



Focus on Reduce: Education, Outreach, and Marketing to Prevent Waste

Thursday, Dec. 12, 2019

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National Association of College & University Business Officers (NACUBO)

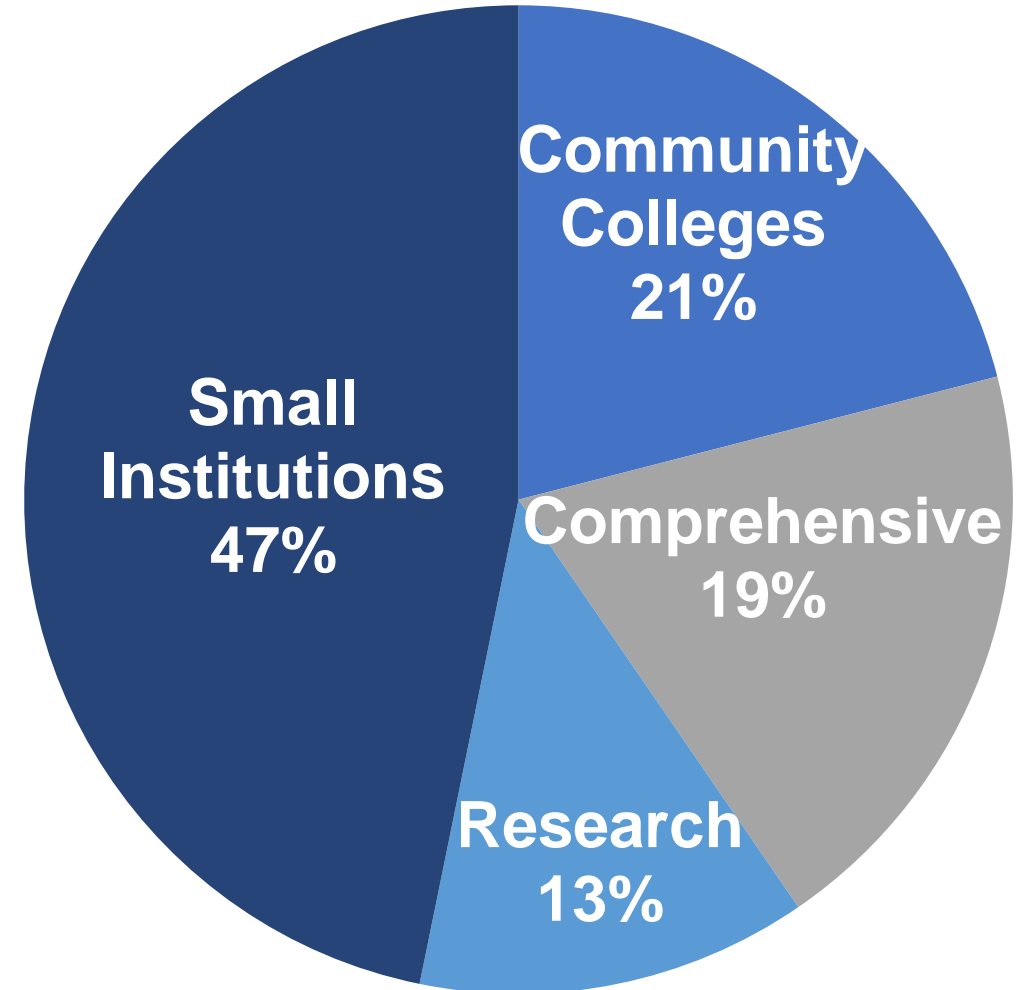
www.nacubo.org

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

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

1,900 members

Institutional sliding fee based dues.
IF your campus belongs,
anyone with that campus email can belong.



Home **Topics** > Facilities & Environmental Compliance



Facilities & Environmental Compliance

- [APPA/NACUBO Key Facilities Metrics Survey](#)
- [Campus Environmental Resource Center \(Campus ERC\)](#)
- [Facilities Sustainability Resources](#)
- [Sustainability Checklist](#)
- [Campus Efficiency Posters](#)
- [Environmental Calendar](#)
- [Space and Energy Issues](#)
- [Sustainability](#)
- [Campus Sustainability Connection](#)
- [Webinars/Podcasts on Campus Operations](#)
- [Facilities Related *Business Officer* Magazine Articles](#)
- [Resource Organizations](#)
- [Glossary of Terms](#)

Many resources are noted for sustainability that reflects BOTH sustainable financial operations as well as environmental and community concerns.



New Foreign Gift Reporting Proposal Draws Concerns

The Department of Education recently proposed a significant expansion of foreign gift reporting requirements under Section 117. NACUBO and other higher education associations responded with serious concerns about the proposal.

[MORE](#)

Analytics Is a Skill, Not a Tool

Technology without action will miss the mission-critical insights analytics can provide, NACUBO's director of analytics writes in an opinion piece. [Read more](#)

Share Your Audited Financial Statements With NACUBO

If your FY19 financial statement audits are complete, please consider sharing your financial statement with us for a NACUBO members-only tool on our website. You can email the PDF or a link to your financial statement to heaccounting@nacubo.org. [Read more](#)




Better Buildings Higher Education Alliance

Take advantage of free on-demand webinars, case studies and what other higher education campuses are doing to improve their bottom line - as well as improving energy.

Facilities Management

College and University Business Administration



Whether a college or university is large or small, urban or rural, its facilities consume significant financial, human, and other resources. Consequently, managing an institution's physical assets encompasses a broad array of responsibilities, ranging from planning to construction administration to ongoing maintenance and sustainability. Learn more in the complimentary Facilities Management chapter of College and University Business Administration.

[LEARN MORE](#)

	Categories	Goal for Campus to Meet	Sustainability Execution In Some Areas				Financing Sustainability			
			Not Addressing	Starting - Beginning	In process	Excelling	Examining Financing	Seeking Financing	Implement Projects	Projects
Planning & Administration	Strategic Master Plan (includes Vision and Goals to reduce Carbon based fue)									
	Sustainability Master Plan									
	Procurement									
	Sustainability Office									
	Diversity & Affordability									
	Endowment Investments									
	Wellbeing & Work									
Academics	Curriculum									
	Research									
	Internships									
Engagement	Campus wide									
	Public									
	Region									
	Local									
	Utility									
Operations	Air & Climate									
	Buildings: Energy Efficient/Space Use									
	Buildings: Space (maximize schedule)									
	Energy Renewables (not just buying RECS)									
	Technology (Improve space schedules, reduce paper, etc.)									
	Food & Dining									
	Grounds									
	Transportation									
	Waste: Recycle									
	Waste: Organics									
	Waste: Landfill									
Water										

How Does Your Campus Stack Up on Our *Sustainability Checklist*?



Use the checklist to trigger conversations, ask good questions, and review and transform your campus goals and trajectory.

The intention of this simplistic checklist is to broaden inquisitiveness on advancing campus financial and environmental sustainability. Execution is far more complicated than implied by these categories.

www.nacubo.org/SustainabilityChecklist
Issued at 2019 NACUBO Annual Meeting

Campus Sustainability Connection

This new, quarterly newsletter aims to connect campus financial, environmental, sustainability, and efficiency efforts to state, national, and global trends. It will highlight successes and encourage conversations on ways to improve.

Read the latest edition here: [Campus Sustainability Connection: Fall 2019](#).

To subscribe to this newsletter, email campussustainabilityconnection@nacubo.org.



**2nd Issue -
Dec 4, 2019**



Campus Environmental Resource Center

The mission of the Campus Environmental Resource Center (ERC) is to provide individuals and educational institutions with the knowledge and tools to maintain environmental regulatory compliance, improve management, and operate sustainably.



- In the News & Webcasts
- Resources
- Compliance Guides
- Campus Tour

U.S. Environmental Protection Agency

The EPA's mission is to protect human health and the environment.



State Regulations Resource Locator

Find environmental regulations, link to state agencies, retrieve agency news, and download sector-specific resources.



National Compliance Assistance Centers

The centers provide access to the information you need, in a way that helps make sense of environmental regulations.



Campus ERC in the News and Webcasts

In the News

Top 10 OSHA Violations for 2019 11/17/2019

November is Lung Cancer Awareness Month - Lung Cancer accounts for about 13% of new cancers in the U.S. and is the leading cause of death 11/1/19

Children and the Environment (EPA site) updated for environmental health indicators 10/29/19

Stanford University: Developing Talent for Smart Buildings

Managing Asthma in the School Environment. 9/22/19

Waters of the United States" Rule repealed. 9/12/19

University of Illinois to expand Solar Farms. 9/12/2019

Removing meat from campus menu results in savings and reduced emissions for Univ. Cambridge. 9/12/19

Contests & Challenges

People, Prosperity and the Planet Grant applications open 10/1 - 11/19

Harmful Algal Bloom Video Challenge due Jan 3, 2020 (for HS students in EPA Regions 7 & 8)

Environmental Education grants application now open through 1/6/2020

Upcoming Webinars

Watch Video on New Lead and Copper Rule

Wed Nov 20, 2 pm: Spanish Language translation of the Lead Paint Safety Field Guide

Tues Dec 10, 2-3 pm: Integrated Pest Management in Child Care Centers

More Webinars

Better Buildings Initiatives from the U.S. Dept. of Energy





Water Resourceful

MAY 2019 | BY KARLA HIGNITE



Investing With a Purpose

FEATURE STORY

MARCH 2018 | BY ANTHONY CORTESE



Breezy and Bright

FEATURE STORY



Matching Investments to Mission

FEATURE STORY

MARCH 2018 | BY DAVID A. ELLIS



Reshape Your Space

FEATURE STORY

DECEMBER 2018 | BY KARLA HIGNITE

Powering Forward

Partnering on Energy Infrastructure

BUSINESS INTEL



FACILITIES, ENVIRONMENTAL COMPLIANCE

Making Sense of Space

NOVEMBER 2019 | BY SANDRA R. SABO

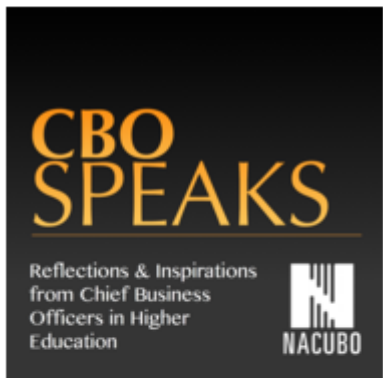
Rightsizing your built infrastructure requires translating data about space needs and usage into a fair and enforceable policy.

