Schools scoring 75 or better may be eligible to apply for the ENERGY STAR Label.

Your K-12 schools' building characteristics, utility data, and calculated energy performance metrics are presented in a number of ways throughout the following benchmarking report.



BACKGROUND INFORMATION

Tahoe Truckee USD elected to take advantage of the building energy performance benchmarking support sponsored by Liberty Utilities. This re-benchmarking study analyzes your current performance and compares it against the 2007 study, and includes the following 8 school sites:

- Alder Creek Middle School
- Donner Trail Elementary
- Glenshire Elementary
- Kings Beach Elementary
- North Tahoe Middle & High Schools
- Tahoe Lake Elementary
- Truckee Elementary
- Truckee High School

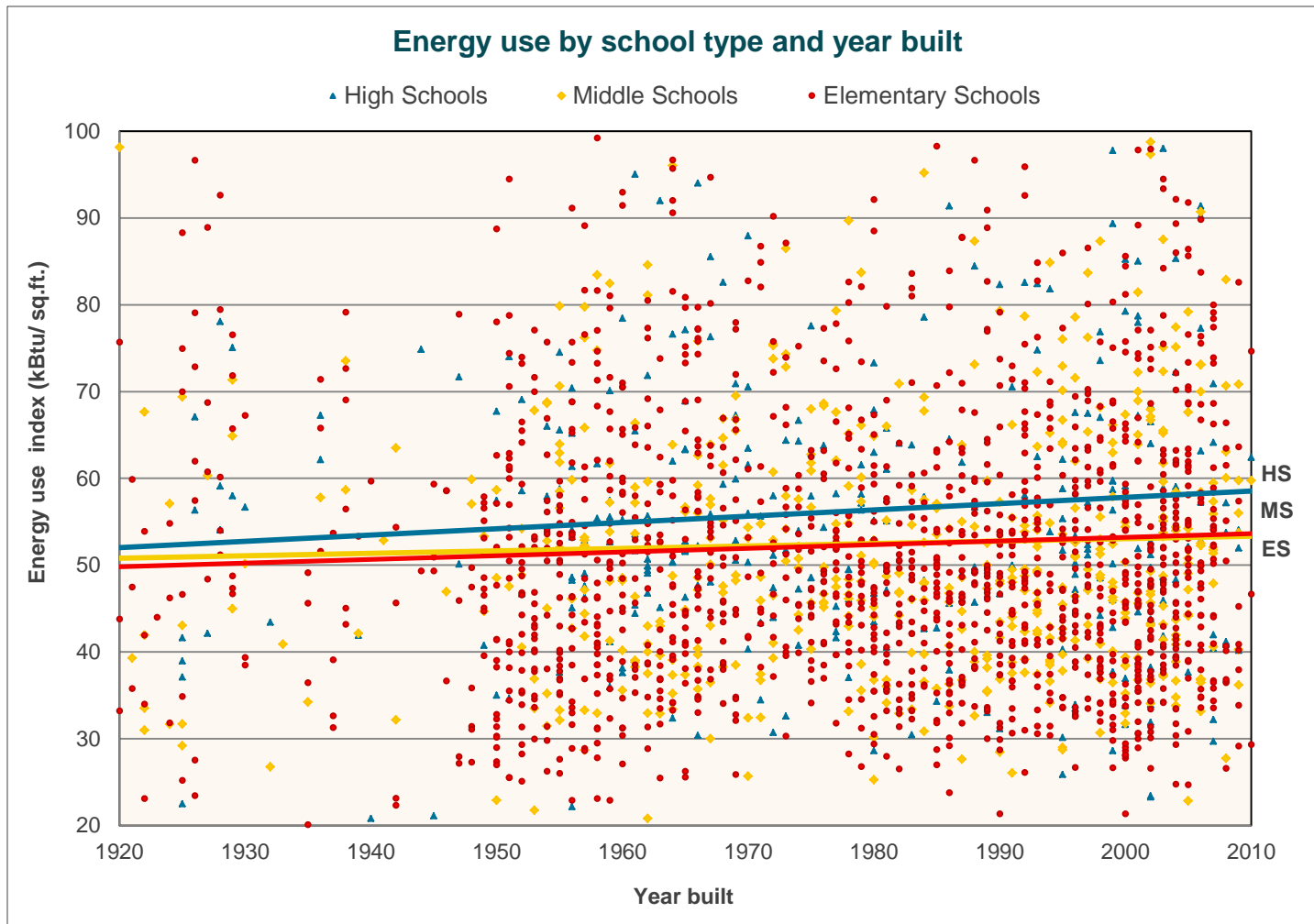
Site energy data includes electricity and natural gas. The current year of energy consumption data covers January 2013-December 2013, and the previous analysis covers January 2007-December 2007. Data was reviewed for quality and accuracy.

Tahoe Truckee Unified School District
11603 Donner Pass Road, Truckee, CA

Current energy use charts

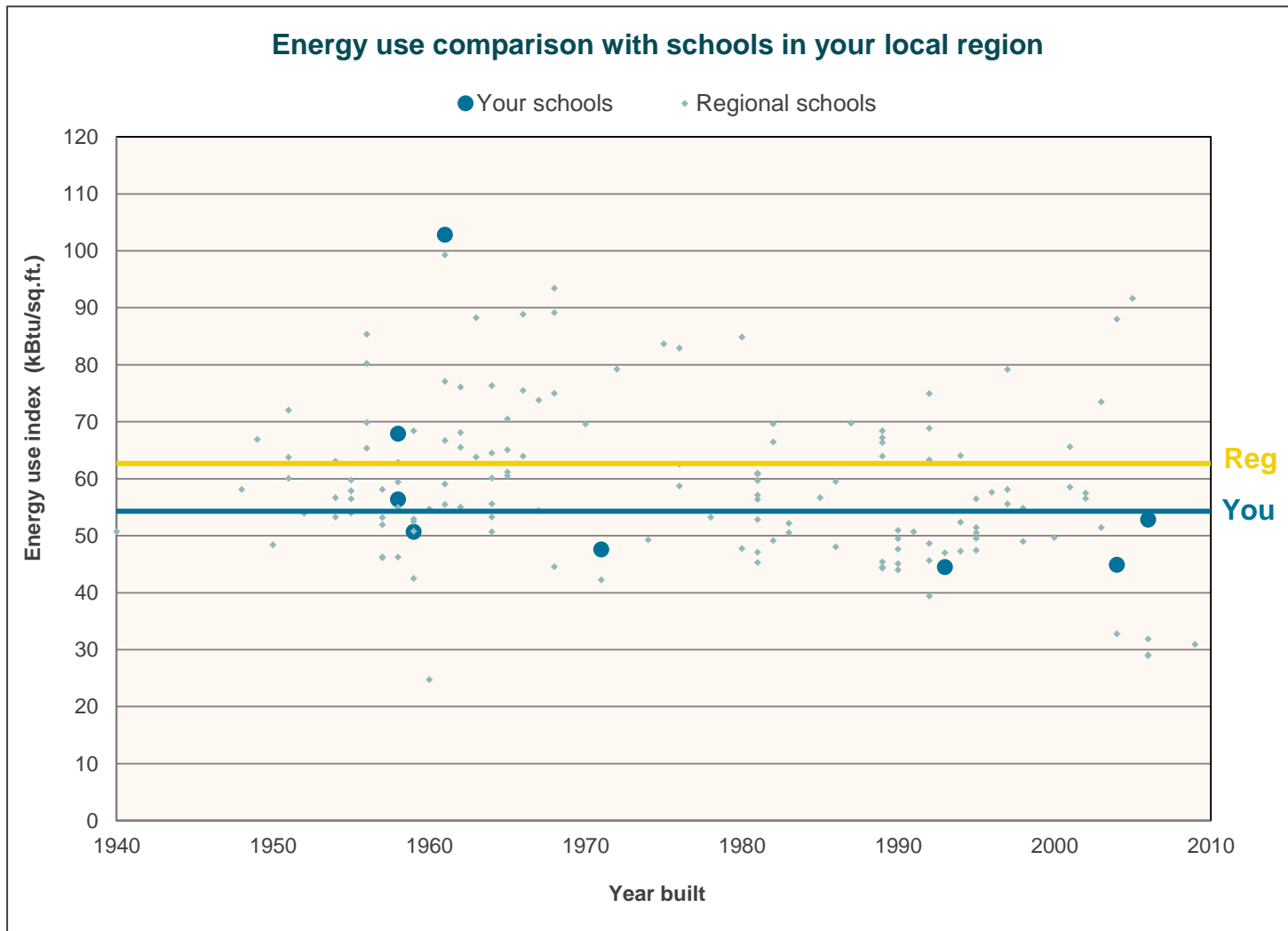
CORRELATION WITH BUILDING CHARACTERISTICS

A common misconception about the energy performance is that newer schools—built under newer codes—are relatively less energy intensive. Similarly, there is a misconception that high schools—with their longer hours of operation and their use of gym spaces—are considerably more energy intensive than K-8 schools. The graph below illustrates that newer schools use just as much if not more energy per square foot as older ones. Similarly, high schools only use slightly more energy per square foot than K-8 schools. The wide range of energy intensities indicates the magnitude of the effect that good energy managers and operating procedures can have on school energy consumption and costs.



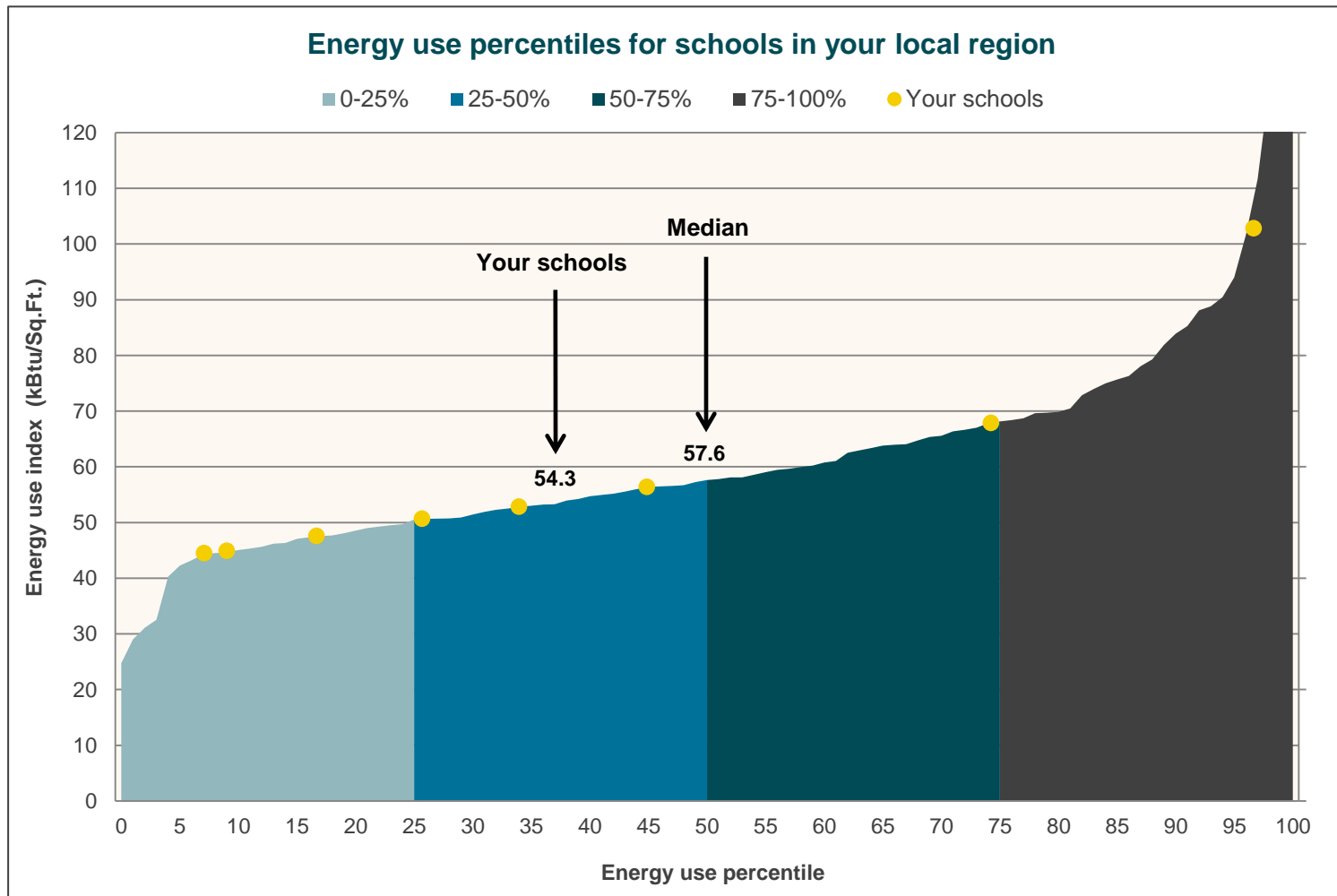
COMPARISON WITH SCHOOLS IN LOCAL REGION

Annual energy use per square foot, also known as energy use index (EUI), is one of the most common ways to compare energy consumption between buildings. This parameter is all inclusive – it incorporates the energy used for heating, cooling, dehumidifying, lights, cooking, computers, etc. – and it also normalizes based on building size. The scatter plot below illustrates how your schools compare to the rest of the schools in our database in climate regions like yours. While your schools' EUIs fall in the range of the local climate zone, your district's overall average (i.e., blue trendline) is lower than the local climate average (i.e., orange trendline).



