



South Carolina Energy Office Web Based Energy Accounting System



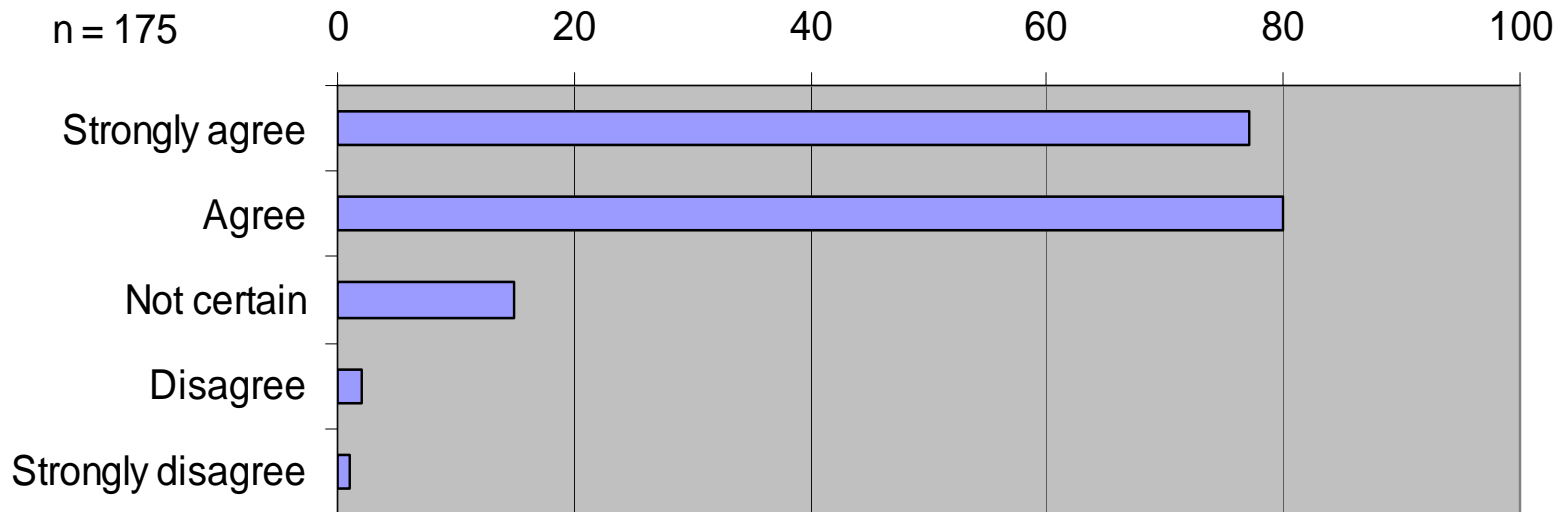
What We See Every Day in Schools . . .

- “We just pay the bills”
- “We don’t have the information to better manage this resource”
- “We don’t have a way to compare schools to each other”
- “The board is entertaining a proposal to outsource energy management that sounds too good to be true because the in house team isn’t doing anything about it”



Tools are Needed!

Most educational institutions can professionally manage their own utility costs and implement best practices for utility cost reductions IF they have the proper tools?





South Carolina Energy Office Background and History

- Energy Conservation and Efficiency ACT of 1992
 - Requires collection of data
 - Provide technical support to agencies
 - For school districts, colleges, state agencies
 - Requires annual energy report by agencies
 - Reports to the General Assembly
- SC SAVE\$ program was born



SC SAVE\$ - 1990s (Schools and Agencies Verify Energy Dollars)

- Wide scale rollout of *FASER* software and training to schools, colleges, and agencies.
- Approximately 50 participants of 158 total
- Provided common platform for participants to track and report
- Districts sent *FASER* database to state and/or manual report
- State compiled “rollup” report with great effort



FASER Evolution

- Dominant market leader in 1990s
- Product of Omnicomp Corporation, State College, PA
- Evolved from simple to complex
- Evolved from “facility manager tool” to “energy services company tool”
- Omnicomp purchased by Enron in 1996
- Enron collapsed – intellectual property rights of FASER sold to Bill Spears, American Energy Intelligence
- Good Steward Software supports and is discontinuing as of January 2005

FASER is a registered trademark of someone other than SchoolDude



Lessons Learned: PC Based Software

- Difficult to keep all on same “version”
- Difficult to rollup disparate datasets
- Smaller agencies had difficulty “maintaining” system
- “Unlock codes” caused problems with licensing



SCEO RFP May 2003

- “Web based energy accounting system” through State Information Office
- Goals
 - Tool for agency facility managers
 - Facilitate reporting to state
 - To enable SCEO to analyze and report on group in a global view
- 5 firms responded
- SchoolDude.com awarded contract



Results

- 61 agencies now online
 - Schools - 30
 - Colleges - 17
 - Agencies - 14
- Rollout and training late 2003
 - Converted est. 30 FASER datasets
 - Group training offered throughout state
 - Online individual startup training
- Expanded by 22% to 61 agencies now online



E2 welcomes School Dude



About SchoolDude

- Market Leader – Web Native Educational Facility Management Solutions
- Clients – Nearly 1,000
 - 46 states
 - Adding 1-2 daily
 - From smallest to largest
- Approximately 275 on UtilityDirect



Next Generation Web Native Tools for Educational Facilities



MAINTENANCE DIRECT
work order management



PM DIRECT
preventive maintenance scheduling



IT DIRECT
technology help desk management



INVENTORY DIRECT
inventory tracking and management



UTILITY DIRECT
utility tracking and analysis



FS DIRECT
facility usage scheduling



PLANNING DIRECT
capital planning and budgeting



My School Building

Future Applications



SchoolDude Milestones

- 23 state contracts – all since 2002
- Selected by South Carolina Energy Office – all state agencies
- Selected by State of Delaware Department of Ed– All school districts
- Selected by State of KY – Pilot
- Selected by State of AR – Pilot



Why Us?

