

ENERGY ACTION WORKSHOP



Fire Department Workshop
December 12, 2013



PHILADELPHIA FIRE DEPARTMENT



Energy Efficiency Incentive Program



Goal: Reduce Energy Waste, Reward Action

Energy:

- **Why** it matters
- **What** you can do
- **How** it will benefit you and your department



City of Philadelphia & Greenworks Philadelphia



E N E R G Y

GOAL: PHILADELPHIA REDUCES ITS VULNERABILITY TO RISING ENERGY PRICES

TARGET 1

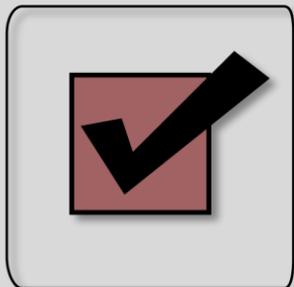
LOWER CITY GOVERNMENT ENERGY CONSUMPTION BY 30 PERCENT

City Government Lays the Groundwork for Energy Conservation

TARGET 2

REDUCE CITYWIDE BUILDING ENERGY CONSUMPTION BY 10 PERCENT

Public/Private Partnerships and New Law Reduce Energy Consumption



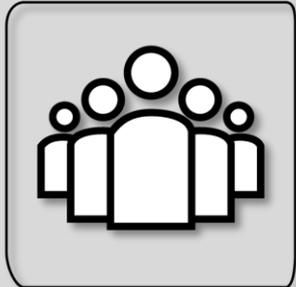
Conservation vs. Efficiency: What's the Difference?



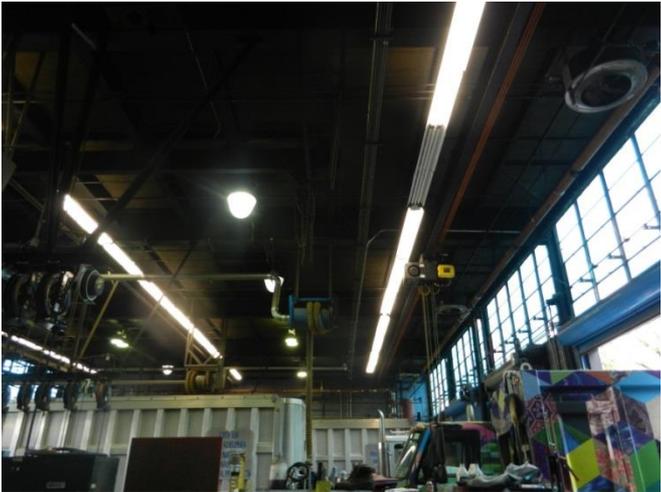
Hummer @ 8 mpg, 5,000 miles/year = 626 gallons of gas
Prius @ 45 mpg, 30,000 miles/year = 667 gallons of gas

This workshop focuses on tips and tools for **energy conservation**

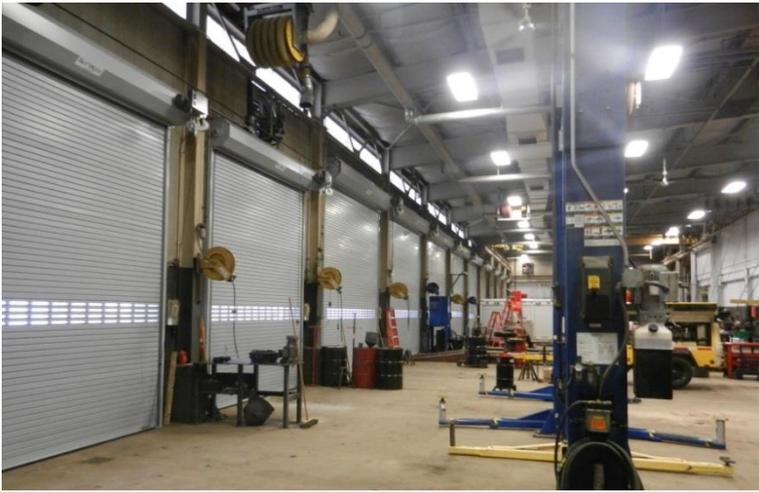
Leading by Example: City Energy Efficiency Efforts



Before



After





Why Eliminate Energy Waste?