PERCENTILES OF SCHOOLS IN LOCAL REGION

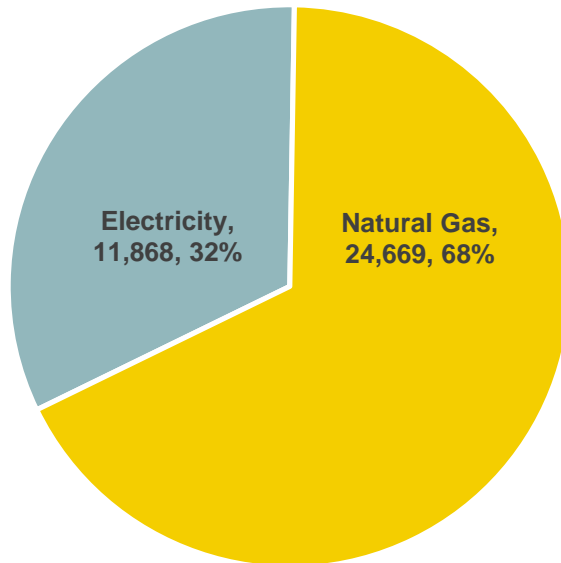
A percentile indicates where one point falls among an entire distribution. The chart below illustrates your schools' percentiles with respect to energy use (kBtu/sq.ft) compared to all other schools in climate regions like yours. Unlike subsequent charts, this chart shows all schools, and does not differentiate between school type (e.g. elementary, middle, and high) and heat source (e.g. gas, electric). Higher percentiles reflect schools with greater energy use (i.e. darker portion of chart on right). The yellow dots show where your schools fall on the continuum.



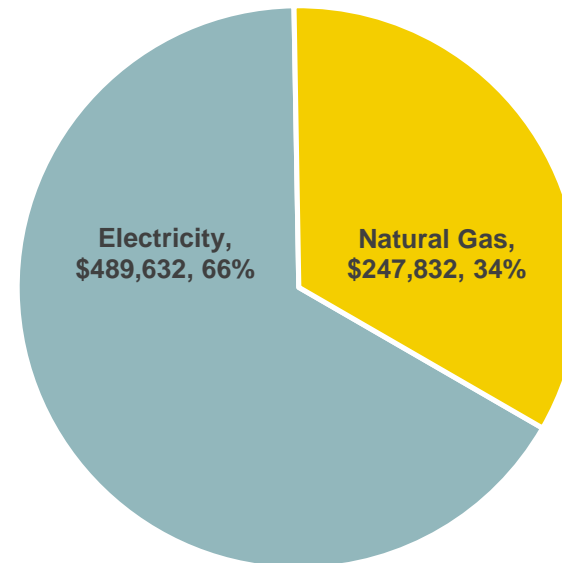
BREAKDOWN OF ELECTRICITY VERSUS NATURAL GAS

The following pie charts show the respective contribution of electricity and natural gas to overall site energy consumption and cost at your schools. Because electricity (blue) is currently more expensive than natural gas (yellow), it accounts for a greater portion of cost than usage. Energy-improvements that lower electricity will do more to reduce your energy cost than comparable reductions in natural gas.

**Annual energy use
MMBtu**

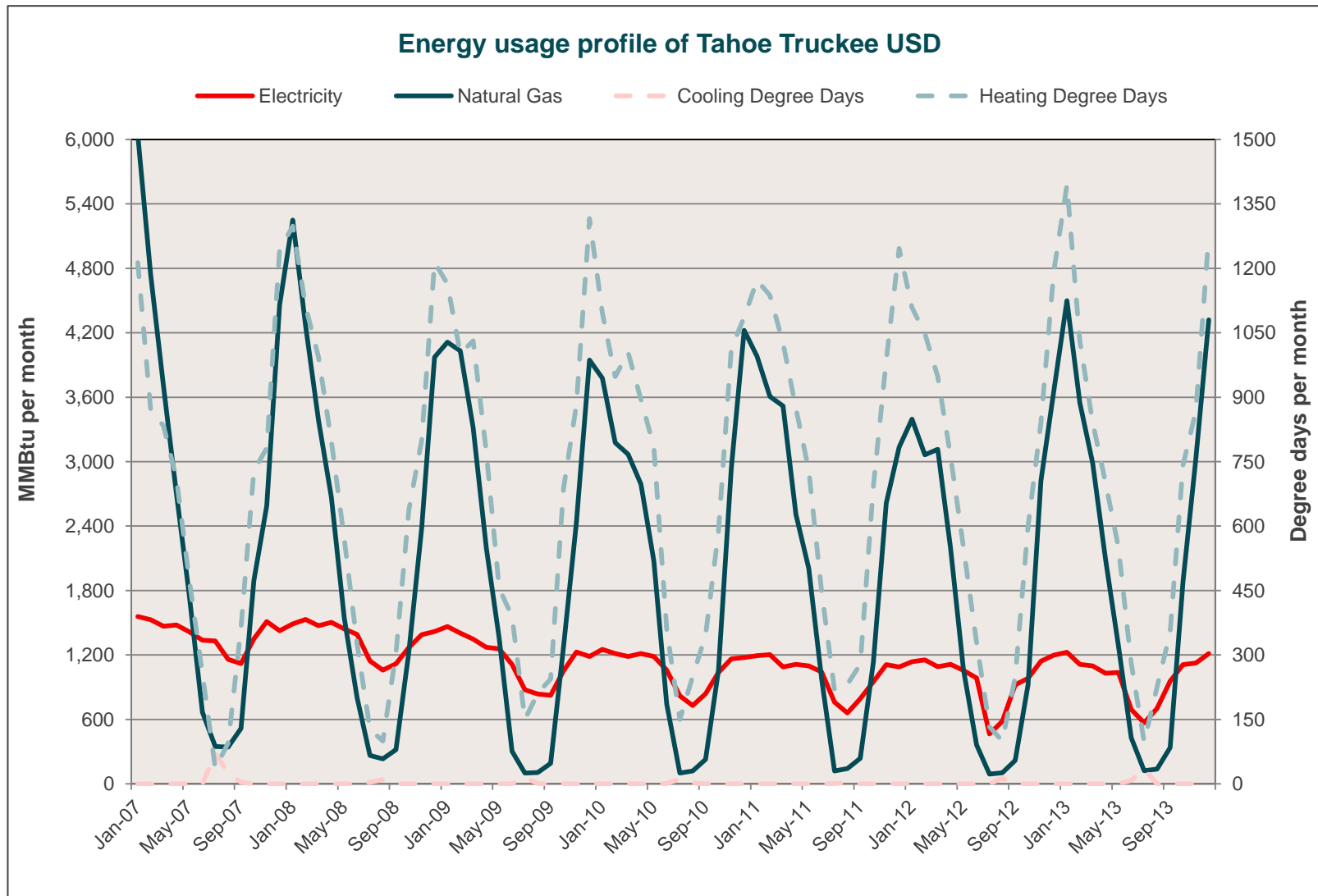


**Annual energy cost
Dollars**



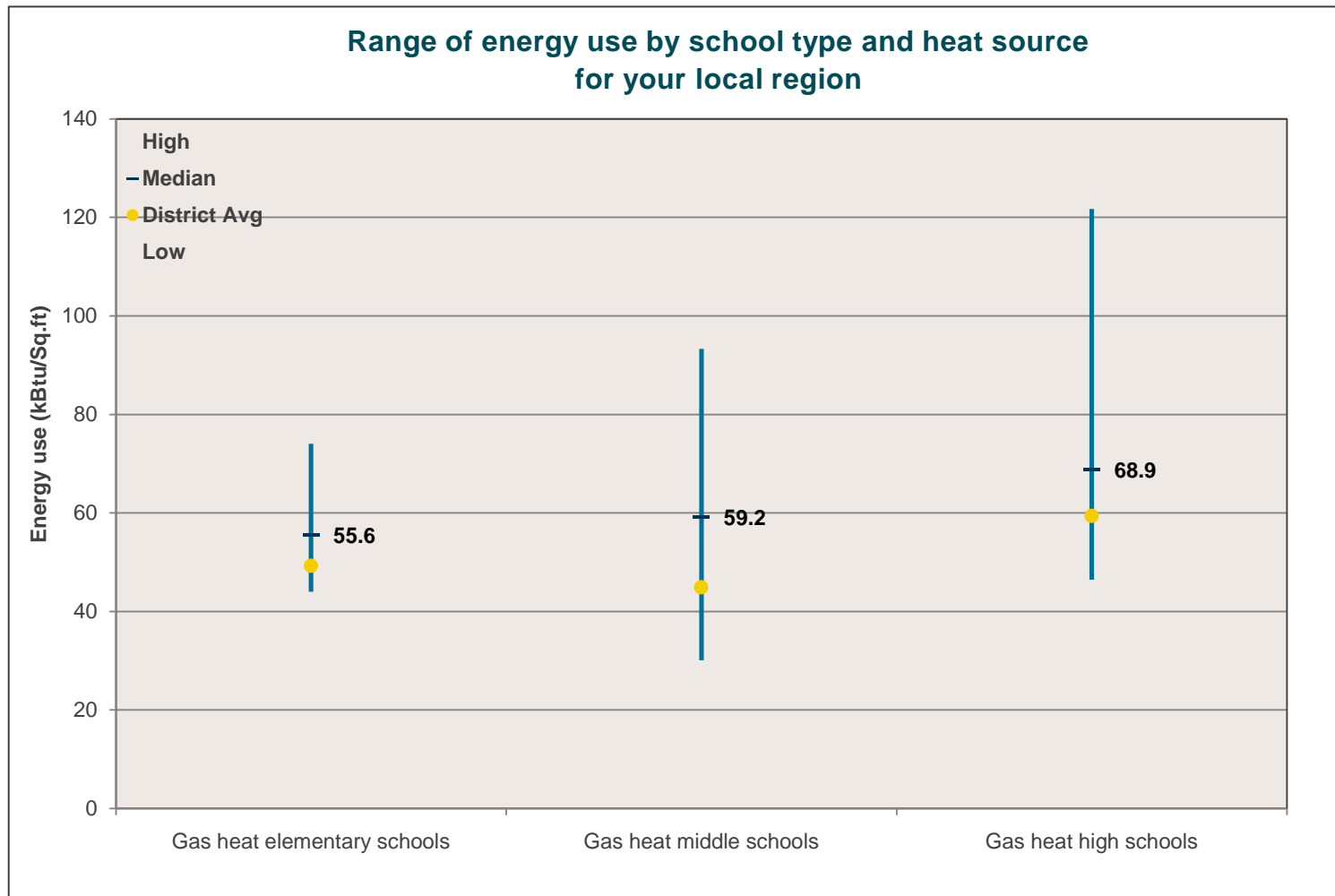
ENERGY USAGE PROFILE FOR TAHOE TRUCKEE USD

The following graph shows the monthly energy usage (left vertical axis) and degree days (right vertical axis) for your district. Natural gas and heating degree days (i.e., blue dotted line) peak during the winter months when it is necessary to heat your building. Cooling degree days (i.e., red dotted line) are basically zero, which reflects the minimal cooling requirements at your schools. Schools are operating on a reduced summer schedule and consequently electricity consumption drops off during warmer months (i.e., June-August). Notice the strong correlation between natural gas consumption and heating degree days at your facilities.



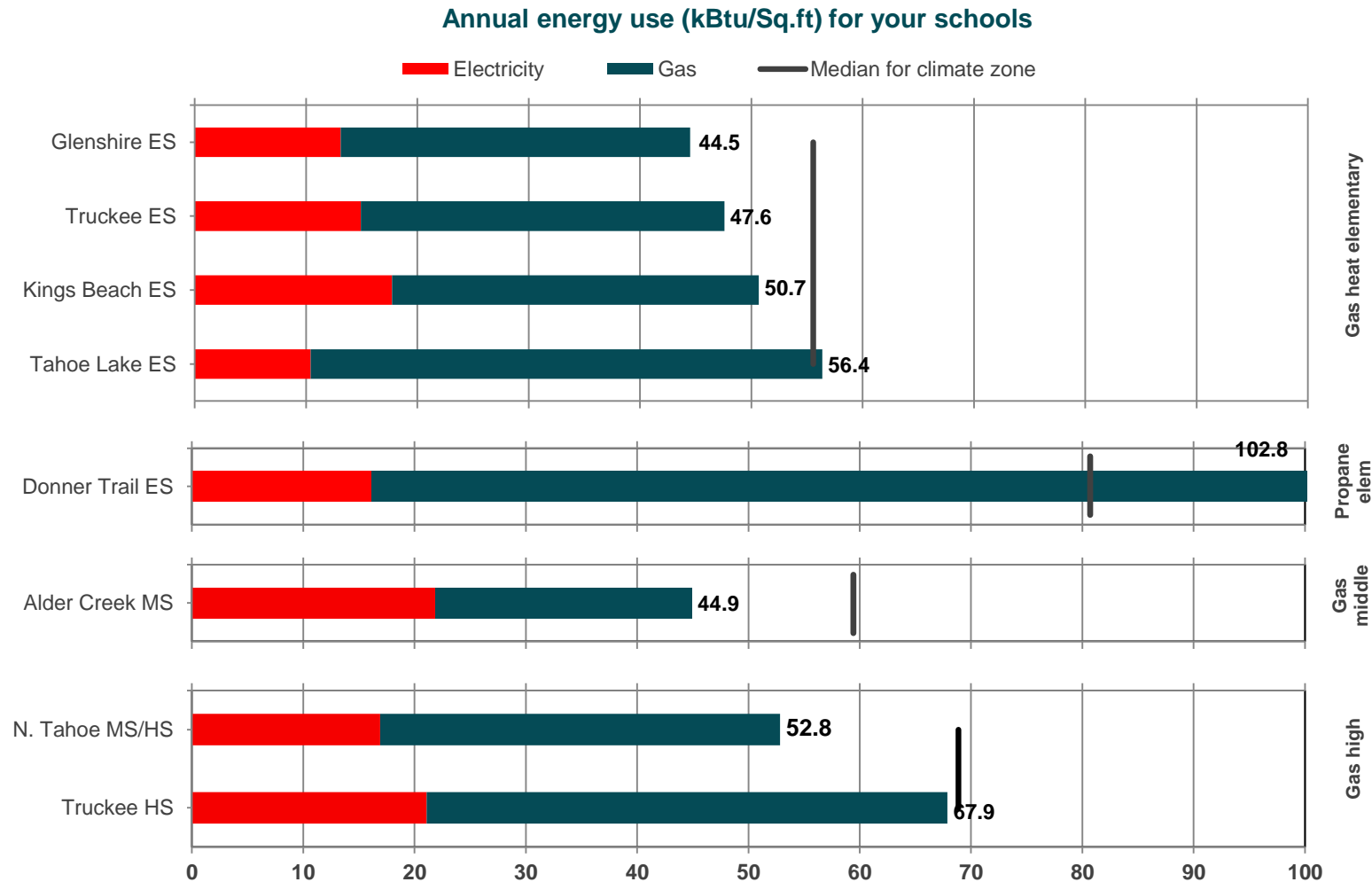
MEDIANS FOR LOCAL REGION

The following chart shows the range of energy use (kBtu/Sq.ft) for K-12 schools in your local area. The blue dash (which is labeled) represents the median for each school type and heat source. The orange dot illustrates where your schools within each particular category fall on the range (if applicable). As noted previously, secondary schools often consume slightly more energy per square foot than elementary schools.