<https://www.businessofficermagazine.org>

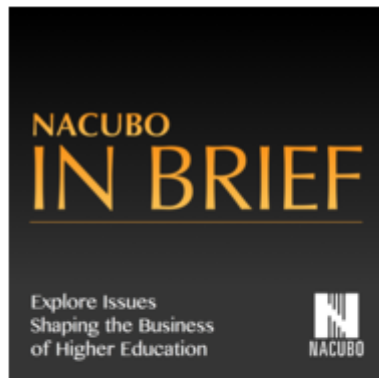
- Energy Savings Contracts
- Green Revolving Funds
- Improving Space
- Power Purchase Agreements (PPA)
- Climate Change Leadership
- Net Zero, Water savings, Safety, and more!

NACUBO PODCASTS

NACUBO is pleased to offer you audio programming through podcasts that you can listen to any time you want. Subscribe today and join your colleagues in this newly revitalized learning platform.



New episodes of [CBO Speaks](#) are available every two weeks.



New episodes of [NACUBO In Brief](#) are available every two weeks.

SO WHAT IS A PODCAST?

A podcast is essentially a radio show that you can get on the internet.

HOW DO I LISTEN?

You have two options: you can listen to a podcast through a website like ours (this is called streaming). Or, you can download a podcast, which means you're saving it on your phone, or tablet, or computer, and you can listen to it anytime, even without an internet connection.

Open to the World!

58 Presenters on
CBO Speaks: the Role
of CBO/path/stories

44 Presenters on
NACUBO In Brief:

Knowledge sharing – some relate
directly to sustainability/funding
#41 - Syracuse P3 Funding Energy
Efficient Steam Plant

Cost Savings – Know your metrics Key Facilities Metrics

6th year of survey deadline
extended by request to
Friday, Jan. 17, 2020 for the
2018-19 Academic Year

www.appa.org/appa-nacubo-key-facilities-metrics-survey-and-report/

Key Facilities Metrics Survey

EVERY CAMPUS LEADER SHOULD KNOW THESE SIMPLE METRICS!

THESE METRICS ARE A GATEWAY TO BETTER PLANNING AND DECISION-MAKING FOR YOUR CAMPUS

To view median results from five years of surveys regarding BTU/EUI (energy), kilowatt (electric), water, waste, and carbon footprint – visit www.nacubo.org/KeyFacilitiesSurvey. To analyze for your specific campus needs with different ratios - visit www.appa.org click on "Services"

ENERGY BTU = EUI

MEDIAN KBTU/PER SQUARE FOOT ANNUALLY
ESTIMATED ANNUALLY PER FTE STUDENT ENROLLED



ELECTRICAL

MEDIAN KILOWATT-HOUR
ANNUALLY PER SQUARE FOOT



NACUBO's Strategic Priorities

Building a More Connected and Innovative Association
Approved July 2019

Strategic Priority 1: Transformations

Strategic Priority 2: Advocacy

Strategic Priority 3: Solutions

Strategic Priority 4: Leadership

Strategic Priority 5: Analytics

Strategic Priority 3: Solutions

Drive effective solutions in higher education.



Personalize NACUBO's website

Provide tailored access to resources and materials that offer insight, advance ideas, and support effective solutions in higher education.



Build a robust, online solutions center

Members will be able to access resources, get support on emerging issues, find volunteer opportunities, and contribute to Q&A—all in one place.



Help business officers link strategies and sustainability

Leverage business office expertise to strengthen environmental initiatives and outcomes.



Develop microlearning opportunities

Help business officers gain specific leadership skills and technical competencies in short, accessible modules.



Train business officers on dashboards and visualizations

Build institutional capacity to measure and track a variety of indicators related to institutional performance, all with a focus on intentional improvement.

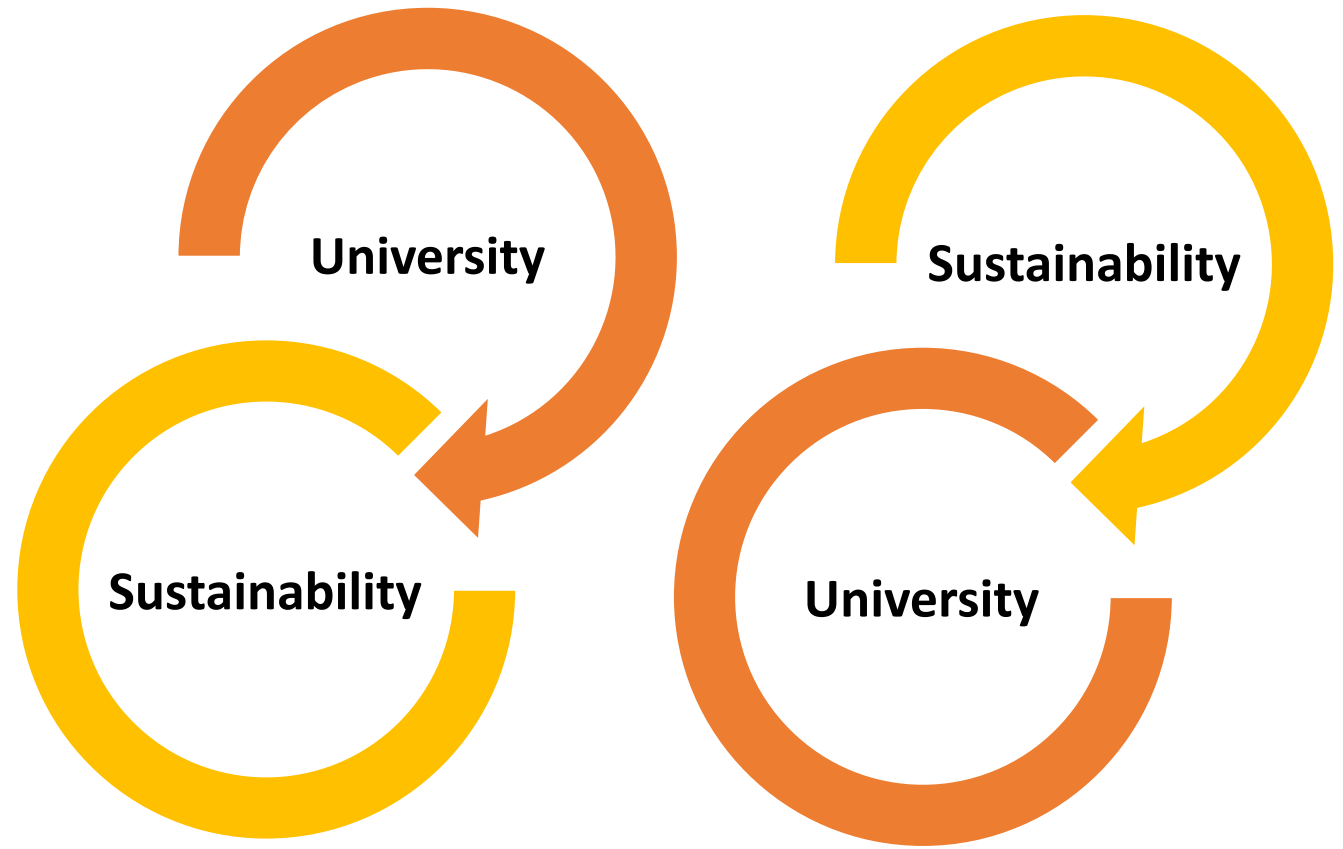
Help business officers link strategies and sustainability

Leverage business office expertise to strengthen environmental initiatives and outcomes.

Does YOUR campus have a sustainability, waste reduction policy?

Changing the Conversation: Recycle Benefits the Campus

Changing the conversation from what is the university doing for sustainability to what is sustainability doing for the university can take a sustainability program from being a responsibility to being an asset.





Culture That Resists Change



POWER THE EMPIRE STATE BUILDING FOR OVER A YEAR

Since the start of #NASCARGreen, NASCAR and Safety-Kleen have recycled enough oil to power the Empire State Building for over a year.



