

EDUCATION PARTNER

ALLEGHENY COLLEGE



Implementation Model: **Campus Energy Efficiency Challenges**

ORGANIZATION TYPE

Higher Education Institution: Small liberal arts college

BARRIER

Lack of campus awareness and engagement on energy use issues, especially due to turnover of quarter of community each year

SOLUTION

Annual Energy Challenge encompasses numerous events aimed at energy use education and reduction

OUTCOME

Campus-wide electricity use reduction of 10% during Challenge, funds raised for campus solar panels, elevated awareness of strategies for energy use reduction

Overview



ALLEGHENY COLLEGE

Allegheny's Climate Action Plan calls for a multipronged approach to reducing greenhouse gas emissions: maximize operational efficiency, purchase renewable energy, and modify behaviors to reduce impacts. A successful behavior modification endeavor is the Annual Energy Challenge. It was conceived as a means of educating and engaging the entire campus community about the importance of personal energy usage as a means to reduce the campus carbon footprint. Campus members are challenged to reduce consumption by 10%, while organizing fun events and educational efforts to engage the campus in the process.

Cost savings resulting from energy reductions during the Challenge go directly to fund solar panels or other sustainability features installed on campus each year.

Allegheny College's Playbook

Policies



An agreement with the Finance Office ensured all utility savings associated with the Energy Challenge would be set aside for use in purchasing solar panels for the campus.

Process



Issuing the Challenge

In 2010, the Sustainability Coordinator issued the first campus-wide Energy Challenge: reduce campus electricity consumption by five percent throughout the month of October (compared to previous years' usage).

The Challenge required new efforts on many fronts:

- Developing strategies for calculating baselines and monitoring weekly results;
- Communicating progress to many different sectors of the campus;
- Using media and events to raise awareness, engagement, and action; and
- Forging collaborations between the Sustainability Coordinator and many campus entities including Student Government, Physical Plant, Residence Life, Dining Services, building secretaries, professors, and numerous student groups.

Calculating Baselines and Savings

Electricity consumption baselines are calculated for each individual campus building, using historical usage data. For the first years of the Energy Challenge a 2008 baseline was used. Since we've also pursued energy efficiency retrofits across campus over the ensuing years, we will switch to a new baseline model next year in which energy consumption in the four week's preceding the Challenge will be used as the baseline. Throughout the Challenge, weekly usage is tracked through the use of sub-meter data for 25 buildings as well as manual meter readings for several other buildings and campus owned houses. Weekly results are calculated and advertised to recognize overall campus progress towards the goal of 10% reduction as well as foster competition amongst dorms ranked by their percent reduction.

Rewarding Success

From 2011-2013, energy cost savings attributable to the Energy Challenge were used to purchase solar panels for a campus array. Performance of the campus solar panels can be viewed on an [online dashboard](#). Now that this array has filled the available roof space, 2014 savings were directed to the purchase of nearly a dozen filtered water refill stations based on a student vote of how savings should be used.

New Directions for the Energy Challenge

Sustainability coordinator Kelly Boulton and Environmental Science professor Eric Pallant are always looking strategically at the program to make improvements and increase impact. Boulton and Pallant are examining which activities have historically had the most impact on energy reduction. One key finding is that fun trumps competition. A month-long schedule of promotional events, including events such as Yoga in the Dark, flashlight tag, and acoustic open mic night, emphasize community over competition. These build participation and support for the challenge by drawing a diverse array of students into the message through enjoyable events (see the 2014 schedule under Tools and Resources). These types of student-led activities will be encouraged during future Challenges.



Outreach

There are many causes, events, and programs on campus vying for students' eyeballs and limited time. Boulton and Pallant have found that a multi-channel approach, precise timing, and eye-catching messaging are key to student participation.