- Web native
- Well positioned to market/sell this to agencies
 - Conferences
 - Schools and Colleges
- We can make it work for small agencies
- Other solutions that impact energy (facility usage, PM, capital planning)
- Support and service



Utility Tracking and Analysis Systems

Ideal Tool



Utility Tracking and Analysis Systems

- Identify billing errors
- Identify usage and cost problems
- Builds historic usage profiles
- Identifies savings opportunities
- Keeps analysis in the hands of the client; avoids “cost avoidance” and data manipulation
- No software, servers, or CDs!



Internet based Utility Tracking/Analysis

- Access from anywhere with just your browser
- Makes it easier to share with “read only” roles
 - School principals
 - Partners
- Nothing to update – always on latest “revision”
- Easy to rollup information in a group
 - SC, AR, KY
 - Aggregation groups



Web Native is the Future


- Arizona – Statewide Curriculum system
- Delaware – Statewide facility capital planning
- SC – Statewide energy information system
- Virginia – Statewide assessment system
- IBM - \$12B committed to “on demand computing initiative.
- Microsoft – .net – “software as a service”



Home Page


[Printable View](#)

Welcome Kent Hudson!
ABC Schools

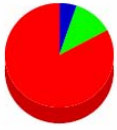


Learn More, Save More!
Ask the Utility Professor!

YTD Utility Summary	2002	2001	Favorite Reports
Electric	\$ 862,753.00	\$ 258,928.00	Building Cost Report
Natural Gas	\$ 126,155.00	\$ 8,670.00	Building Use per Square Foot
Water	\$ 55,334.00	\$ 0.00	Building Cost per Square Foot
			Global Building Use by Utility Type
			Global Building Cost by Utility Type


Change this graph 

2002 Cost by Utility Type



Fiscal Year 2002

2002 Cost per Sq. Ft.



Cost per Sq. Ft., \$


Bill Alerts

Delete	Audited	Date Found	Account	Util. Type	Building	Message
<input type="checkbox"/>	<input type="checkbox"/>	2003-08-08	0006	Electric	Office Six	July 2002 - PREV. MTH USE VAR. - PREV. more...
<input type="checkbox"/>	<input type="checkbox"/>	2003-08-08	0007	Electric	Office Seven	July 2002 - PREV. MTH USE VAR. - PREV. more...
<input type="checkbox"/>	<input type="checkbox"/>	2003-08-08	0003	Electric	Office Three	July 2002 - PREV. MTH BILLED KW VAR. - more...
<input type="checkbox"/>	<input type="checkbox"/>	2003-08-08	0002	Electric	Office Two	July 2002 - PREV. MTH USE VAR. - PREV. more...
<input type="checkbox"/>	<input type="checkbox"/>	2003-08-08	000AG	Natural Gas	Admin Building	July 2002 - PREV. MTH USE VAR. - PREV. more...

Delete Selected | [select all for delete](#) | Audit Selected | [select all for audit](#) | [See All Alerts](#)


[Printable View](#)

Welcome Kent Hudson!
ABC Schools

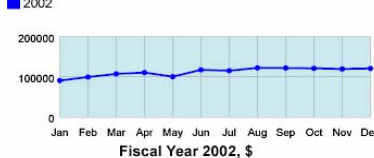


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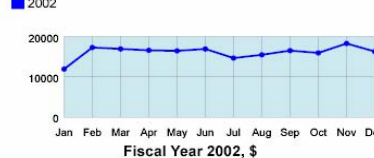
Change this graph 

2002 Electric Monthly Cost



Fiscal Year 2002, \$

2002 Natural Gas Monthly Cost



Fiscal Year 2002, \$

Bill Alerts

Delete	Audited	Date Found	Account	Util. Type	Building	Message
<input type="checkbox"/>	<input type="checkbox"/>	2003-08-08	0006	Electric	Office Six	July 2002 - PREV. MTH USE VAR. - PREV. more...
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<input type="checkbox"/>	<input type="checkbox"/>	2003-08-08	000AG	Natural Gas	Admin Building	July 2002 - PREV. MTH USE VAR. - PREV. more...

Delete Selected | [select all for delete](#) | Audit Selected | [select all for audit](#) | [See All Alerts](#)

Utility Direct saves you time and money by delivering your most valuable energy information to you as soon as you log in!



UTILITY DIRECT

Create Utility Budgets!



Available Budgets

2002 Budget 1
 2002 Budget 2

Edit Budget

Budget Title:

Base Account: 0001 Base Year: 2002

	Use		Cost	
	Actual	Budget	Actual	Budget
Jan	100000.000	5 %	105000.000	10000.00
Feb	110000.000	5 %	115500.000	9500.00
Mar	105000.000	5 %	110250.000	9800.00
Apr	120000.000	5 %	126000.000	12000.00
May	105000.000	5 %	110250.000	12450.00
Jun	104000.000	5 %	109200.000	14354.00
Jul	104333.000	5 %	109549.650	13432.00
Aug	104343.000	5 %	109560.150	12434.00
Sep	103433.000	5 %	108604.650	12432.00
Oct	154333.000	5 %	162049.650	16754.00
Nov	145654.000	5 %	152936.700	14545.00
Dec	156433.000	5 %	164254.650	14543.00
Total	1412529		1483155.45	152244

Tools

Preview Base Account: year:

Apply Base Percent of % to

Use

■ Actual ■ Budget

Cost

■ Actual ■ Budget

Prepare utility consumption and cost budgets and evaluate results!



