



How to Start an **Effective** Energy Conservation Program

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Results of KPBSD Energy Conservation Program

- In FY07, KPBSD spent \$4,451,128.24 on energy for schools.
- In FY08, KPBSD spent \$4,647,753.16 on energy for schools.
 - KPBSD spent an additional \$196,624.92 in FY08.
 - FY08 conservation efforts resulted in a cost avoidance of \$737,885.53.
 - FY08 energy costs would have increased by 21%, yet KPBSD only paid 4% more due to conservation.



Two Ways to Conserve

1. Technology

- Replace lights with more energy efficient lights, install better thermostats on HVAC systems, better insulation and windows, etc.

2. “Human Factors”

- Teaching and encouraging the users of the facilities to conserve energy.
 - Teachers and school staffs already have enough to do. Just ask ‘em!!!
 - Provide the tools and instructions.
- Low or no cost to do.



Conservation through Technology

- Must involve the maintainers.
- Virtually all initiatives require capital funding that is not always readily available.
- Maintenance personnel are usually staffed (and funded) to maintain facilities, not to make major improvements.
- At best, these types of improvements may take several years to implement.



Conservation Through “Human Factors”

- This is the fastest way to show results!
- You can start NOW!
- You need to find a mechanism that will encourage the staffs at the schools to conserve energy.
 - Teachers feel they already have enough to do. Why should they do more?
- *An Incentive Award program is essential.*



Advantages of An Incentive Award Program

- Each school has a chance to increase it's budget through their own efforts.
 - Paul Banks Elem bought colored construction paper and crayons.
 - Soldotna HS bought a laptop cart.
- The district will pay less for utilities.
- District Administrators are able to transfer funds from normally transparent administrative (utility) accounts to the educational budgets in the schools.
- **EVERYBODY WINS!!** (Except the utility companies).



The Incentive Award Program

Key Elements

- Should have a big enough reward to make it worthwhile for the teachers ... so they **want** to conserve energy. At KPBSD, we give back to the school 25% of their cost avoidance.
- The cost avoidance should be based on the **usage** data ... not the cost data.
 - Costs are constantly changing.
 - For example, by comparing the # of kWh's used, the comparison is much more objective and quantifiable.
 - You can convert the usage data to the cost avoidance by multiplying by the average cost of that utility (for the year in question).



The Incentive Award Program

Key Elements

- The baseline for comparison should be an average of the last 3-5 years worth of (usage) data.
 - At KPBSD, we've decided to use a rolling 4-year average.
 - Do a HDD/CDD (Heating/Cooling Degree Day) study to ensure that the baseline year is roughly comparable to the comparison year. (You don't want to compare a really cold baseline year to a really warm year.)
- Eliminate any data that will skew the baseline data.
 - For example, 2 schools converted to natural gas from fuel oil. We eliminated the fuel oil data. The baseline was calculated using just 1 year of natural gas data.
- Your data must be above reproach!



Getting Started

- Most important: Get the support of all members of senior management.
 - Presentation to senior staff:
 - Support for conservation.
 - Support for the Incentive Award program.
 - Support for making the changes needed to conserve.
 - Kick-off and introduction (to all the principals) **by (or with) the Superintendent.**
 - Superintendent of the School District introduced the program with me at a District Administrators Meeting.
 - Then, I contacted every school administrator and set up a date and time for me to make a presentation to the staff at that school.



Things I Did

- Presentation to the staffs at every school.
 - Stickers for light switches *“Help Conserve Energy ... Please Turn Off the Lights When You Leave.”*
 - Flyers (to post on Bulletin Boards), *“Things You Can Do to Save on Utility Costs.”*
 - Handout, *“Common Electrical Myths that Increase Energy Costs.”*
- Paul’s version of an “Energy Audit”.
- Energy Conservation Webpage on KPBSD website; charts of energy consumption by school. (Go to: kpbsd.k12.ak.us)

Things I Did

- Teach class to students on Energy Conservation.
 - Start by describing what energy is, how get it, and the environmental pro's & con's of each.
 - Use a watt meter, desk lamp, and lightbulbs to demonstrate how much energy they use.
 - Talk about how to conserve energy.
 - End class with: *“What Can You Do?”*
 - Assign Classroom Monitors for lights, computers, etc.
 - Get the kids involved in the school's energy conservation.
 - Teachers love having an outside guest speaker.
 - I'm now part of the solution (for them) and not the problem.
 - I've lost part of that “White House” stigma.

