



The Sustainable Campus

The Newsletter of the Berea College

Sustainability and Environmental Studies Program

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AC Approves Alumni Solar Panel

By Ashonti Davis

In October, the Administrative Committee of Berea College approved a student proposal for the installation of a one-kilowatt photovoltaic array on the roof of the Alumni Building. The installation of these solar panels reflects Berea College's commitment to environmental sustainability, which includes investment in renewable energy sources.

The Alumni Building solar system was proposed in Spring 2005 by the Ten by Ten Student Initiative. Ten by Ten is a campaign organized by HEAL (Helping Every Aspect of Life) and the SENS program that is part of a growing national movement of students and youth working for energy justice on college campuses and communities around the country. Ten by Ten promotes reductions in the overall energy use of the College, and encourages the College to make the changes needed to meet ten percent of its energy demand with clean renewable sources by the year 2010.

Through contributions from students, staff and faculty, the Ten by Ten campaign raised nearly half of the costs for the installation of the solar panels with the balance to be contributed by the Administration. The Alumni Building photovoltaic system is designed to be expandable, so additional solar panels can be added as funds become available. The Alumni Building solar system joins the photovoltaic array at the Ecovillage as

Berea's first steps toward a sustainable campus based solely on solar energy. It is very appropriate that students have taken the lead in this critical endeavor.

Ashonti Davis is the program manager for HEAL.

Weybridge and SENS Houses: Neighbors on the Road to Sustainability

By Alyssa Jumars

Last spring, the SENS House hosted a meeting of students from "environmental houses" at several other colleges with the goal of establishing networks and sharing knowledge on how

to increase campus sustainability. The meeting included residents of Middlebury College's Weybridge House, which was established in 1991 and remains an ongoing learning experience in cooperative, sustainable living. It houses eighteen environmentally-conscious and active students who choose to practice their ethical convictions by living them every day. We cook all our own meals using local and organic ingredients, and we welcome members of the college and greater community to share wholesome food and conversation. We try to foster meaningful relationships with local farmers; we compost all of our food waste; we dabble in projects such as solar barbecues, outdoor showers, and mud ovens; and we tend a small garden in our front yard which passers-by can stop and see. We have high hopes for someday going completely off the grid, for buying almost all of our food locally and canning local produce when it's in season, and for convincing the college to establish a second sustainable-living house.

By living and interacting together, we are not only practicing an alternative, sustainable life style, but we are also constantly sharing our inspirations and enthusiasm, and exploring and discussing the role of community. More than just a home for eighteen students, Weybridge is a space for dialogue and the exchange of all kinds of ideas.

Alyssa Jumars is a resident of the Middlebury Weybridge House.



Weybridge House at Middlebury College in Vermont.

Past the Peak

Building Sustainable Campuses and Communities For A Low-Energy World

April 21-23, 2006

Berea College

Berea, Kentucky

Mounting evidence suggests that global oil production will peak within the next decade and then begin a permanent decline. Recent oil prices above \$60 per barrel result from a tight supply-demand situation and herald the end of the era of inexpensive fossil fuels. Given the dependence of the global economy on cheap and plentiful oil and

natural gas, the coming decline in the availability of fossil fuels represents a massive economic and social challenge.

Colleges and universities are firmly embedded in the global economy through their use of energy and other resources and through their investments, and are therefore vulnerable to the disruptions likely to follow peak oil. Strategic planners at colleges need to plan for a future that is quite different and less hospitable than the recent past. Administrators need to consider changes in infrastructure, energy and materials use, and their curricula – both formal and informal.

However, planning must go beyond the boundary of the campus. The changes that colleges need to make to be sustainable in the post-peak oil era include reducing their reliance on an unsustainable global economy by partnering with surrounding communities to develop sustainable local and regional economies.

The conference *Past the Peak* will bring together students, faculty and staff from colleges throughout eastern Kentucky, along with members of their surrounding communities, to consider strategies for sustainability. The confer-

ence will include presentations, workshops, poster displays and resource tables, discussion groups and informal opportunities for networking, and tours of Berea College's Ecovillage, energy-efficient renovations, and sustainable farm and forest.

Conference speakers include Pat Murphy, Executive Director of Community Service, Inc., Yellow Springs, OH, and a leader in sustainable community development (<http://www.communitysolution.org>), and Michael Shuman, author of *Going Local: Creating Self-Reliant Communities in a Global Age*.

Past the Peak co-sponsors include Eastern Kentucky University, Hazard Community & Technical College, and Bluegrass Community & Technical College.

Please join us!

If you would like to participate in the planning and implementation of this important conference, contact Richard Olson, Sustainability and Environmental Studies Program, Berea College, Berea KY 40404, 859-985-3593, richard_olson@bereda.edu.

