Organizational Behavior Science Drives Energy Conservation in Education

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Cenergistic®
Outline

• Cenergistic Research

• Energy Use & Importance of Conservation in Education

• Summary
  – What Can You Do?
  – Texas Top Performers
  – An Integrated Energy Management Program
  – Benefits of a Cenergistic Program

• Questions & Answers
Cenergistic Research Background

- A process specializing in creating energy conservation culture through proven organizational behavior changes
  - Non-Capital approach

- 27 years of organizational behavior data
  - More than 1,300 organizations
  - More than 20,000 commercial buildings
  - 48 states

- Focusing on all utilities (electric, gas, fuel oil, propane, water, etc.)

- The average is a 26% reduction in consumption across all organizations

- Texas
  - Data from more than 94MM square feet of commercial space in Texas
  - More than $206MM in utility costs saved in Texas
Cenergistic and ENERGY STAR

Cenergistic’s 1,300+ clients have collectively received more than 5,265 ENERGY STAR® recognitions for school districts, higher education, church and health care.
Energy Use & Importance of Conservation in Education
According to U.S. Energy Information Administration and ENERGY STAR®,

- In 2011, 97 quadrillion BTUs of energy were consumed in the U.S.
- Commercial buildings use 19% of that energy consumption nationally
- 30% of energy in buildings is used inefficiently or unnecessarily
- Just a 10% improvement in energy efficiency = $20 billion savings
- The reduced greenhouse gasses from this is equivalent to the emissions from 30 million vehicles

According to McKinsey Consulting:

- Overall, the United States of America has the potential to reduce energy demand by 23% by focusing on efficiency.

- **Schools and commercial buildings can produce most of their energy savings through behavioral and low cost energy efficiency items.**

- Energy is the second-largest expense line item for schools & higher education.

- Changing habits is not easy so you have to be deliberate:
  - Prioritize where to focus your efforts
  - Utilize a structured process to reinforce

Sources: http://www.mckinsey.com/client_service/electric_power_and_natural_gas/latest_thinking/unlocking_energy_efficiency_in_the_us_economy
“Energy Conservation is largely based on behavioral practices to use energy in a more efficient manner...it is essential to have the cooperation of all people involved with the organization or enterprise for energy conservation to be successful.”

Dr. Dennis Buffington, P.E.

1985-Present: Pennsylvania State University

1976-1985: University of Florida

Source: http://live.psu.edu/story/45311
Energy Cost Savings Options

by Dr. Wayne C. Turner, Ph.D., CEM
Importance of Saving Energy

• Sustainability and protecting the environment
  – Improved student performance
  – Faculty/staff retention
  – Reduced insurance and risk related cost
  – Fewer respiratory illnesses resulting in improved educational quality

• Conserve natural resources

• Energy is the 2nd largest expense line item for most organizations
  – Utility prices will increase … driven by environmental regulation, smart meters, time of use pricing, etc.

• Save Money!!
  – Why send a big check to the utility every month when 20%-30% of that could be retained in your organization for educational purposes
  – Money generated through utility budget savings could be redirected towards the purchase of more efficient equipment.....
Behavior Drives the Equipment

• Buildings don’t use energy, people do.

• Regardless of the complexity of controls and efficiency of equipment installed, behavior drives energy use.
  – Management by telephone……

• A conservation ethic results in changes to equipment (i.e. HVAC)
  – The culture to conserve
  – The culture to improve
  – EMS Example: block scheduling versus active management of ‘time of day’ schedules

• Lighting and plug loads are significantly impacted by behavior
Importance of Saving Energy - PR

- Public relations impacts of energy conservation
  - Nationwide, Cenergistic clients realize 250 – 300 positive stories annually
  - Demonstrates good stewardship of taxpayer dollars and the environment
  - Provides an opportunity for national recognition
What can you do?

• Evaluate a behavioral approach to energy conservation

• Gather information and explore savings opportunities

• Lead your organization to achieve positive outcomes:
  – Create a conservation ethic
  – Positively impact the environment
  – Keep financial resources in your organization
  – Receive ENERGY STAR recognition
  – Receive positive media coverage

• Every day that passes is a missed opportunity
Top Texas Clients

Total State Savings:
$249,424,254

70+ Clients
(see list on next page)

<table>
<thead>
<tr>
<th>CLIENT</th>
<th>PERFORMANCE MONTHS</th>
<th>AMOUNT SAVED</th>
<th>PERCENT SAVED</th>
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<tbody>
<tr>
<td>Canton ISD</td>
<td>45 months</td>
<td>$1,857,108</td>
<td>43%</td>
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<tr>
<td>Prestonwood Baptist Church</td>
<td>81 months</td>
<td>$7,566,828</td>
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<td>Montgomery ISD</td>
<td>146 months</td>
<td>$11,223,436</td>
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<td>Waller Independent School District</td>
<td>39 months</td>
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<td>Dallas First Baptist Church</td>
<td>67 months</td>
<td>$3,172,625</td>
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<td>Lakewood Church</td>
<td>55 months</td>
<td>$3,090,954</td>
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<tr>
<td>Van ISD</td>
<td>85 months</td>
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<td>Abilene Independent School District</td>
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<td>Friendswood ISD</td>
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<td>$1,062,431</td>
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<td>Commerce Independent School District</td>
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<td>26%</td>
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</table>

Top clients determined by a number of factors. Percentages reflect each program’s overall average performance. Savings dollars represent program-to-date results.
Texas Clients

Clients include: (in order of commencement)

Denison ISD  Canton ISD  Midlothian ISD
Burkburnett ISD  Royse City ISD  Dickinson ISD
Monahans-Wicket-Pyote ISD  Dallas First Baptist Church  Willis ISD
Nacogdoches ISD  Pharr-San Juan-Alamo ISD  Duncanville ISD
Fort Worth ISD  Cooper Aerobics Center  Abilene ISD
Montgomery ISD  Little Elm ISD  Presbyterian Communities & Services
Brownwood ISD  Lakewood Church  Little Cypress-Mauriceville CISD
White Settlement ISD  Ferris ISD  Cooper Aerobics Center
Leander ISD  Mount Pleasant ISD  Trinity Valley Community College
Dumas ISD  Trinity Valley Community College  Commerce ISD
Taylor ISD  Commerce ISD  Bowie ISD
Sinton ISD  Bowie ISD  Athens ISD
Fredericksburg ISD  Athens ISD  Mansfield ISD
Brownboro ISD  Crandall ISD  Dayton ISD
Calhoun County ISD  Cleburne ISD  Floresville ISD
Hidalgo ISD  Waller ISD  Dripping Springs ISD
Terrell ISD  Trinity Christian Academy  College of the Mainland
Beeville ISD  Graham ISD  Lubbock ISD
Van ISD  New Caney ISD  Brazosport ISD
Huntsville ISD  DeSoto ISD  Hutto ISD
Prestonwood Baptist Church  Splendora ISD  East Central ISD
Azle ISD  Hallsville ISD  Garland ISD
Eagle Mountain-Saginaw ISD  Friendswood ISD  Keller ISD
Marshall ISD  Hudson ISD  Abilene Christian University
• 20% – 30% decrease in utility costs
• Sustainable savings
• Proven process changes your energy culture
• Budget neutral, no financial risk
• Preserves classroom comfort
• Dedicated on-site Energy Specialists
• 40+ highly-experienced engineers/energy experts
• No new equipment, no debt to incur
• Fee-free start-up period generates quick savings
• Savings preserves personnel and programs
• Best in class energy accounting software
• Patented technology helps you manage complex systems
Questions