COMPARISON BETWEEN YOUR BUILDINGS

The following chart shows the energy use (kBtu/Sq.ft) for each of your K-12 schools. The red and blue bars signify the portions of overall energy use attributable to electricity & natural gas, respectively. The black line represents the median for the particular school type and heat source.

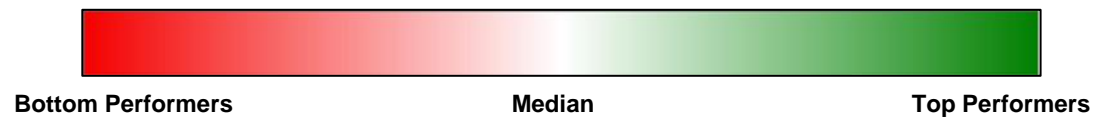
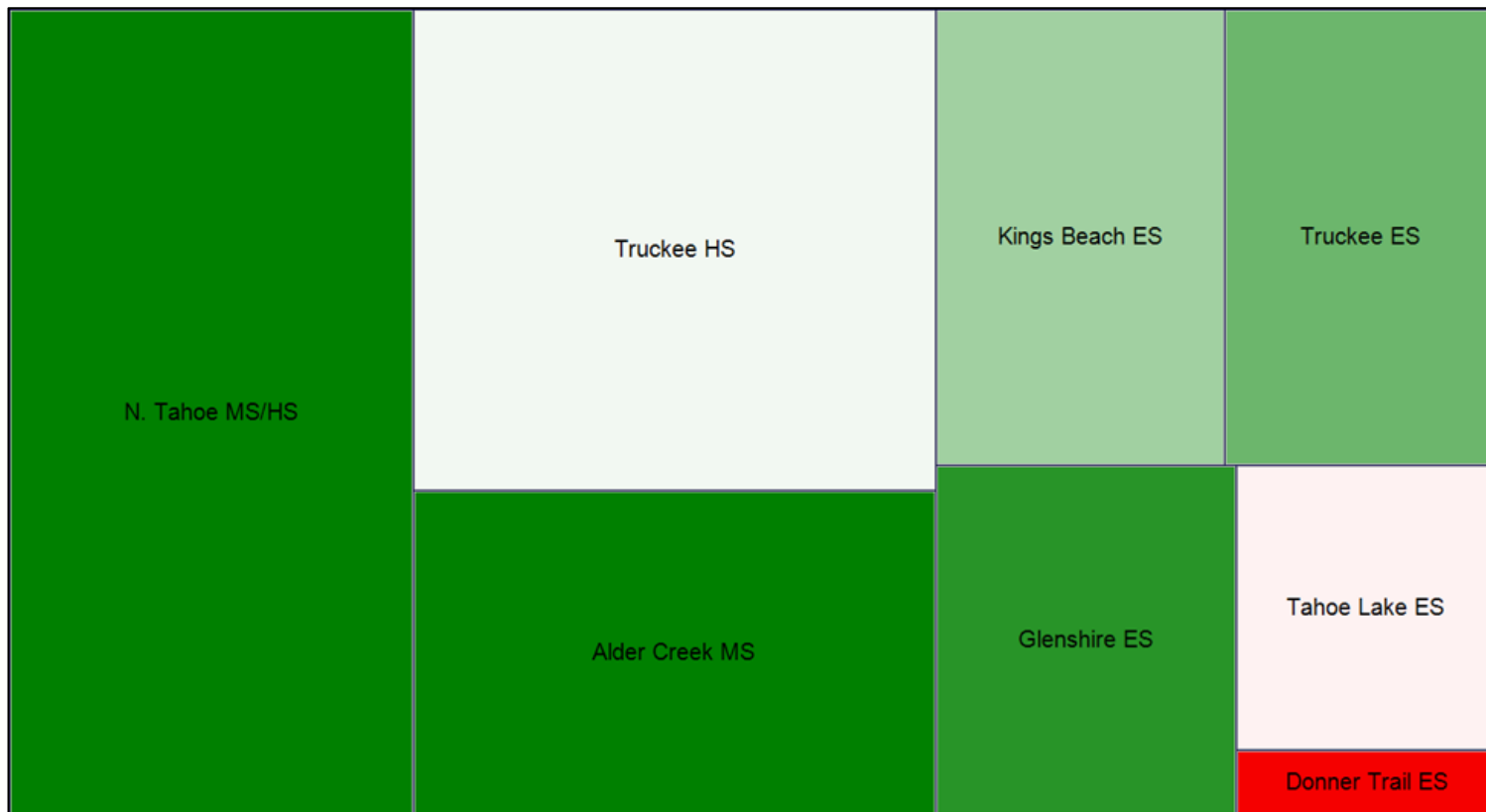


TARGETING SCHOOLS FOR FURTHER ASSESSMENT

The following conceptual chart shows the energy savings opportunity for each of your K-12 schools. The size of each box indicates the respective square footage of each school, and the color represents its energy performance compared to the median. For example, a large dark red box points to a large school that is consuming significantly more energy per square foot than the median, which would make it an ideal school to target for further assessment.

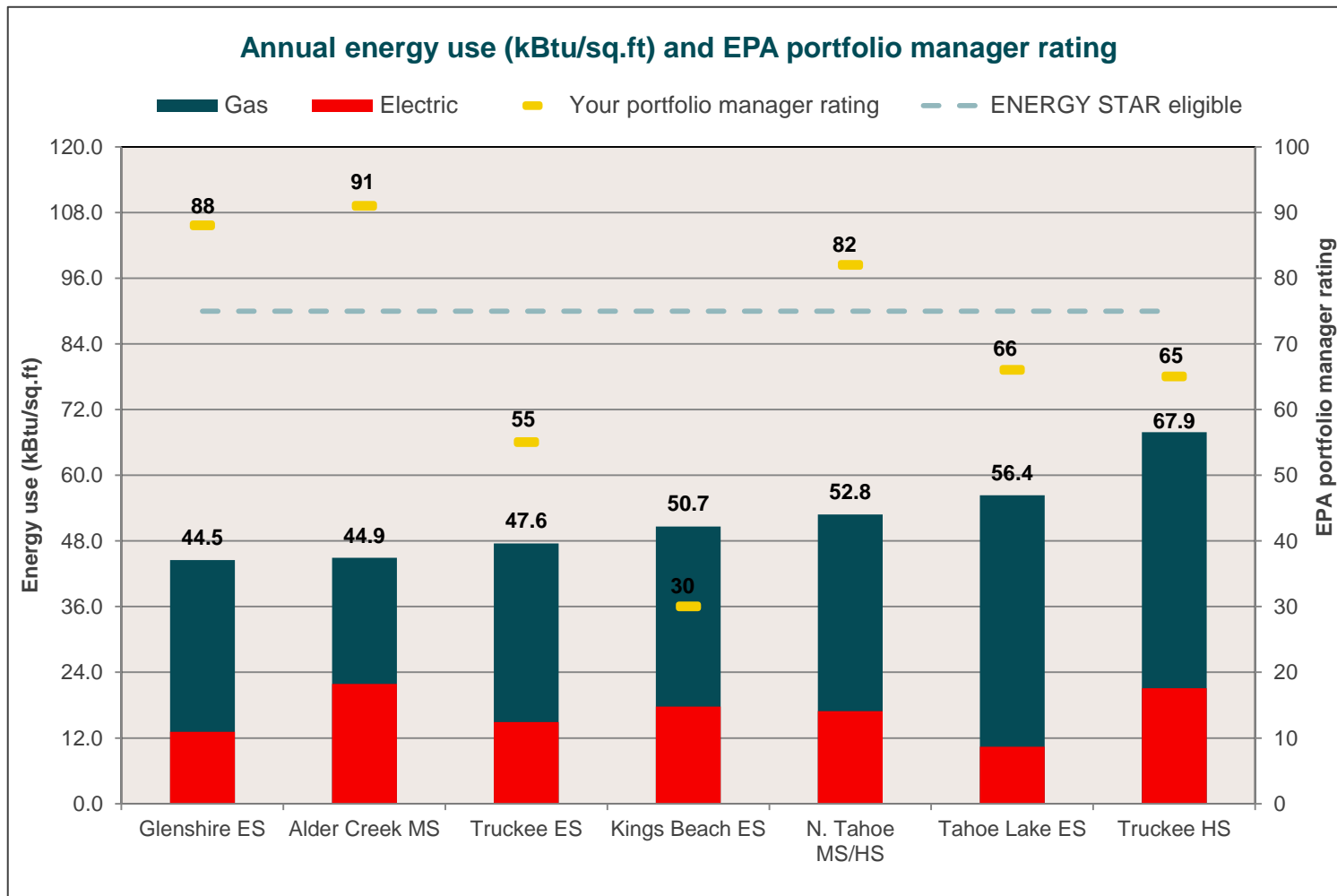
Targeting schools for further assessment

Box size relative to square footage and box color relative to energy performance



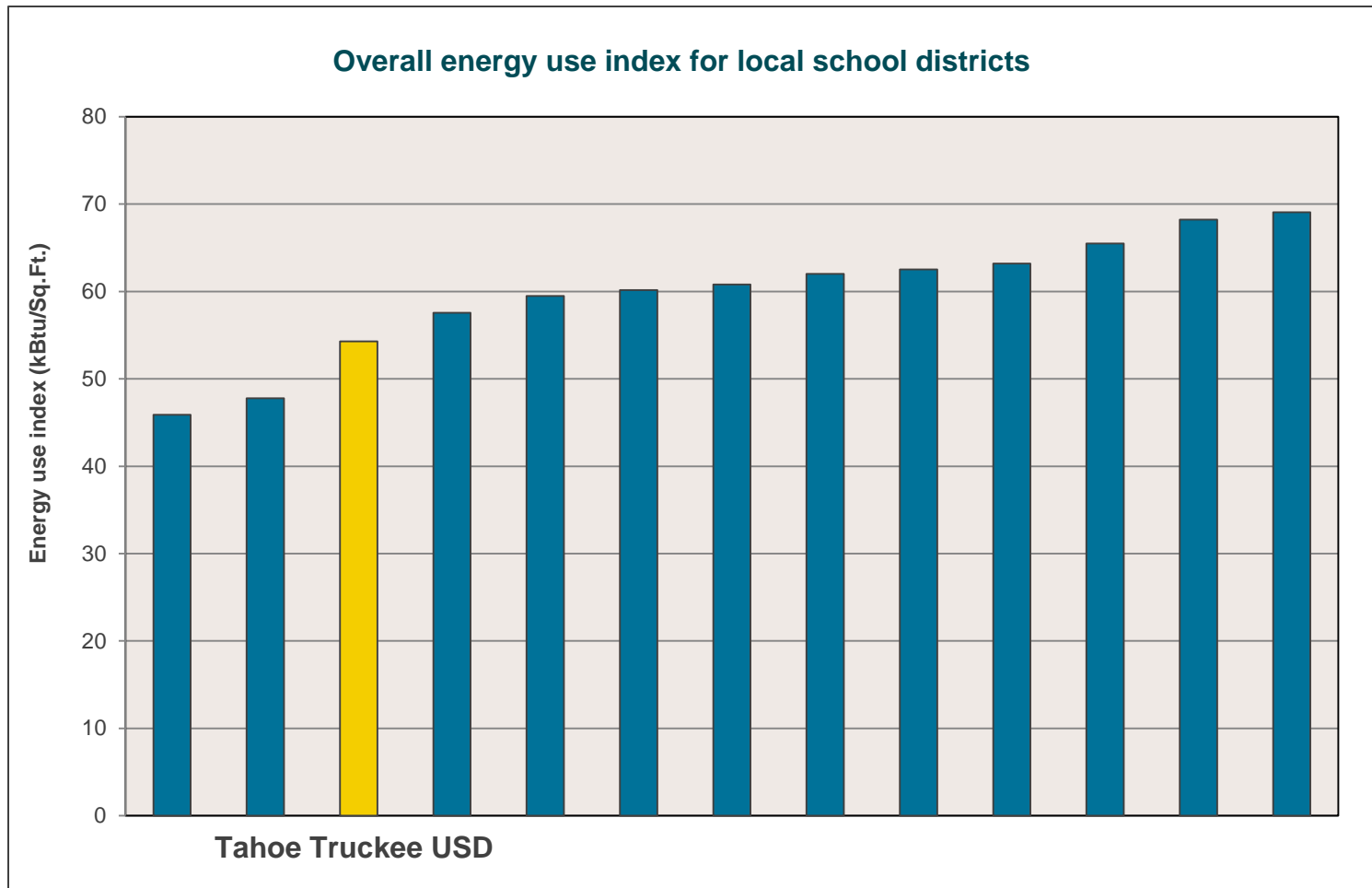
CORRELATION WITH EPA PORTFOLIO MANAGER RATINGS

EPA portfolio manager ranks schools on an energy performance scale of 1 to 100. As a main input to EPA portfolio manager, a school's energy consumption (particularly electric use) is often inversely related to its energy performance rating. The following chart shows your schools' energy use broken out into red and blue bars, which reflect the portions attributable to electricity & natural gas, respectively. The yellow bars follow your schools' EPA portfolio manager ratings. Schools with higher electric use will tend to have lower EPA portfolio manager ratings.