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The Sustainable Campus Online

www.bereda.edu/sens/sustainablecampus/default.asp

Upcoming SENS Events

Green Makeover of Kettering Residence

Hall: Nov. 6, 7:00-9:00 PM

Meet in the upper lobby and join us on an interactive hands-on tour of Kettering. We'll be making green cleaners, sprucing up the bathroom, laundry room, and kitchen. We'll also tour a resident's room to see what one resident can do to be more sustainable.

Environmental Justice Film Series

Draper 308 Films start at 6:00PM;
discussion follows

Nov. 9

Libby, Montana, Drury Gunn Carr and
Doug Hawes-Davis, 2004, 124 minutes

Because the vermiculite mined at Libby, MT was contaminated with asbestos, Libby now has the dubious distinction of

being the worst case of community-wide toxic exposure in U.S. history. Libby's story is told in a film described as "Equal parts mystery, horror film, black comedy, corporate indictment and human tragedy."

Nov. 16

Wal-Mart: The High Cost of Low Price,

Robert Greenwald, 2005

This film takes the viewer on a deeply personal journey into the everyday lives of families struggling to fight Goliath. From a family business owner in the Midwest to a preacher in California, from workers in Florida to a poet in Mexico, dozens of film crews on three continents bring the intensely personal stories of an assault on families and American values.

Ecovillage Makes Progress Toward Energy and Water Use Goals

By Connie Briggs and Richard Olson

The Berea College Ecovillage was conceived as “an ecologically- and socially-sustainable residential and learning complex designed to meet the housing needs of students, principally those who are married or single parents, in a manner that meets their academic, labor and family responsibilities.” During the planning process, a set of Ecovillage performance goals was approved by the Administrative Committee as a means of (1) beginning to quantify what is meant by “ecologically-sustainable” and (2) guiding the design process by requiring design recommendations to be evaluated in terms of how they would affect the performance goals.

of the coming increases in energy prices and shortages due to the peaking of global oil production. Issues of environmental justice were also considered. All of the electricity used in Berea comes from coal-fired power plants, and thus contributes to the destruction of Appalachian ecosystems and communities through mountain-top removal mining, the emission of tons of mercury into the atmosphere, and asthma in thousands of children. Particularly for an institution with Berea’s commitments to social justice and service to Appalachia, complicity in this environmental injustice is not acceptable. It also seemed particularly important to the students, faculty and staff who planned the Ecovillage that a village occupied largely by

the whole. The population of the Ecovillage fluctuates around 100 students, spouses and children.

The Ecovillage has regular educational programs for the residents on the hows and whys of energy and water conservation. This is critical because even the best design can only go so far in reducing consumption without lifestyle adjustments by the residents. As the saying goes, “Every hour of every day, a thousand low-flow showerheads are left on too long.”

How is the Ecovillage doing? The table on page 4 summarizes energy and water use for the Ecovillage for the most recent 12-month period

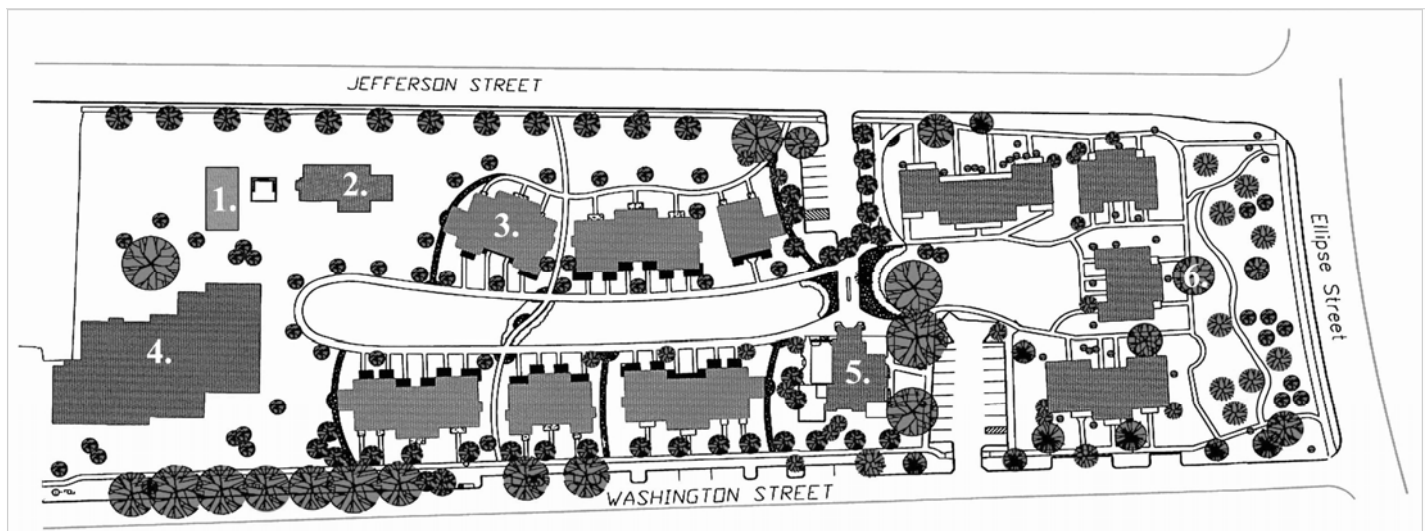


Figure 1: Berea College Ecovillage 1. Ecological Machine, 2. SENS House, 3. Apartments, 4. Child Development Lab, 5. Commons House, 6. Food Forest