- **Financial:** Reducing energy use cuts costs
- **Environment:** 10% electricity from Fire Department

Eliminates more than **1.2 million** pounds of CO₂ emissions annually

Annual greenhouse gas emissions from



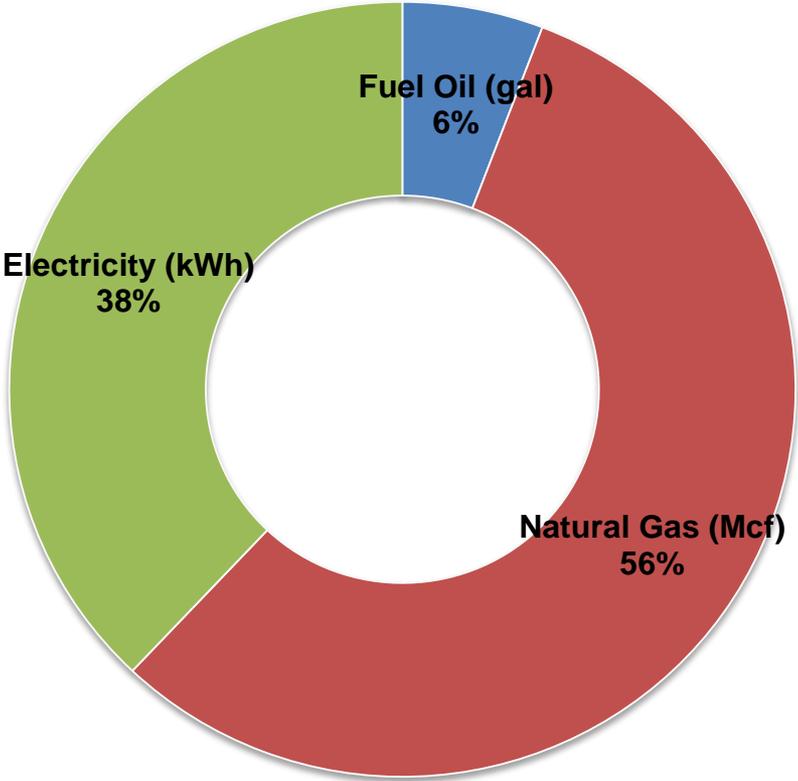
Carbon sequestered by



- **Health:** Emissions = asthma, neurological problems
- **Natural Resource Preservation**

