

## Berea College, Berea, Kentucky

### Campus Conservation Nationals 2014 Case Study



#### GENERAL

Berea College, CPO 2211, Berea, Kentucky 40404

Berea College was founded in 1855 by abolitionist John G. Fee as the first interracial and coeducational college in the South. Berea charges no tuition and admits only academically promising students, primarily from Appalachia, who have limited economic resources. Berea is considered a work college, offering an innovative concept in higher education that purposefully integrates a college education with valuable work experience and service to others. All Berea students participate in a labor program to offset tuition costs.

#### WHAT TYPE OF COMPETITION DID YOU DO?

Electricity

#### DID YOU PARTICIPATE IN A GROUP COMPETITION?

Yes, Bluegrass Unplugged with participating campuses UK, University of Louisville, Western Kentucky University and Berea College.

#### SCHOOL

Berea College, private, minority serving institution, 4-year, 1620 students, Berea, Kentucky.

#### ABSTRACT

Berea College reduced electricity usage by 11.3% with 14 buildings and 1216 residential students participating. We established a first-ever EcoChallenge Committee made up of 10 active student committee members that worked tirelessly before and during the competition to reach our stated goals to win Bluegrass Unplugged for Kentucky and place in the top 10 nationally. (EcoChallenge committee composition below. NOTE: Both CCN and Recyclemania happened at the same time, so this team was responsible for both competitions. The committee compiled data on a weekly basis for each competition and distributed the "leader board" info to all students as well as each hall coordinator that served as dorm captains. There were incentives provided including a laser tag and ice cream bar for the winner of each competition.

#### GOALS AND OUTCOMES

##### Goals

Our goals were to win for the state of Kentucky in the Bluegrass Unplugged competition and place in the top ten nationally. There were no specific kilowatt reduction goals set; however, we watched the Lucid dashboard daily both for our own internal information and how we were stacking up against our Bluegrass Unplugged schools. With these tangible goals, we also set a goal to educate how each person can personally reduce consumption not just for the competition, but for the long term. We communicated the importance of energy reduction to our environment globally and locally here in Kentucky that experiences environmental devastation from coal extraction. We spoke to numerous student groups prior to and during the competition to reinforce this educational goal.

## Accomplishments and Outcomes

We reached both our tangible goals and believe we positively educated the campus community on how to reduce energy considering every dorm ended up in the green! We reduced the electricity usage by 11.3%, which is equivalent to saving 33,384 kWh.

## Challenges and Responses

Biggest challenge was awareness of the competition at all. Students were most familiar with previous years' Recyclemanias, but not CCN. Recycling is such a tangible action, but we knew we would have to reinforce over and over the direct connection between behavior and energy savings. Another challenge was no established student-led competition committee or communications strategy in place from which to build. These initiatives were done from scratch. We branded both CCN and Recyclemania under the name BC Sustainability EcoChallenge with a communications strategy that gave equal attention to both competitions (poster attached). The EcoChallenge Competition Committee we developed was a volunteer position, yet we had job titles and descriptions for each role and conducted "job" interviews to select the team (titles below).

## Commentary and Reflection

For us, the key to it all came down to these elements:

- 1) Extremely talented student led competition committee with broad representation from various academic majors (i.e., not just students from environmental studies). Job titles and job descriptions helped foster a high functioning team.
- 2) Consistent communications with specific data about goals and weekly data about how we were doing to meet those goals: Face to face presentations, meetings with residential life staff, emails, Facebook postings, Carbon Neutral Basketball game.
- 3) Student-determined incentives for reaching goals.

## ENGAGEMENT AND SUPPORT

### Leaders and Supporters

Our EcoChallenge committee met weekly and was comprised of the following roles:

Advisors: College staff from Recycling department, Residential Life, and Operations and Sustainability.

- 1) Competition Director: Kari Kviten, a student sustainability coordinator, chaired the committee.
- 2) Recycling Manager: Abby Schlater coordinated between college recycling department and competition committees.
- 3) Technical Manager: Tsering Dhondhen as technical manager took care of all the data surrounding the competition and keeping a constant record of electricity savings from participating buildings and reporting them to committee members during our weekly meetings.
- 4) Marketing/Event Manager: Two marketing students, Erica Berejnoi and Annette Dangerfield were committed into publicizing the events, handling of the incentives, educating the campus community by putting out posters that gives tips in efficient use of resources like electricity, water and designing posters for the competition.
- 5) Building Captains Manager: Mimi Zheng and Jacob Heller, hall monitors, coordinated with other hall monitors in taking necessary steps in executing efficient decisions that would save electricity as well as reduce the production of waste by recycling.