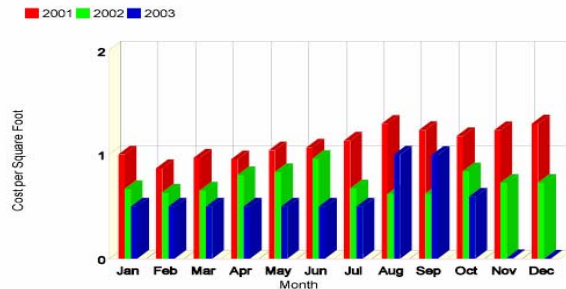
Run Powerful Reports!

ABC Schools

Cost per Square Foot

Years: 2001, 2002, 2003
 Account: 0001
 Error Variance: 45%

Error Checking Legend	
Use Error	Use and Cost Error
Cost Error	Demand Error



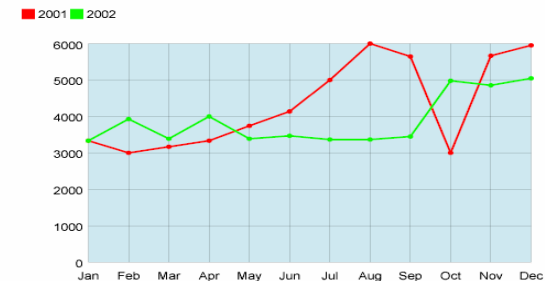
	2001			2002			2003		
	Cost	Area	Cost/Ft. ²	Cost	Area	Cost/Ft. ²	Cost	Area	Cost/Ft. ²
January	\$15,000.00	15000	\$1.00	\$10,000.00	15000	\$0.67	\$10,000.00	20000	\$0.50
February	\$13,000.00	15000	\$0.87	\$9,500.00	15000	\$0.63	\$10,000.00	20000	\$0.50
March	\$14,500.00	15000	\$0.97	\$9,800.00	15000	\$0.65	\$10,000.00	20000	\$0.50
April	\$14,300.00	15000	\$0.95	\$12,000.00	15000	\$0.80	\$10,000.00	20000	\$0.50
May	\$15,600.00	15000	\$1.04	\$12,450.00	15000	\$0.83	\$10,000.00	20000	\$0.50
June	\$16,000.00	15000	\$1.07	\$14,354.00	15000	\$0.96	\$10,000.00	20000	\$0.50
July	\$17,000.00	15000	\$1.13	\$13,432.00	20000	\$0.67	\$10,000.00	20000	\$0.50
August	\$19,400.00	15000	\$1.29	\$12,434.00	20000	\$0.62	\$19,999.00	20000	\$1.00
September	\$18,506.00	15000	\$1.23	\$12,432.00	20000	\$0.62	\$19,900.00	20000	\$0.99
October	\$17,650.00	15000	\$1.18	\$16,754.00	20000	\$0.84	\$11,911.00	20000	\$0.60
November	\$18,504.00	15000	\$1.23	\$14,545.00	20000	\$0.73	\$100.00	20000	\$0.01
December	\$19,434.00	15000	\$1.30	\$14,543.00	20000	\$0.73	- No Data -		
Average	\$16,574.50	\$1.10	\$12,687.00	\$0.73	\$10,159.17	\$0.51			

ABC Schools

Use per Day

Years: 2001, 2002
 Account: 0001
 Error Variance: 20%

Error Checking Legend	
Use Error	Use and Cost Error
Cost Error	Demand Error



	2001			2002		
	Use	Days	Use/Day	Use	Days	Use/Day
January	100000 KWH	30	3,333.33333	100000 KWH	30	3,333.33333
February	90000 KWH	30	3,000.00000	110000 KWH	28	3,928.57143
March	95000 KWH	30	3,166.66667	105000 KWH	31	3,387.09677
April	100000 KWH	30	3,333.33333	120000 KWH	30	4,000.00000
May	116000 KWH	31	3,741.93548	105000 KWH	31	3,387.09677
June	120000 KWH	29	4,137.93103	104000 KWH	30	3,466.66667
July	160000 KWH	32	5,000.00000	104333 KWH	31	3,365.58065
August	180000 KWH	30	6,000.00000	104343 KWH	31	3,365.90323
September	175000 KWH	31	5,645.16129	103433 KWH	30	3,447.76667
October	180000 KWH	60	3,000.00000	154333 KWH	31	4,978.48387
November	175645 KWH	31	5,665.96774	145654 KWH	30	4,855.13333
December	184500 KWH	31	5,951.61290	156433 KWH	31	5,046.22581
Average	139,678.75000 KWH		4,331.32848	117,710.75000 KWH		3,880.15488

View & Print Powerful Account, Building, & Global Consumption, Cost, & Analysis Reports

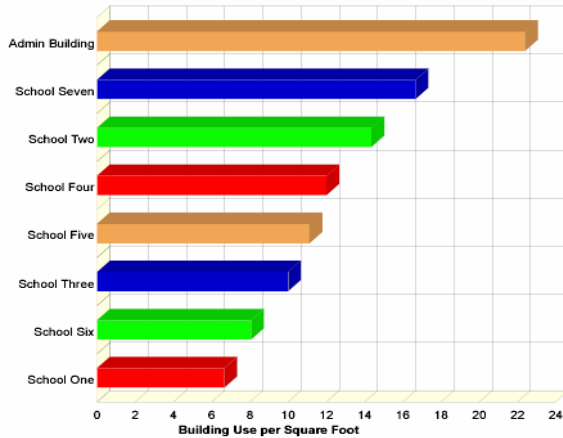


Compare Schools!

