School Energy Information

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RCM Support Services

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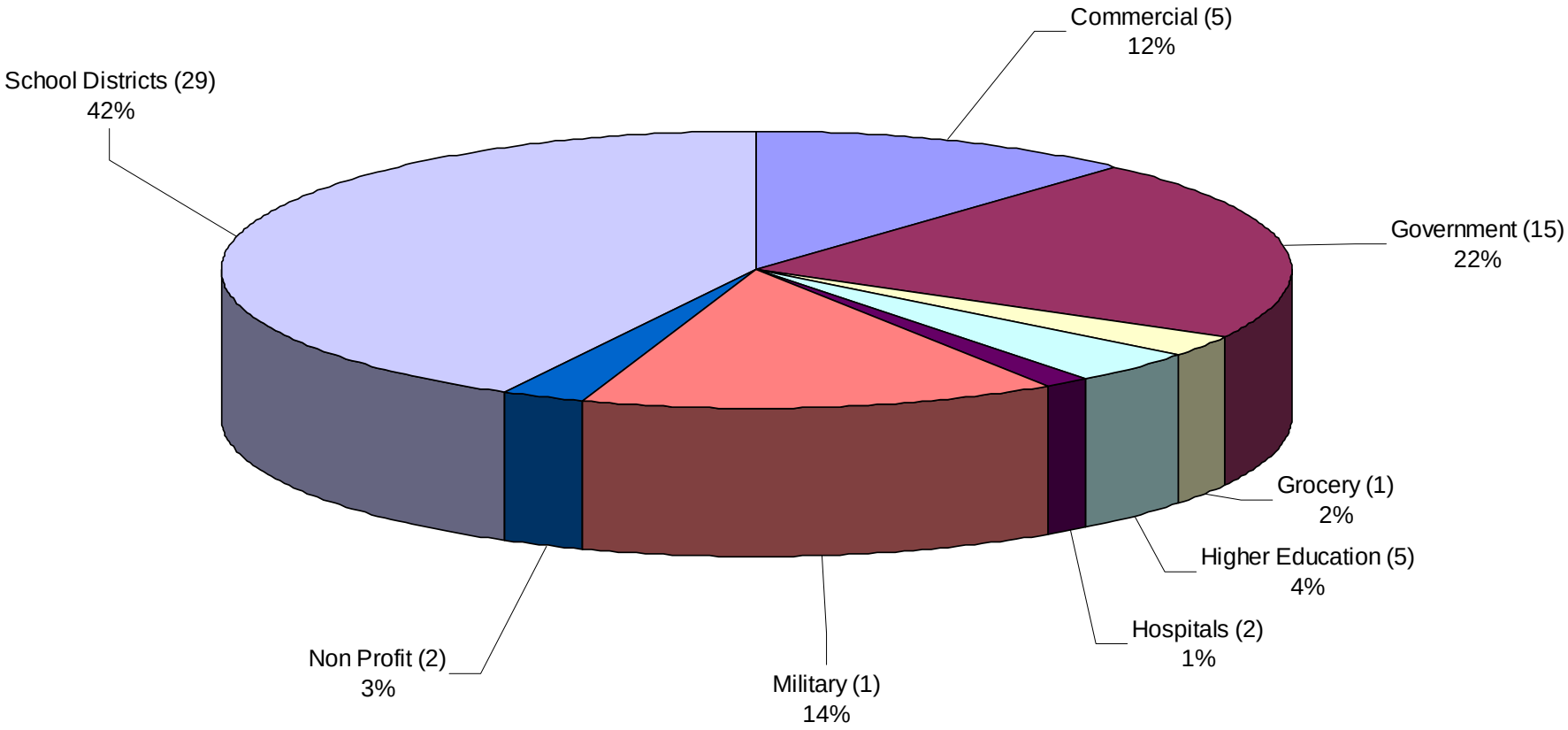
PUGET SOUND ENERGY

