OVERCOMING BARRIERS TO ENERGY EFFICIENCY AT JOHN A. LOGAN COLLEGE

Tim Gibson
Director, Buildings and Grounds - John A. Logan College
Q: What are the largest barriers to energy efficiency?

Lack of - funding

Lack of - a complete understanding of financial considerations of EE projects

Lack of - an understanding of your energy use and utility charges
Q: What are the largest barriers to energy efficiency?

- Identifying EE opportunities
- Understanding where to go for expert assistance
- Communicating needs to the right people
Q: What are the largest barriers to energy efficiency?

Getting “buy-in” from energy users and decision makers

Pulling the right EE “team” together to accomplish goals
Answer these energy use questions...

- How much are you using? (kWh and KW, therms)
- What does it cost you?
- How do you purchase energy?
- How do loads and demand impact your operations?
- What systems or equipment are your worst offenders?
- What are your biggest targets for energy savings?
Overcoming the Barriers...

Build an Energy Efficiency Team:

• Vice-President of Business Services and Facilities and
• Director of Buildings and Grounds (and key staff)

Included:

• Director of Purchasing and Auxiliary Services
• Director of Facilities Scheduling
• Office of Instruction
• JALC Sustainability Committee
• Campus Architect and Engineer
Overcoming the Barriers...

Work to take advantage of incentives and programs

EE Organizations
Energy Consultants
Utilities
Vendors
Contractors

IL
Illinois Green Economy Network
A Community College Partnership

SA
SMART ENERGY DESIGN ASSISTANCE CENTER
Understand how much are you using?

**KWH by 7AM IN COSMO**

**Lock in Conc. Stand**

**NET INCREASE OR DECREASE FROM 2014 TO 2015 FOR KWH Amounts**

<table>
<thead>
<tr>
<th>Month</th>
<th>Percentage Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>12% Decr.</td>
</tr>
<tr>
<td>February</td>
<td>3.2% Decr.</td>
</tr>
<tr>
<td>March</td>
<td>0.5% Decr.</td>
</tr>
<tr>
<td>April</td>
<td>5.5% Incr.</td>
</tr>
<tr>
<td>May</td>
<td>15.4% Decr.</td>
</tr>
<tr>
<td>June</td>
<td>6.9% Decr.</td>
</tr>
<tr>
<td>July</td>
<td>17.7% Incr.</td>
</tr>
<tr>
<td>August</td>
<td>5.7% Decr.</td>
</tr>
<tr>
<td>Sept.</td>
<td>5.0% Incr.</td>
</tr>
<tr>
<td>Oct.</td>
<td></td>
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<tr>
<td>Nov.</td>
<td></td>
</tr>
<tr>
<td>Dec.</td>
<td></td>
</tr>
</tbody>
</table>

**SEPTEMBER 2014 KWH**

571618

**SEPTEMBER 2015 CURRENT KWH VALUE**

600274

**OCTOBER 2014 KWH**

472841

**OCTOBER 2015 CURRENT KWH**

321735
Understand how much are you using?
For: John A Logan College, John A Logan College-700 Logan College Drive

Monthly Energy Summary

August 2017

-12%
Lower consumption than last month.

612,079 kWh
Your facility's total consumption over the past month.

-17%
Lower consumption than last August.
Suggestions for Selling Energy Efficiency:

• Speak of value of a project over time – not “Savings Per Month”

• Stay away from Simple Payback calculations. Simple payback only captures 1st costs and does not monetize non-utility cost benefits.

• Look for non utility payment benefits and work those into project estimates. Ex: reduced maintenance, better comfort, increased safety and productivity, increased attendance, etc.
Overcoming the Barriers...

Suggestions for Selling Energy Efficiency: “Bossify” a project if necessary!
Suggestions for Selling Energy Efficiency: Find the Need

• Tie savings to increase in funds for other needs – more instructional equipment, staff, scholarships, etc.

• Find out what the administration cares about and talk about that!

• Stay away from specifics about equipment, energy savings or utility bills
Misconceptions...

1) Delaying energy efficiency projects saves money.
   Waiting to implement a project also delays the point at which energy savings and other benefits begin to accrue.

2) First cost is the only cost.
   Money saved by purchasing less expensive, lower performing products and equipment will be money lost to the utility bill.
August 18th, 2011

Dwight Hoffard
Director of Buildings, Grounds, and Campus Safety
700 Logan College Road
Carterville, IL 62918

Greetings Dwight:

This past Friday, August 12th, I met with Dale Marrs and Wayne O’Dell to find out details pertaining to the CEHC building and discuss potential energy saving reduction measures (ECRMs). I will submit a final report to you outlining the available savings after I determined which ECRMs are most beneficial. Herein is a preliminary list of measures I will be looking into.