ABC Schools

Building Use per Square Foot

Date: Jan 2002
All Buildings



Building	Use	Area	
Admin Building	224,000.00000 KWH	10000	
School Seven	400,000.00000 KWH	24000	
School Two	143,543.00000 KWH	10000	
School Four	120,000.00000 KWH	10000	12.00000
School Five	200,000.00000 KWH	18000	11.11111
School Three	100,000.00000 KWH	10000	10.00000
School Six	100,000.00000 KWH	12398	8.06582
School One	100,000.00000 KWH	15000	6.66667

Energy Efficiency Report

Years: 2002
All Months
All Building Types
All Buildings

	2002	
	Area	KBTU/Sq. Ft.
Admin Building	10000 ft²	2,662.97134
School Seven	24000 ft²	932.61332
School Two	10000 ft²	625.89932
School Three	10000 ft²	584.65540
School Four	10000 ft²	515.91452
School Five	18000 ft²	461.71316
School Six	12398 ft²	455.00359
School One	15000 ft²	395.67606

Measure conservation programs by comparing schools on a use, cost, btu/sq. ft basis!



UtilityDirect Business Case

- AS&U 2004 Cost Study:
\$162/student – Gas, Electric
- 3000 Student District: **\$486,000**
- Save 5%: **\$24,300/year**
- Cost: **\$1, 495/year** (less than
0.3% of utility bills)
- Payback: < 1 month
- ROI: 1900%



UTILITY
DIRECT Global

- Multi-organization view
- Rolls up information
- Aggregated use and cost reports
- Enables drill down on information
- Helps you avoid data entry
- All accessible from your nearest web browser!



**SCHOOL
DUDE
.com**



Save Money * Maintain More * Look Good



Online utility tracking and analysis

[Printable View](#)

Welcome Julia Paris! SC Energy Office

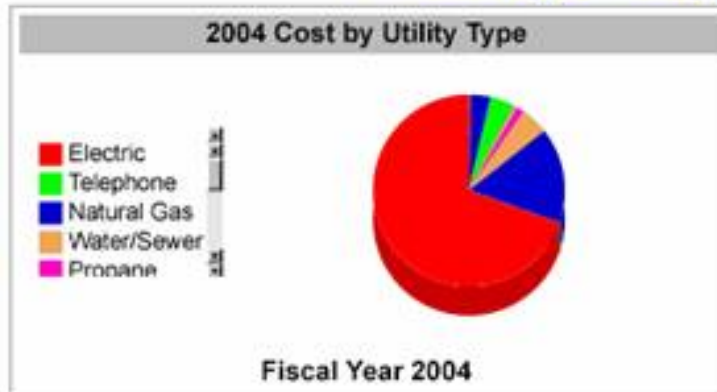
Fiscal YTD Utility Summary	2004	2003
Electric	\$ 20,534,882.37	\$ 16,235,481.31
Natural Gas	\$ 2,485,611.60	\$ 1,589,155.42
Water/Sewer	\$ 1,247,003.16	\$ 524,335.40
Propane	\$ 202,316.55	\$ 113,200.39
Fuel Oil	\$ 41,354.89	\$ 43,976.06
Trash / Waste	\$ 15,663.42	\$ 12,079.11
Other Utility -2	\$ 17,295.99	\$ 0.00
Lighting	\$ 50,112.80	\$ 23,922.09
Sewer	\$ 1,125,614.80	\$ 1,205,160.80
Water	\$ 880,588.06	\$ 838,596.94
Cogen-Thermal	\$ 6,766.27	\$ 0.00
Chilled Water	\$ 85,836.14	\$ 109,122.00
Irrigation	\$ 18,268.96	\$ 12,515.29
Totals:	\$ 26,711,315.00	\$ 20,707,544.81

Favorite Reports

[Global Building Cost by Utility Type \[GR04\]](#)

Change this graph | change year

Change this graph | change year





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Save Money * Maintain More * Look Good



Online utility tracking and analysis

[\(Printable View\)](#)

Organization List

Edit Organizations:

Organization Name	Status
School District of Oconee County	(active)
Lancaster County School District	(active)
Lexington 5 OLD	(active)
Rock Hill Schools	(active)
Greenwood School District 52	(active)
ETV	(active)
SC Department of Public Safety	(active)
Beaufort County School District	(active)
Chesterfield Co Schools	(active)
Piedmont Technical College	(active)
Tri-County Tech	(active)
USC - Spartanburg	(active)
Abbeville County School District	(active)
Hampton School District 2	(active)
Greenville County Schools	(active)
York Technical College	(active)
Spartanburg SD #7	(active)
Department of Transportation One	(active)
Calhoun County Public Schools	(active)
Williamsburg Schools	(active)
Spartanburg 6	(active)
USC Aiken	(active)
SC General Services	(active)
Department of Mental Health	(active)
Florence School District 1	(active)
Marion School District 1	(active)
Florence School District #3	(active)
Jasper County SD	(active)
Dillon School District	(active)
Francis Marion University	(active)
Lexington School District 2	(active)
Berkeley School District	(active)
Chester County School District	(active)
Spartanburg District 2 Schools	(active)
Spartanburg Technical College	(active)
Employment Security Commission	(active)
USC Sumter	(active)
SC Seagrant Consortium	(active)

Edit Information for SC Energy Office

Organization Name:

Status:

Fiscal Year Start Month:

Fiscal Year:

2003

Started in Calendar Year:

Favorite Report Links

Link #1:

Link #2:

Link #3:

Link #4:

Link #5:

Contact

[delete this address](#)

Address Title:

Phone:

Fax:

Email:

Other:

Street:

City:

State:

Zip/Postal:

Country:

* Required Field

Billing

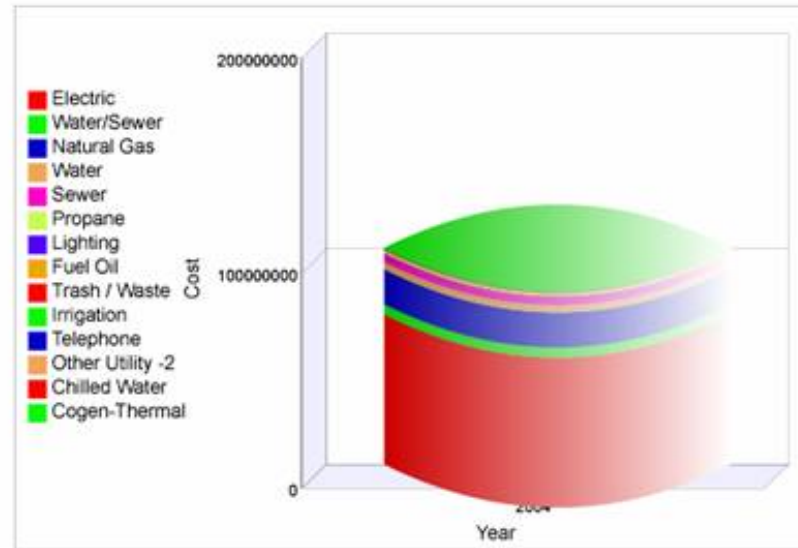
[delete this address](#)

Address Title:



Yearly Utility Cost Graph [GR10]

Years: 2004
 All Months
 All Building Types
 All Utility Types



Utility Type	2004	Total
Electric	\$69,672,097.00	\$69,672,097.00
Natural Gas	\$16,221,973.62	\$16,221,973.62
Water/Sewer	\$4,708,279.03	\$4,708,279.03
Sewer	\$4,149,945.46	\$4,149,945.46
Water	\$3,407,367.35	\$3,407,367.35
Propane	\$1,369,366.36	\$1,369,366.36
Fuel Oil	\$287,079.96	\$287,079.96
Chilled Water	\$199,358.37	\$199,358.37
Lighting	\$161,889.49	\$161,889.49
Irrigation	\$57,776.78	\$57,776.78
Trash / Waste	\$54,617.62	\$54,617.62
Cogen-Thermal	\$27,137.12	\$27,137.12
Other Utility -2	\$18,357.99	\$18,357.99
Telephone	\$871.13	\$871.13
Total	\$100,336,117.27	\$100,336,117.27



SC Energy Office

Global Cost per Square Foot [GR01]

Months: July
 Years: All
 Min. Cost/Ft.²: 0
 All Building Types
 All Utility Types

Building name	Cost	Prorated Area	Cost/Foot ²
montessori elementary school	\$3,206.10	1,896 ft. ²	\$1.69098 ft. ²
ROSEWOOD ELEMENTARY	\$80,514.57	48,578 ft. ²	\$1.39010 ft. ²
SUNSET PARK ELEMENTARY	\$74,502.19	52,934 ft. ²	\$1.27404 ft. ²
BELLEVUE ELEMENTARY	\$56,941.54	40,364 ft. ²	\$1.24065 ft. ²
EBINPORT ELEMENTARY	\$57,920.99	44,169 ft. ²	\$1.12514 ft. ²
MT. GALLANT ELEMENTARY	\$61,574.36	55,531 ft. ²	\$1.00723 ft. ²
NORTHSIDE ELEMENTARY	\$50,330.08	45,484 ft. ²	\$0.99099 ft. ²
Mossy Oaks Elementary School	\$47,946.31	50,325 ft. ²	\$0.95273 ft. ²
FINLEY ROAD ELEMENTARY	\$57,418.64	56,083 ft. ²	\$0.89672 ft. ²
EBENEZER ELEMENTARY	\$44,959.13	43,534 ft. ²	\$0.88000 ft. ²
STEWART HEIGHTS ELEMENTARY SCHOOL	\$27,119.64	26,148 ft. ²	\$0.87071 ft. ²
RICHMOND DRIVE ELEMENTARY	\$65,001.77	65,418 ft. ²	\$0.85887 ft. ²
SYLVIA CIRCLE ELEMENTARY	\$47,937.65	47,677 ft. ²	\$0.85669 ft. ²
YORK ROAD ELEMENTARY	\$61,628.33	63,496 ft. ²	\$0.85015 ft. ²
SOUTH ELEMENTARY SCHOOL	\$18,228.87	19,539 ft. ²	\$0.78735 ft. ²
GORDON ELEMENTARY SCHOOL	\$57,190.97	68,380 ft. ²	\$0.76077 ft. ²
LESTER ELEMENTARY SCHOOL	\$52,756.45	63,099 ft. ²	\$0.75128 ft. ²
Men-Riv Elementary	\$6,959.85	9,408 ft. ²	\$0.73978 ft. ²
395MAIN SIMP ES MAIN	\$14,540.36	19,749 ft. ²	\$0.73626 ft. ²
MCLAURIN ELEMENTARY SCHOOL	\$63,133.22	75,938 ft. ²	\$0.72505 ft. ²
DEWEY L. CARTER ELEMENTARY SCHOOL	\$53,163.68	68,034 ft. ²	\$0.68903 ft. ²
PLEASANT GROVE ELEMENTARY SCHOOL	\$5,980.14	7,433 ft. ²	\$0.67858 ft. ²
ROYALL ELEMENTARY SCHOOL	\$32,032.28	45,329 ft. ²	\$0.63828 ft. ²
DIAMOND HILL ELEMENTARY SCHOOL	\$28,148.07	44,507 ft. ²	\$0.63244 ft. ²
LESSLIE ELEMENTARY	\$38,849.60	55,176 ft. ²	\$0.61596 ft. ²
DELMAE ELEMENTARY SCHOOL	\$28,311.50	41,564 ft. ²	\$0.60801 ft. ²