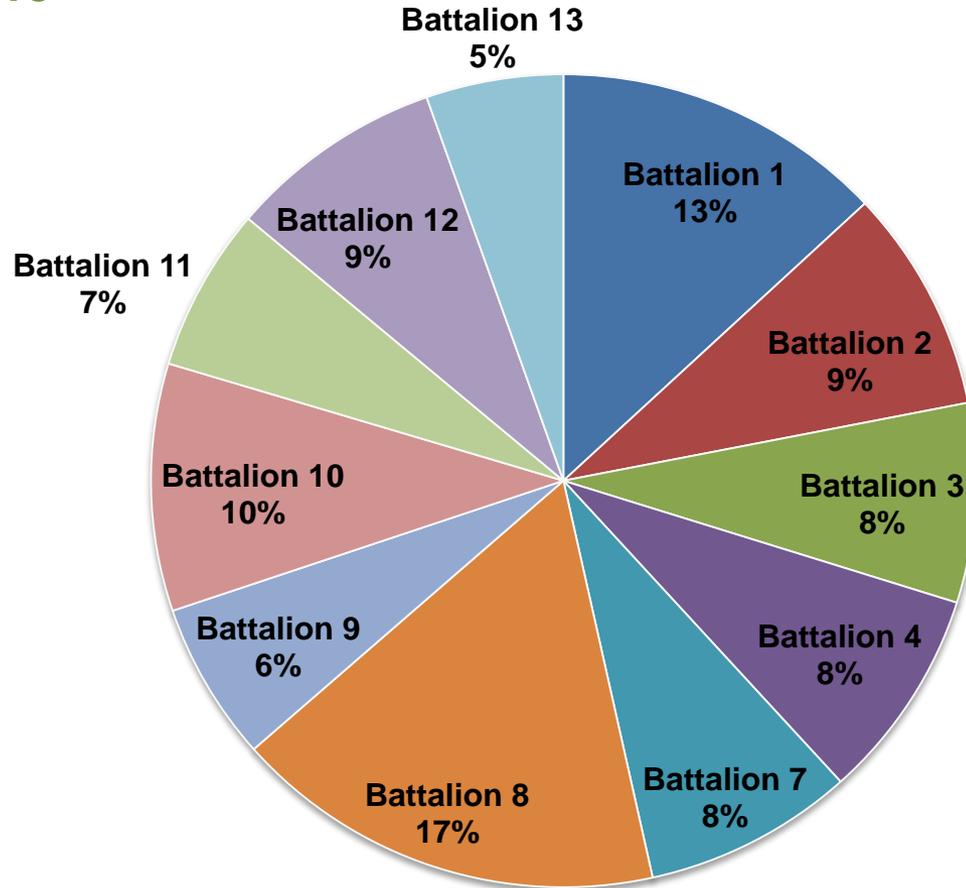
Fire Department Energy Consumption

Annual Energy Consumption FY 2013



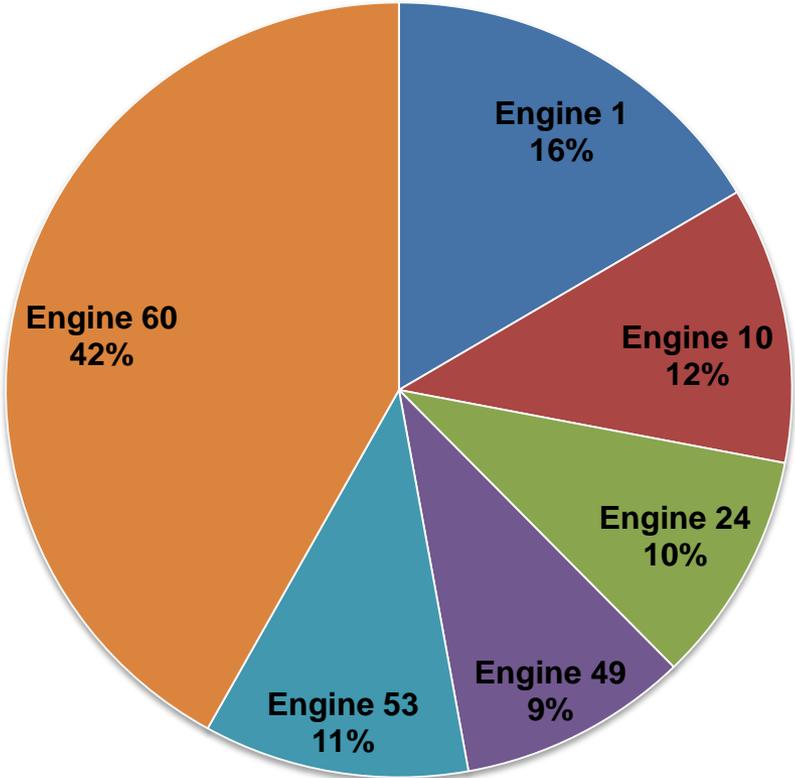
Fire Department Energy Consumption

Energy Consumption by Battalion FY 2013



Fire Department Energy Consumption

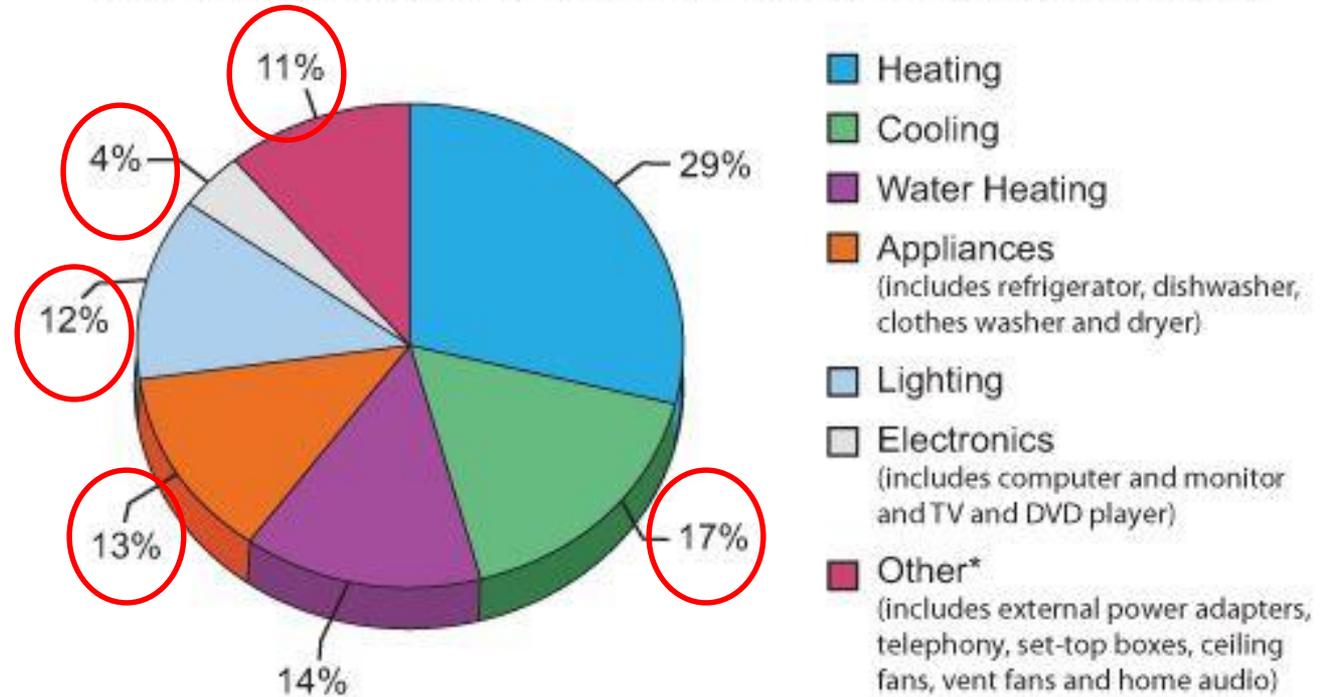
Battalion 1 Energy Consumption FY 2013





Where Does My Money Go?

