

ALABAMA ASSOCIATION of SCHOOL BUSINESS OFFICIALS (AASBO)

School Energy Management Overview

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DISCUSSION

- Know your buildings
- Identify opportunities for energy saving measures
- Evaluate impacts of energy saving measures

KNOW YOUR BUILDINGS



Know Your Buildings – Your Facilities Manager

- Age
- Type (High School, Middle School, Elementary School)
- Rate
- Operating Hours
- Maintenance Schedules
- Existing Lighting Systems
- Existing HVAC Systems
- Existing Cooking Equipment
- Existing Refrigeration
- Existing Water Heating Systems
- Weather & Building Orientation
- Any Metered Data



Know Your Buildings – Your Facilities Manager

➤ Age

- ✓ Age of Equipment

➤ Type (High School, Middle School, Elementary School)

- ✓ Compare Like Schools

➤ Rate

- ✓ Check with assigned utility Account Manager (if applicable)
- ✓ Review utility rates on website

➤ Operating Hours

- ✓ Occupied and Unoccupied Schedules
- ✓ Events

➤ Maintenance Schedules

- ✓ Re-lamping
- ✓ HVAC Maintenance (Monthly filter replacement) & Annual Checkup (Have the coils cleaned every spring)
- ✓ Keep Leaves & Debris Away from HVAC Units

➤ Existing Lighting Systems

- ✓ Upgrade to LED

➤ Existing HVAC Systems

- ✓ Gas or Electric Heat

Know Your Buildings – Your Facilities Manager

➤ Existing Cooking Equipment

- ✓ Work with cafeteria staff
- ✓ Is it time to replace outdated, inefficient equipment?
- ✓ Consult with APC Commercial Foodservice Specialist for equipment demonstration

➤ Existing Refrigeration

- ✓ Coolers & Freezers
- ✓ Air flow around coil space
- ✓ Don't leave doors open
- ✓ Check seals

➤ Existing Water Heating Systems

- ✓ Equipment Maintenance

➤ Weather & Building Orientation

- ✓ Weather variations will impact energy usage
- ✓ Building Orientation will impact energy usage
 - East & West facing windows during summer
 - South facing windows in winter

➤ Any Metered Data

- ✓ Does your utility have a way to provide data to you?

Know Your Buildings – Energy Star

Couple of sites on Energy Star for referencing Energy Use Intensity and Benchmarking Your Building

[What is Energy Use Intensity \(EUI\)? | ENERGY STAR](https://www.energystar.gov/buildings/benchmark/understand_metrics/what_eui)

✓ https://www.energystar.gov/buildings/benchmark/understand_metrics/what_eui

[Benchmark Your Building Using ENERGY STAR® Portfolio Manager® | ENERGY STAR](https://www.energystar.gov/buildings/benchmark)

✓ <https://www.energystar.gov/buildings/benchmark>

Know Your Buildings – Your Energy Data

- Account Manager can verify best rate and identify energy and/or cost saving opportunities
- Some utilities offer packages where customers can access data
 - ✓ Alabama Power offers Energy Direct
 - ✓ Different levels of access from Free to \$200/month
- Customer can create a way to use this data
 - ✓ Compare using energy usage by type by square footage
 - ✓ Compare energy cost by type by square footage

Know Your Buildings – Your Energy Data

Example of Data Usage

HIGH SCHOOL	Current Year		Previous Year		Difference		
	Billing Month	Cost/Day	Cost/Sqft	Cost/Day	Cost/Sqft	Cost/Day	Cost/Sqft
	September	\$ 519.05	\$ 0.13	\$ 672.87	\$ 0.17	\$ (153.82)	\$ (0.04)
	October	\$ 494.59	\$ 0.11	\$ 514.25	\$ 0.11	\$ (19.66)	\$ (0.00)
	November	\$ 490.41	\$ 0.11	\$ 417.77	\$ 0.10	\$ 72.64	\$ 0.01
	December	\$ 389.86	\$ 0.09	\$ 388.41	\$ 0.09	\$ 1.45	\$ 0.01
	January	\$ 342.05	\$ 0.08	\$ 341.22	\$ 0.08	\$ 0.83	\$ 0.00
	February	\$ 332.65	\$ 0.07	\$ 355.54	\$ 0.08	\$ (22.89)	\$ (0.01)
	March	\$ 554.87	\$ 0.13	\$ 486.21	\$ 0.11	\$ 68.66	\$ 0.03
	April	\$ 526.13	\$ 0.12	\$ 611.35	\$ 0.13	\$ (85.22)	\$ (0.02)
	May	\$ 498.44	\$ 0.12	\$ 454.86	\$ 0.11	\$ 43.58	\$ 0.00
	June	\$ 536.09	\$ 0.13	\$ 455.71	\$ 0.11	\$ 80.38	\$ 0.02
	July	\$ 466.17	\$ 0.10	\$ 319.92	\$ 0.07	\$ 146.25	\$ 0.03
	August	\$ 666.35	\$ 0.15	\$ 479.77	\$ 0.11	\$ 186.58	\$ 0.05

IDENTIFY OPPORTUNITIES



Identify Opportunities for Energy Saving Measures



Identify Opportunities for Energy Saving Measures

- Controls
- Lighting
- HVAC
- Building Envelop
- Cooking Equipment
- Water Heating Equipment



Identify Opportunities for Energy Saving Measures

➤ Controls

- ✓ Manual – Only cost is effort. Turning lights off and adjusting thermostats
- ✓ Computer – Costly. Need an Energy or Facilities Manager to operate

➤ Lighting

- ✓ Convert to LED Exit Signs (If signs are lighted)
- ✓ Convert to LED

➤ HVAC

- ✓ Filtering Replacement Schedule
- ✓ Regular HVAC Maintenance
- ✓ Operating Equipment per Mechanical Engineering Designs
- ✓ Converting to Higher Efficiency Units
- ✓ Dehumidification

➤ Building Envelop

- ✓ Know where your leaks are
- ✓ Caulk
- ✓ Seal Ductwork Around Joints & Diffusers

➤ Water Heating Equipment

- ✓ Maintenance & Cleaning
- ✓ Monitoring Temperatures
- ✓ Under the Counter Water Heaters

Identify Opportunities for Energy Saving Measures

➤ Cooking Equipment

- ✓ Hood Maintenance/Cleaning
- ✓ Energy Star Equipment
- ✓ Try Consolidating
- ✓ Learn the Benefits/Efficiencies of Newer Cooking Technologies
- ✓ Staff Training

❖ *Alabama Power customers can attend equipment demonstrations & training free of charge at the APC Technology Applications Center in Calera, AL*



EVALUATE IMPACTS



Evaluate Impacts of Energy Saving Measures

➤ Energy or Facilities Manager

- ✓ Need someone or team who can use data to provide analysis of energy usage
- ✓ Need a team to oversee operations of facilities

➤ Alabama School Plant Managers Association Conference (Focuses on Facilities)

- ✓ Discussions & Exhibits providing Energy Efficiency Ideas

➤ Performance Contracting

- ✓ You can hire firms who will replace lighting
- ✓ Make sure you have inhouse personnel who accompanies site visits
- ✓ Verify operating & non-operating lights to be used in analysis

SUMMARY



Energy Management Overview Summary

- Know Your Buildings
- Identify Opportunities for Energy Saving Measures
- Evaluate Impact of Energy Saving Measures

Energy Management Overview Summary

Questions?

THANK YOU!





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