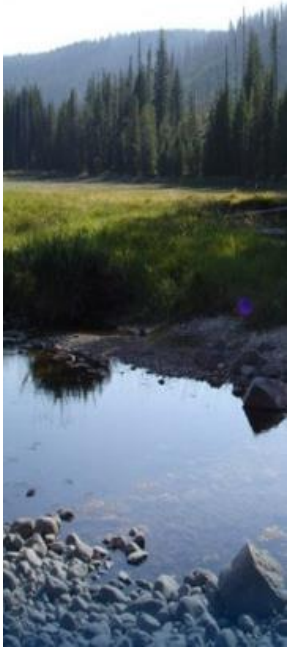




## Idaho K-12 Energy Efficiency Project



As part of the Idaho Office of Energy Resources K-12 Energy Efficiency Project, 894 K-12 classroom buildings received scoping audits, energy benchmarking analysis, and overall building assessments. The scoping audit reporting template documented energy savings opportunities in two fundamental categories, Operational and Capital. An assessment of the qualifying scoping audits identified nine common operational opportunities. These nine areas addressed topics to improve energy efficiency through the modification or enhancement of current building operations and maintenance procedures. Incentives for most items listed are offered by utility providers.

Scoping audits for 847 of the 894 classrooms provided an estimated annual total for operational cost savings of \$1,326,198 through reduced energy consumption if all 847 buildings implement all identified operational opportunities.

### Nine Common Operational Opportunities:

- 1. Conduct training on facility systems and operational procedures.** Document operating procedures to maintain consistency for establishing operational baselines and ensuring effective use of energy consumption.
- 2. Utilize energy monitoring and accounting.** Allows personnel to review month-to-month energy usage and quantify general trends.
- 3. Implement computer and monitor shut down procedures.** Developing procedures for shut down of computers and monitors has potential to cut electricity used by PCs in half.
- 4. Evaluate program and verify HVAC controls settings.** Increases awareness and understanding of occupants and establishes a routine checks to ensure efficient and effective operation of building's mechanical systems.
- 5. Evaluate and optimize Building Management System (BMS) operation.** Ensures all equipment, schedules, and controls are set-up properly and strategizes building startup procedures.
- 6. Create occupant awareness and understanding.** Uses training, communication, and occupant involvement to lead to an understanding of how of how occupant's actions directly impact energy efficiency.
- 7. Develop a program for ongoing HVAC economizer maintenance and repair.** It is common for economizers to break-down and not be repaired as the overall system is still operational in their absence.
- 8. Program and verify exterior and interior lighting controls.** Provides ongoing verification of time clock settings or proper location and operation of photocells.
- 9. Seal the building envelope from air infiltration.** Air infiltration is a major source of energy loss in conditioned spaces, forcing HVAC systems to work harder than necessary and resulting in greater energy use.



## Idaho K-12 Energy Efficiency Project Pre-Project Energy Use Index Summary & Analysis

<b>Pre-Project Energy Use:</b>	Total Annual Energy Use (kBtu/yr)	2,327,075,322
	Total Classroom Buildings Reporting	894

### Summary of Classroom Buildings Reporting:

Number of Buildings	Energy Source (Units)	Annual Energy Usage in Units	Annual Energy Usage in kBtu	Percentage of Annual Energy Usage
894	Electricity (killowatt-hours)	307,156,098	1,048,016,606	45.0%
615	Natural Gas (therms)	10,816,487	1,111,934,863	47.8%
101	Propane (gallons)	1,026,231	93,387,011	4.0%
6	Wood (pounds)	1,941,405	11,551,359	0.5%
25	Coal (pounds)	2,955,855	29,540,815	1.3%
35	Fuel Oil (gallons)	234,854	32,644,664	1.4%

### Summary of Targeted Lighting Technologies:

Number of Buildings	Lighting Technology
151	Whole Building T12 Fixtures
120	Partial Building T12 Fixtures
272	250+ Watt Lamps

### EUI\* Calculations:

Facility Type	Average EUI*	Median EUI*	Minimum EUI*	Maximum EUI*
Elementary	62.8	57.4	13.0	211.4
Middle	61.7	59.4	10.9	141.9
High	70.7	64.5	2.3	416.1
All Facilities	65.7	60.3	2.3	416.1

\*EUI = Energy Use Index (kBtu/sf-yr)

\*\*EUI and Percentage (%) calculations are rounded to the nearest 1/10<sup>th</sup>; all other calculations are rounded to the nearest whole number.