Performance goals were developed from a literature search and conversations with green builders to determine what levels of performance had been achieved in other projects using commercially-available technology and reasonable contributions of the building residents to efficient operation. Baselines were identified for energy (regional average household use) and water (Berea average household use) and the Ecovillage performance goals were set as 75% reductions in energy and water use from these baselines.

The setting of such ambitious goals was driven in part by the recognition

the children of students should not through its operations diminish the futures of those children.

Figure 1 illustrates the layout of the Ecovillage. The 50 townhouse apartments include 28 new, ecologically-designed units, 18 original apartments (built in 1988), and four apartments completed this fall through the renovation of space vacated by the move to the new Child Development Laboratory. When developing the performance goals, the planning committee was explicit that the Ecovillage was composed of both the original and the new apartments, and that the performance goals applied to

(October 2004 through September 2005). Totals include use by original apartments, new apartments, and the Commons House. Energy and water use by Child Development Laboratory and SENS House are not included. A full-year’s data incorporates seasonal variations and fluctuations in occupancy resulting from holidays and the academic calendar. The most recent year’s performance also represents a period of relative equilibrium after the steep learning curve of the first months of occupancy.

Continued on Page 4

Ecovillage Makes Progress...

(Continued from Page 3)

The Ecovillage has achieved almost a 50% decrease in energy and water use, which is an impressive accomplishment, and is about 2/3s of the way to its ultimate goals. Much of the shortfall in energy conservation is due to the greater energy use of the original apartments, about double that of the new apartments. This is largely the result of budget constraints that forced the postponement of renovations of the original apartments that were to have been done once the new units were built. Until the original apartments are renovated with energy-saving features, it is unlikely that the Ecovillage can meet its energy use goal. Renovated apartments would offer an educational comparison and demonstration of greening options for existing buildings versus new construction.

Interestingly, the original apartments use less water per resident than the new apartments. The explanation in part is that the new apartments have washing machines, which while very efficient, are still a major water use that the original apartments don't have. Residents of the original apartments use washing machines in the Commons House, so their use of

wash water is credited equally among all Ecovillage residents.

The encouraging news is that there are individual new apartments that are very close to meeting the performance goals for both energy and water. If some residents of new apartments can meet the energy and water goals, then it may be possible for all to do so. And if the original apartments are renovated, then perhaps the Ecovillage as a whole can meet its goals. Ecovillage programs such as training of residents in routine maintenance (e.g., fixing dripping faucets), regular feedback to residents on their energy and water use, and presentations on the need and benefits of conservation will continue to be important facets of the overall conservation strategy. The ultimate goal is to develop a culture of conservation at the Ecovillage that will be a model for other communities and a set of values that the graduates and their children will take with them.

Connie Briggs is the Collegium member for the Ecovillage, and Richard Olson is the Director of the Sustainability and Environmental Studies Program.

Energy and Water Conservation Design Features of the new Ecovillage Apartments

Energy

- Passive solar design
- Walls and roofs constructed of Structurally Insulated Panels (SIPS) for high insulation
- High insulation, low-emissivity windows
- Heat exchanger to reduce energy loss in ventilation
- Concrete floors for thermal mass
- Compact fluorescent bulbs
- Solar light tubes
- Ceiling fans
- Clerestory windows for stack ventilation
- Ground-based heat pumps for heating, cooling, and hot water
- Energy-efficient front-loading clothes washer
- Clothes lines for drying

Water

- Low-flow showerheads and faucets
- Low-flush toilets
- Rainwater from roofs used for landscape irrigation
- Water from ecological machine re-used in toilets

	Energy Use		Water Use	
	Btu/person/year	Reduction from regional residential average	Gal/person/day	Reduction from Berea residential average
Ecovillage goal	10.6 million	75%	15.8	75%
Ecovillage actual	22.7 million	46%	32	49%
New apartments*	16.5 million	61%	35	45%
Original apartments*	33.9 million	20%	27	57%
Best apartment*	13.3 million	69%	19	70%

Table 1: Ecovillage energy and water use, October 2004 through September 2005. Energy use is electricity plus natural gas.

*Includes pro-rated share of energy and water use by Commons House.