SCEO's State Report

***Energy Use in
South Carolina's
Public Facilities
Fiscal Year 2003***

Twelfth Annual Report

A Report to the
South Carolina General Assembly
prepared by the
South Carolina Energy Office
Division of Insurance and Grants Services
State Budget and Control Board



[Click to Open](#)



Results

- Harness competitive spirit
 - Careers have been made
 - No one likes to be last or “below average”
 - Gets discussion going
- Best practice – incentive bonus shared with schools or building managers



Case for State Standards

- Enables rollup of information
- Leveraged purchasing
- Group rollout
- Promotes benchmarking
- Positions for better supply side negotiations



More Information

- www.schooldude.com
- Online seminars – each Thursday, 11am ET
- Mitch Perkins – SCEO
 - <http://www.state.sc.us/energy/>
- lee@schooldude.com
- National Educational Energy Management Survey (n=256)



Appendix



National Utility Tracking Survey

- 256 Educational Institutions in US, Canada, Australia
- Conducted in September 2002

[\(Click to Download Full Survey\)](#)



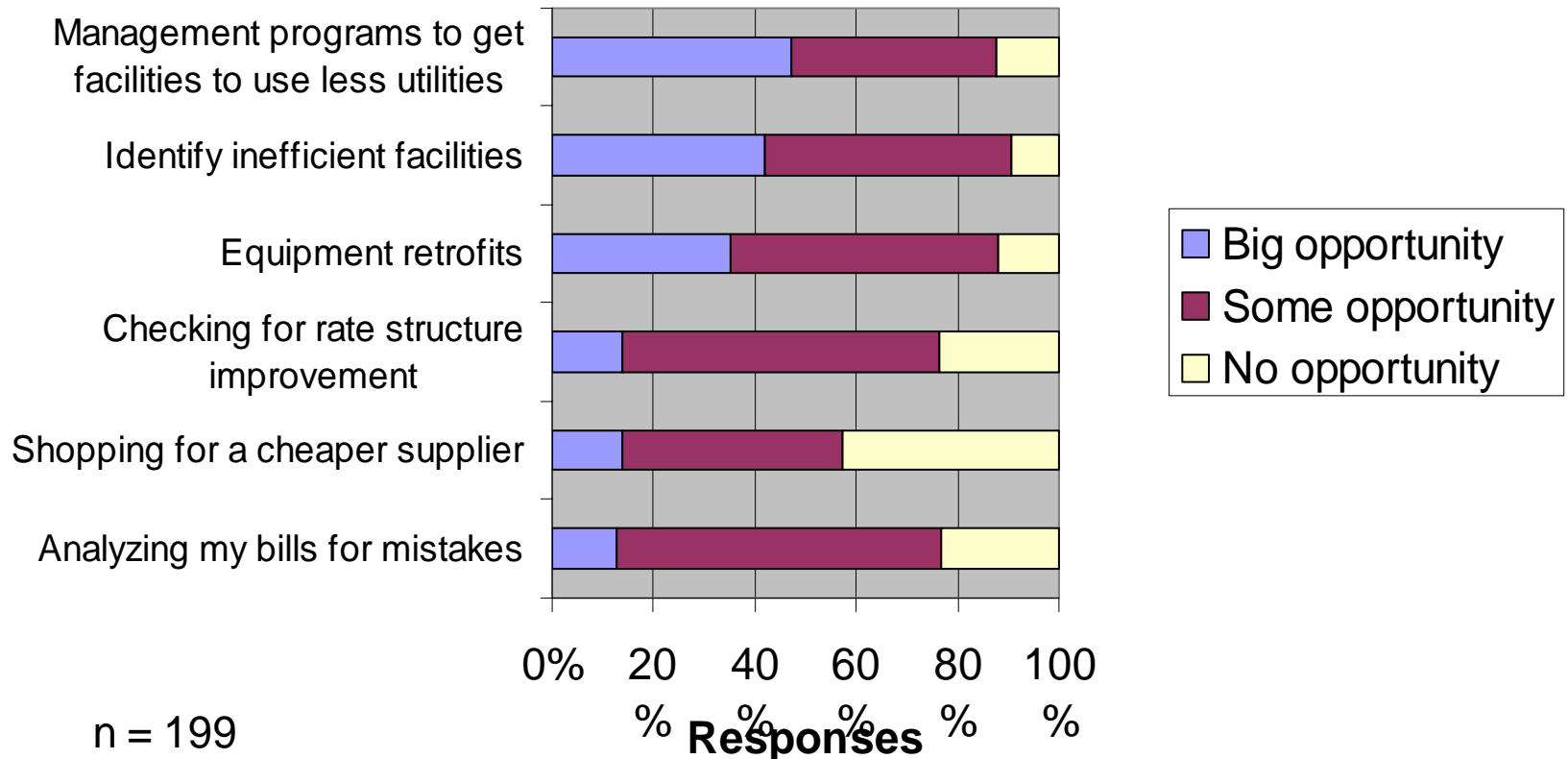
National Utility Management Survey

- Only 1/3 say they have the tools needed to manage without third party
- Limited help from State Energy Office
- 90% believe they can effectively manage utility cost IF they have the right analysis tool



Lots of Opportunity . . .