Annual Energy Bill for a typical Single Family Home is approximately \$2,200.*



Source: Typical House memo, Lawrence Berkeley National Laboratory, 2009 and Typical house_2009_Reference.xls spreadsheet.

Average Annual Energy Bill for Fire Dept. Battalion: \$46,978



Fire Department Energy Bank

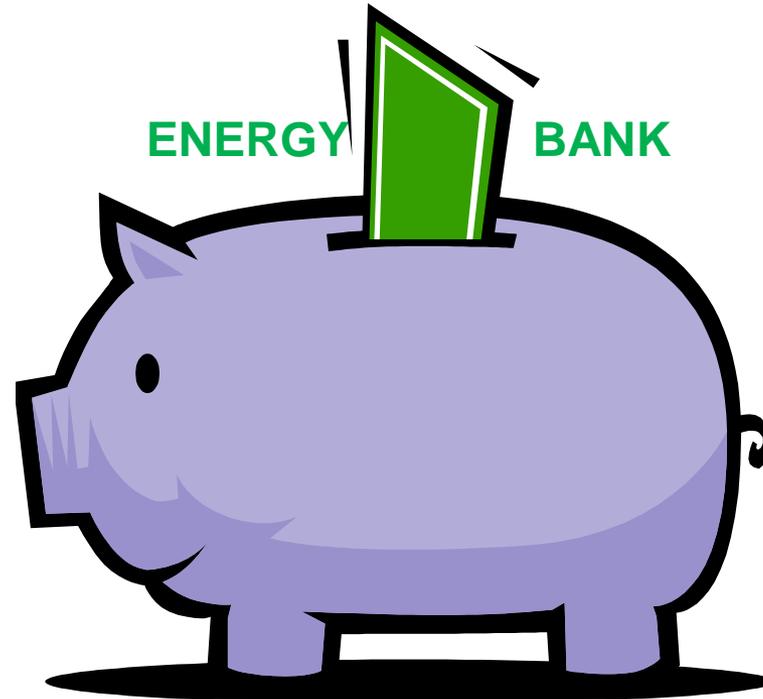
Rewarding Action: THE ENERGY BANK

Performance calculated 2x/year. Savings distributed 1x/year.