The Energy To Do Great Things

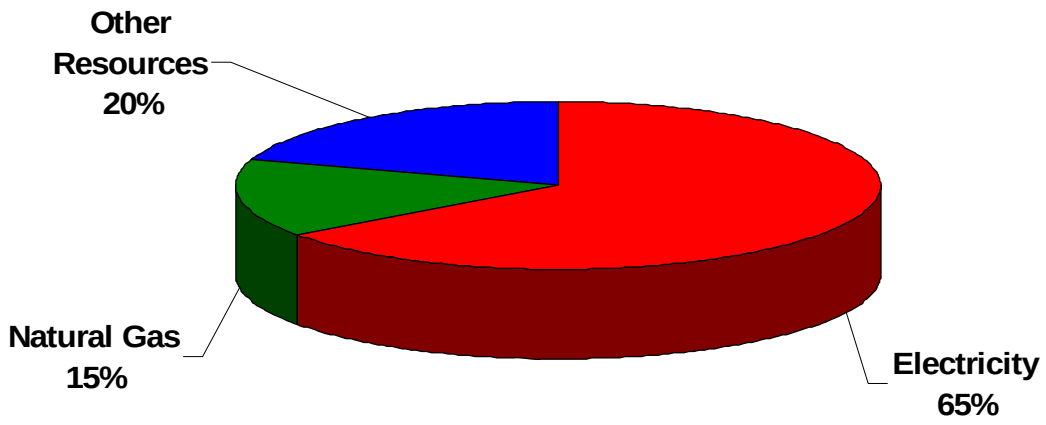
PSE RCM Program as of 2008

- 60 Customers; 120 million square feet



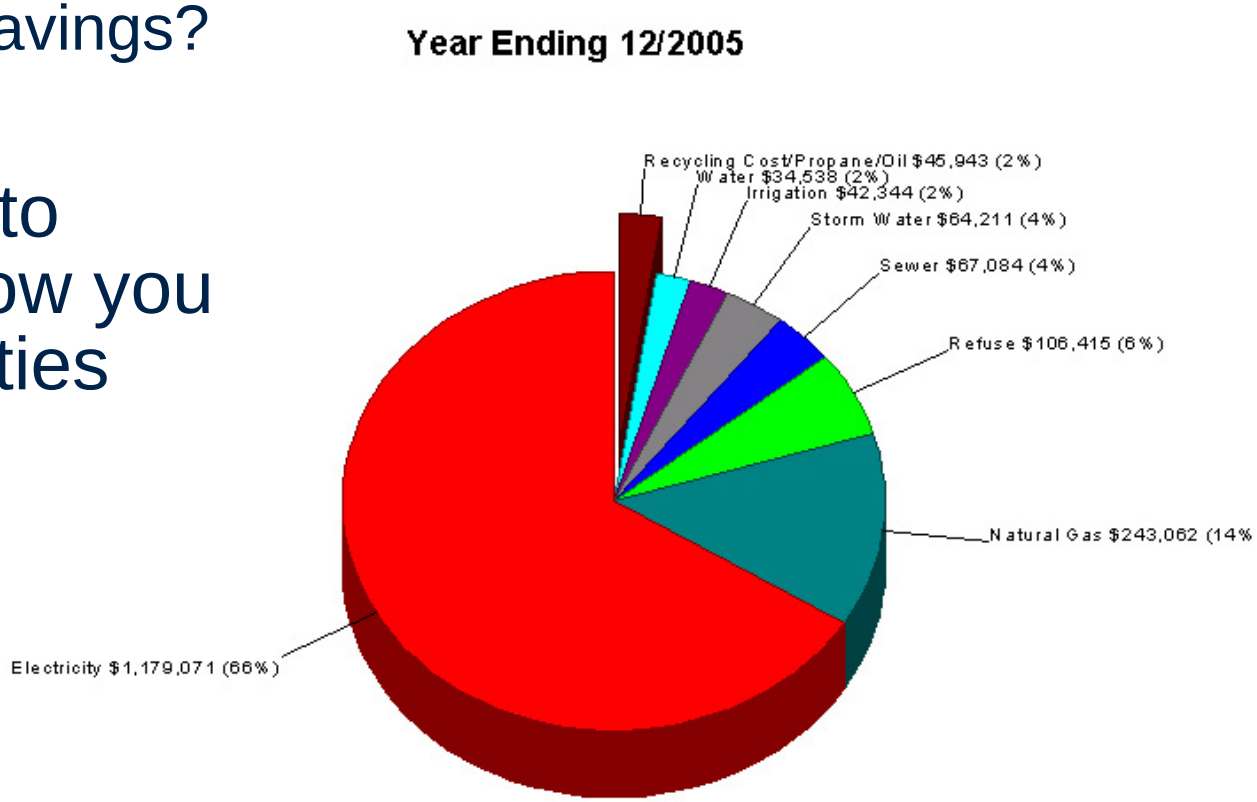
Typical Energy Costs

- Typical RCM customers spend $2 to $3 million per year
- Energy is about $1.00 /sq. ft.
- RCM program targets a 5% reduction per year
  - For a school district, a 5% reduction in total energy can be enough savings to power a whole school