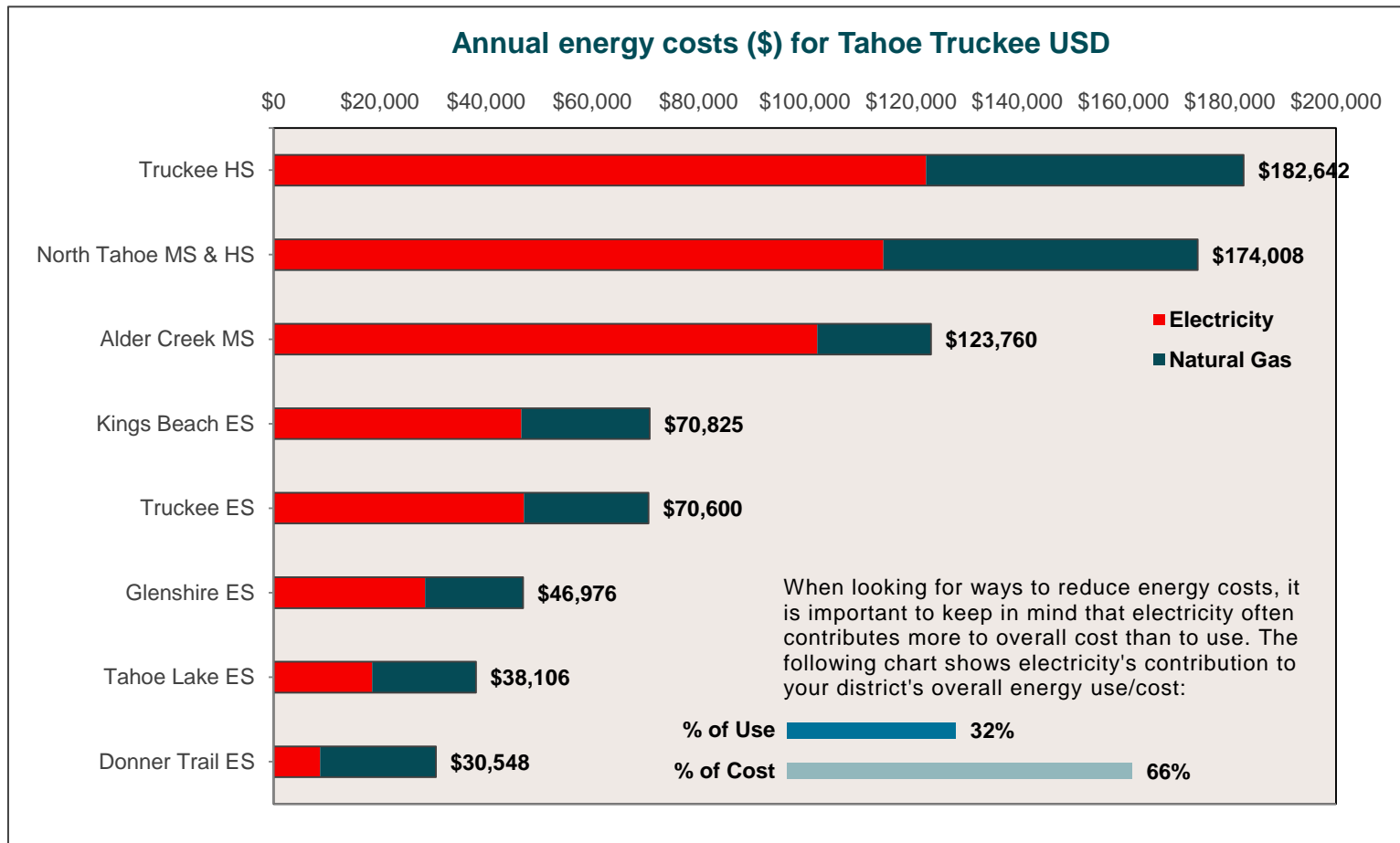
COMPARISON WITH LOCAL SCHOOL DISTRICTS

The bar graph below compares your school district's overall energy use (kBtu/sq.ft) to other districts in your immediate local area *only*. Your district's overall energy use index (EUI) is highlighted in yellow. Lower EUI bars indicate lower energy use / better performance.



Energy costs

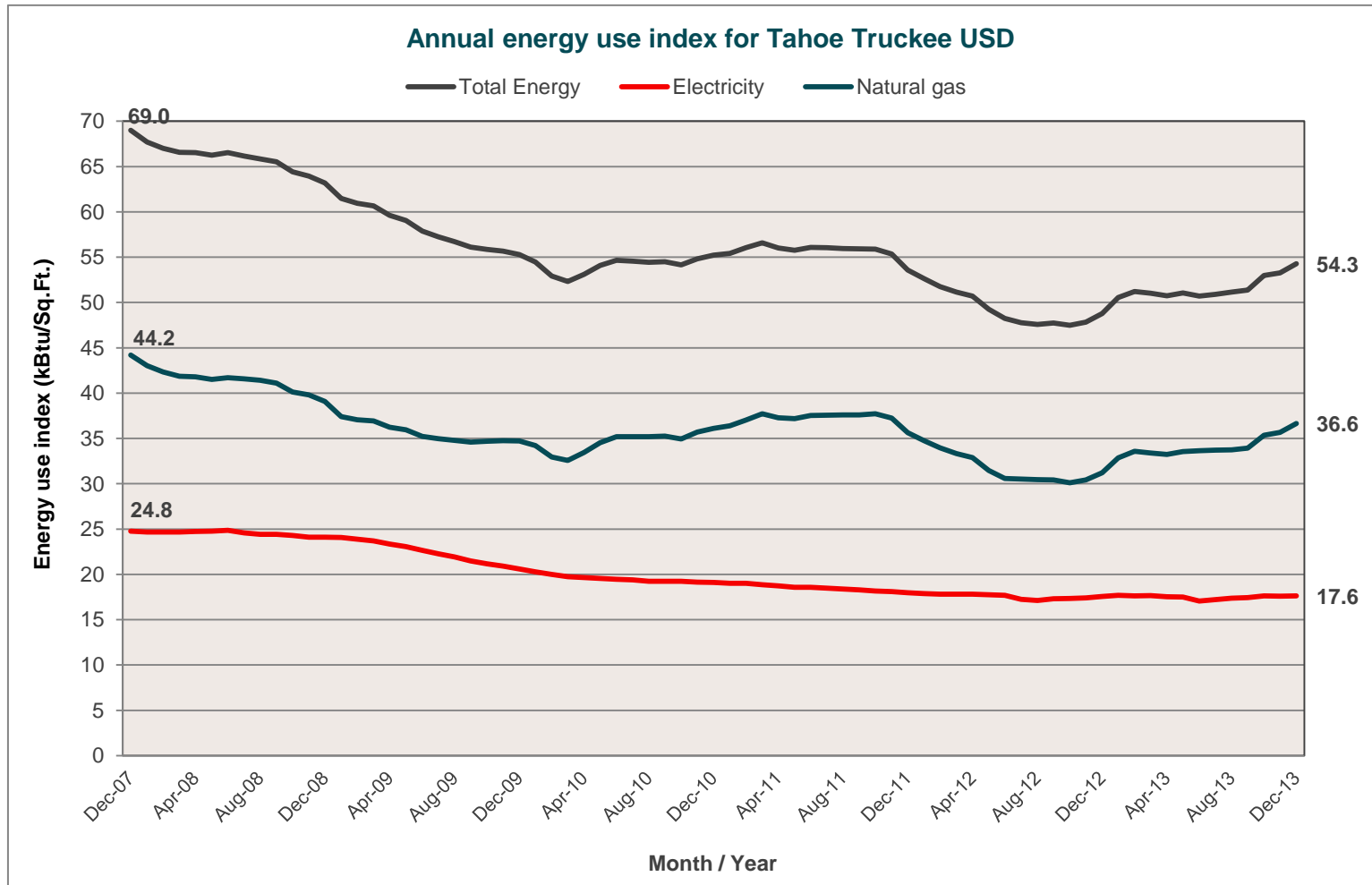
Because the cost of energy fluctuates regularly, it is best to think in terms of energy use (normalized consumption per square foot). However, annual energy cost is another valuable way to decide where to focus your energy efficiency efforts. The chart below displays your district's annual energy cost by school. The red and blue bars signify the portions of overall energy cost attributable to electricity & natural gas, respectively.



Historical energy use charts

CHANGE IN ENERGY USE BY DISTRICT

The bar graph below shows how the overall energy use index for your school district has changed from the previous benchmarking analyses. Tahoe Truckee USD's overall energy use index is lower now than in 2007, which indicates less energy use and better overall performance.



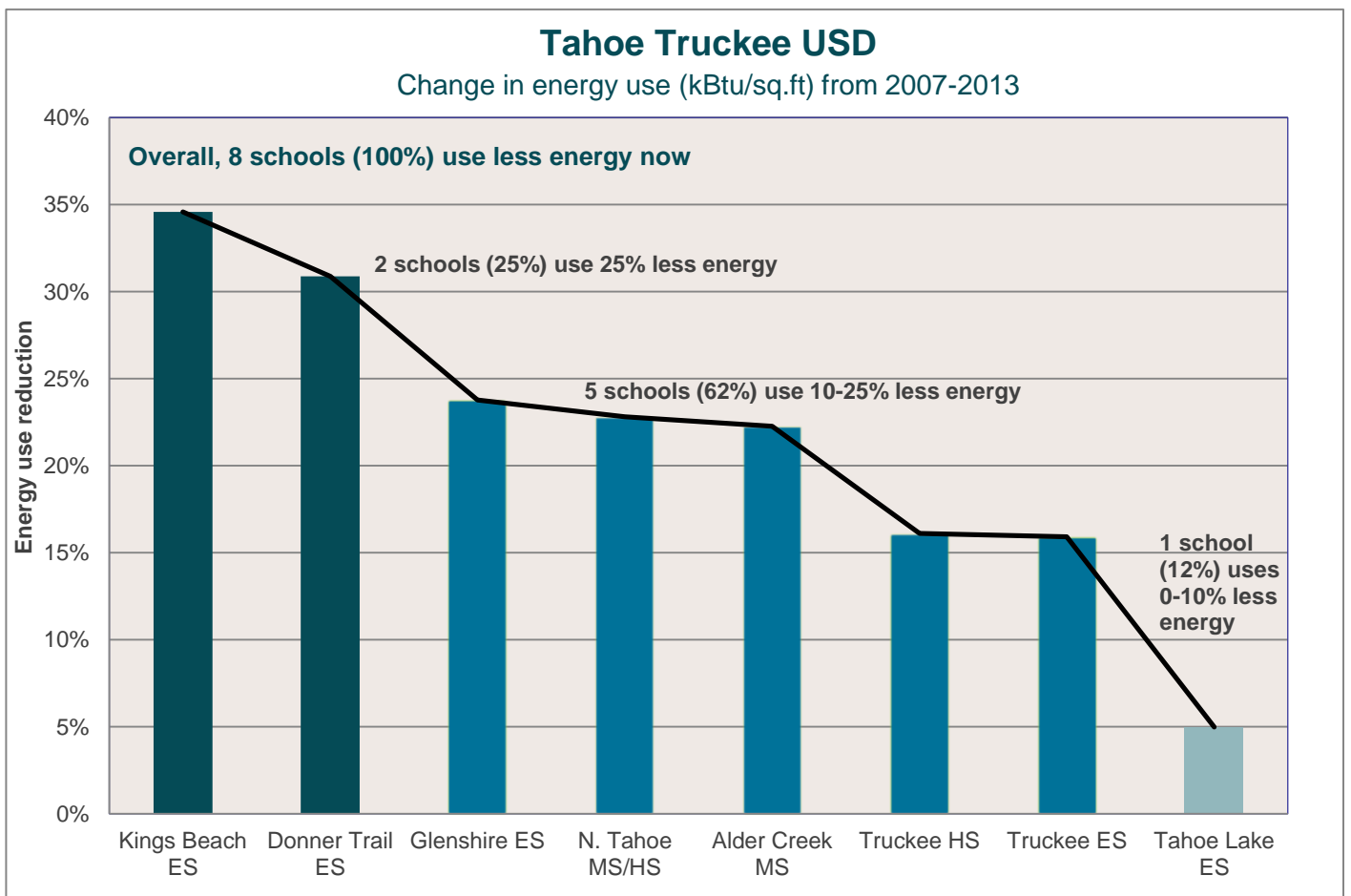
CHANGE IN ENERGY USE BY SCHOOL

The graph below shows how the energy use (kBtu/sq.ft) of your schools has changed since the base year. The table below shows the range, average, and median change in total energy, electricity, and natural gas consumption at your schools. Positive percentages indicate energy savings, and negative percentages reflect increased energy use. The table illustrates that your median school in 2013 is using twenty-three percent less energy per square foot than in 2007.