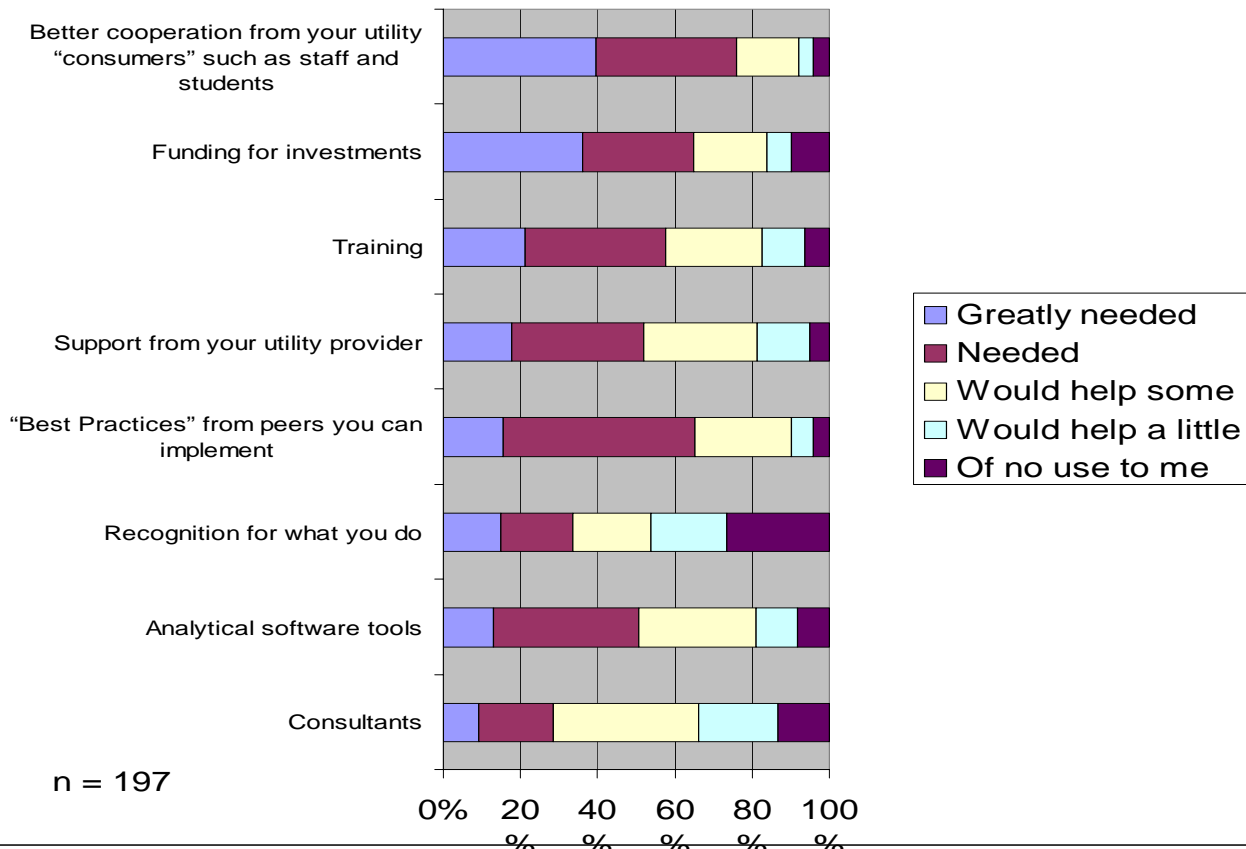
What are your biggest opportunities for energy/utility management?





Support from Administration

As a manager involved for the utility costs/use of your organization what support do you need from your Administration to allow you to do your absolute best job in utility management?

