Collaborating with Existing Leaders – Finance and Facilities
Tuesday March 31, 9:50 – 11:00

Steve Glazner, APPA - Leadership in Education Facilities

Sally Grans Korsh, National Association of College & University Business Officers
What is your perspective?

Obstacles to Collaboration?

**Student**
Truly diverse depending on campus and program; some want degree/job quickly, others concerned on advocacy, and others are unclear of issues

**Provost/ Academic Administration**
Concerned with balancing needs of staff, students and administration

**Financial Officer**
Wants success in financial areas - short and longterm

**Facilities**
Cares about buildings, operations, safety, users and staff

**Consultant**
Seeks success in overall program, design and building

**Academic**
Concerned about content, delivery and keeping many facets under balance

**Sustainability Director**
Devoted to improving campus sustainability
Higher Education Impact – What we do matters........

- 5 billion square feet
- $14 billion in operations/maintenance
- $6-7 billion annually on energy/utilities
National Association of College & University Business Officers (NACUBO)

Membership organization serving more than 2,500 colleges, universities, higher ed service providers.

Specifically represents chief business and financial officers through advocacy efforts, community service and professional development activities.

Mission is to advance the economic viability, business practices and support for higher education institutions in fulfillment of their missions.

Not For Profit Higher Education Institution Members by Affiliation

- Small: 51%
- CC: 21%
- Comp Doc: 16%
- Research: 12%
- 46% Public
- 52% Private

Not For Profit Higher Education Institution Members by Constituent Group

- Small: 51%
- CC: 21%
- Comp Doc: 16%
- Research: 12%

Member Count by Member Type

- 2,036 College and University
- 266 Business Partners
NACUBO Resources

- Integrated membership allows *anyone* at a member institution to join and get NAUCBO benefits
- Automatic subscription to “Current” e-newsletter
- Access to “sustainability series” free videos

Annual Meeting

Forums/Seminar
eGroups and listserves
Webinars - Training –Distant Learning

Products:
SFS Benchmarking
Tuition Discounting
Commonfund Study of Endowments
APPAn – Leadership in Educational Facilities

• Celebrated 100-Year Anniversary in 2014; formerly known as Association of Physical Plant Administrators
• Serve more than 12,000 facilities professionals at 1,350+ institutions in U.S., Canada, and several other countries worldwide

Four Core Areas
- General Administration & Management
- Maintenance & Operations
- Energy, Utilities & Environmental Stewardship
- Planning, Design & Construction

• Integrated membership allows anyone at a member institution to join as an associate and get APPA member benefits
  • Access to the Body of Knowledge (BOK) – 60+ chapters of FM content
  • Automatic subscription to Inside APPA e-newsletter
“Invest in, train, and develop your staff.”
Organizations Contributing to a Successful Campus

Intersection of Knowledge Base to assist campuses in Environmental Leadership
Allow Collaboration

APPA

AASHE
HEASC
CSHEMA, C2E2, AACC, AASCU, ACUHO-I, CCCU, NAEP, NAICU, NRSA ASE, USGBC, others.......

NACUBO
Intersecting Knowledge:
- Short / Long Term Plans
- Space Use
- Deferred Maintenance
- Ongoing Operations
- Utilities Management
- Benchmarking
- Capital Funding
- ESCO, Energy Funding
- Energy Efficiency
- Renewable Resources
- Sustainable Practices

Sustainability issues permeate all factors.
At the Table Discussion

Define these Terms

- AP
- Btu
- CRV
- DM
- FASB - GASB
- FCI
- KPI
- kWh
- ROI
- TCO
Total Cost of Ownership

Life Cycle Components

1. Acquisition Costs
   - Build-Buy-Lease
2. Daily Maintenance Costs
   - Cleaning, Trash Handling, Gardening
3. Periodic Maintenance Costs
   - Corrective, Preventive, Predictive
4. Utility Costs
   - Electricity, Gas, Water, Sewer
5. Capital Renewal Costs
   - HVAC, Water, Electric, Gas, Sewer, Roof, Fire, Safety, Streets, Tunnels
6. End-of-Life Costs
   - Demolition for New or Rehab