## Funding and Resources

Our budget was approximately \$8000 and much of it went into marketing and publicizing the competition as well as incentive prizes including an on campus laser tag and ice cream party. We hosted Kentucky's first ever carbon neutral basketball game at Berea College to call attention to reducing energy, CCN and Recyclemania and handed out 500 t-shirts for the game for a "green out." The shirts were made partly from recycled plastics.

### **Education and Community Outreach**

In addition to communications efforts mentioned above, Berea College hosted the first Carbon Neutral Basketball game for the state of Kentucky as one of our major outreach efforts. The local community was invited as well as students, staff, and faculty. The event drew a huge crowd and the idea of offsetting the carbon by planting trees fascinated many more and was an instant success. The CCN competition was also a major project in one of the marketing classes.

Basketball Game Press release here:

<http://bcnow.berea.edu/berea-college-mountaineers-host-carbon-neutral-green-games/>

### **CONTACT INFORMATION**

#### **Contacts**

Joan M. Pauly, Sustainability Coordinator, Email: [Joan\\_Pauly@bera.edu](mailto:Joan_Pauly@bera.edu) (859-985-3194)

### **MORE ABOUT YOUR SCHOOL**

#### **Campus Sustainability History**

Please see below an article about Berea's sustainability history:

#### **Berea College Sustainability. A Mission.**

*(Sustain Magazine Berea February 2014)*

#### **Berea College History**

Berea College was founded in 1855 by abolitionist John G. Fee as the first interracial and coeducational college in the South. Berea charges no tuition and admits only academically promising students, primarily from Appalachia, who have limited economic resources. Berea is considered a work college, offering an innovative concept in higher education that purposefully integrates a college education with valuable work experience and service to others. All Berea students participate in a labor program to offset tuition costs.

#### **Sustainability As Mission**

The commitment to sustainability is integrated into the mission at Berea College and stems from one of its eight "Great Commitments," which is "to encourage in all members of the community a way of life characterized by plain living, pride in labor well done, zest for learning, high personal standards, and concern for the welfare of others."

For Berea College, sustainability refers to the capacity of individuals, communities, and societies to coexist in a manner that maintains *social justice, environmental integrity, and economic well-being* today and for future generations.

Our three-pronged motto of "Learning, Labor, and Service" is the most succinct expression of its institutional mission as well as the campus community. Sustainability is integrated throughout these

three main components of Berea's campus culture, whether in the student Labor Program, Residential Life or Student-led service efforts. 1

1: Berea College Sustainability Website

### **Academics**

Berea has a long history of sustainability initiatives with notable academic milestones. In 1997, the Agriculture and Natural Resources Department decided to refocus its program on sustainable and, as appropriate, organic farming with small and family farms as a special focus. The interdisciplinary Sustainability and Environmental Studies (SENS) program was established in 1998, integrating five departments to offer independent majors and minors in SENS. SENS is an interdisciplinary academic program centered on **ecological design** – the purposeful integration of human actions with the structures and functions of the natural world. The goal of SENS is to help its students acquire the knowledge and practical skills necessary to prosper in a world that faces unprecedented threats to environmental and economic well-being, while contributing to the development of resilient communities and a sustainable society. In 1999, Berea hired a SENS program director and an endowed chair in ecological design to lead academic studies in the SENS minor. The faculty provides expertise and leadership for teaching concepts of sustainability and for campus-wide progress toward sustainable practices.<sup>2</sup>

2: Berea College Magazine: Winter 2009 & Berea College Website

### **Learning Through Service - HEAL**

Formed in 2000, The Center for Excellence in Learning Through Service (CELTS) educates students for leadership in service and social justice through promotion and coordination of academic service-learning and student-led community service. Healing Communities by Healing the Planet (HEAL) is a student-led sustainable community development organization under CELTS. Their stated goals are “to work towards creating a shared learning experience by encouraging campus and community members to play a vital role in sharing values and implementing practices regarding preservation and restoration of our environment. By building more sustainable food, energy and economic systems, we hope to reduce dependency on practices that are a heavy burden on the environment and society, which in turn creates self-sufficient communities. In part, we accomplish this by partnering with community members and organizations that work towards similar goals.”<sup>3</sup>