Using the map, select a disaster area in need

Select how many trees you'd like to plant

Share with friends on Facebook and Twitter

4 0 6, 1 3 1 Trees Planted

NASCAR @NASCAR

..@camandhollysmom "Thanks for taking the quiz, Hannah!"--@KyleLarsonRacin #NASCARGreen nas.cr/GreenQuiz



Roush Fenway Racing @roushfenway

It ain't easy being #NASCARGreen!

Chicagoland Speedway @ChicagolandSpeedway

We're so excited to be a part of #NASCARGreen!

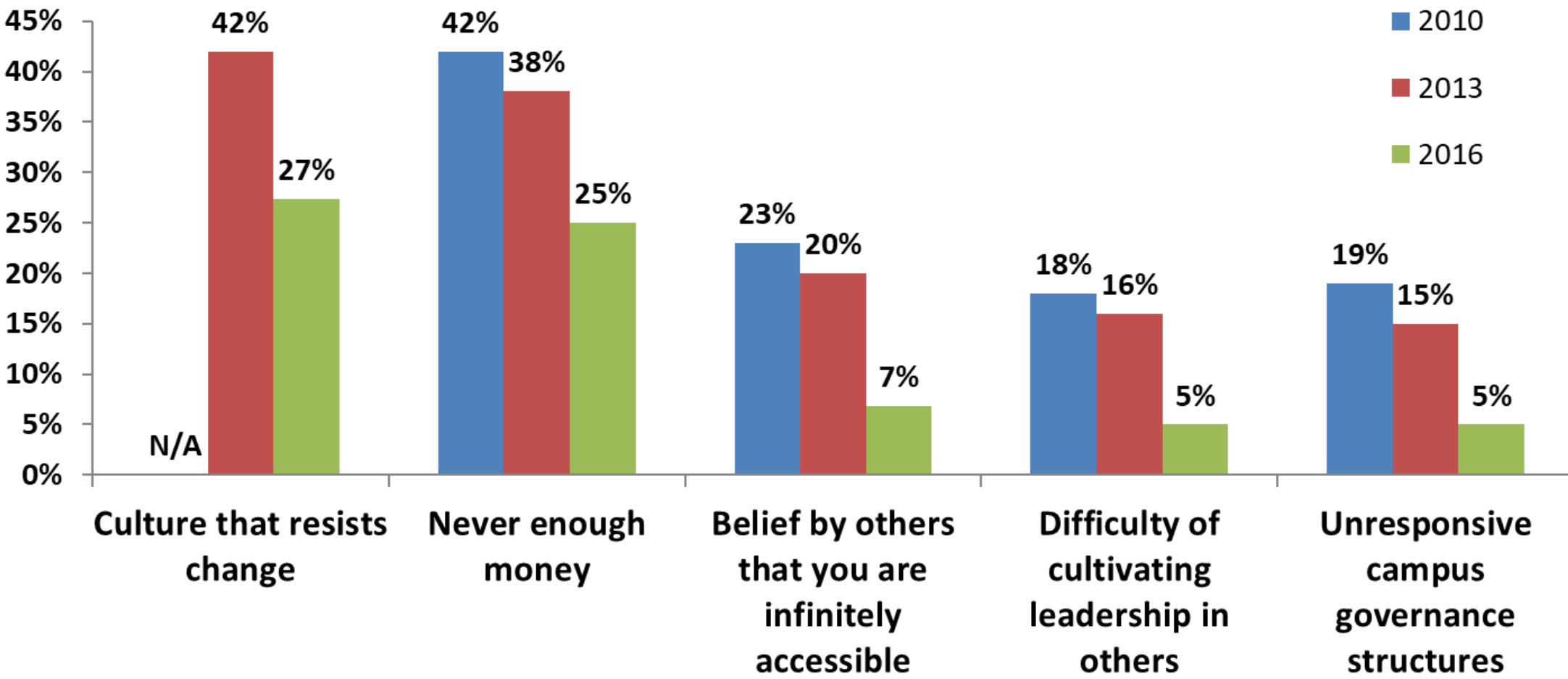
planting s and much more April 30 /1pxi8hN

Jay W. Pennell @jayspennell

@NASCARGreen: @roushfenway leading the charge in #NASCAR team sustainability: nas.cr/1SV6JR2 #RaceToGreen



CBO's share some of your same frustrations

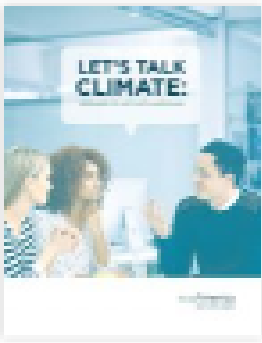


Note: Question revised in 2016.
Source: NACUBO National Profile of Higher Education Chief Business Officers Survey.



Seek Positive Communication www.ecoAmerica.org





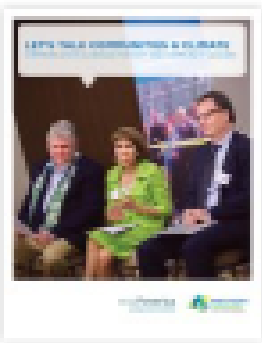
Let's Talk Climate: Messages to Motivate Americans

Designed to engage Americans across political and demographic groups on climate solutions, this guide builds on ecoAmerica's previous messaging research. Includes general messages that increase personal relevance and motivation, tips for application, and thematic language on faith, health, communities, higher education, and business.

[Download](#)

[View the Webinar](#)

www.ecoAmerica.org



Let's Talk Communities & Climate: Communication Guidance for City and Community Leaders

Featuring talking points, do's and don'ts, and a sample speech, this guide equips local leaders with the tools to effectively engage their residents and stakeholders on climate solutions.

[Download](#)

[View the Webinar](#)



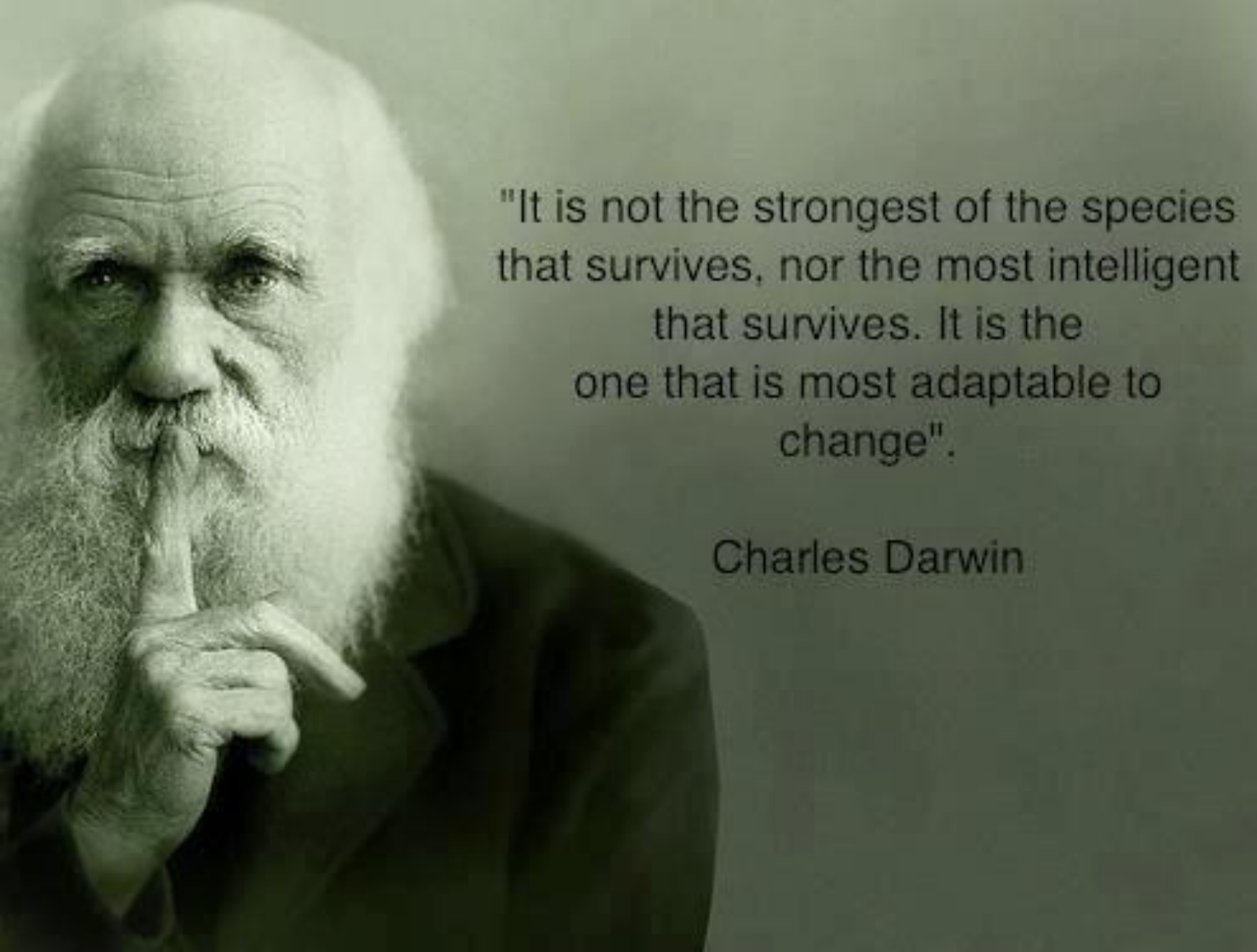
Let's Talk Faith & Climate: Communication Guidance for Faith Leaders

Discover research-tested, values-based messaging that's proven to resonate with people of faith, along with tips on how to deepen engagement and position climate action as a moral imperative.