Fall Break Kick-off and 'Steal the Sign' Campaign

In 2014, the start of the Challenge coincided with Allegheny's Fall Break. Fall Break shutdown checklists were hung throughout the dorms and a student group "dormstormed" to raise awareness of the upcoming Challenge. When students returned from break, a ['Steal this Sign'](#) campaign was revealed throughout academic buildings featuring goofy pictures and messages from popular professors advising students to turn off lights, shut down computers, etc. Students were encouraged to steal the signs to post in their dorm rooms and common spaces which allowed the message to spread organically. The 'Steal the Sign' campaign gave the Energy Challenge somewhat of a following with students coveting professors' energy efficiency signs like valuable baseball cards.

Boulton and Pallant believe creating a [culture of sustainability](#) drives energy savings. They are focused on connecting with students about energy as soon as they arrive as freshman and throughout their college experience at Allegheny -- not just during the Challenge. Outreach takes many forms including:

Media

General Challenge details and results were communicated via the myAllegheny webpage, Gator Green [Facebook](#), [Twitter](#) and [Instagram](#) accounts, and signs posted around campus highlighting both cumulative and building-specific results.

Student Groups

The Sustainability Coordinator works with Resident Assistants (RAs) in residence halls and student groups across campus to offer educational materials and help organize fun awareness/engagement events around the Challenge to inspire responsible energy consumption behaviors including:

- Allegheny Student Government: meeting in the dark
- Parkhurst Dining Service: dinner in the dark
- Sustainability House: concert, cookout, bonfire
- Astronomy Club: stargazing
- Grounds for Change coffee house: acoustic open mic night
- Queers & Allies: Do it in the Dark campaign
- Green Living and Learning Community: fire ring and glow bocce
- Ravine Residence Hall: hide and go seek in the dark

Curriculum and Professors

Students in environmental science courses were tasked with adopting buildings and implementing unique education methods, resulting in [You-tube videos](#), newspaper articles, HVAC shutdowns and more. The Environmental Science 110 Course spearheaded a number of efforts including: the Line Dry campaign, Green Man video, community TV events to prevent watching on multiple screens, a music video, and collaborations with building secretaries, occupants, and Physical Plant Allegheny's HVAC specialist was recruited to use the Building Automation System to identify opportunities to strategically turn off all equipment in some of the buildings with the largest consumption (Campus Center, gym/pool, library) for short periods of time balancing maintenance of occupant comfort with the realization of reductions. Building secretaries were enlisted to ensure lights were regularly turned off in common spaces at the end of workdays as well as when natural light was sufficient or spaces were unoccupied.

Tools and Resources



Allegheny College tracks energy use at the building level where possible through [Energy Star Portfolio Manager](#) (which also weather normalizes the energy data).

The College shares the following additional resources developed to track and promote the Energy Challenge:

- Detailed spreadsheet to track cumulative energy savings from challenge
- Advertisements, pledges and publicity highlighting results
- Schedule of 2014 Challenge events

Measuring Success



Energy reduction success is calculated by comparing the current year's consumption in kWh (based on sub-meter reports and manual meter readings) to calculated baselines for each building and then the campus overall. At the end of each week, signs are posted at entrances to every dorm with the overall results (in % reduction, kWh saved, and dollars saved). Dorms are ranked by percent reduction, further encouraging friendly competition. Results, reminders and suggested tactics are also shared on social media.

Outcomes



The original challenge in 2010 was to achieve a 5% campus-wide goal. Since this goal was easily exceeded, the challenge has been a 10% reduction in subsequent years, which we typically can achieve. In addition, there is an average persisting reduction of 5.6% in the month after the Challenge. Starting in 2011, solar panels have been purchased with the energy savings and installed in a growing array on campus. By 2013, this array filled the roof space and students voted to use the 2014 savings to install nearly a dozen filtered water refill stations on campus to help support the use of reusable bottles and discourage the purchase of bottled water.

Year	Percent Reduction	Energy Use Reduction (kWh)	Energy Cost Reduction (\$)	kW Solar Installed on Campus with Savings
2010	10%	95,654	5,739	
2011	9.8%	100,863	7,060	1.68
2012	7.8%	84,791	7,143	2.24
2013	7.2%	78,040	6,574	3
2014	10.6%	101,870	8,745	Water refill stations