Establishing Your Target

- Where would you focus to achieve the most?
  - Energy is typically the largest share of utility costs
  - Potential for savings?
- Important for management to understand how you set your priorities



Biggest Bang for Your Buck

- Energy is typically the largest share of utility budgets

- ENERGY = Power x Time
- Reduce energy consumption by:
  - Less Time
  - Lower Power

Energy Using Systems

- Heating System
  - Combustion Efficiency
  - Distribution System
  - Controls
  - Hours of Operation
  - Envelope
- Ventilation
  - Amount of Outside Air
  - Night & Warm-up Operation
  - Demand Controlled
  - Exhaust System Interaction
- Lighting
  - Operation Time
  - Lamp Efficiency
  - Light Levels
- Service Hot Water
  - Temperatures
  - Distribution System
- Pumps & Motors
  - Sizing
  - Energy Efficient
  - Maintenance

Typical School Energy-Use Breakdown

Energy Use in Schools	Range (%)	Norm (%)
HVAC	45-80	65
Lighting	10-20	15
Food Service	5-10	7
Hot Water	2-5	3
Special Functions	0-20	10

Recording Energy Information

- Start with 12 to 24 months of utility data
- Read dates - days in billing period
- Fuel consumption - kWh, therms, gallons
- Actual electric demand - kW
- Total fuel costs including service charges
- Convert all fuels to BTUs per month
- Calculate annual totals
- Calculate Energy Use Indices (EUI)

Spreadsheet Setup

Energy Accounting Form

Facility Name:

Facility Type:

Electric Utility: | Electric Meter # | Electric Rate Schedule:

Gas Utility: | Gas Meter # | Gas Rate Schedule:

Gross Square Footage:

YEAR:		ELECTRICITY						NATURAL GAS				TOTALS		ENERGY USE INDEX	
MONTH	# Days	ELECTRIC	ELECTRIC	ELECTRIC	ELECTRIC	ELECTRIC	LOAD FACTOR	GAS	GAS	GAS	GAS	(A)	(B)	(C)	(D)
	In Billing	USAGE	DEMAND	COST	UNIT COST	MMBTU	kWh / (kW x Days x 24)	USAGE	COST	UNIT COST	MMBTU	MMBTU	COST OF	EUI	COST
	Period	kWh	kW	$	kWh/$	kWh x .003413		THERMS	$	Therms/$	Therms x .10	CONSUMED	ENERGY	Btu/Sq.Ft.	$/Sq.Ft.
JAN															
FEB															
MAR															
APR															
MAY															
JUN															
JUL															
AUG															
SEP															
OCT															
NOV															
DEC															
Annual Totals															