[Download](#)

[View the Webinar](#)

Judgmental or emotional – will not succeed.

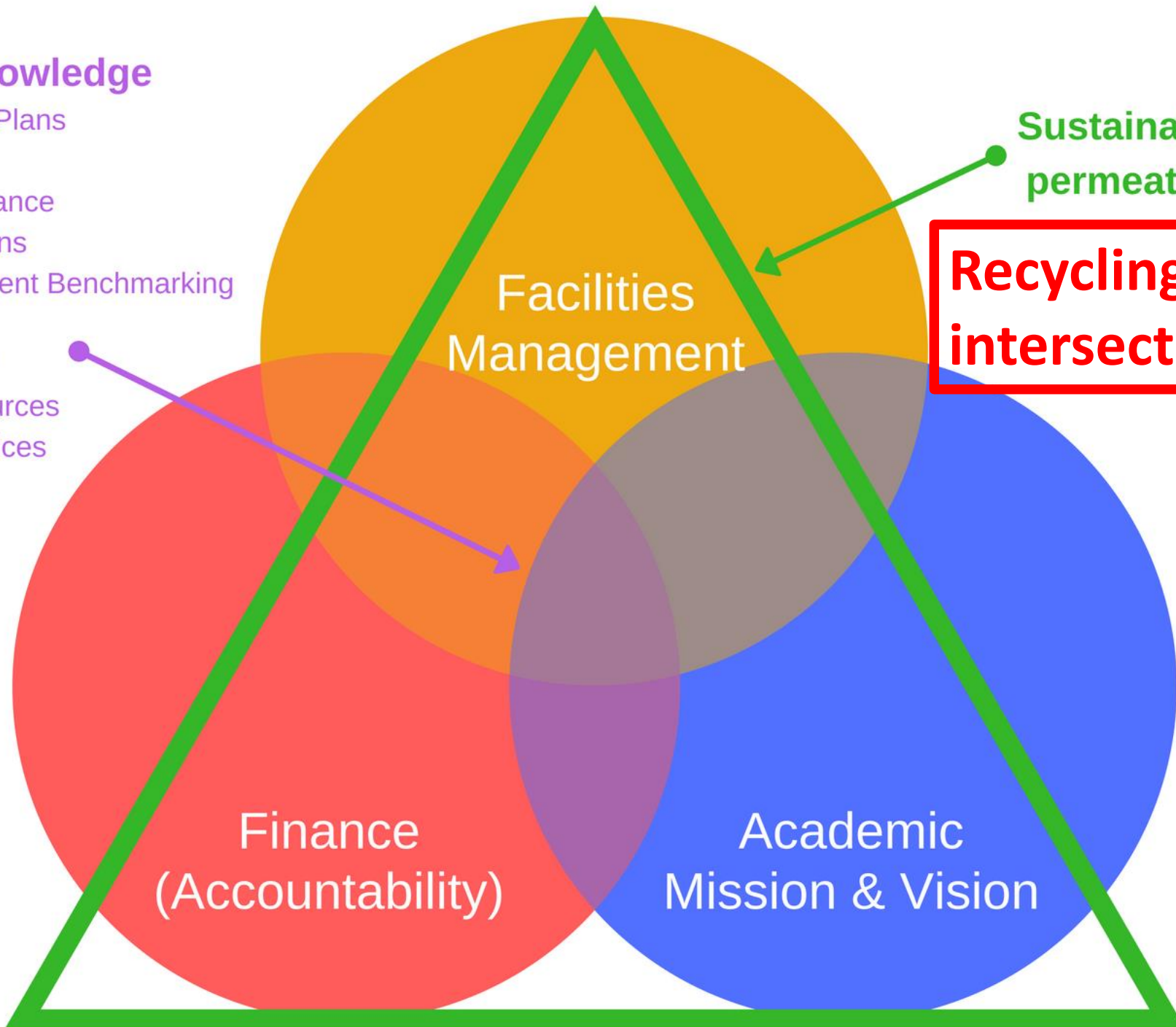


"It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is most adaptable to change".

Charles Darwin

Intersecting Knowledge

- Short/Long Term Plans
- Space Use
- Deferred Maintenance
- Ongoing Operations
- Utilities Management Benchmarking
- Capital Funding
- Energy Efficiency
- Renewable Resources
- Sustainable Practices



Sustainability issues permeate all factors

Recycling CAN intersect all aspects!

Campus Efficiencies Posters

These posters highlight a variety of successful campus efficiencies that are presented at the annual meeting. Poster topics depict many different aspects of efficiency and sustainability. They run the gamut from operational and strategic planning, to major physical plant infrastructure replacement, to residential hall moving savings, organic composting, water savings, behavior changes, and utility infrastructure that all improved campus energy and costs.

The Sustainability Advisory Panel (SAP) of NACUBO suggested these posters for the 2014 annual meeting, and they continue to expand in popularity as a means to explain members' successes.

Results are a great opportunity to share campus success in a method other than a session. Additionally, they are great tools to explain success internally at the campus to students, staff, and community at large.

Check out the posters below from the various years; over 40 campuses in each year with their unique content success. Campus name and the major content of the poster are noted.

2019 POSTERS	2018 POSTERS	2017 POSTERS	2016 POSTERS
2015 POSTERS	2014 POSTERS		

www.nacubo.org/CampusPosters
Presented at Annual Meeting –
approx. 40 each year



CLOSING THE LOOP AT CARLETON

Engaging our students, campus and community to reduce waste, CO₂, and energy

CARBON FREE 2050

Sustainability at Carleton

100% Recycled paper

\$10,000 in energy savings

68% reduction in energy use

3 tons of CO₂ offset



Arizona State University Community-embedded offsets

ASU goal | Achieve climate neutrality by 2025

ASU develops low-cost carbon offsets to benefit the community, enhance education and further research. The following offsets are used to address emissions that are hard to reduce or eliminate:

An innovative approach

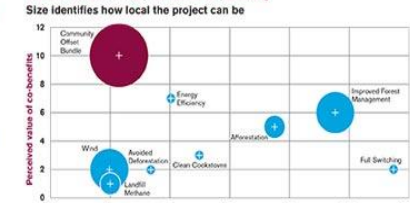
- Offset protocols developed by the Duke Carbon Offset Initiative, or DCOI, enabled ASU to generate offsets through an innovative cost-saving peer-review process.
 - Community Offset Bundles are verified carbon offsets from around the country, combined with local tree planting projects and developed by Urban Offsets, Inc.
 - Initial investments leveraged municipal and philanthropic dollars to plant more urban trees.
- Success to date**
- 201+ volunteers | 402+ hours volunteered
 - 506 trees planted
 - 1,700+ tons of carbon sequestered
 - Fifth-to-ninth-grade urban forestry curriculum developed and piloted
- Beginning in 2018, ASU's Urban Climate Lab will research how the trees affect the Urban Heat Island effect.

Additional environmental benefits	Carbon offsets from the market	Community Offset Bundles
Education opportunity	No, in most cases	Yes
Engagement opportunity	No	Yes
Innovative	Some	Yes
Leveraging community partners	Some	Yes
Local benefits	No	Yes
Research opportunity	No	Yes
Supports ASU Charter	No	Yes
Verified, validated local offsets	Not available, expensive	Yes, low-cost, peer-reviewed



Community groups and leaders engaged
Arizona Department of Forestry and Fire Management, Arizona Public Service, Bank of America, Phoenix City Council, Tempe City Council and Mayor, Tempe Fire, Tempe Police, Habitat for Humanity of Central

Carbon Offset Price | Co-benefits | Locality



www.nacubo.org/CampusPosters

ELON UNIVERSITY

Elon University is a mid-sized private university in Elon, North Carolina, with a student-centered learning environment known for experiential and engaged learning. Sustainability is incorporated through campus operations, engagement opportunities and academics.

OPERATIONS

ENERGY CONSERVATION IN ACTION

MIND THE BIN

GREEN BUILDINGS

ENGAGEMENT

ECO-ARMS

CAMPUS KITCHEN

LOYALTY

ACADEMICS

SUSTAINABILITY FACILITY SCHOLARS

COURSES & RESEARCH

EXPERIENTIAL LEARNING

ENERGY CONSERVATION AT KU MEDICAL CENTER

ENERGY COST FOR FY2017

\$6,958,614

WHAT ARE WE DOING?

- Upgrading to modern HVAC building automation systems
- Scheduling equipment off during unoccupied times
- Designing new construction to maximize efficiency
- Retrofitting to LED lights with occupancy sensors
- Utilizing "smart" Irrigation Management Systems
- Choosing energy efficient equipment
- Installing low-flow water fixtures

WHAT'S THE IMPACT?



CHANDLER-GILBERT COMMUNITY COLLEGE FOOD WASTE RECYCLING PROJECT

INNOVATIVE. COLLABORATIVE. EXPERIENTIAL.