DISTRIBUTION: POSITIVE SAVINGS

Retain 50% of savings in general fund

Return 50% of savings to your department

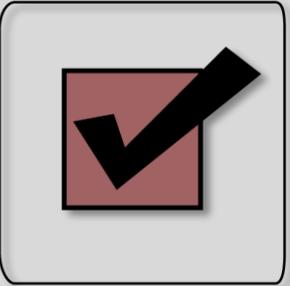




Fire Department Energy Bank

Your Potential

	1%	5%	10%
Fire Department	\$3,304	\$16,520	\$33,040
Battalion 1	\$332	\$1,660	\$3,320

A square icon with a red background and a black checkmark, enclosed in a rounded square frame.

Energy Conservation Tips

Lights

Turn lights on only when room is in use

- Make sure lights are off in bunk rooms when not in use
- Use only the lights you need (use natural light if it is available)
- Take responsibility for common areas

REMEMBER: Lighting can account for 12- 25% of your energy bill

Energy Conservation Tips

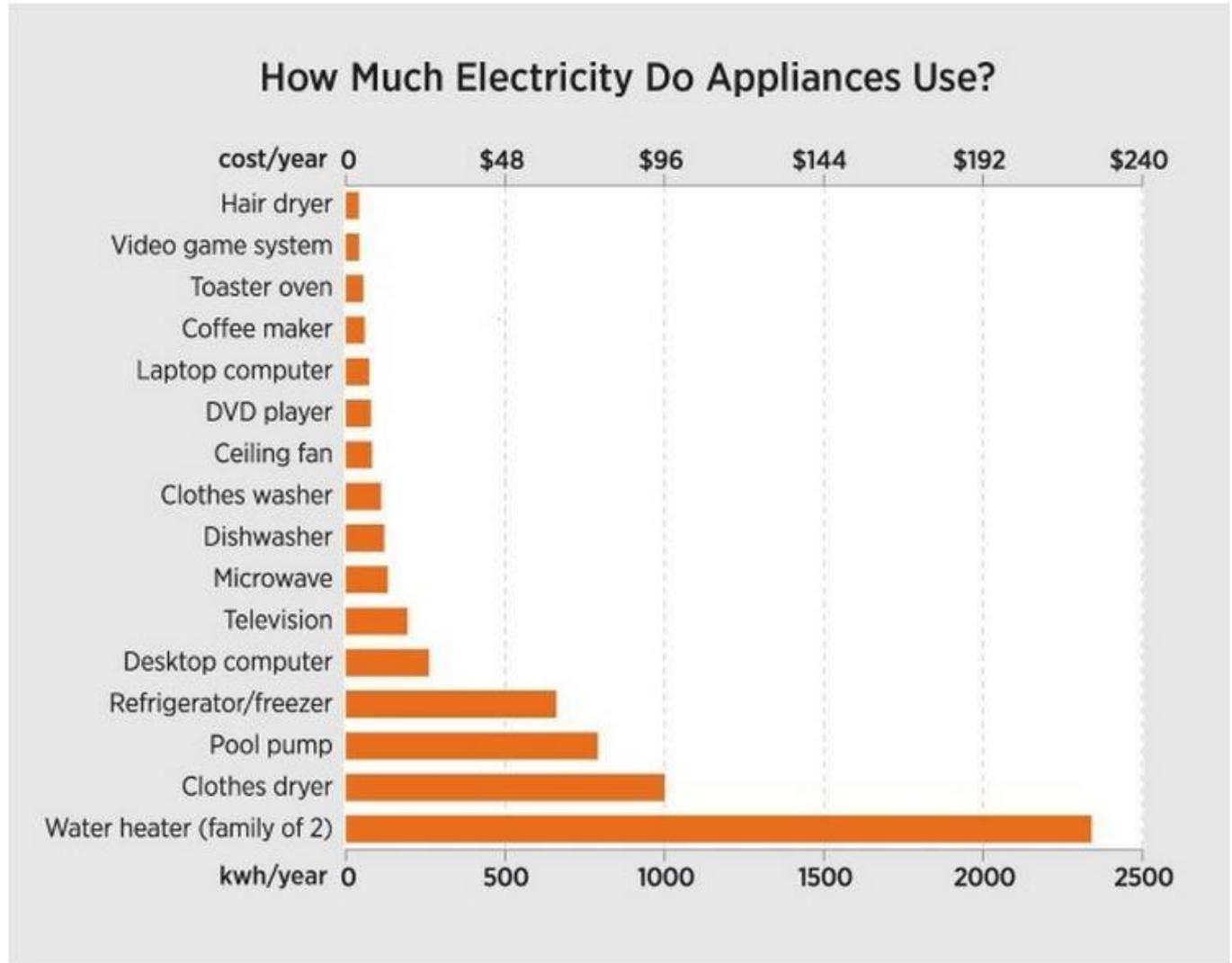
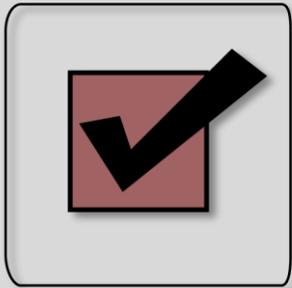
Lights