Energy cost reduction measures:

**HVAC**

- Ensure the second floor’s unfinished space is sealed off from the rest of the building (until space is occupied) and turn the cooling system off in the summer and set the heating system’s thermostat for that zone to heat when the temperature drops below 55F. Ventilation should also be turned off for this zone.
- Test and balance the forced air system for uniform air distribution throughout rooms.
- Implement demand control ventilation in the original building. Ensure the newer units are modulating ventilation correctly.
- Enable economizer modes on rooftop units.
- Set thermostats to a maximum of 68F in the winter, and 75F in the summer in all rooms with the exception of the aerobics and pool areas.
- Try setting back thermostats more aggressively during afterhours and weekends to 63F (or the system’s capacity to catch back up to the set point) in the winter and 62F in the summer.

**Building Automation System**

- Work with control’s specialist to hook up gas meter to the TALON control system to trend the natural gas consumption.
- Work with in-house network IT folks to allow incoming connections to the TALON control system so building maintenance staff can access the system via the internet and allow third parties such as SEDAC to login with a guest account.
Lighting

- Replace probe-start metal halides in pool area with induction or other similar fluorescent lamps.
- Install automatic day lighting sensors to reduce the aerobic area lighting. Temporarily train staff to operate lights in that area on the lowest levels during bright days.
- Update exterior lighting to compact fluorescent, induction, or LED.
- De-lamp uplighting lamps in the front entry lobby, leaving the downlighting lamps in place.
- Re-lamp and re-ballast T12 lighting in elevator to low wattage T8 and electronic ballast.
- Add occupancy sensors or delayed timer to operate elevator lights and fan.

Pool

- Install automatic pool covers to prevent evaporation during afterhours and weekends, and turn off ventilation/exhaust to the pool area.
- Reduce boiler operation and passively heat pools with a solar collector heating system.
- Increase the boiler operating temperature to the manufacturer minimum. A spot check during the site visit shown only one boiler operating and it was at 92°F. At this temperature, corrosive flue gases can condense. This was apparent on the exhaust stack.
- Add high efficiency, condensing shoulder boiler.
- Install a heat recovery ventilator off the exhaust air stream.
- Work with control’s specialists and recommission the pool area and relative humidity temperatures. A separate desk thermostat/humidity clock in the pool area read varying levels of temperature and humidity.
- Air seal the doors to the pool area tightly with weather stripping.
- Install variable speed drive (VSD) controls on pool filter pump motors.
- Re-evaluate location of returns/supply/exhaust duct and grill locations to make better use of supply air, and prevent short cycling of the air stream.

Water

- Use low flow; Water Sense certified aerators in all faucets and showers with 1.0 or 0.5 GPM.
- Put domestic hot water circulation pump on a timer to prevent operation during unoccupied periods.
Envelopes

- Air seal the building, especially around entry doors in the front lobby (which acts as a vestibule). Evaluate the possibility of actually adding a vestibule here to prevent conditioned air from escaping as the doors open.
- Discourage the use of the handicap accessible doors (which both open) for people who do not need it possibly through the use of a sign.

Plug Loads

- Implement computer power savings by ensuring all computers have sleep modes enabled.
- Purchase smart plug strips that can sense occupancy and turn off items that are plugged into them.
- Manage power to exercise machines during unoccupied periods to prevent the possibility of any phantom loads.

Extra Credit

- Staff education; limit personal appliances (fridges, electric heaters, etc.) at desks, ensure all computers and similar items are shut off when rooms are unoccupied.
- Purchase ENERGY STAR® appliances and electronics as older equipment is phased out.
- Explore the possibility of a small photovoltaic installation that will serve as a symbol for the community about the college’s dedication to energy efficiency and integrate it into the curriculum so it can be used as a teaching tool for students in class.
- Consider painting or installing a white roof when time comes for roof repair.

Please notify me if there is anything else you wish for me to look into. SEDAC believes cost savings are present in this list of ECRMs. Following a quantitative analysis, the final report will verify which ECRMs save the most energy at the least cost, provide you with the technical assistance to begin implementing, and direct you to available incentive/funding opportunities. A copy of this shortlist may be forwarded to your delivery utility incentive program, Department of Commerce and Economic Opportunity, to facilitate your access to the available funds. If you would prefer that this not be done, please contact me promptly.

Please feel free to contact myself, Steve Wallon, for further explanation of these recommendations SEDAC is investigating. Also, contact me if you proceed with any work. I will contact you sporadically for verification on certain things about your building as I write the report. Thank you for your active participation in the Smart Energy Program.
Questions...

- How many have a written policy that addresses
  - temperature settings?
  - energy efficient purchasing?
  - project payback periods?
  - restrictions on portable heaters?
Questions...

- How many...
  - Implement equipment run schedules that risk complaint?
  - Have adequate facilities staffing to operate efficiently?
  - Evaluate facilities staff on commitment to energy conservation?
  - Offer staff training on energy conservation?
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- **Suggested Resources:**

1) EPA Guide to Energy Efficiency in Local Gov’t Operations
   

2) Mark Jewell, President – Selling Energy
   
   www.sellingenergy.com
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- Suggested Resources:

  3) Midwest Energy Efficiency Alliance – MEEA
     http://www.mwalliance.org/

  4) Illinois Green Economy Network - IGEN
     www.igencc.org

SUSTAINABILITY-AS-A-SERVICE
FUNDING FOR INFRASTRUCTURE UPGRADES
LEARN MORE
Thank you!

Tim Gibson
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