MULTI-DISCIPLINARY COLLABORATION



CGCC's Food Waste Recycling Project is a campus-wide ongoing collaborative project that offers deep, cross-disciplinary, experiential student learning via an innovative solution for CGCC's food and green waste. Faculty across disciplines are connecting with leaders in college operational departments to optimize the student learning experience. CGCC students play an integral role throughout this project, which offers a unique opportunity to practice translational science, bringing new ideas to the public while fostering critical thinking and confidence in their innovative potential. The long-term goal is for this model to be used throughout the Maricopa Community College District and for this fertilizer to be disseminated to our surrounding agricultural community through city partnerships established by students.

OPERATION DEPARTMENT



FOOD WASTE COLLECTION BINS & EDUCATIONAL POSTERS

Biology students collaborated with the marketing department in fall 2018 to produce

- educational posters and awareness flyers

that encourage participation in food waste sorting among the college campus community.

FOOD WASTE COMPOSTING & ANALYSIS

- Facilities staff delivers **daily food waste** collection to the campus garden.
- Biology students **weigh, sort, and traditionally compost** food waste collected on campus while the biodigester is under construction.
- Food waste is layered** with hay inoculated with fungus and bacteria to help break down the food waste.

ORGANIC FERTILIZER PLANT STUDIES

- Biology students conducted quality comparison studies on **"organic recycled fertilizer vs standard chemical fertilizer"** for a variety of plant species.
- Future tests will be conducted with the biodigester's liquid fertilizer product to **refine the formula.**

BIODIGESTER DESIGN

- Biology students conducted experiments to find the **best aerobic bacteria strains** to break down food and landscape waste inside the biodigester machine.
- Engineering students **presented four 3D modeled design options** to a panel of CGCC leadership. The winning design was then modeled in **SolidWorks**, a 3D CAD software.

BEHAVIOR STUDIES

English students develop and conduct a series of "sustainability mindset" surveys to **assess food waste recycling behaviors and attitudes**, which are evaluated to track behavior change and attitude shifts while informing target areas for future projects or events.

Do you think that food scraps/food waste will fully biodegrade when sent to the landfill?

Response	Percentage
Yes	~65%
No	~25%
Not sure	~10%

- Biology students **weigh the cafeteria food waste before and after sorting out the non-food items.** Understanding campus behavior around food waste guides students in determining the techniques needed to increase awareness and modify behavior.

1,370 POUNDS OF FOOD WASTE collected on campus & diverted from the landfill

37% CONTAMINATION RATE from non-food items in cafeteria collection bins

BIODIGESTER CONSTRUCTION & COMPLETION

- Engineering students and faculty worked in teams on campus to **construct and assemble** the biodigester components.
- The biodigester was **completed at the end of spring 2019** and successfully completed its first test run. The machine will be used to process daily food waste collected on campus starting fall 2019.

1/3 of the world's food production ends up in the **trash** resulting in 1.3 billion tons of edible food wasted.



In the United States, huge amounts of chemicals, energy, fertilizer, land as well as **25% of all freshwater** is used to produce food that is **thrown away**.



- Two-thirds of food waste is due to **spoilage** from not being used on a timely basis.
- One-third of food waste is caused by people cooking or serving **too much**.



25% of methane emissions

Since only 3% of food scraps in the U.S. are composted, most uneaten food **rots in landfills** where it accounts for almost

CCBC's Waste Reduction Efforts:

Weekly "Pop-Ups" by Hungry Harvest
Opportunities to buy "ugly" fruits and vegetables that are a little off-size, a little off-color or a little overproduced. Otherwise, this produce would go unsold and end up in landfills.

Each week's bag of produce costs \$7 for students and \$10 for faculty, staff and community. Hungry Harvest accepts cash, credit, debit and SNAP/EBT (Public Assistance)



1,698 bags of produce purchased and saved from the landfill in FY2019

Food Recovery at College Events
Catered food left over from events, meetings and conferences is gathered, packaged and distributed to community homeless shelters and crisis centers.

Each campus has a team of volunteer students, faculty and staff who pack and deliver the food.

Event organizers can choose "food recovery" as an option when determining the event set-up.



Eastern Family Resource Shelter

Dundalk Family Crisis Center

County Westside Men's Shelter

Pounds of Food Recovered Each Year



Student Life Food Pantries
Any student can visit the Food Pantry—no questions asked.

3,206 students used one of CCBC's three food pantries in FY2019.

Donations of non-perishable food and dollars come from faculty, staff, community members, and sometimes students.

About 25% of community college students experience food insecurity according to a study by the National Student Campaign Against Hunger and Homelessness.



UAB's Sustainability Strategic Plan 2019 — 2025

UAB's Sustainability Strategic Plan for 2025 is the result of the entirety of meetings, conversations, listening sessions, presentations, and broader dialogue on campus and in the community over 18 months. The Plan reflects a vision that aligns with the university's shared values and concisely outlines the goals and strategies we will pursue over the course of the next six years.



Air, Climate, & Energy

To establish a clean energy standard of 20% renewable energy sourcing by 2025 and cut greenhouse gas emissions, improve resiliency, and increase overall energy efficiency

Food & Dining

To support environmentally responsible dining operations, minimize food waste, and support local and sustainable food production



Water

To promote water conservation through efficient use and innovative management



Buildings

To design, construct, and maintain buildings in ways that provide a safe and healthy indoor environment for users while simultaneously mitigating the building's impact on the outdoor environment



Transportation

To draft policies with five-year and ten-year benchmarks for sustainable transportation solutions that mitigate emissions, traffic congestion, and parking concerns



Grounds & Waste

To produce a comprehensive waste management plan in partnership with external stakeholders to reduce disposal of waste in local landfills and develop the university grounds for ecological stewardship



Campus Engagement



To effectively engage students, faculty, and staff in collaborative pursuit of UAB's social, environmental, and economic sustainability goals by sharing information and inspiring active participation.

Public Engagement



To provide sustainability education information and programs for a broad regional, national, and international community

Curriculum

To integrate sustainability as a key concept where applicable so that UAB students have the opportunity to gain experience through coursework



Research

To support interdisciplinary research, scholarship, and creative activities related to sustainability and encourage sustainable research practices



Diversity

To promote a more inclusive and equitable environment where faculty, staff, and students can thrive, and reinforce our commitment to working with local and diverse suppliers



Purchasing

Develop sustainable purchasing practices and protocols to exercise UAB's purchasing power toward maximizing environmental stewardship, protecting human health, and supporting local and global sustainability

Wellbeing & Work

To support the links between healthy and sustainable lifestyles and their impacts on work life



OUTSTANDING ORGANICS AT UNITY COLLEGE

5/2016	7/2016	10-12/2016	1-4/2017	4/2017	7/2017	8/2017	1/2018
A student presented options for on-site processing of organic waste to increase the College's diversion rate from landfills.	The Business Office and Sustainability Office contracted Agri-Cycle and Exeter Agri-Energy to collect and process organic waste from dining facilities.	<i>Environmental Solutions and Scenarios</i> class projects demonstrated that 40-60% of residence hall waste is organic and most students are eager to recycle it!	Sustainability Office, Residence Life, and Facilities launched a pilot organics collection in one residence hall. Student residents were trained in the new system.	Residential organics collection pilot was declared a success and received the green light to expand to all residence halls.	Dining Services won Gold in Waste Management and the overall Sustainability Grand Prize at the National Association of Colleges & University Food Services (NACUFS) Conference.	Sustainability Office and Facilities expanded the organics program to all residence halls. Existing bins were retrofitted to save costs.	Administrative offices voluntarily piloted organics collection for employees... more to come!



*Agri-cycle energy image

INGREDIENTS FOR SUCCESS:

CONSISTENCY

PARTNERS

PURCHASING

TRAINING



Waste per student per year

15-pound bags or bins



PROGRAM COSTS

First Year

- Operation: \$1,400 for pick up
- \$1,995 for disposal

• Infrastructure: \$450

Organics bins for dining, signage, and one trail bin for residence hall

Second Year*

- Operation: \$1,100 for pick up
- \$2,303 for disposal

• Infrastructure: \$2,500

Bins for expansion of program to residence halls.

*Data through end of May FY18

Total Cost to Date = \$9,748

Total Tons Diverted to Date: 217



Luther College—On the Road to Zero Waste



What is a Pulper?



In 2016, Luther installed a WasteXpress System in the cafeteria dish room. Before, students were responsible for scraping their own compost and trash before placing dishes on the carousel.



Now, the scraping happens behind the scenes in the dish room. The pulper pulverizes consumer plate waste and removes 90% of the moisture. This process makes the finished product much easier to break down in the college compost pile, reduces the volume needing to be transported to the college farm, and makes the compost cleaner with no silverware, plastics or other contaminants.

Overall, the pulper will help Luther College reach the goal reducing organics sent to landfill by **90%**.

Campus Impact

The student Union houses three out of the four campus dining locations, including the cafeteria. Waste audit results show the impact of the pulper on contents of the Union dumpster.

Before the Pulper:

70% organics



70% Organics, 26% True Trash, 4% Recyclables

After the Pulper:

12% organics



12% Organics, 75% True Trash, 13% Recyclables

“True trash” can be defined as any item that can not be recycled, reused, or composted through our current infrastructure. The goal is to be close to 100% true trash.

Zero Waste Goal: Reduce dining services food waste (% of organics in the dumpster) by 90% by May 2018.

Waste Infrastructure Improvements

Recycling Roll-Off

In 2014, blue recycling roll-offs were strategically placed outside of all residence halls to serve as drop off points for paper, plastic/metals, and cardboard recycling.