Bust the myth!

Remember the 5-second rule



Energy Conservation Tips

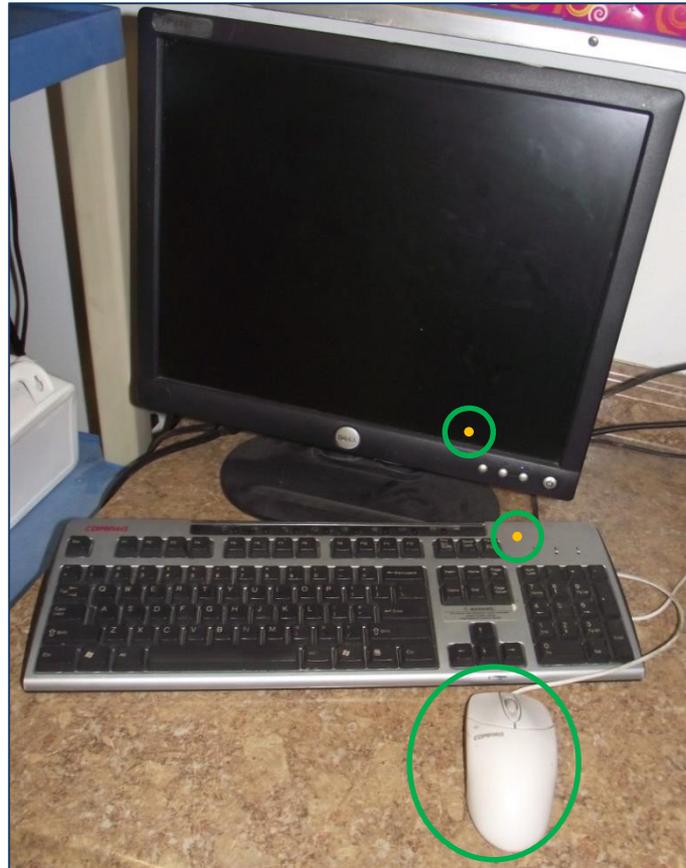


This chart shows how much energy a typical appliance uses per year and its corresponding cost based on national averages. For example, a refrigerator uses almost five times the electricity the average television uses.