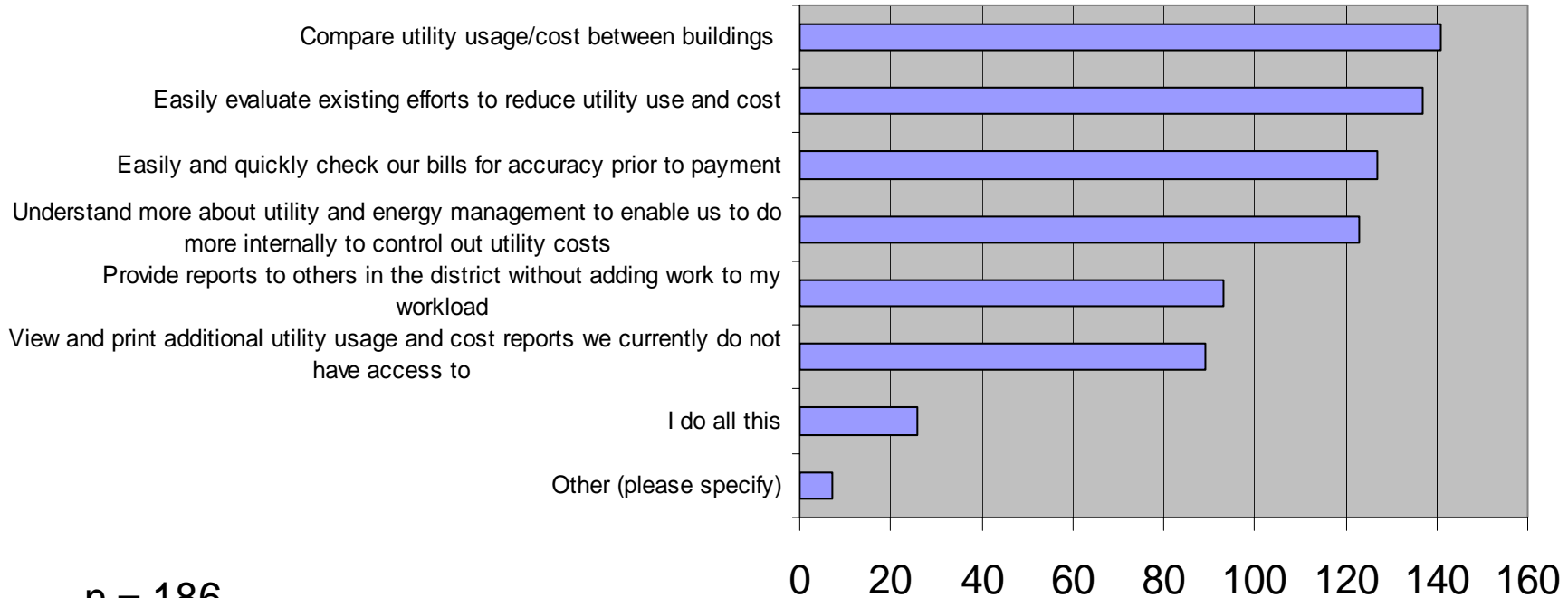




**SCHOOL
DUDE**

Wouldn't it be nice . . .

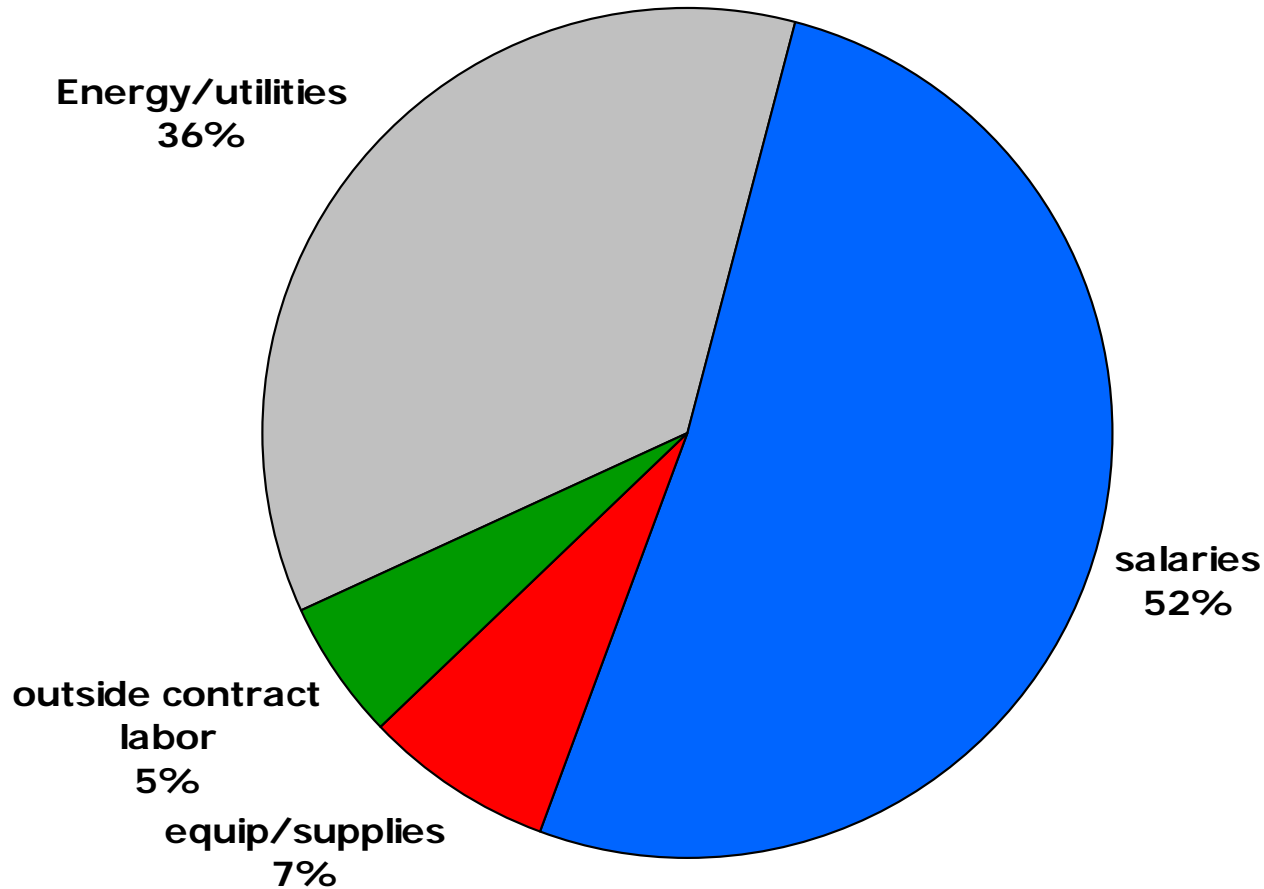
I/we would find it valuable to be able to do the following:



n = 186



M&O Budget Breakdown



AS&U M&O Cost Study – April 2003



Utility Management in Schools

- 61% of public school districts experienced an energy budget shortfall in 2001 (\$25/student)*
- Districts report that they wish they had better information
 - Supply side negotiating
 - Demand side management

** National Center for Education Statistics*



Problems or Opportunities?

- Use “energy savings” as a platform to get support from board/staff
- Take savings and redirect:
 - Preventive Maintenance (which saves more)
 - Technology/Tools
 - To encourage staff and board



US Dept of Energy

"A typical school district can save 10%-15% by changes in behavior or by increased awareness"

Hint: 10% Savings ~ \$15/student/year

Eg: 5,000 Students -- \$75,000 per year savings