Personal Blue Recycling Bins

At the same time, personal blue recycling bins were placed into every residence hall room in order to put the responsibility on the student to sort their recyclables.



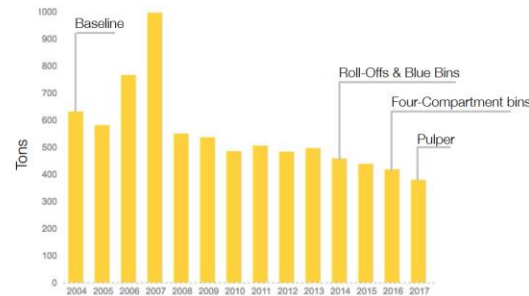
Four-Compartment Bins

Four-compartment bins were placed in central locations throughout all academic buildings on campus in 2016. The four-compartment bins provide students, staff, and faculty abundant opportunities to conveniently compost and recycle plastics/metals and paper.



Solid Waste Reduction

40% reduction from baseline
24% reduction since streamlining waste infrastructure



Zero Waste Goal: 50% reduction in campus waste by May 2018, 70% by 2020, and 90% by 2025.

Move-Out Efforts

Luther's move-out process is the most engaging sustainability education initiative that occurs during the year.

Through signage and one-on-one education, students are encouraged to donate usable items to the donation collection room in their residence halls and to recycle all paper, plastic, metal and cardboard.

Last move-out there were...

10 Total donation rooms conveniently located around campus

37 Luther students that volunteered their time or helped through work study

400 Total hours of help towards on campus move-out efforts

Students donated...

11 full 18' trucks of clothing, furniture and other materials for local thrift stores

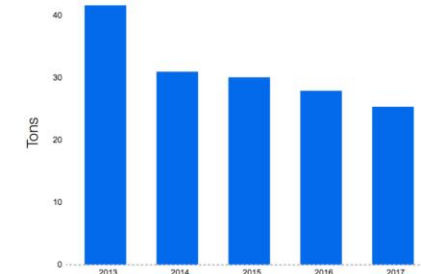
300 pounds of toiletries and laundry soap

1600 pounds of food to the food pantry

Volunteers were in charge of ensuring that only “true trash” lands in the dumpsters. They organized donation rooms, loaded donation trucks, dumpster dived for items that should be recycled or donated, and answered any questions students may have had.

Outcomes

40% reduction in move-out waste over the past 5 years



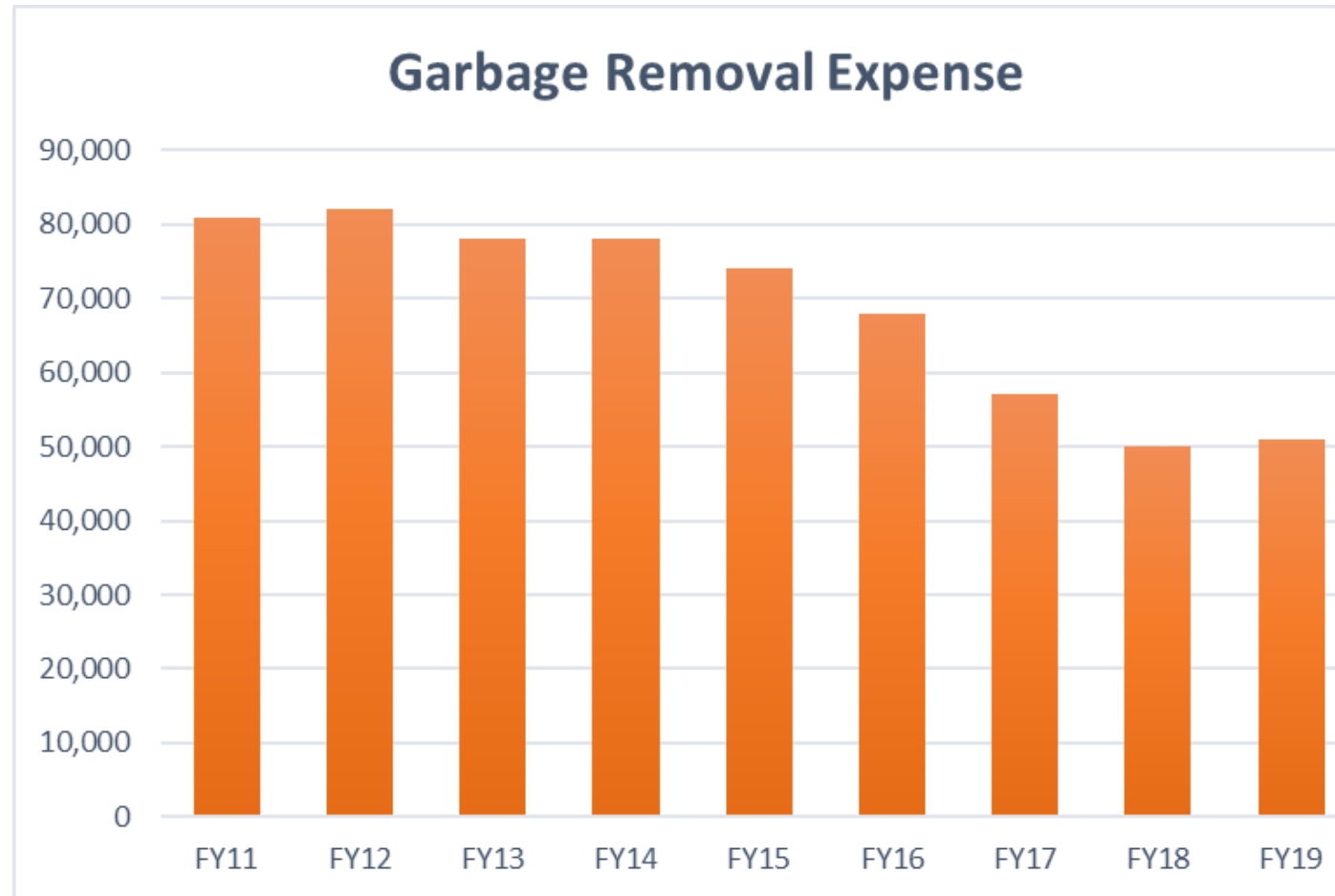
Zero Waste Goal: Reduce move-out waste 50% by May 2018.

Garbage Reduction

- Campus has a long history of recycling, in the late 90's it was reported out yearly to campus.
- After significant work on composting and recycling garbage bill kept going up.
- **Steps:**
 - Conversation with hauler to add scales to their trucks
 - After a month of data could see many dumpsters were nearly empty at pickup
 - Removed dumpsters, renegotiated rates - less trucks on campus, more recycling