Energy Conservation Tips

Televisions, Computers, and Appliances

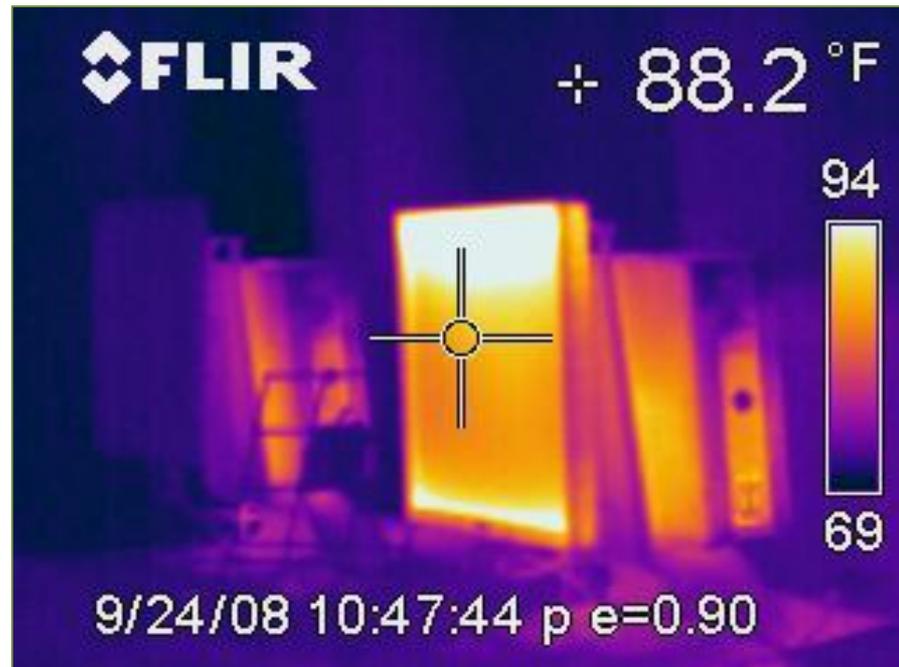
- It's safe to turn them off when not in use



Energy Conservation Tips

Televisions, Computers, and Appliances

- Have computer monitors go to “sleep” mode after 5 – 15 minutes of inactivity (\$20/computer/year)
- Turn off the computer and monitor if you will be away for two hours or more.



Energy Conservation Tips

Televisions, Computers, and Appliances

- On average, 75% of the electricity used to power electronics at home is consumed while the products are turned off. **Avoid this by unplugging appliances or using a power strip.**

Nearly Two-Thirds of Annual U.S. Set-Top Box Energy Use Occurs When Viewers are Not Watching or Recording Content



RESULTS IN...

Electricity Consumption:
3 Power Plants (500 MW each)

Emissions:
5 Million Metric Tons CO₂/year

Cost to Consumers:
\$1 Billion/year

RESULTS IN...

Electricity Consumption:
6 Power Plants (500 MW each)

Emissions:
11 Million Metric Tons CO₂/year

Cost to Consumers:
\$2 Billion/year

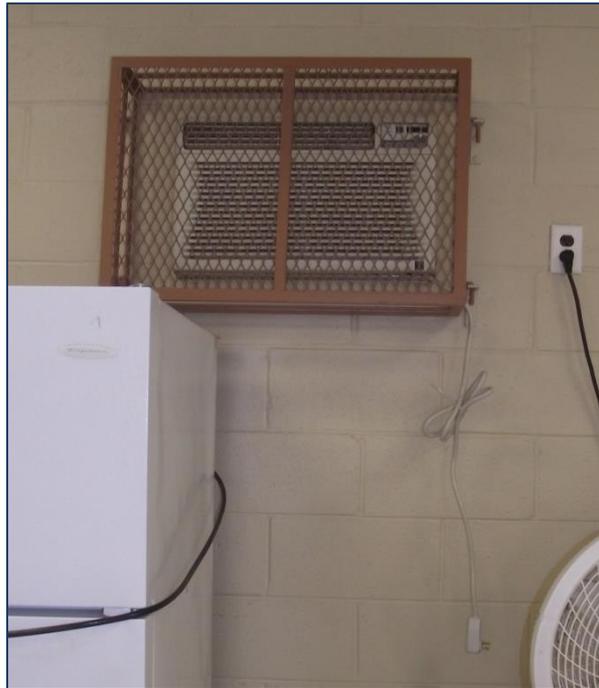
In Use = watching or recording a show

Not In Use = not watching or recording a show

Energy Conservation Tips

Air Conditioning

- Don't turn A/C on while heat is on. Turn heat off.
- Unplug air conditioners when not in use
- Make sure that A/C units fit tightly in the window to help prevent air exchange



Progress Reporting

Regular Communications:

- Cost Savings
- kWh Reductions
- CO₂ Savings
- Battalion + Facility Rankings (by % reductions)



What's Your Rank?