Tahoe Truckee USD

n = 8

Energy use reduction	Low	High	Average	Median
kBtu/Sq.Ft./Year	5%	35%	21%	23%
kBtu/Sq.Ft./Year - Electricity	0%	41%	23%	20%
kBtu/Sq.Ft./Year - Gas, fuel oil, propane	1%	35%	19%	18%



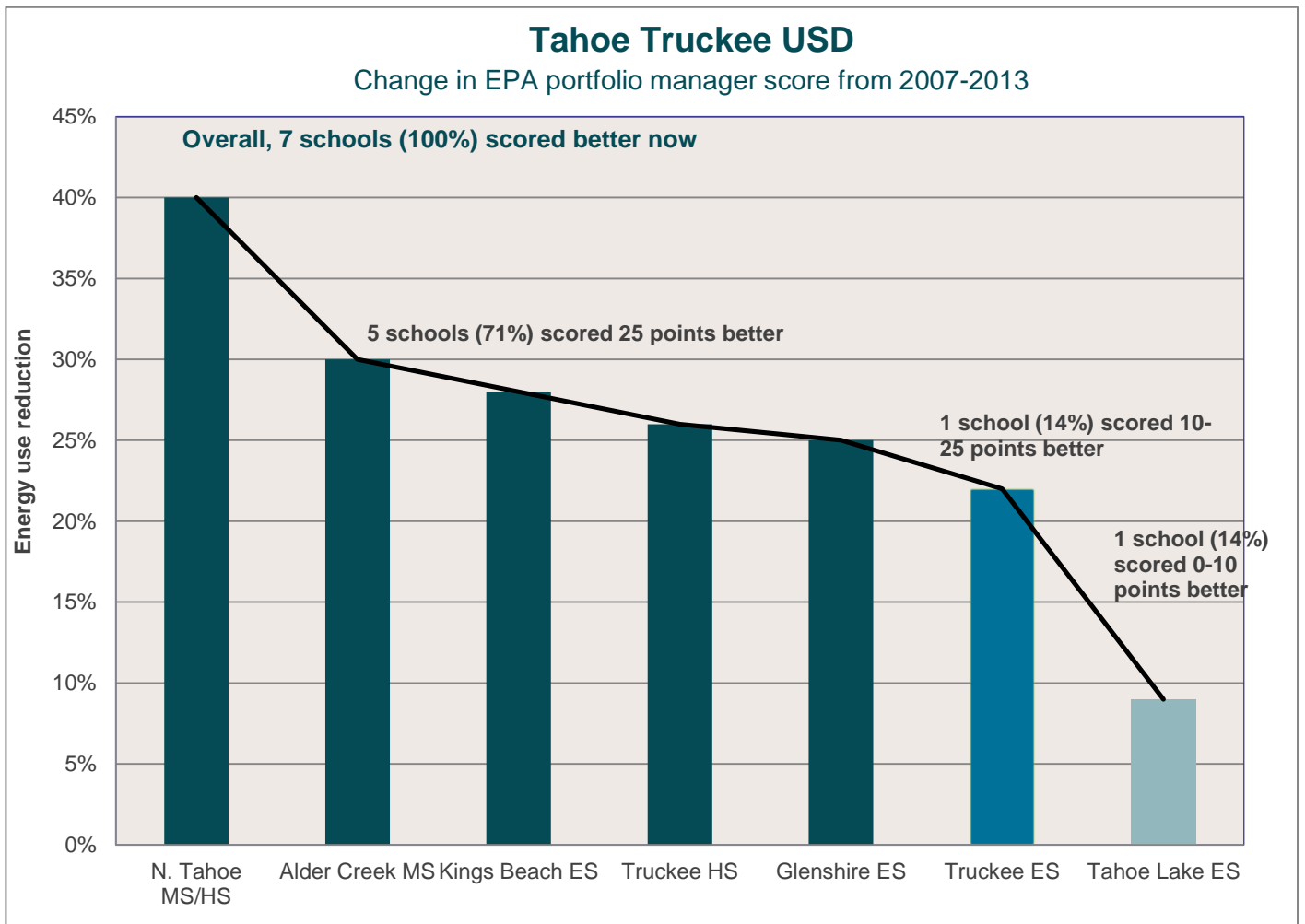
CHANGE IN EPA PORTFOLIO MANAGER SCORE BY SCHOOL

The graph below shows how the EPA portfolio manager scores of your schools has changed since the base year. The table below shows the range, average, and median change in EPA portfolio manager scores at your schools. Positive percentages indicate better scores, and negative percentages reflect lower scores. The table illustrates that your median school in 2013 is scoring twenty-six points better than in 2007.

Tahoe Truckee USD

n = 8

Increase in score (1-100)	Low	High	Average	Median
EPA portfolio manager score	0%	40%	23%	26%




Detailed energy performance analysis of schools¹

The energy performance benchmarking analysis charts on the following pages summarize the utility data, operating characteristics, and energy performance of your particular K-12 schools. Below are descriptions and sample parts that illustrate how to interpret the charts.

CLEAResult benchmarks

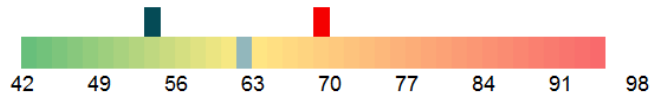
The first column is the median for each energy performance metric (for your particular climate region and school type), followed by your school's calculated benchmarks during 2007 and 2013, respectively.

CLEAResult benchmarks	Median*	Your energy benchmarks		
		2007	Trend	2013
Energy use index (kBtu/sq.ft)	62.7	69.0		54.3

Energy performance color scale

The scales illustrate where your school ranks compared to the median with respect to each energy benchmark.

The median for each performance metric is colored light blue and your schools' energy benchmarks are colored red and dark blue during 2007 and 2013, respectively. The color-coded scale shows the range of values in our database for each particular energy performance metric. The scale moves from those buildings performing well (green) to average (yellow) to poorly (red). Please notice where your school(s) falls on this continuum.



Building characteristics

Building characteristics typically includes the type of building, year built, gross floor area, and any particular operating characteristics solicited by EPA portfolio manager to produce an energy performance rating.

Building characteristics	
Climate region	North NV
Type of school	All schools
Type of heating system	Gas
Year built	Various

Monthly utility data

For each billing period, this includes electric usage (kWh), electric demand (kW), total current electric charges (\$), natural gas consumption (therms), and total current natural gas charges (\$).

2013 monthly utility data				
Month	kWh	Cost	Therms	Cost
Jan-13	358,751	\$48,999	44,992	\$42,353
Feb-13	326,469	\$44,595	35,493	\$34,871

Annual energy use / cost summary

Annual electric and natural gas totals are reported for the current year. Electricity's respective contributions to overall energy usage/ cost as well as the respective annual unit costs of electricity and natural gas are also reported in these columns.

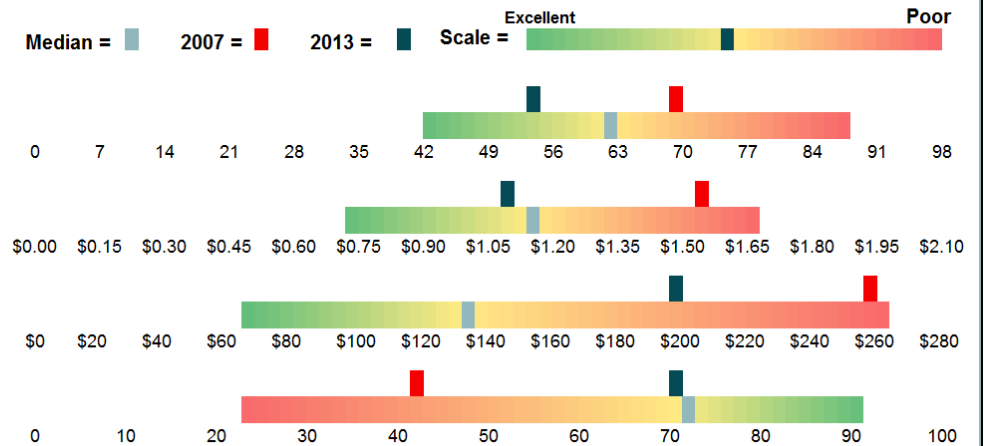
Annual energy use/cost comparison			
Category	2007	2013	Change
Use- Electricity (kWh)	4,889,253	3,478,275	1,410,978
Use- Heating fuel (therms)	297,576	246,687	50,889
Use- Electricity (MMBtu)	16,682	11,868	4,814
Use- Heating fuel (MMBtu)	29,758	24,669	5,089

¹ This report compares energy use based on utility bills and is not the result of an engineering assessment. The analysis is purely mathematical and is not meant to provide a subjective assessment of how buildings are managed or operated. Most of the indicators do not adjust for individual building conditions, and therefore should be used only as a tool in combination with knowledge of facility operations.

Energy performance benchmarking analysis

District-wide summary / Tahoe Truckee USD

CLEAR result benchmarks	Median*	Your energy benchmarks		
		2007	Trend	2013
Energy use index (kBtu/sq.ft)	62.7	69.0		54.3
Energy cost index (\$/sq.ft)	\$1.15	\$1.54		\$1.10
Energy cost per student	\$133	\$259		\$200
EPA portfolio manager score	72	41		71



* Median for a similar profile of gas-heated schools in the North NV climate region.

Building characteristics		2013 monthly utility data					Annual energy use/cost comparison			
		Month	kWh	Cost	Therms	Cost	Category	2007	2013	Change
Climate region	North NV	Jan-13	358,751	\$48,999	44,992	\$42,353	Use- Electricity (kWh)	4,889,253	3,478,275	1,410,978
Type of school	All schools	Feb-13	326,469	\$44,595	35,493	\$34,871	Use- Heating fuel (therms)	297,576	246,687	50,889
Type of heating system	Gas	Mar-13	321,907	\$44,934	29,844	\$29,746	Use- Electricity (MMBtu)	16,682	11,868	4,814
Year built	Various	Apr-13	301,449	\$42,365	20,907	\$21,781	Use- Heating fuel (MMBtu)	29,758	24,669	5,089
Floor area (sq. ft.)	673,125	May-13	303,698	\$41,565	12,865	\$14,564	Use- Total energy (MMBtu)	46,440	36,537	9,903
Weekly operating hours	45	Jun-13	202,569	\$31,209	4,271	\$4,891	Use- Electricity % of total	36%	32%	3%
Number of students	3,693	Jul-13	166,425	\$29,116	1,231	\$1,624	Cost- Electricity (\$)	\$635,960	\$489,632	\$146,328
Number of PCs	1,711	Aug-13	205,768	\$29,339	1,379	\$1,705	Cost- Heating fuel (\$)	\$397,710	\$247,832	\$149,879
On-site cooking?	Yes	Sep-13	280,264	\$39,182	3,372	\$3,813	Cost- Total energy (\$)	\$1,033,671	\$737,463	\$296,207
Walk-in refrigerators	Various	Oct-13	325,341	\$44,897	18,837	\$19,024	Cost- Electricity % of total	62%	66%	-5%
Percent cooled	100	Nov-13	330,023	\$45,056	30,303	\$30,879	Electricity cost per kWh	\$0.13	\$0.14	-\$0.01
Percent heated	100	Dec-13	355,611	\$48,375	43,194	\$42,581	Heating fuel cost per therm	\$1.34	\$1.00	\$0.33

Current energy use tables

ENERGY PERFORMANCE BY SCHOOL TYPE

The table below shows the year built, square footage, energy use index (kBtu/Sq.ft), energy cost index (\$/Sq.ft), energy cost per student and EPA portfolio manager rating of each facility. These energy performance indicators are *grouped by school type*, and then sorted from lowest to highest energy use index. The red and blue bars signify the portions of overall energy use attributable to electricity & natural gas, respectively.

Energy performance indicators grouped by school type

Buildings are ranked by energy use index within each school type

Facility name	Year built	Square feet	Annual EUI (kBtu/Sq.ft.) or site energy	ECI (\$/Sq.ft.)	Energy cost per student	ENERGY STAR® score	
Gas-heated high schools - North NV climate average			68.9		\$1.08	\$184	65
North Tahoe Middle & High	2006	182,708	52.8		\$0.95	\$239	82
Truckee High	1958	141,465	67.9		\$1.29	\$295	65
Gas-heated middle schools - North NV climate average			59.2		\$1.05	\$136	75
Alder Creek Middle	2004	95,308	44.9		\$1.30	\$239	91
Gas-heated elementary schools - North NV climate avg			55.6		\$1.07	\$98	74
Glenshire Elementary	1993	59,096	44.5		\$0.79	\$91	88
Truckee Elementary	1971	69,268	47.6		\$1.02	\$126	55
Kings Beach Elementary	1959	74,188	50.7		\$0.95	\$194	30
Tahoe Lake Elementary	1958	41,680	56.4		\$0.91	\$116	66
Propane-heated elementary schools - North NV climate avg			82.2		\$1.77	\$169	N/A
Donner Trail Elementary	1961	9,412	102.8		\$3.25	\$531	N/A

ENERGY PERFORMANCE BY QUARTILES

In the following tables your schools are sorted into quartiles by energy use (kBtu/sq.ft) regardless of school type. The respective performance quartile of each energy performance indicator is indicated by the color of the adjacent circle. This is meant to help you prioritize schools for improvement projects. For example, a school with red dots across the board is performing in the last quartile with respect to each metric, and may be worth targeting for further assessment.

Energy performance indicators grouped by energy use index

Buildings are sorted by energy use index into quartiles.

● 1st Quartile	● 2nd Quartile	● 3rd Quartile	● 4th Quartile
---	--	--	---

	School name	Energy use (kBtu/Sq.ft)	Energy cost (\$/Sq.ft)	Energy cost per student	ENERGY STAR portfolio manager
1st quartile	Glenshire Elementary	● 44.5	● \$0.79	● \$91	● 88
	Alder Creek Middle	● 44.9	● \$1.30	● \$239	● 91
2nd quartile	Truckee Elementary	● 47.6	● \$1.02	● \$126	● 55
	Kings Beach Elementary	● 50.7	● \$0.95	● \$194	● 30
3rd quartile	North Tahoe Middle & High	● 52.8	● \$0.95	● \$239	● 82
	Tahoe Lake Elementary	● 56.4	● \$0.91	● \$116	● 66
4th quartile	Truckee High	● 67.9	● \$1.29	● \$295	● 65
	Donner Trail Elementary	● 102.8	● \$3.25	● \$531	● N/A

Translating the numbers into savings

Although benchmarking does not tell you what specific equipment or building features need to be improved, or how much it will cost to make the improvements, it can help you determine the general magnitude of the opportunities available and on which schools to focus. Comparing the energy performance of your schools is the first step toward improving performance and saving money.

Energy efficiency equipment upgrades and operations improvements can have a dramatic financial impact on a school district. The table below illustrates how many budget dollars your school district would save under various savings target scenarios.

Potential energy cost savings by energy use quartile

Quartiles are represented by green, yellow, orange, and red.

	Square footage	EUI (kBtu/Sq.ft.)	Annual energy costs	Savings target	Annual dollars saved
1st Qtr	154,000	44.8	\$171,000	5%	\$9,000
2nd Qtr	144,000	49.2	\$141,000	10%	\$14,000
3rd Qtr	224,000	53.5	\$212,000	15%	\$32,000
4th Qtr	151,000	70.0	\$213,000	20%	\$43,000
Total	673,000	54.3	\$737,000	13%	\$98,000

More detailed information about the school(s) should be gathered and analyzed in order to verify the magnitude of the opportunities and then move forward with improvement projects. Please refer to the previous page to see which schools belong to each energy use quartile.

The table below presents your savings opportunity in a different way, showing how many budget dollars your district would save by reducing energy costs at your schools by 10, 20, or 30 percent.