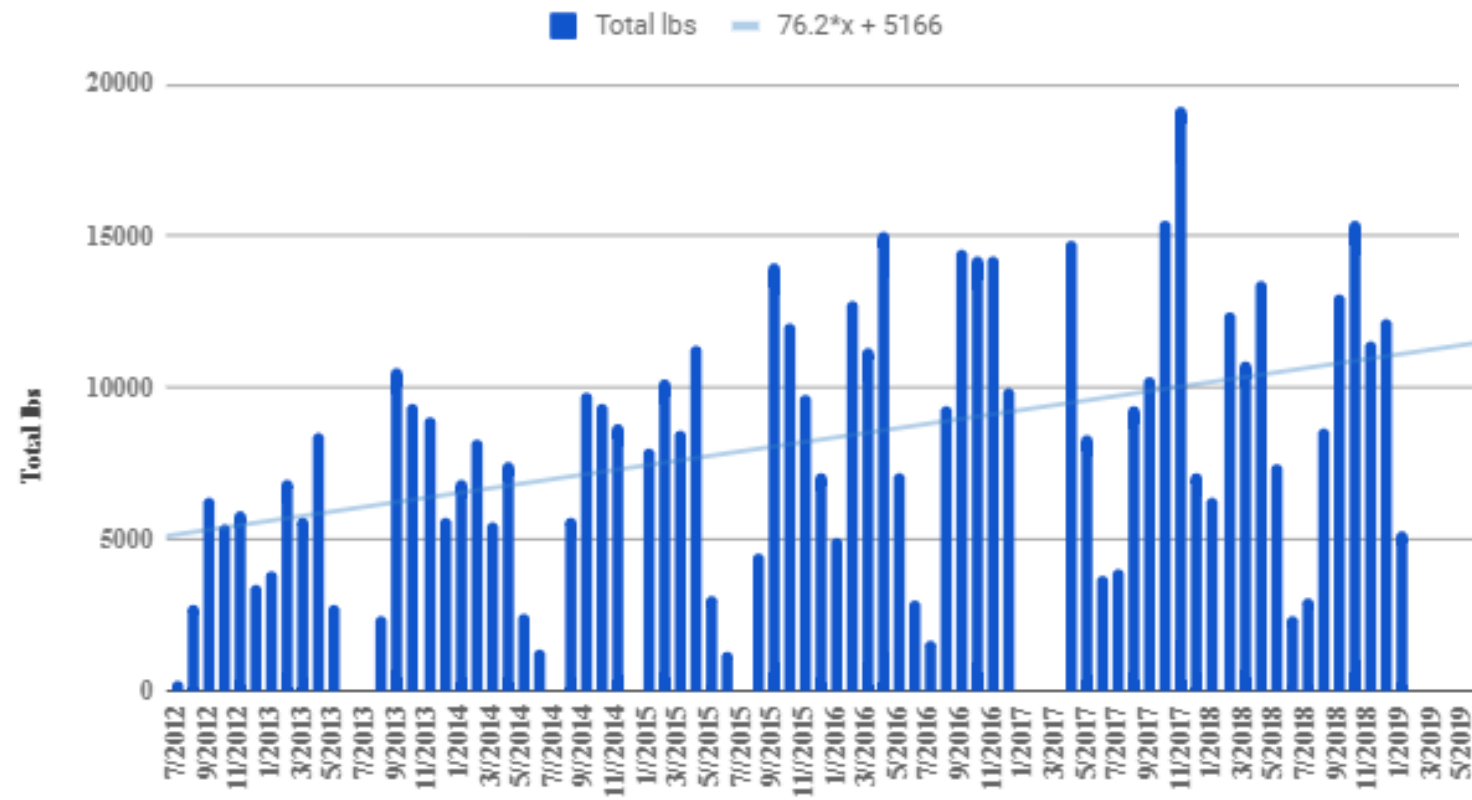
Garbage Reduction - \$30,000 for campus

- Steps:
 - Talked with custodial staff about eliminating dumpster locations
 - Worked on heavy garbage days = move in/out days, picnics, large campus gatherings to cut down on garbage

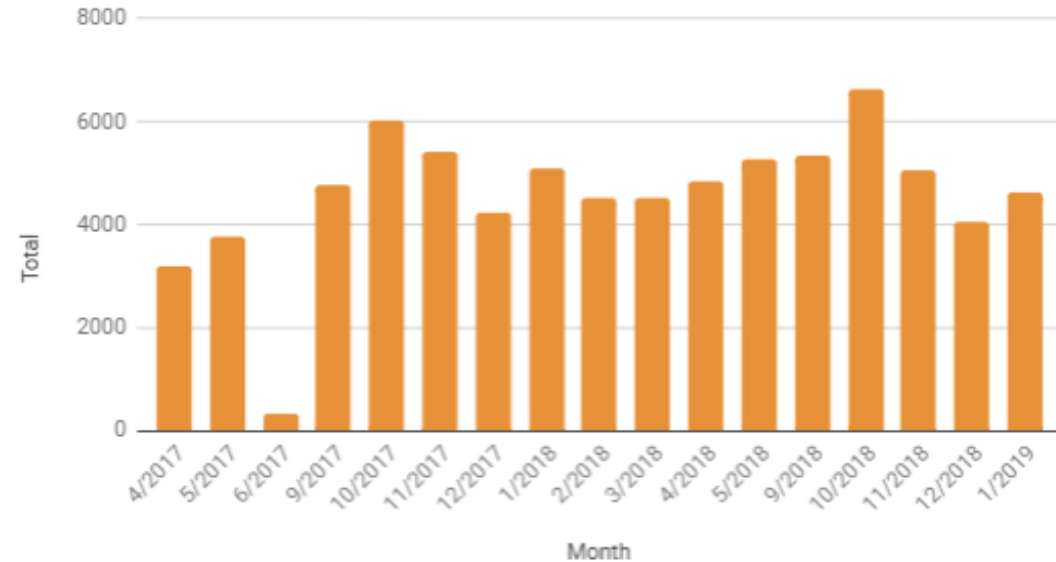


Composting

Pounds (lbs) of Compost Per Month 2012-2018



MAS Monthly Composting 2017-19 (lbs)



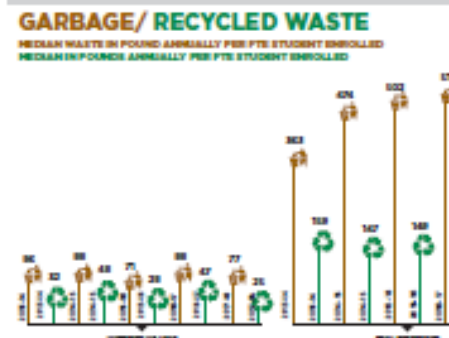
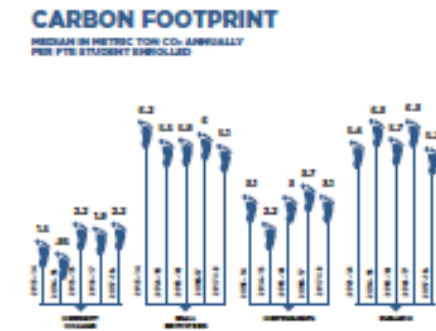
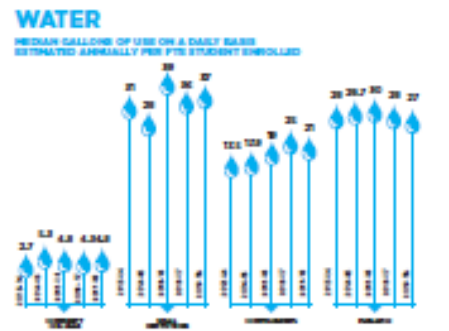
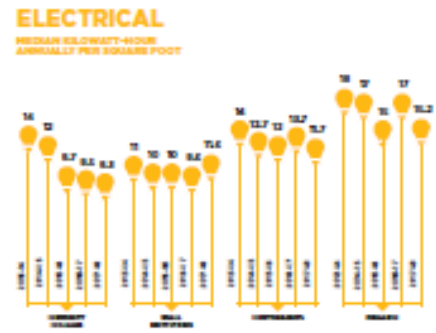
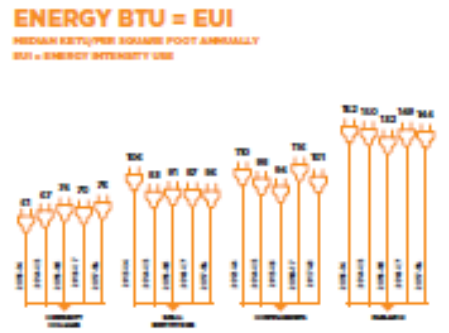
Cost Savings – Know your metrics Key Facilities Metrics

Survey due by
Dec 13, 2019, for
2018-19 Academic Year
<https://www1.appa.org/nacubosurvey19/>

Key Facilities Metrics Survey

EVERY CAMPUS LEADER SHOULD KNOW THESE SIMPLE METRICS!
THESE METRICS ARE A GATEWAY TO BETTER PLANNING AND DECISION-MAKING FOR YOUR CAMPUS.

To view median results from five years of surveys regarding BTU/EUI (energy), kilowatt (electric), water, waste, and carbon footprint – visit www.nacubo.org/KeyFacilitiesSurvey. To analyze for your specific campus needs with different ratios – visit www.appa.org click on “Services”.



Benefit YOUR campus and collect this data! Fill out by Dec 13, 2019 for the 2018-19 academic year.

Open to all! Results available at no charge.

“This Key Facilities Metrics data is relevant and straightforward—and can be especially helpful to smaller institutions, which may lack the resources and capacity to otherwise generate such simple, comparable, and actionable information.”

eric humstad, vice president for finance and administration, Luther College

“Our Vice President consistently wants us to simplify metrics so we can hone in on improving, and the Key Facilities Metric survey gives us this basic, simple platform to evaluate our progress. Leadership needs to have simple metrics to remember and relate to, and while we have a great deal of data, we consistently go back to these simple Key Facilities Metrics.”

jestica wong, i.s.i.o. associate director, analytics and communications, facilities management, georgia institute of technology

“The Key Facilities Metrics Survey allows us to not only see how we’re performing year-to-year but also see how we’re doing amongst our peer institutions. That helps us identify where we could see more savings through efficiency measures.”

keith covey, former assistant director, facilities services, michigan state university



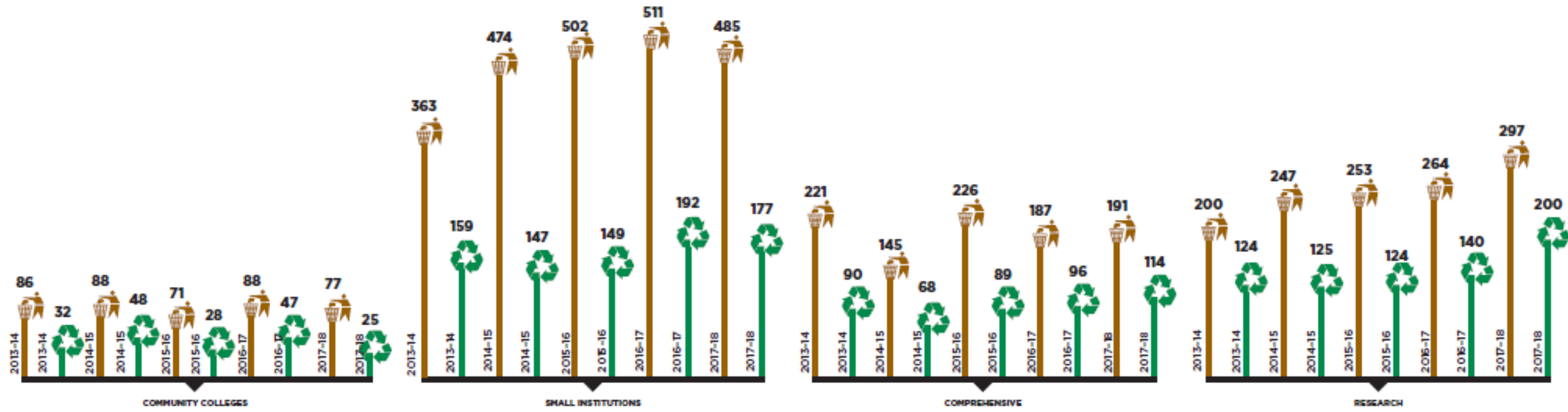
Data to Compel – Relatable Graphics!