3: Berea College Website

### **Dining Services. A Willing Partner in Sustainability**

Berea College Dining is an integral partner in the environmental mission of Berea College. Sustainable practices include sourcing locally grown and processed items and incorporating local products into seasonal menus. Food is sourced from the Berea College Livestock Farm and Gardens and other local farms as much as possible. Meat sourced from the Berea College Farm is pasture-raised and Animal Welfare Approved. Berea College Garden produce is certified organic. The kitchen uses the LeanPath ValuWaste food waste tracking system to minimize pre-consumer food waste, and since implementing the program in 2012, pre-consumer food waste has been reduced by 33%, or 3,000 pounds per month. Trayless dining was adopted to conserve water and energy and reduce chemical use and food waste, and Meatless Mondays, along with vegan and vegetarian options served daily, are standard practice. To reduce plastic and promote the use of refillable containers, our Crossroads Café has eliminated sales of

bottled water. Compost is collected and utilized by Berea College organic farm, and proper recycling protocol is practiced on a daily basis. **Dining Services is a Kentucky Proud member restaurant** and a buy-local initiative of the Kentucky Department of Agriculture.

The Berea College Farm Store opened the end of 2013 and stocks a variety of seasonal items, as well as Berea College Farm livestock. The Farm Store is conveniently located on campus and purchases help support sustainable agriculture education for students. 4

4: Berea College Website

### **Facilities**

Berea has long been an advocate of sustainable buildings with a string of firsts for Kentucky. As the Administrative Committee discussed the need for new apartments to house our expanded single parents program, Berea decided to build a state-of-the-art model of sustainability, the Ecovillage.<sup>5</sup>

5: Berea College Magazine: Winter 2009

The Ecovillage is comprised of 50 individual apartments and provides sustainable housing for student families of various sizes. With complimentary educational, environmental, and social goals, the Ecovillage is an ecologically-sustainable residential and learning complex with an onsite Child Development Laboratory and child care program available to Ecovillage residents. Although families come to the Ecovillage at different stages of environmental and community awareness, all residents participate in recycling and monitoring of energy, water, and waste use with the goal of 75 percent savings. 6

6: Berea College Ecovillage Pamphlet

Also located within the Ecovillage sits the SENS House Complex which includes an ecologically-designed residence (SENS House), an aquaponics facility, the Natural Building Shelter, edible landscapes, and a permaculture food forest. The nine students in the SENS labor program operate and maintain these facilities and play a key role in their use for teaching and outreach. 6

6: Berea College Website

The completed Lincoln Hall renovation in 2005 gave Berea College and Kentucky its first LEED Silver-certified building. This project reused much of the original materials, installed “slate” on its roof made from recycled milk bottles, installed motion sensors to minimize the amount of electricity for lighting, and incorporated state-of-the-art monitoring systems for air quality, lighting, and physical comfort. 7

7: Berea College Magazine: Winter 2009

In 2010, the Historic Boone Tavern became the first hotel to be awarded LEED Gold certification for Kentucky and the Appalachian region. The Boone Tavern Hotel and Restaurant, still owned and operated by Berea College, was built in 1909 as a campus guest house. It is officially designated a historic property. After nearly 100 years of operation, the hotel underwent an \$11.3 million full-scale renovation in 2008-2009 to make significant upgrades to the building’s infrastructure, improve efficiency, lower operating costs, and to add modern technologies and other features for improved guest service and comfort. The overarching principle for the renovation was to maintain Boone Tavern’s historic character while creating a “green” hotel for the 21<sup>st</sup> century, and to do so in the most environmentally responsible way. 8

## 8: Berea College Website

Berea's newest addition to a series of firsts is the Deep Green Residence Hall that just received LEED Platinum Certification, scored one of the highest LEED points for a residence hall of its size in the world, and is designed to meet Petal Recognition under the Living Building Challenge by the International Living Future Institute.