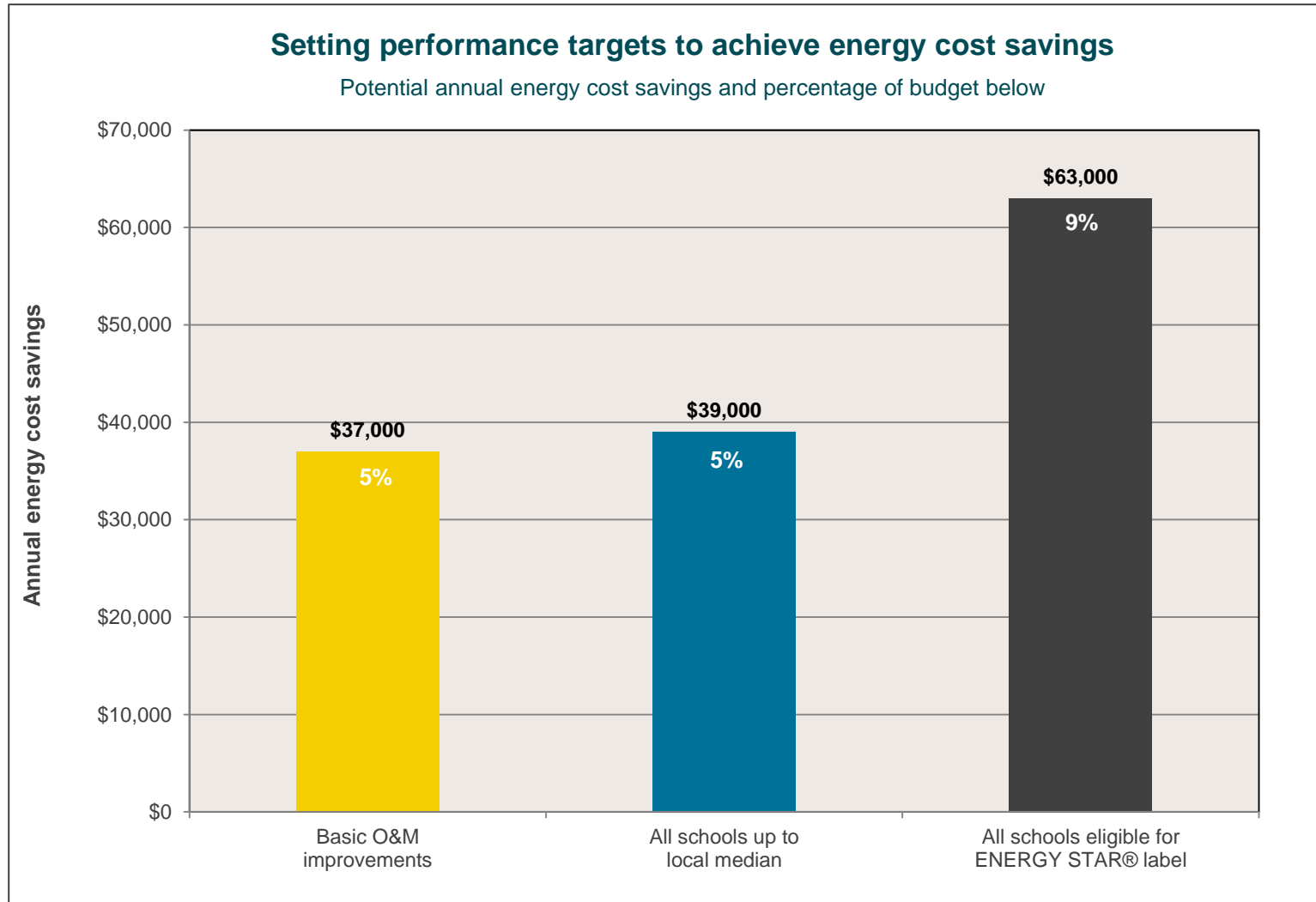
Potential energy cost savings by percentage reduction

Tahoe Truckee USD annual energy cost	X Savings target	= Annual dollars saved
\$737,000	10%	\$74,000
	20%	\$147,000
	30%	\$221,000

The next step towards realizing these savings is to identify specific energy efficiency opportunities within your school district. Your Program Consultant can help you identify and evaluate energy efficiency opportunities and help you calculate the anticipated cost savings and cash incentives for each energy efficiency measure.

TARGETING ENERGY COST SAVINGS

The following chart shows how many annual budget dollars your district could save (at current utility rates) by achieving various energy performance targets. Five percent annual energy cost savings can typically be achieved solely by improving operations and maintenance procedures within your district. Reducing energy consumption to such a level where all schools are performing on par with their local peers or are eligible to apply for the ENERGY STAR® label will provide even greater opportunities for cost savings.



Calculating energy cost savings

The following tables calculate the change in annual energy usage and cost between the base and current years. Natural gas in the base year is normalized to weather conditions in the current year. The difference (i.e., energy saved) in energy usage is converted to dollars saved by multiplying by the current price of utilities. Overall, your district has reduced its energy consumption and costs considerably since the base year.

Annual electric usage & cost savings compared to the base year

Buildings are sorted by reduction in energy consumption (megawatt-hours).

School name	Annual Electricity consumption (MWh)				
	Base year	Current year	Energy Saved	Dollars Saved	% change
North Tahoe MS & HS	1,544	906	639	\$80,922	41%
Kings Beach ES	604	385	219	\$26,501	36%
Glenshire ES	318	227	91	\$11,423	29%
Truckee HS	1,104	874	229	\$32,214	21%
Truckee ES	374	303	71	\$11,052	19%
Tahoe Lake ES	157	127	30	\$4,351	19%
Alder Creek MS	743	611	132	\$22,157	18%
Donner Trail ES	45	44	0	\$37	0%
Total	4,889	3,478	1,411	\$188,657	29%

Annual natural gas usage & cost savings compared to the base year

Buildings are sorted by reduction in energy consumption (decatherms).

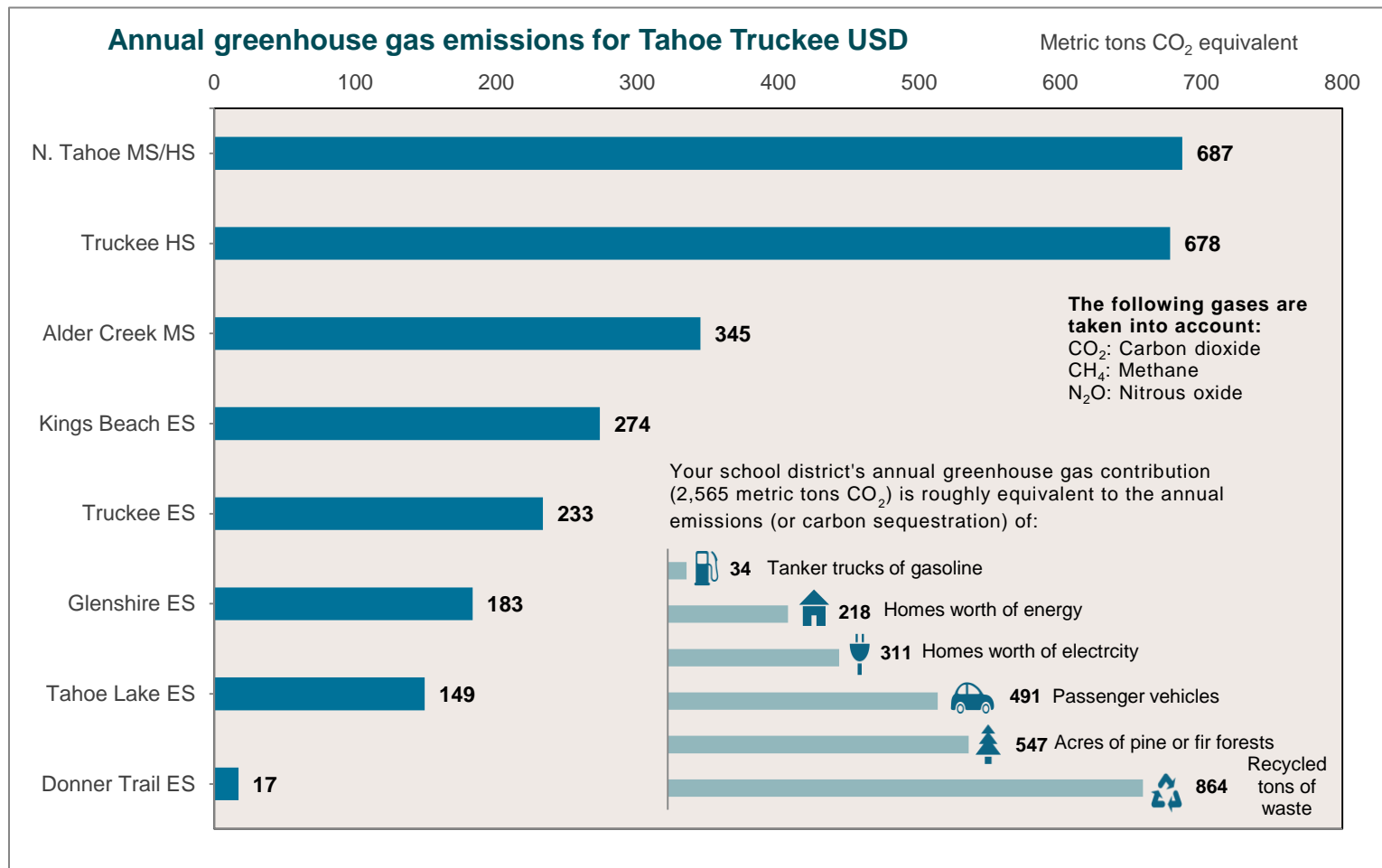
School name	Annual Natural gas consumption (decatherms)				
	Base year	Current year	Energy Saved	Dollars Saved	% change
Donner Trail ES	1,397	816	581	\$14,170	42%
Kings Beach ES	3,995	2,444	1,551	\$15,357	39%
Alder Creek MS	3,402	2,196	1,206	\$11,766	35%
Glenshire ES	2,610	1,855	755	\$7,503	29%
Truckee ES	2,974	2,262	712	\$7,377	24%
Truckee HS	8,558	6,618	1,940	\$17,530	23%
North Tahoe MS & HS	8,046	6,563	1,483	\$13,383	18%
Tahoe Lake ES	2,171	1,915	256	\$2,610	12%
Total	33,153	24,669	8,484	\$89,696	26%

Annual energy usage & cost savings compared to the base year*Buildings are sorted by reduction in energy consumption (MMBtu).*

School name	Annual Energy consumption (MMBtu)				
	Base year	Current year	Energy Saved	Dollars Saved	% change
Kings Beach ES	6,056	3,758	2,298	\$41,858	38%
Donner Trail ES	1,549	968	581	\$14,207	38%
Glenshire ES	3,695	2,630	1,066	\$18,925	29%
Alder Creek MS	5,938	4,281	1,658	\$33,923	28%
North Tahoe MS & HS	13,315	9,654	3,662	\$94,305	27%
Truckee ES	4,249	3,295	954	\$18,429	22%
Truckee HS	12,324	9,602	2,722	\$49,744	22%
Tahoe Lake ES	2,707	2,349	358	\$6,961	13%
Total	49,835	36,537	13,298	\$278,353	27%

Greenhouse gas emissions²

With scientific evidence connecting greenhouse gas (GHG) emissions from human activities to global climate change, many school districts are looking to find ways to reduce their 'carbon footprint'. This benchmarking analysis accounts for GHG emissions produced by 12 months of electricity and heating fuel (natural gas) consumption. The following table illustrates what consumption levels are roughly equivalent emissions to your school district's annual greenhouse gas contribution.



² The information in this section on greenhouses gases was derived in large part from *Local Government Operations Protocol for the quantification and reporting of greenhouse gas emissions inventories*. http://www.theclimateregistry.org/downloads/2009/05/LGO_Protocol.pdf

Appendix

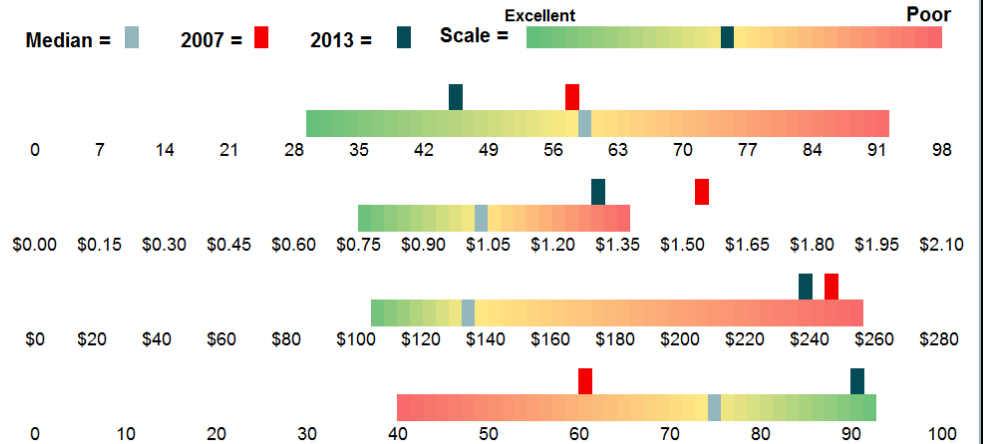
ENERGY PERFORMANCE CHARTS FOR INDIVIDUAL SCHOOLS

Energy performance benchmarking analysis

Alder Creek Middle / Tahoe Truckee USD

10931 Alder Drive, Truckee, CA

CLEAR result benchmarks	Median*	Your energy benchmarks		
		2007	Trend	2013
Energy use index (kBtu/sq.ft)	59.2	57.8		44.9
Energy cost index (\$/sq.ft)	\$1.05	\$1.56		\$1.30
Energy cost per student	\$136	\$245		\$239
EPA portfolio manager score	75	61		91



* Median for a similar profile of gas-heated schools in the North NV climate region.