Relate it to Your Business

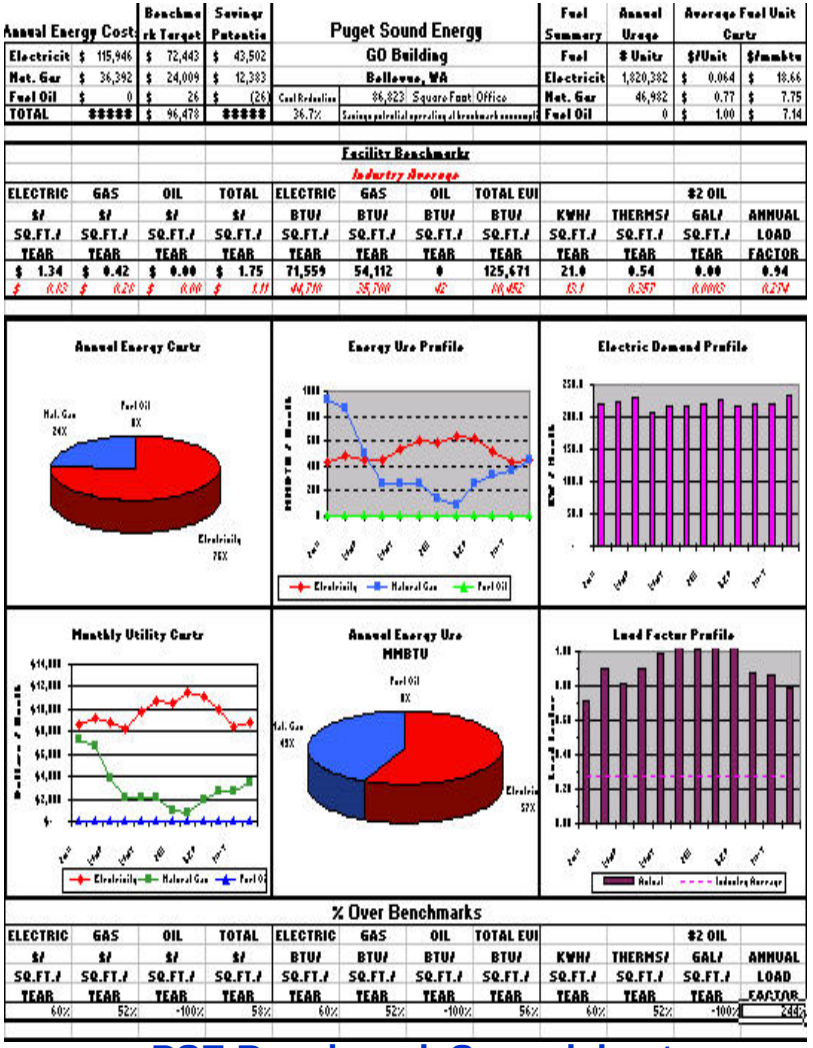
School Type	***non-labor allocation per student***	***average utility costs per student***
Elementary	$91	$129
Junior High	$102	$172
Senior High	$96	$210

Communicate Goal

	non-labor allocation per student	*average utility costs per student*	*10% savings per student*