Progress Reporting






PHILADELPHIA FIRE DEPARTMENT

Energy Conservation Initiative Summary

Battalion 1 Report For Jun-13	Consumption (kWh)	
	June-13	Cumulative
Department Wide Savings	-449,960 -107.26%	-4,636,587 -106.87%
Savings for Battalion 1	682 1.80%	1,479 0.37%

All Battalions Monthly Consumption (kWh)

This Battalion's Annual Consumption (kWh)

Battalions Ranked by Cumulative % Energy Saved (positive = savings)

Battalions Ranked by Normalized Consumption this Month (kWh/sqft)

Energy Conservation Initiative Summary (page 2)

Battalion 1 Report For Jun-13	Cost Savings (\$)		Carbon Savings (MTCDE)	
	June-13	Cumulative	June-13	Cumulative
Department Wide Savings	-\$35,997 -107.26%	-\$370,927 -106.87%	-218.6 -107.26%	-2,283.0 -106.87%
Savings for Battalion 1	\$55 1.80%	\$118 0.37%	0.3 1.80%	0.8 0.40%

Facilities Ranked by % Saved this month

Facilities Ranked by \$ Saved this month

Questions about this report? Contact: J Smith at (215) 555-5555 or ###@###.com



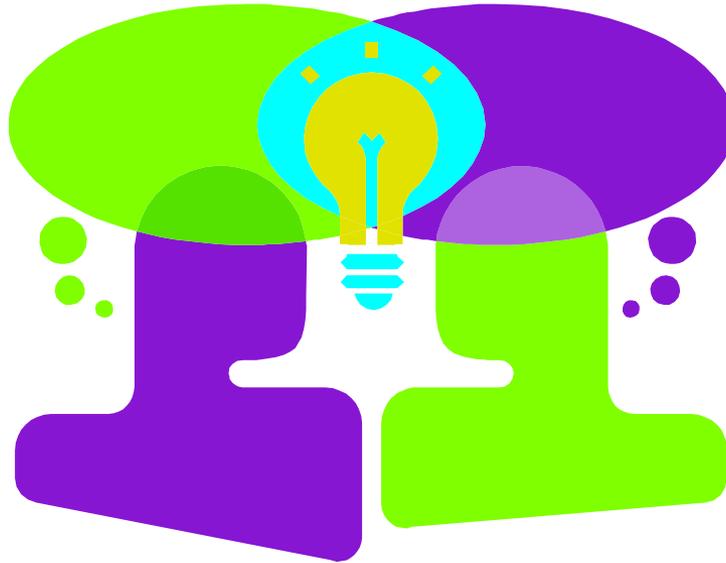
Energy Conservation: It Works!

- **25%-35%** of the energy used in commercial buildings is wasted.
- Half of this waste is due to equipment management and behavior.
- Eliminating energy waste does not impact your daily routine or your job. But it can help your department make money for future efficiency/capital projects.

**It's a Great Way to Raise Funds!
Start Today!!**



Ideas – Brainstorming



Grab a note card or send us an email! Let us know:

- How can we help?
- Where do **YOU** think the Fire Department can save?
- Identify a GREEN CHAMPION
- Other ideas!

Think About How You Use Energy!



practical
energy
solutions

EEBHUB Energy
Efficient
Buildings
Hub

Sources

Opening Slide: Flickr – Creative Commons:

1. Philadelphia – kla4067
2. Thermostat – midnightcomm
3. Light switch – orange steeler

Slide 5: www.propane.pro (l); City of Philadelphia (r)

<http://www.epa.gov/cleanenergy/energy-resources/calculator.html#results>

Slide 11: http://www.energystar.gov/index.cfm?c=products.pr_pie

Slide 17: <http://energy.gov/energysaver/articles/tips-appliances>

Slide 20: <http://www.nrdc.org/energy/files/settopboxes.pdf>

All Other Photos: Practical Energy Solutions