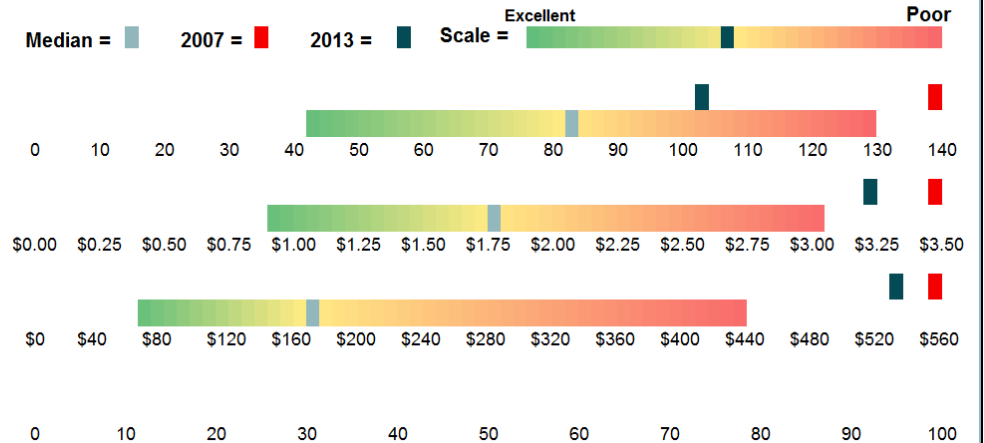
Building characteristics		2013 monthly utility data					Annual energy use/cost comparison			
		Month	kWh	Cost	Therms	Cost	Category	2007	2013	Change
Climate region	North NV	Jan-13	66,000	\$11,420	3,559	\$3,343	Use- Electricity (kWh)	743,400	611,100	132,300
Type of school	Middle	Feb-13	65,700	\$11,165	2,420	\$2,390	Use- Heating fuel (therms)	29,695	21,956	7,739
Type of heating system	Gas	Mar-13	55,800	\$10,265	1,505	\$1,527	Use- Electricity (MMBtu)	2,536	2,085	451
Year built	2004	Apr-13	58,500	\$9,967	1,431	\$1,500	Use- Heating fuel (MMBtu)	2,970	2,196	774
Floor area (sq. ft.)	95,308	May-13	51,000	\$8,257	780	\$862	Use- Total energy (MMBtu)	5,506	4,281	1,225
Weekly operating hours	40	Jun-13	44,100	\$7,132	109	\$137	Use- Electricity % of total	46%	49%	-3%
Number of students	518	Jul-13	23,100	\$3,736	98	\$125	Cost- Electricity (\$)	\$108,268	\$102,346	\$5,923
Number of PCs	394	Aug-13	24,300	\$3,606	137	\$155	Cost- Heating fuel (\$)	\$40,057	\$21,414	\$18,643
On-site cooking?	Yes	Sep-13	42,000	\$6,375	1,063	\$1,016	Cost- Total energy (\$)	\$148,326	\$123,760	\$24,566
Walk-in refrigerators	2	Oct-13	53,400	\$9,220	2,319	\$2,271	Cost- Electricity % of total	73%	83%	-10%
Percent cooled	100	Nov-13	57,900	\$9,507	4,156	\$3,919	Electricity cost per kWh	\$0.15	\$0.17	-\$0.02
Percent heated	100	Dec-13	69,300	\$11,696	4,379	\$4,169	Heating fuel cost per therm	\$1.35	\$0.98	\$0.37

Energy performance benchmarking analysis

Donner Trail Elementary / Tahoe Truckee USD

52755 Donner Pass Road, Kingvale, CA

CLEAR result benchmarks	Median*	Your energy benchmarks		
		2007	Trend	2013
Energy use index (kBtu/sq.ft)	82.2	148.7		102.8
Energy cost index (\$/sq.ft)	\$1.77	\$4.74		\$3.25
Energy cost per student	\$169	\$660		\$532
EPA portfolio manager score	N/A	N/A		N/A



* Median for a similar profile of gas-heated schools in the North NV climate region.

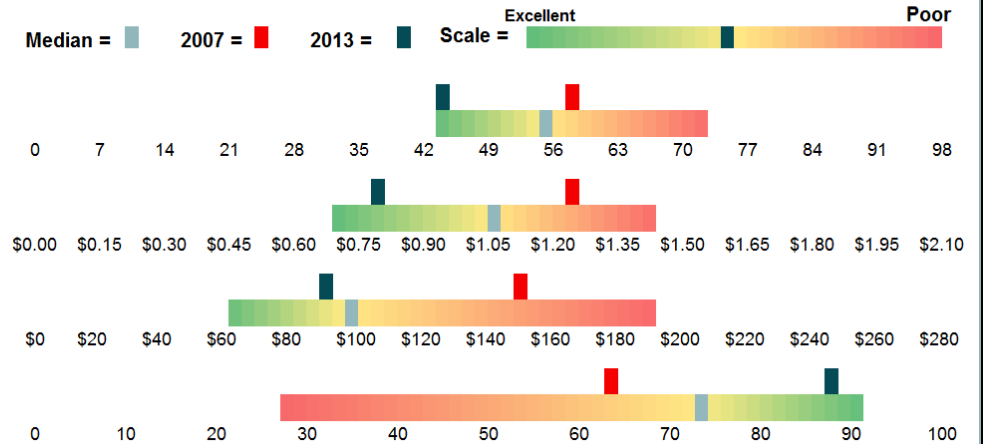
Building characteristics		2013 monthly utility data					Annual energy use/cost comparison			
		Month	kWh	Cost	Therms	Cost	Category	2007	2013	Change
Climate region	North NV	Jan-13	4,583	\$693	1,254	\$3,578	Use- Electricity (kWh)	44,653	44,464	189
Type of school	Elementary	Feb-13	4,206	\$638	968	\$2,760	Use- Heating fuel (therms)	12,475	8,159	4,316
Type of heating system	Propane	Mar-13	3,859	\$588	874	\$2,494	Use- Electricity (MMBtu)	152	152	1
Year built	1961	Apr-13	3,165	\$485	638	\$1,819	Use- Heating fuel (MMBtu)	1,247	816	432
Floor area (sq. ft.)	9,412	May-13	3,329	\$732	366	\$1,043	Use- Total energy (MMBtu)	1,400	968	432
Weekly operating hours	40	Jun-13	4,107	\$899	115	\$327	Use- Electricity % of total	11%	16%	-5%
Number of students	58	Jul-13	3,461	\$760	29	\$71	Cost- Electricity (\$)	\$7,022	\$8,746	(\$1,724)
Number of PCs	24	Aug-13	4,011	\$877	38	\$95	Cost- Heating fuel (\$)	\$37,576	\$21,802	\$15,774
On-site cooking?	No	Sep-13	4,687	\$1,024	220	\$546	Cost- Total energy (\$)	\$44,598	\$30,548	\$14,050
Walk-in refrigerators	0	Oct-13	3,232	\$743	709	\$1,757	Cost- Electricity % of total	16%	29%	-13%
Percent cooled	0	Nov-13	3,028	\$568	1,264	\$3,134	Electricity cost per kWh	\$0.16	\$0.20	-\$0.04
Percent heated	100	Dec-13	2,796	\$740	1,685	\$4,178	Heating fuel cost per therm	\$3.01	\$2.67	\$0.34

Energy performance benchmarking analysis

Glenshire Elementary / Tahoe Truckee USD

10990 Dorchester Drive, Truckee, CA

CLEAR result benchmarks	Median*	Your energy benchmarks		
		2007	Trend	2013
Energy use index (kBtu/sq.ft)	55.6	58.4		44.5
Energy cost index (\$/sq.ft)	\$1.07	\$1.23		\$0.79
Energy cost per student	\$98	\$148		\$91
EPA portfolio manager score	74	63		88



* Median for a similar profile of gas-heated schools in the North NV climate region.

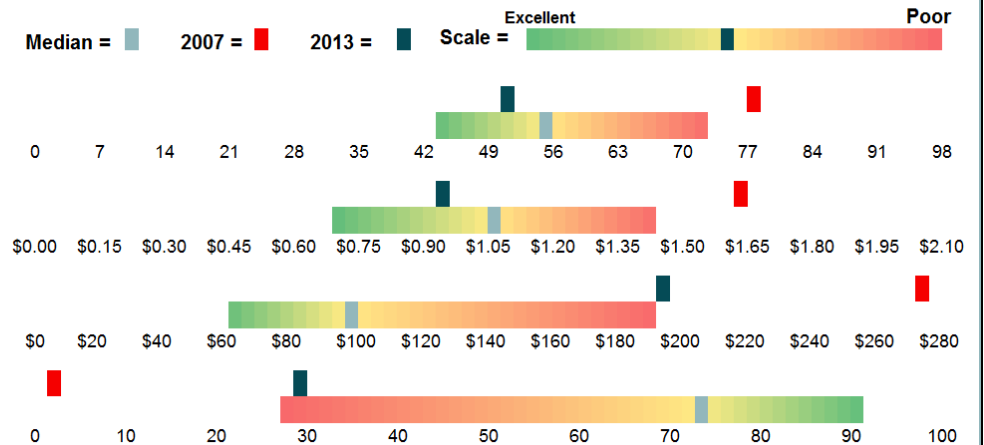
Building characteristics		2013 monthly utility data					Annual energy use/cost comparison			
		Month	kWh	Cost	Therms	Cost	Category	2007	2013	Change
Climate region	North NV	Jan-13	22,560	\$2,621	3,122	\$2,977	Use- Electricity (kWh)	318,080	227,200	90,880
Type of school	Elementary	Feb-13	23,520	\$2,703	2,590	\$2,550	Use- Heating fuel (therms)	23,644	18,546	5,098
Type of heating system	Gas	Mar-13	24,160	\$2,745	1,715	\$1,726	Use- Electricity (MMBtu)	1,085	775	310
Year built	1993	Apr-13	20,320	\$2,420	1,460	\$1,519	Use- Heating fuel (MMBtu)	2,364	1,855	510
Floor area (sq. ft.)	59,096	May-13	23,680	\$2,716	890	\$984	Use- Total energy (MMBtu)	3,450	2,630	820
Weekly operating hours	45	Jun-13	11,200	\$1,805	132	\$160	Use- Electricity % of total	31%	29%	2%
Number of students	519	Jul-13	10,880	\$1,825	108	\$137	Cost- Electricity (\$)	\$40,505	\$28,556	\$11,948
Number of PCs	153	Aug-13	8,480	\$1,322	120	\$139	Cost- Heating fuel (\$)	\$32,428	\$18,419	\$14,009
On-site cooking?	No	Sep-13	16,800	\$2,556	586	\$586	Cost- Total energy (\$)	\$72,933	\$46,976	\$25,957
Walk-in refrigerators	0	Oct-13	23,360	\$2,844	1,698	\$1,678	Cost- Electricity % of total	56%	61%	-5%
Percent cooled	100	Nov-13	21,440	\$2,503	2,680	\$2,658	Electricity cost per kWh	\$0.13	\$0.13	\$0.00
Percent heated	100	Dec-13	20,800	\$2,498	3,445	\$3,305	Heating fuel cost per therm	\$1.37	\$0.99	\$0.38

Energy performance benchmarking analysis

Kings Beach Elementary / Tahoe Truckee USD

8125 Steelhead, Kings Beach, CA

CLEAR result benchmarks	Median*	Your energy benchmarks		
		2007	Trend	2013
Energy use index (kBtu/sq.ft)	55.6	77.4		50.7
Energy cost index (\$/sq.ft)	\$1.07	\$1.65		\$0.95
Energy cost per student	\$98	\$273		\$194
EPA portfolio manager score	74	2		30



* Median for a similar profile of gas-heated schools in the North NV climate region.

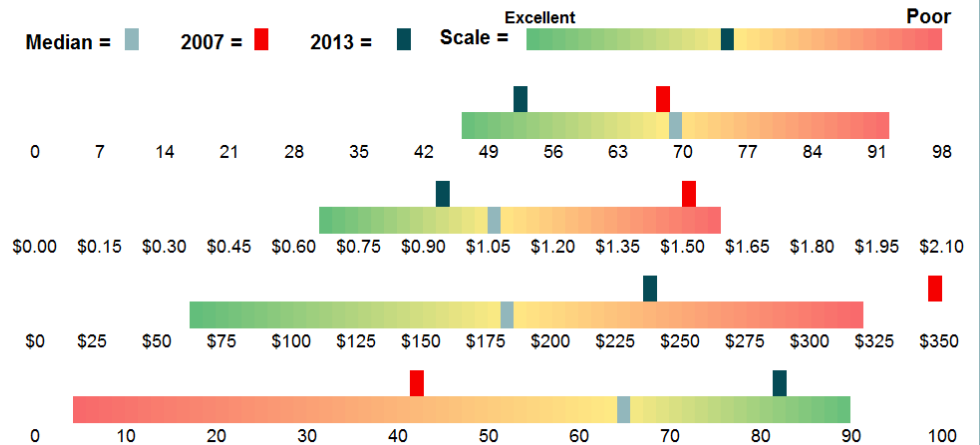
Building characteristics		2013 monthly utility data					Annual energy use/cost comparison			
		Month	kWh	Cost	Therms	Cost	Category	2007	2013	Change
Climate region	North NV	Jan-13	33,195	\$4,152	3,759	\$3,556	Use- Electricity (kWh)	604,080	385,143	218,937
Type of school	Elementary	Feb-13	33,890	\$3,433	3,558	\$3,464	Use- Heating fuel (therms)	36,835	24,441	12,394
Type of heating system	Gas	Mar-13	35,247	\$4,129	2,626	\$2,608	Use- Electricity (MMBtu)	2,061	1,314	747
Year built	1959	Apr-13	33,987	\$3,983	2,113	\$2,159	Use- Heating fuel (MMBtu)	3,684	2,444	1,239
Floor area (sq. ft.)	74,188	May-13	33,732	\$3,413	1,459	\$1,628	Use- Total energy (MMBtu)	5,745	3,758	1,986
Weekly operating hours	40	Jun-13	24,765	\$2,918	260	\$303	Use- Electricity % of total	36%	35%	1%
Number of students	365	Jul-13	23,543	\$3,548	157	\$200	Cost- Electricity (\$)	\$77,200	\$46,619	\$30,581
Number of PCs	113	Aug-13	27,440	\$3,886	171	\$199	Cost- Heating fuel (\$)	\$45,199	\$24,205	\$20,994
On-site cooking?	No	Sep-13	33,378	\$4,552	426	\$438	Cost- Total energy (\$)	\$122,399	\$70,825	\$51,574
Walk-in refrigerators	0	Oct-13	32,324	\$3,956	1,995	\$1,979	Cost- Electricity % of total	63%	66%	-3%
Percent cooled	0	Nov-13	35,488	\$4,203	3,470	\$3,435	Electricity cost per kWh	\$0.13	\$0.12	\$0.01
Percent heated	100	Dec-13	38,154	\$4,448	4,447	\$4,237	Heating fuel cost per therm	\$1.23	\$0.99	\$0.24

Energy performance benchmarking analysis

North Tahoe Middle & High / Tahoe Truckee USD

2946 Polaris Road, Tahoe City, CA

CLEAR result benchmarks	Median*	Your energy benchmarks		
		2007	Trend	2013
Energy use index (kBtu/sq.ft)	68.9	68.4		52.8
Energy cost index (\$/sq.ft)	\$1.08	\$1.50		\$0.95
Energy cost per student	\$184	\$414		\$239
EPA portfolio manager score	65	42		82



* Median for a similar profile of gas-heated schools in the North NV climate region.