Sources of Funds

- Gifts, Endowment, Bonds
- Annual Operating & Maintenance Budget
- Annual Utility Budget
- Capital Allocation to Restore Physical Assets to Original Condition
## Total Cost of Ownership

**Figure 1.6 Total Costs Distribution Over Lifetime**

<table>
<thead>
<tr>
<th>Facility Cost Category</th>
<th>Years</th>
<th>Project Lifetime</th>
<th>Lifetime Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning, Design, and Construction</td>
<td>![Blue Sphere]</td>
<td>![Red Sphere]</td>
<td>![Blue Sphere]</td>
</tr>
<tr>
<td>Maintenance &amp; Operations</td>
<td>![Red Spheres]</td>
<td>![Red Spheres]</td>
<td>![Red Sphere]</td>
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<tr>
<td>Capital Renewal</td>
<td>![Yellow Spheres]</td>
<td>![Yellow Spheres]</td>
<td>![Yellow Sphere]</td>
</tr>
<tr>
<td>Demolition</td>
<td>![Green Spheres]</td>
<td>![Green Spheres]</td>
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</table>

*From APPA’s Buildings...The Gifts That Keep on Taking: Framework for Integrated Decision Making, 2007*
All campuses around the country are impacted...
THE 13 STEPS

1. Start with people, stay with people
2. Connect on common values
3. Acknowledge ambivalence
4. Scale from personal to planet
5. Sequence matters
6. Use “facts,” not science
7. Inspire and empower
8. Be solutions-focused
9. Describe, don’t label
10. Have at least 1 powerful fact from a trusted messenger
11. Prepare, don’t adapt
12. Speak from the mountaintops, don’t fight in the trenches
13. Message discipline is critical

MomentUs "Communicating on Climate: 13 Steps and Guiding Principles"
These informative steps demonstrate how to discuss climate change in a more persuasive, realistic, and unemotional manner.
Partnerships – Connect and Collaborate

HEASC - Higher Education Associations Sustainability Consortium

network of higher education associations with a commitment to advancing sustainability within their constituencies and the entire system of higher education.

HEASC supports using the campus and regional communities as a living lab for sustainability.

HEASC believes higher education has a unique and important role to play in education for a sustainable future.

- HEASC consists of multiple higher education professional associations representing a range of interests. Each association is creating publications, offering professional development resources, and making valuable contributions towards a sustainable future. Click on the organizations below to learn more.

http://heasc.aashe.org
Problem: Renewables are changing too much – too complicated and not cost effective.
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Solution: give facts, data, recognize difficulty in change – make it non-emotional.

Quote from Mat Herburg, SVP of Sun Edison, at EESI 3-2-15 Briefing:

“All fuel sources that are renewables are decreasing in costs, while all traditional sources of fuel such as gas and coal have increased in cost over the last decade.”
Problem: Administration concerned that energy efficiency is not cost effective —
Solution: find reliable sources to give information
find peers to assist.
Don’t make discussions judgmental or emotional.

Don’t do these!

"It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is most adaptable to change."

Charles Darwin

You will have a whole eternity to THINK inside the BOX.
Problem: Insufficient funding for sustainability

Average State Funding for Higher Education per $1,000 in Personal Income, 1989-90 to 2013-14

Total and Per-Student State Funding for Higher Education in 2013 Dollars, and Public FTE Enrollment, 1983-84 to 2013-14

SOURCE: The College Board, *Trends in College Pricing 2014*, Figure 16B For detailed data – trends.collegeboard.org
Solution: Give facts on renewables are becoming cost effective.

Bring forth new info from credible source

Get Facts

Be Prepared!