Elementary	$91	$129	- $13
Junior High	$102	$172	- $17
Senior High	$96	$210	- $21
District Totals		$5,460,000	- $370,000

How Much Can We Save?

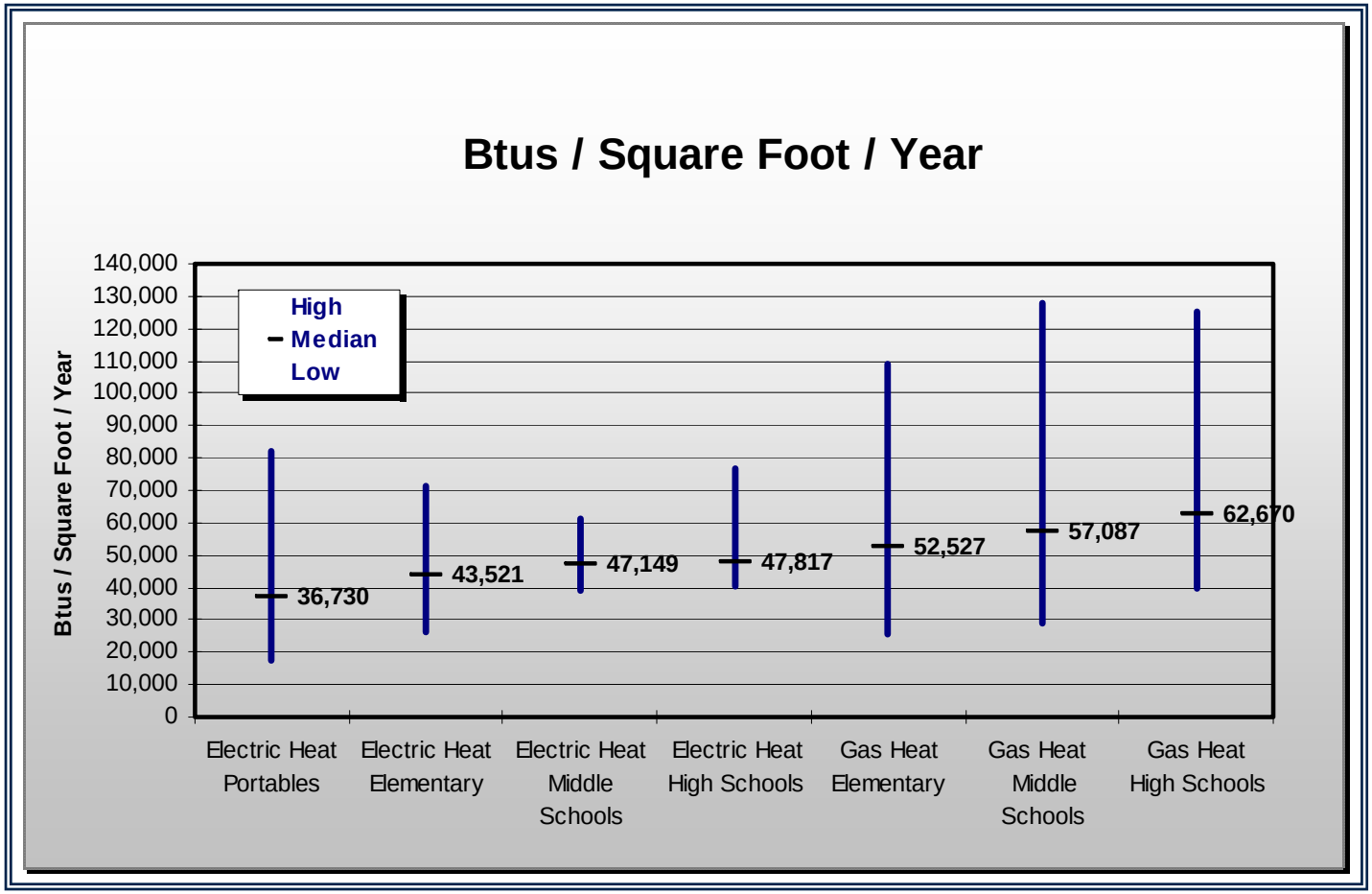
- Depends on your resource profile
- Benchmark your organization
- Compare this to the average benchmark for your organization type