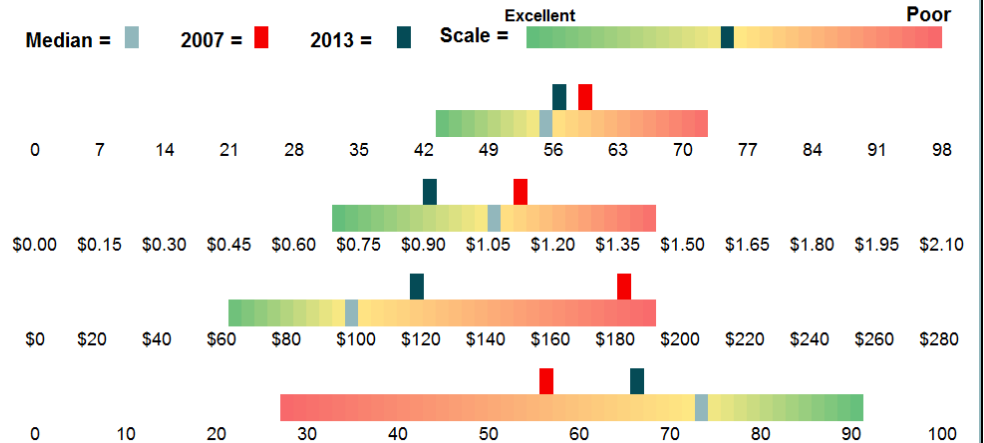
Building characteristics		2013 monthly utility data					Annual energy use/cost comparison			
		Month	kWh	Cost	Therms	Cost	Category	2007	2013	Change
Climate region	North NV	Jan-13	96,048	\$10,807	15,165	\$12,680	Use- Electricity (kWh)	1,544,280	905,712	638,568
Type of school	High	Feb-13	79,668	\$9,428	11,309	\$10,007	Use- Heating fuel (therms)	72,366	65,633	6,733
Type of heating system	Gas	Mar-13	82,896	\$9,847	9,523	\$8,560	Use- Electricity (MMBtu)	5,269	3,090	2,179
Year built	2006	Apr-13	78,132	\$9,633	6,756	\$6,349	Use- Heating fuel (MMBtu)	7,237	6,563	673
Floor area (sq. ft.)	182,708	May-13	80,952	\$10,414	3,258	\$3,440	Use- Total energy (MMBtu)	12,506	9,654	2,852
Weekly operating hours	55	Jun-13	42,352	\$6,685	647	\$698	Use- Electricity % of total	42%	32%	10%
Number of students	729	Jul-13	46,736	\$10,438	227	\$273	Cost- Electricity (\$)	\$190,753	\$114,776	\$75,977
Number of PCs	454	Aug-13	73,332	\$8,980	218	\$244	Cost- Heating fuel (\$)	\$83,454	\$59,232	\$24,222
On-site cooking?	Yes	Sep-13	74,820	\$9,064	342	\$354	Cost- Total energy (\$)	\$274,207	\$174,008	\$100,199
Walk-in refrigerators	2	Oct-13	82,428	\$9,675	3,147	\$2,999	Cost- Electricity % of total	70%	66%	4%
Percent cooled	75	Nov-13	79,860	\$9,576	6,222	\$5,828	Electricity cost per kWh	\$0.12	\$0.13	\$0.00
Percent heated	100	Dec-13	88,488	\$10,228	8,819	\$7,801	Heating fuel cost per therm	\$1.15	\$0.90	\$0.25

Energy performance benchmarking analysis

Tahoe Lake Elementary / Tahoe Truckee USD

375 Grove, Tahoe City, CA

CLEAR result benchmarks	Median*	Your energy benchmarks		
		2007	Trend	2013
Energy use index (kBtu/sq.ft)	55.6	59.3		56.4
Energy cost index (\$/sq.ft)	\$1.07	\$1.12		\$0.91
Energy cost per student	\$98	\$183		\$116
EPA portfolio manager score	74	57		66



* Median for a similar profile of gas-heated schools in the North NV climate region.

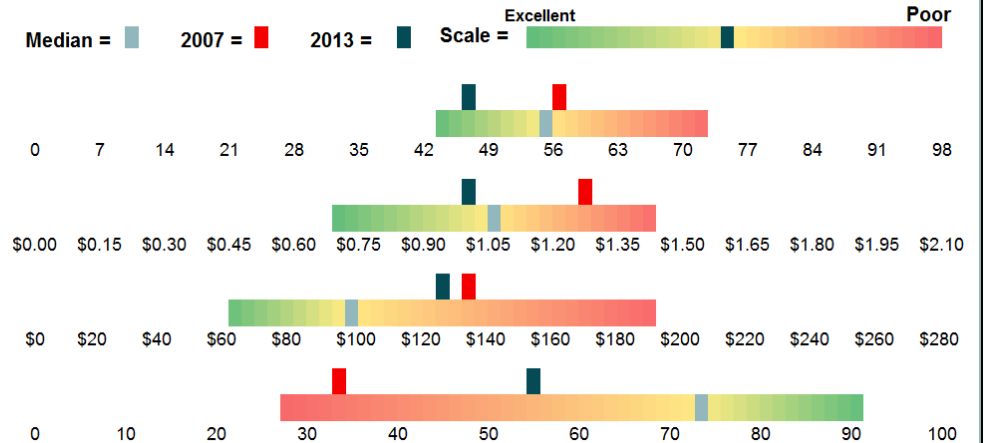
Building characteristics		2013 monthly utility data					Annual energy use/cost comparison			
		Month	kWh	Cost	Therms	Cost	Category	2007	2013	Change
Climate region	North NV	Jan-13	14,125	\$2,054	2,946	\$2,822	Use- Electricity (kWh)	157,040	127,256	29,784
Type of school	Elementary	Feb-13	11,245	\$1,641	2,419	\$2,422	Use- Heating fuel (therms)	19,365	19,153	212
Type of heating system	Gas	Mar-13	10,905	\$1,592	2,005	\$2,051	Use- Electricity (MMBtu)	536	434	102
Year built	1958	Apr-13	11,745	\$1,713	1,667	\$1,752	Use- Heating fuel (MMBtu)	1,937	1,915	21
Floor area (sq. ft.)	41,680	May-13	12,805	\$1,865	1,422	\$1,593	Use- Total energy (MMBtu)	2,472	2,349	123
Weekly operating hours	40	Jun-13	7,605	\$1,119	786	\$867	Use- Electricity % of total	22%	18%	3%
Number of students	328	Jul-13	6,425	\$949	99	\$148	Cost- Electricity (\$)	\$22,467	\$18,591	\$3,876
Number of PCs	106	Aug-13	7,965	\$1,170	179	\$225	Cost- Heating fuel (\$)	\$24,401	\$19,515	\$4,886
On-site cooking?	No	Sep-13	11,139	\$1,626	91	\$127	Cost- Total energy (\$)	\$46,868	\$38,106	\$8,762
Walk-in refrigerators	0	Oct-13	11,437	\$1,668	1,626	\$1,640	Cost- Electricity % of total	48%	49%	-1%
Percent cooled	0	Nov-13	11,507	\$1,679	1,985	\$2,040	Electricity cost per kWh	\$0.14	\$0.15	\$0.00
Percent heated	100	Dec-13	10,353	\$1,515	3,928	\$3,829	Heating fuel cost per therm	\$1.26	\$1.02	\$0.24

Energy performance benchmarking analysis

Truckee Elementary / Tahoe Truckee USD

11911 Donner Pass Road, Truckee, CA

CLEAR result benchmarks	Median*	Your energy benchmarks		
		2007	Trend	2013
Energy use index (kBtu/sq.ft)	55.6	56.6		47.6
Energy cost index (\$/sq.ft)	\$1.07	\$1.28		\$1.02
Energy cost per student	\$98	\$135		\$126
EPA portfolio manager score	74	33		55



* Median for a similar profile of gas-heated schools in the North NV climate region.

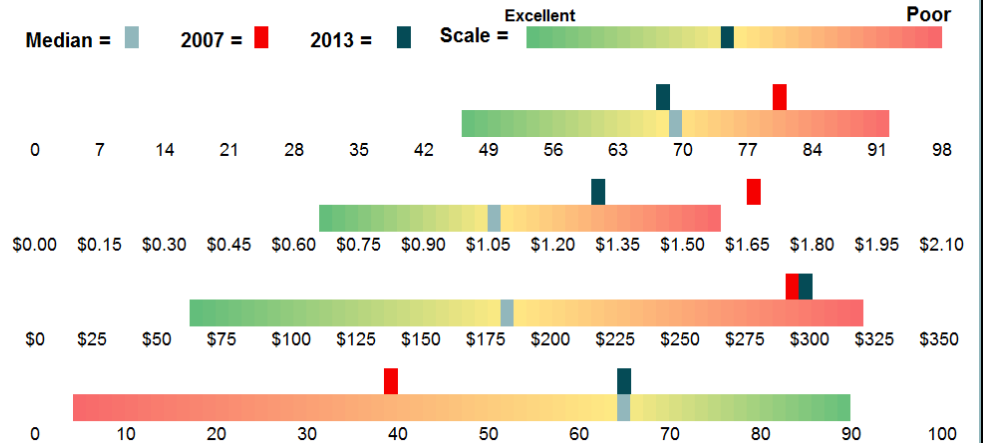
Building characteristics		2013 monthly utility data					Annual energy use/cost comparison			
		Month	kWh	Cost	Therms	Cost	Category	2007	2013	Change
Climate region	North NV	Jan-13	29,840	\$4,682	3,891	\$3,887	Use- Electricity (kWh)	373,960	302,960	71,000
Type of school	Elementary	Feb-13	29,760	\$4,563	3,434	\$3,473	Use- Heating fuel (therms)	26,424	22,617	3,807
Type of heating system	Gas	Mar-13	27,440	\$4,290	2,881	\$2,972	Use- Electricity (MMBtu)	1,276	1,034	242
Year built	1971	Apr-13	25,520	\$4,030	1,582	\$1,715	Use- Heating fuel (MMBtu)	2,642	2,262	381
Floor area (sq. ft.)	69,268	May-13	25,480	\$3,956	1,143	\$1,321	Use- Total energy (MMBtu)	3,918	3,295	623
Weekly operating hours	45	Jun-13	18,400	\$3,123	453	\$552	Use- Electricity % of total	33%	31%	1%
Number of students	559	Jul-13	12,680	\$2,168	29	\$79	Cost- Electricity (\$)	\$51,370	\$47,160	\$4,210
Number of PCs	170	Aug-13	15,840	\$2,528	101	\$158	Cost- Heating fuel (\$)	\$37,327	\$23,439	\$13,888
On-site cooking?	No	Sep-13	24,840	\$3,901	120	\$173	Cost- Total energy (\$)	\$88,697	\$70,600	\$18,098
Walk-in refrigerators	0	Oct-13	28,200	\$4,315	1,314	\$1,400	Cost- Electricity % of total	58%	67%	-9%
Percent cooled	0	Nov-13	32,120	\$4,771	2,417	\$2,534	Electricity cost per kWh	\$0.14	\$0.16	-\$0.02
Percent heated	100	Dec-13	32,840	\$4,832	5,252	\$5,177	Heating fuel cost per therm	\$1.41	\$1.04	\$0.38

Energy performance benchmarking analysis

Truckee High / Tahoe Truckee USD

11725 Donner Pass Road, Truckee, CA

CLEAR result benchmarks	Median*	Your energy benchmarks		
		2007	Trend	2013
Energy use index (kBtu/sq.ft)	68.9	80.9		67.9
Energy cost index (\$/sq.ft)	\$1.08	\$1.67		\$1.29
Energy cost per student	\$184	\$294		\$296
EPA portfolio manager score	65	39		65



* Median for a similar profile of gas-heated schools in the North NV climate region.

Building characteristics		2013 monthly utility data					Annual energy use/cost comparison			
		Month	kWh	Cost	Therms	Cost	Category	2007	2013	Change
Climate region	North NV	Jan-13	92,400	\$12,571	11,296	\$9,511	Use- Electricity (kWh)	1,103,760	874,440	229,320
Type of school	High	Feb-13	78,480	\$11,025	8,795	\$7,805	Use- Heating fuel (therms)	76,772	66,182	10,590
Type of heating system	Gas	Mar-13	81,600	\$11,479	8,715	\$7,809	Use- Electricity (MMBtu)	3,766	2,984	782
Year built	1958	Apr-13	70,080	\$10,134	5,260	\$4,969	Use- Heating fuel (MMBtu)	7,677	6,618	1,059
Floor area (sq. ft.)	141,465	May-13	72,720	\$10,212	3,547	\$3,693	Use- Total energy (MMBtu)	11,443	9,602	1,841
Weekly operating hours	55	Jun-13	50,040	\$7,528	1,769	\$1,847	Use- Electricity % of total	33%	31%	2%
Number of students	619	Jul-13	39,600	\$5,691	484	\$590	Cost- Electricity (\$)	\$138,375	\$122,838	\$15,537
Number of PCs	297	Aug-13	44,400	\$6,970	415	\$490	Cost- Heating fuel (\$)	\$97,267	\$59,805	\$37,463
On-site cooking?	Yes	Sep-13	72,600	\$10,085	524	\$573	Cost- Total energy (\$)	\$235,642	\$182,642	\$53,000
Walk-in refrigerators	0	Oct-13	90,960	\$12,475	6,029	\$5,301	Cost- Electricity % of total	59%	67%	-9%
Percent cooled	0	Nov-13	88,680	\$12,250	8,109	\$7,331	Electricity cost per kWh	\$0.13	\$0.14	-\$0.02
Percent heated	100	Dec-13	92,880	\$12,418	11,239	\$9,886	Heating fuel cost per therm	\$1.27	\$0.90	\$0.36