Oriented along an east-west axis to maximize sunlight into its interior and allow 114 photovoltaic panels to soak up as much direct sunlight as possible, Deep Green utilizes solar panel arrays, a geothermal heat pump system, high-efficiency windows, Energy Star rated appliances and low-flow plumbing fixtures. These energy-saving features earn all 19 points offered by the LEED Optimized Energy Performance Credits and result in 35% less energy usage than typical residence halls of the same size and savings of 55% in annual energy costs.

Energy usage intensity (EUI) is most often expressed in terms of annual energy used per square foot of building. Residence halls across the country, on average, measure an EUI of 90. Deep Green is designed to achieve an EUI of 32.

Energy reduction is only a part of what makes this building a distinctive shade of deep green. Berea's sustainability commitment stretches far beyond just managing energy efficiency and reducing its carbon footprint. All wood in Deep Green, including 267 pieces of furniture made by Berea's Student Crafts program, was harvested by mule teams in the 8,000 acre Berea College forest, a Forestry Stewardship Council certified forest. This harvesting method avoided the pollution of heavy machinery and long-distance transportation.

The avoidance of harsh "red list" construction materials (including PVC), defined in the Living Building Challenge, helps ensure the health of those working and living in the building. Student involvement in this project contributed to meeting the LBC's certification for connectivity to the region and its surrounding. Students constructed the iconic ceramic sundial in a quilt pattern popular in the region, conducted an archeological dig at the construction site, crafted furniture for rooms and common spaces and created artwork featured in the building's common areas. The genesis of this building began three years ago when Berea recognized the need for more student housing to enhance residential life and exemplify the college's mission to sustainability, or "plain living" as stated in the college's Great Commitments.

### Deep Green Highlights Include:

- A 50 Kilowatt solar panel array installed on the south roof line produces 15% of the building's annual energy usage.
- The buildings closed-loop geothermal system circulates earth-tempered water through 50 wells drilled 375 feet deep into the earth and throughout the building for heating and cooling needs.
- Increased insulation, a heat-reflective roof and high-efficiency windows help retain cool air during summer and heat during winter.
- Operable windows and ceiling fans in all occupied spaces allows the building to ventilate naturally when conditions are right.
- The use of natural day-lighting, Energy Star rated appliances, high-efficiency lighting and energy management controls are used throughout the building to further reduce electrical demand.
- Rain gardens with native vegetation and permeable pavements provide storm water protection.

- A building dashboard tracks energy consumption and makes occupants and visitors aware of the building's ecological footprint.
- 100% recycled brick covers the building's exterior and helps create a high-efficiency envelope.
- These components result in savings of 55% in annual energy costs and earn all 19 points offered by the LEED Optimized Energy Performance Credits. 9

## 9: Berea College Integrated Marketing and Communications Department

### **Focus and Measure**

Berea College participates in two important framework and measurement reporting systems. The **Sustainability Tracking, Assessment & Rating System™** (STARS) is a transparent, self-reporting framework for colleges and universities to track their sustainability performance across five broad category areas including academics, engagement, operations, planning and administration, and innovation. Berea College is a signatory of the American College and University Presidents' Climate Commitment (ACUPCC) which pledges to create and implement a climate action plan to reduce campus Green House Gas (GHG) emissions. A comprehensive inventory of GHG emissions is required every three years, with updates each year.

A major accomplishment to reduce GHG was realized in 2006 during the year-long removal of the College's coal-fired steam heating system and construction of a new, energy efficient heating and cooling Central Plan to cut costs and fuel consumption by 50%. 10

10: Berea College Magazine: 2009

### **Kentucky's First Carbon Neutral Basketball Game**

In an effort to engage and educate all students, faculty, staff, and the community at large, we are planning the first Carbon Neutral Basketball Game for the state of Kentucky when our men and women Mountaineers place Alice Lloyd February 18, 2014. We have developed an event calculator to measure the carbon footprint of the event, and we will offset these emissions with a student tree planting on campus. The footprint includes energy use of the facility during the games as well round trip travel for the Alice Lloyd team. The calculator will then provide us with the number of trees needed to offset these emissions for a one year planting. This stand of trees will not only offset this year's game, but for the life of the tree which is anticipated for the next 40 years. Half time sustainability events will provide fans with sustainable tips and tricks in fun and entertaining ways.

### **A Community**

The story of sustainability at Berea College is one of creativity and commitment, grassroots organizing and institutional innovation; it is the story of dedicated students, faculty, staff, and administration—literally, the entire campus community.