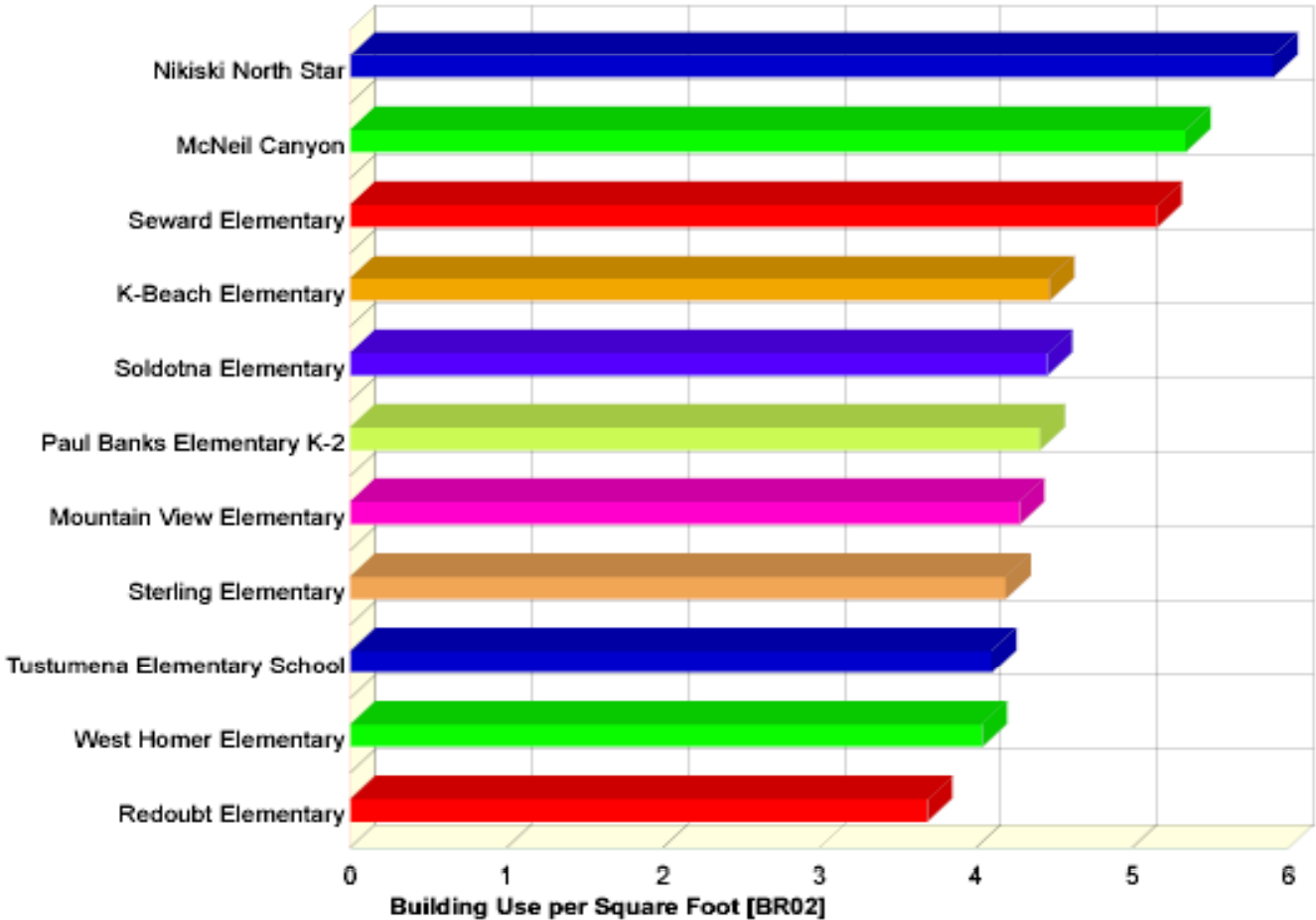
Things I Did

- Incentive Award Presentation – Make a BIG DEAL out of it! It’s a PR Opportunity!
 - Presentations with a BIG Dry-Erase check.
- Comparing schools to each other.
 - Teachers and school administrators tend to be quite competitive ... use peer pressure to your advantage!!
 - Send out UtilityDirect reports that compare like types of schools to each other by occupied sq ft (i.e., compare the kWh’s used per occupied sq ft at each high school).
 - When comparing usage by sq ft, size of the school is irrelevant.
 - Eliminates the argument, “But, my school is bigger than those!”
 - See example on the next slide.



Sample: Electricity Use/Sq Ft

KPBSD Elementary Schools, FY2009 YTD, Dec 2008



kWh/ft²



How UtilityDirect Can Help

- Organized data into useful format.
 - “Bill Entry” page organizes ALL the utility bills (usage and costs) for a school into one place.
 - One year of data on 1 page for each account.
 - Automatically provides the unit cost ... per invoice and per year.
 - Allowed me to easily extract data to make charts (for webpage) and spreadsheets to calculate incentive awards.
- Form Sub-Groupings (School Groupings Lists)
 - Allows you to generate reports comparing usage per sq ft for groups of schools (i.e., compare all high schools to each other).
- Weather Trends Reports allow you to quantify just how cold the winter really was!
 - Eliminates the old excuse, “But, it was colder this year!”



How UtilityDirect Can Help

- First place I go whenever there is any sort of question about a utility at any school.
 - Usage study a Susan B. English School.
 - Questions about a fuel oil vendor in Seward.
- **Better Organization of Utility Accounts.**
 - Better organization allows a better review of accounts.
 - Kenai Central High School Hockey Rink meter.
 - ARCS Television Translator station in Moose Pass.
- Myriad of reports to compare and contrast different facilities to each other and to themselves.



How To Contact Paul Brenner

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Mt Redoubt On a Nice Day



Mt Redoubt Last Week!