- Weight
- Units
- Cost

What works for YOUR campus?

GARBAGE/ RECYCLED WASTE

MEDIAN WASTE IN POUND ANNUALLY PER FTE STUDENT ENROLLED
MEDIAN IN POUNDS ANNUALLY PER FTE STUDENT ENROLLED





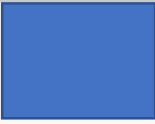
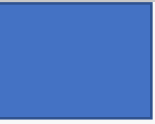
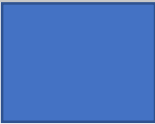

Data to Compel – Relate Waste to Weight

- **Community College** student – annual per year:
88 pounds garbage + 44 pounds recycle = 132 Pounds
- **Research University** student – annual per year:
264 pounds garbage + 140 pounds recycle = 404 Pounds



Data to Compel:

Unit Analysis at exclusive rural liberal arts campus -

<i>MON</i>	<i>TUE</i>	<i>WED</i>	<i>THU</i>	<i>FRI</i>	<i>SAT</i>	<i>SUN</i>
						
						

- Required policy change – communicate effectively – explain!
- Saved approx. 25% in cost
- Community appreciated less trucks in their area
- Improved carbon from less large trucks

Fill out the survey!

www.nacubo.org/KeyFacilitiesSurvey

Per Gross Square foot and Per SFTE
5th year results available

www.nacubo.org/KeyFacilitiesSurvey

Survey for 2018-19 Open NOW –
Closes Jan 17, 2020

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ENERGY BTU = EUI

MEDIAN BTU PER SQUARE FOOT ANNUALLY
EUI = ENERGY INTENSITY USE



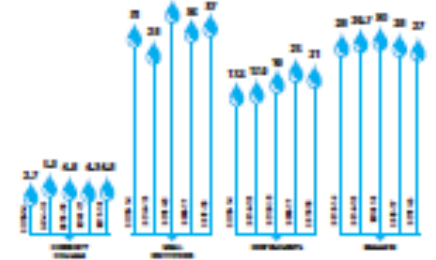
ELECTRICAL

MEDIAN KILOWATT-HOUR ANNUALLY PER SQUARE FOOT



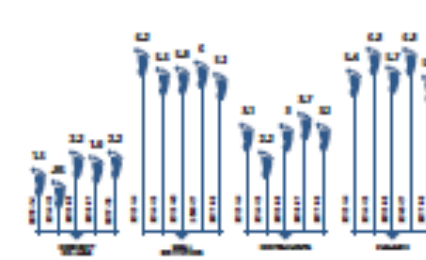
WATER

MEDIAN GALLONS OF USE ON A DAILY BASIS ESTIMATED ANNUALLY PER FTE STUDENT ENROLLED



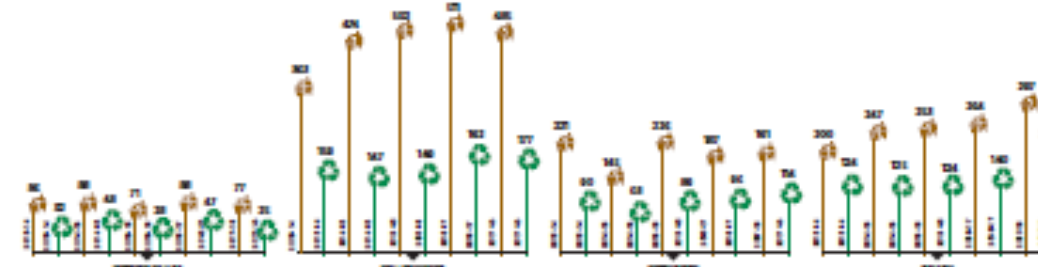
CARBON FOOTPRINT

MEDIAN METRIC TON CO₂ ANNUALLY PER FTE STUDENT ENROLLED



GARBAGE/ RECYCLED WASTE

MEDIAN WASTE IN POUNDS ANNUALLY PER FTE STUDENT ENROLLED
MEDIAN RECYCLED WASTE IN POUNDS ANNUALLY PER FTE STUDENT ENROLLED



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Jason Drey, LEED CS, associate director, analysis and communications, facilities management, Georgia Institute of Technology

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Kate Green, former assistant director, facilities services, Clark State University



Communicate YOUR Plan with Website and Links

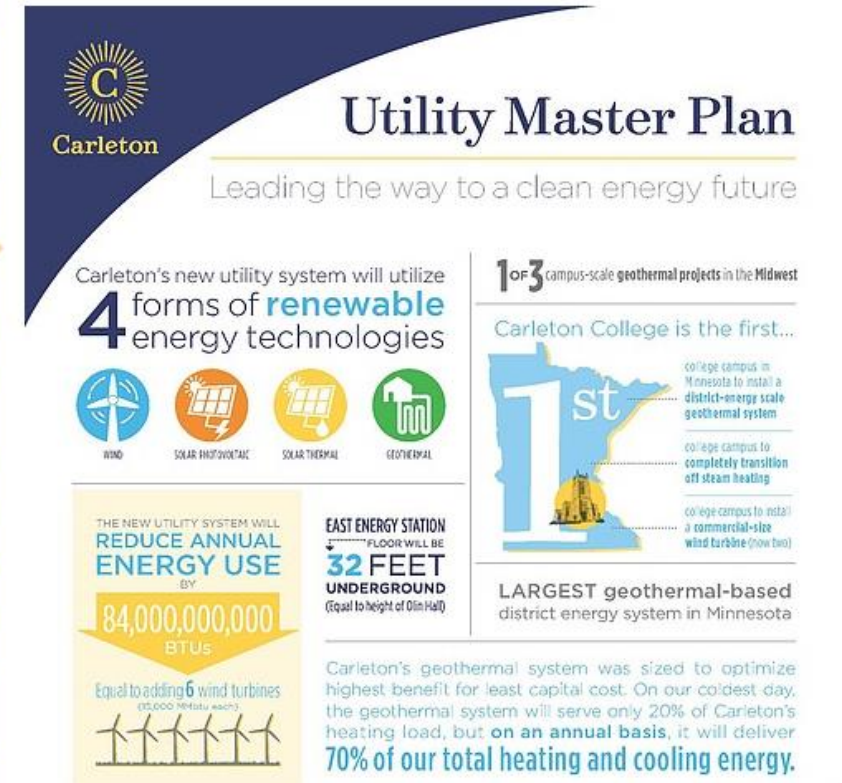
Tell YOUR Story!


Facilities Management

- Facilities Management Home
- Request Services
- Staff and Services
- Buildings and Maps
- Campus Projects
- Circulation Plan
- Integrated Science Facility
- Utility Master Plan**
- Recent Major Projects
- Fiscal Year 2019-2020 Projects
- Fiscal Year 2018-2019 Projects
- Fiscal Year 2017-2018 Projects
- Fiscal Year 2016-2017 Projects
- Fiscal Year 2015-2016 Projects
- Construction Design Standards
- Composting, Recycling, and Sustainability
- Energy and Environment
- Departmental Policies

Utility Master Plan

To learn more about the Utility Master Plan and see project updates see the [Utility Master Plan site](#).



Carleton  **Utility Master Plan**
Leading the way to a clean energy future

Carleton's new utility system will utilize **4** forms of **renewable** energy technologies

- WIND
- SOLAR PHOTOVOLTAIC
- SOLAR THERMAL
- GEOTHERMAL

1 of 3 campus-scale geothermal projects in the Midwest

Carleton College is the first...
college campus in Minnesota to install a district-energy scale geothermal system
college campus to completely transition off steam heating
college campus to install a commercial-size wind turbine (now two)

LARGEST geothermal-based district energy system in Minnesota

THE NEW UTILITY SYSTEM WILL **REDUCE ANNUAL ENERGY USE** BY **84,000,000,000 BTUs**
Equal to adding **6** wind turbines (32,000 kWh/yr each)

EAST ENERGY STATION FLOOR WILL BE **32 FEET UNDERGROUND** (Equal to height of Olin Hall)

Carleton's geothermal system was sized to optimize highest benefit for least capital cost. On our coldest day, the geothermal system will serve only 20% of Carleton's heating load, but **on an annual basis**, it will deliver **70% of our total heating and cooling energy**.





Focus on Reduce: Education, Outreach, and Marketing to Prevent Waste

Thursday, Dec. 12, 2019

Sally Grans Korsh, Senior Advisor
Facilities Management & Environmental Policy
National Association of College and University Business Officers

sgranskorsh@nacubo.org

202-861-2571



Collaboration with Faculty Involved

- Operationally: long break times
- First week of December (finals – no labs) until start of labs second week in Jan.
- Moved chemicals from 64 fume hoods to 8 fume hoods; saving thousands