Average PV System Prices

- Installed Price ($/watt)
- Years: 2004 to Q3 2014

Data sources:
- LBNL "Tracking the Sun IV"
- SEIA/GTM Research

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Solution: facts, peer examples and case studies can persuade

1. Understand ROI
2. Come prepared with data or sources
3. Suggest peers positively – not to embarrass or negatively be personal.

www.nacubo.org/am2014posters
Solution: Contact other peers - similarities

Power Purchase Agreements

Green Revolving Funds

www.greenbillion.org

Bowdoin College Breaks Ground on Maine's Largest Solar Project

"OUR COLLEGE IS PROUD TO BE MOVING FORWARD WITH THIS SIGNIFICANT INVESTMENT IN CLEAN AND RENEWABLE SOLAR ENERGY."
Bowdoin College President Barry Mills

Seven times the size of the largest existing solar installation in Maine
4,500 solar panels
Rooftop systems on four college buildings
Expected to offset 8 percent of Bowdoin's annual electricity usage
Helps advance Bowdoin's plan to be carbon neutral by 2020
Partnership with SolarCity, which will finance, build, own, and maintain the installations

More at bowdoin.edu/sustainability
Solution: Other peer work - noting dynamics

Energy Savings Contracts (ESCO):

Campus partners with firm that identifies improvements to save energy.

After confirmation by 3rd party – improvements are done and paid for from the savings.

Campus benefits by no upfront capital costs - And after paying original costs gets the savings.

Energy Savings Performance Contract Goals:
- $11,265,000 energy efficiency project
- 25% utility reduction in greenhouse gas emissions
- $24,611,552 in total guaranteed energy savings over 20 years
- $5,266,607 net revenue to Delaware State University
- 1.3 million square feet and 26 buildings upgraded with energy efficient technology
- Positively impact the students’ educational and living environment engaging them with green kiosks
- Local job creation

Energy Conservation Measures Throughout the Campus:
- Lighting System Upgrades
- Infiltration Reduction
- Boiler Replacement
- Variable Frequency Drives
- HVAC Unit Replacement
- Boiler Control Upgrade
- Greenhouse Gas Software
- Lighting Occupancy Controls
- Demand Control Ventilation
- Water Fixture Upgrade
- Energy Efficient Electric Motor Upgrade
- Summer Domestic Hot Water Heater
- Computer Power Management
- Energy Recovery Loop
- Vending Machine Controls
- Controls Upgrades
- Kitchen Hood Controls
- Chiller/Cooling Tower Replacement
- Roof Replacement
- Ductless Split AC
- Multizone to VAV Conversion
Problem: Central Business office understands sustainable issues; i.e. reducing the number of printers but individual unit business personnel did not.
Solution: Get involvement on parallel learning activities and build trust – create multiple wins.

Example:
- Create time and space for interaction
- Reward cooperation/trust
Problem:

- Small liberal arts college, 1,800 undergraduates, 95% live on campus, 665 acres, 116 buildings
- 75% of main campus is on a central utility system, with chilled water plant, steam plant, and an energy substation
- Decentralized on-campus utilities and many off-campus offices with individual bills each month
- Main campus only received one electric bill, and couldn’t understand when the monthly bills fluctuated up or down
APP A Case Study 1
Davidson College, Davidson, NC

Solution – Collaboration – Grants – Activity!

• Recent graduate wrote a grant application to Jessie Ball DuPont Fund ($150,000) to begin submetering housing buildings

• Dashboards showed residents how they were using electricity and water, and competitions helped reduced energy and water use

• Saving energy – enlightening students!
Dean College, Franklin, MA slides

Problem:

- Private liberal arts college, 1,000 students, extremely limited resources
- Difficult choices between investing in aging building needs vs. program needs
Solution:

- Developed a public-private partnership through GreenerU and Association for Independent Colleges & Universities in Massachusetts
- $2 million investment for Mass College Green program for campus and several other MA campuses in support of their sustainability goals
- Partnership allowed College to do lighting retrofits, update controls, buy variable frequency drives, and improve ventilation and exhaust systems
- Firm makes changes and maintains over a 5-year period, shared savings with the college; after 5-year period, Dean assumes 100% of savings
- Has access to highly trained engineering professionals they would not have been able to hire
Central Plant Replacement, Pima Community College, Tucson, AZ

Problem:

• Public community college, 76,000 students, 1.64 million gsf, 532 acres (60 acres on Desert Vista campus of 4,000 students)
• 35-year-old central heating/cooling plant needing replacement; using R-12 refrigerant, no long EPA-compliant
• College allocated $4 million capital improvement budget for replacement
Central Plant Replacement, Pima Community College, Tucson, AZ

Solution:

• College allocated $4 million capital improvement budget for replacement
• Instead of a large centralized plant – selected packaged modular central plant (MCP): installation savings, fast-track schedule, improved energy efficiency, more flexible for programs
• Modular system uses magnetic-bearing frictionless centrifugal compressors, eliminating oil system and reducing maintenance costs
• In first 8 months, campus saw a $73,000 utility cost savings, then received $41,000 in local energy incentive rebates
• Project also allowed adding 1,850 sf of classroom and science lab space, and freed up other space for other programs
**APP A Case Study 4**

**Advancing Sustainability in Academics, University of Wisconsin Madison**

- Purpose was to assess, improve, and develop academic programs that leverage campus facilities for teaching purposes.

- Reviewed interaction between Facilities Planning & Management and academic units.

- Infusing and fostering use of sustainability in campus programs, projects, and initiatives.

- Empowering all departments to develop and work with FP&M to use campus as a living laboratory and create new programs.
At the Table Discussion

What are some examples you have on obstacles to collaboration?

What are some examples of your successes?
Simple Key Metrics:

1. BTU
2. KW
3. Water
4. Waste: recycled/non
5. Carbon Footprint

*Per Gross Square foot and Per SFTE*

*Survey Aug – Dec 15, 2014*

*Beta results Jan with final in March, 2015*
“The City (water bill) comes to CUNY, who pays the bill and there isn’t a college allocation at this time as we have not metered water yet. Without an appropriation value, we can’t calculate our own use, CUNY is working on this”.

Queens College – City College of New York

We cannot fill in the survey this year, but see the benefit and look forward to doing it next year!

Sacred Heart University

Could not fill out questions on garbage, waste or recycling – so will try to next year.

University of Texas – Pan American

“It was good to do both surveys at the same time. Will definitely do it again.”

Trinity University

“We don’t have measure our waste in pounds – it is only by container. However – we can still benchmark our containers and evaluate impact of recycling on an annual basis.”

Progressive liberal arts college in midwest.

Results:

490 started, 250 entries

221 final entries

Executive Dashboard Reports – Compare institution to Carnegie, Auxiliary (or not), APPA Region, and overall
Distribution of Institution's Daily Water Use/SFTE

- 53.4% 0-24.9 Gallons (N=117)
- 22.8% 25 to 49.9 Gallons (N=50)
- 10.0% 50 to 99.9 Gallons (N=22)
- 3.7% 100 to 199.9 Gallons (N=8)
- 2.3% 200 or More Gallons (N=5)

N=Number of Respondents
Avg: 34.5 gals
Median: 19.8 gals


Distribution of Institutions by Carbon Footprint/GSF

- 36.1% Missing (N=79)
- 43.8% 0 to 0.0149 (N=96)
- 16.0% 0.015 to 0.049999 (N=9)
- 4.2% 0.05 & Over (N=9)


Distribution of Institutions by Carbon Footprint Per SFTE

- 36.1% Missing (N=79)
- 40.6% 0 to 4.999 (N=89)
- 18.3% 5 to 9.999 (N=40)
- 5.0% 10 & Over (N=8)

Both APPA and NAUCBO are institutionally based member organizations – check if your campus belongs.

If your campus is a member -
then you can also be a member!

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