PSE Benchmark Spreadsheet

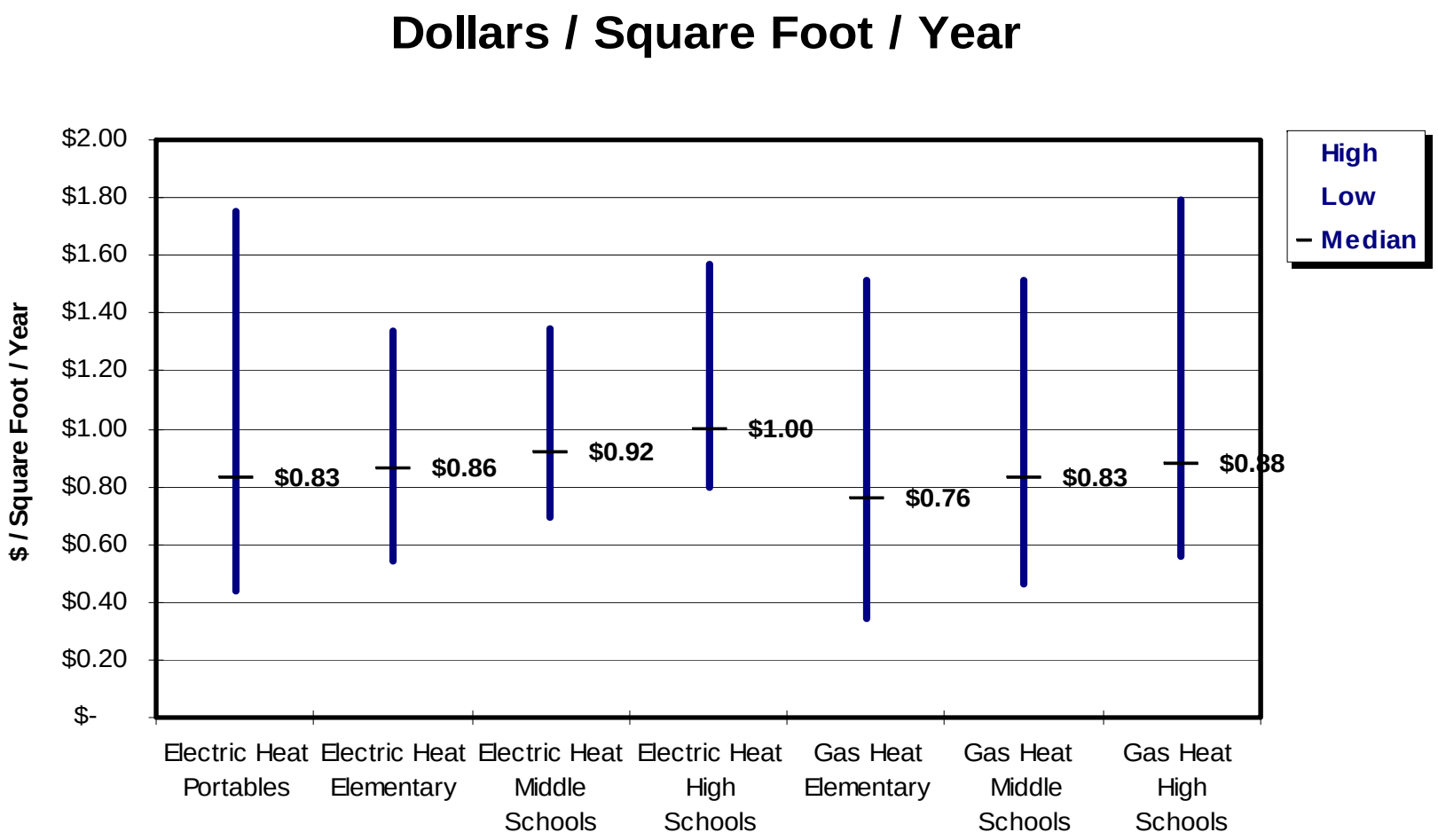
PSE Energy Use Index

- Schools in PSE service territory

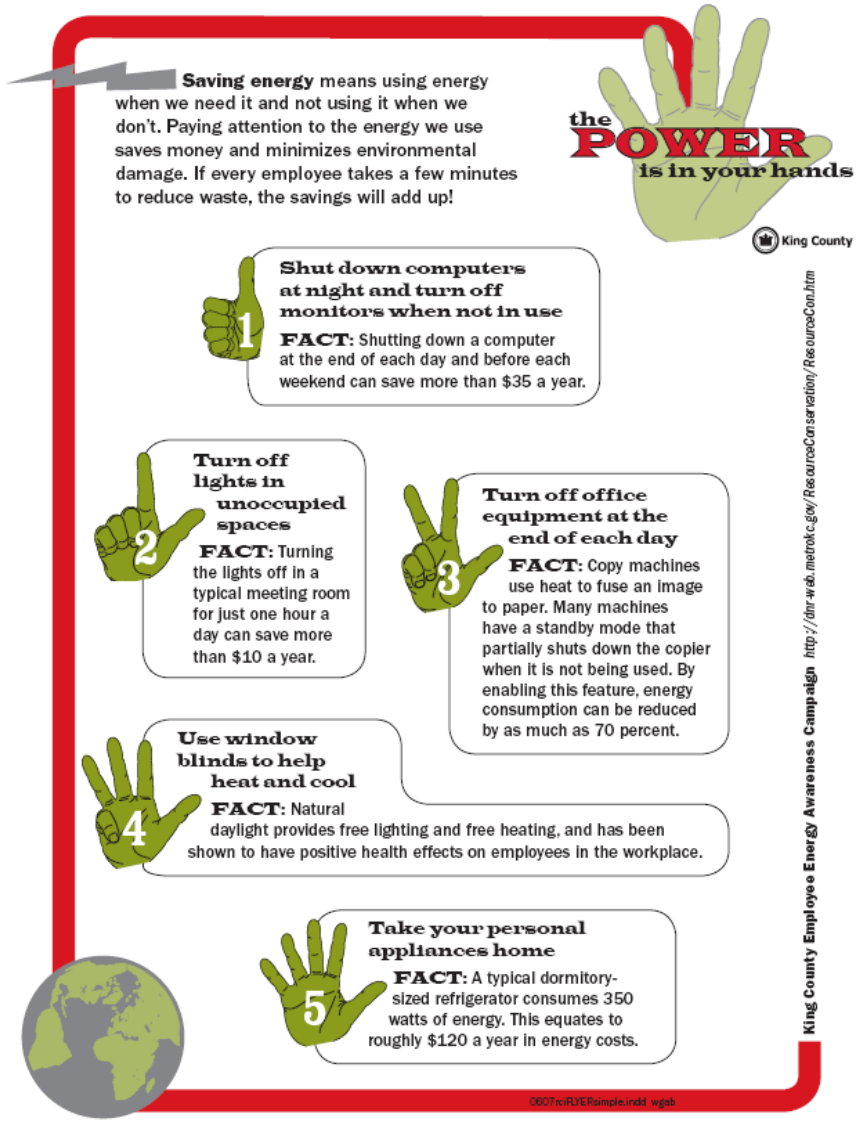


- 2003-2004
- 13 Districts
