



# **CONDUCTING A SCHOOL ENERGY AUDIT**

**Brad Boyle (High School)**

## TYPES OF AUDITS:

- (1) School Energy Audit
- (2) Home Energy Audit in a Multi-Person Home
- (3) Personal Energy Audit

I focused on the school energy audit. This could be done in conjunction with a personal energy audit.



## SOURCES

- NEED Resources

<http://www.need.org/files/curriculum/guides/EnergySurveyStudent.pdf>

### Colorado State Energy Audit

[www.ext.colostate.edu/energy/k12/audit-lesson.pdf](http://www.ext.colostate.edu/energy/k12/audit-lesson.pdf)

### Colorado Green Schools

<http://www.greenschools.net/article.php?id=461>



## LESSON OBJECTIVE:

- What are some ways that we can collectively reduce energy loss in schools?



# WHAT STATISTICALLY ARE OUR ENERGY COSTS IN COLORADO (REGION 5)?

Source: US EPA (From Need Resource)

Heating and Cooling 23.8%

Cooling 6.5%

Lighting 26.1%

Water 1.9%

Electrical Devices 18.8%

Fans 23%



# FOCUS OF ENERGY AUDIT (SOURCE NEED)

- (1) Building Shell Envelope Form
- (2) HVAC
- (3) Lighting
- (4) Appliances
- (5) Behavior



# BUILDING SHELL ENVELOPE FORM

- Factors (Highlights):
  - Age
  - Floors
  - Orientation
  - Window and Door Efficiency
  - Are they Open or Closed?



# HVAC

- Factors (Highlights):
  - Thermostat Installed in Temperature Neutral Location (2%)
  - Thermostat Saved During Unoccupied Hours
  - Boiler installed after 2000





# LIGHTING (FOCUS OF THE LESSON)

- Auto Shut-Off Installed Correctly
- Not Illuminating hallways with too much light (refer to industry standards) (Lux meter to measure illuminance)
- Installing the correct fluorescent light bulb (fast light vs slow light) (Flicker Test Meter)



# APPLIANCES

- Find current use and potential savings for all appliances in the science department:  
(Wattmeter)
- Watts On
- Watts Off
- Hours on/day
- kWh/ month off/day
- Total kWh / year



# BEHAVIOR

- What can you do personally or as a school to affect change?
- (1) Close doors and windows when not in use
- (2) Classroom/gymnasium lights off
- (3) No personal space heaters
- (4) No mini-fridges
- (5) Computers and Monitors Turned Off (by a remote power switch)