- 413 Schools

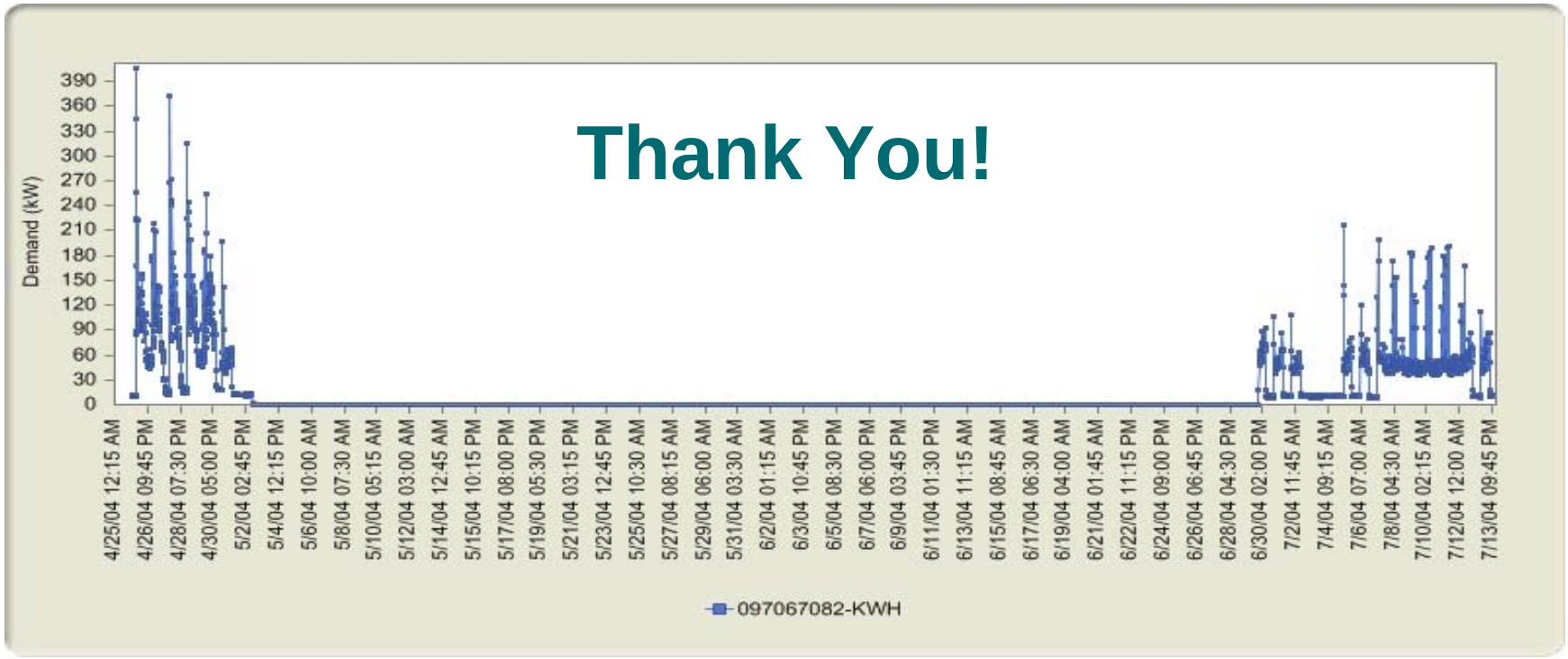
PSE School Cost Benchmarks



How to Save? Focus on Simple First



Thank You!



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