

Higher Education: An Overview of Energy Use and Energy Efficiency Opportunities



Energy Use in Higher Education

The nation's education institutions spend almost \$14 billion annually on energy. The U.S. Environmental Protection Agency (EPA), through the ENERGY STAR program, offers a proven energy management strategy to reduce energy bills by 30 percent or more. By improving energy efficiency, colleges and universities can distinguish themselves as environmental leaders and save money for repair and renovation, hiring of new faculty, new construction, and other core activities.

Energy Efficiency Opportunities

Colleges and universities can find energy savings through multiple efforts.

Low-Cost Measures

- > Measure and track energy performance.
- > Turn off lights when not in use or when natural daylight can be used.
- > Set back the thermostat in the evenings and other times when buildings are unoccupied.
- > Perform monthly maintenance of heating and cooling equipment to guarantee efficient operation throughout the year.
- > Educate students and staff about how their behaviors affect energy use on campus, particularly in residence hall settings.

Cost-Effective Investments

- > Upgrade and maintain heating and cooling equipment. Replace chlorofluorocarbon chillers, retrofit or install energy-efficient models to meet a building's reduced cooling loads, and upgrade boilers and other central plant systems to energy-efficient standards.
- > Install energy-efficient lighting systems and controls that improve light quality and reduce heat.
- > Sub-meter campus buildings so that energy use can be more accurately measured and tracked.
- > Work with an energy services provider to help manage and improve energy performance.
- > Purchase energy-efficient products like ENERGY STAR qualified office equipment.
- > Install window films and add insulation or reflective roof coating to reduce energy consumption.

How to Talk About Energy Efficiency

When talking to colleges and universities about energy efficiency, it is important to recognize that they have pressing concerns like the welfare of students and a significant lack of resources. Showing how energy improvements can help create a better learning environment and free up resources by spending less on utility bills should be a key part of the message.

Colleges and Universities Making a Difference:

[University of New Hampshire](#) students took a lead role in tracking the energy use in the university's residence halls. As a result, the university became the first institution in the country to earn the ENERGY STAR for residence halls and has more labeled buildings than any other campus. Through a series of retrofits and educational programs, the university saves approximately \$4 million annually in energy as compared to the national average.

[University of California Berkeley, Humboldt State University, and California State University, San Bernardino](#) students created ENERGY STAR Showcase Dorm Rooms in the residence halls to educate campus residents about purchasing the most efficient appliances on the market. The three rooms differ in their particulars, but each is a showcase of energy efficiency in a residence hall setting.

[Ithaca College](#) utilizes EPA's Portfolio Manager to track the energy use for all the buildings on campus. Students organized a light bulb swap in the residence halls and replaced 400 incandescents with compact fluorescent light bulbs.

¹ American School & University's 34th Annual Maintenance and Operations Cost Study for School Districts, April 2005

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How to Talk About Energy Efficiency (cont.)

Make sure to engage the president, CFO, director of sustainability, or the director of facilities when discussing energy efficiency opportunities. When working with a large, complex institution like a college or university, it is important to secure top-level commitment. You should also mention how improving energy efficiency on campus through strategic energy management reduces operating costs, provides opportunities to educate students, and makes campuses more sustainable.

ENERGY STAR Offers

- Guides and manuals
- Facility benchmarking
- Training
- Institutional purchasing
- Technical support
- Innovative financing methods
- Emissions reporting
- Third-party recognition
- Motivational campaigns

ENERGY STAR Resources

Guidelines for Energy Management: Based on the successful practices of ENERGY STAR partners, these guidelines can assist colleges and universities in improving the energy and financial performance of their campuses.

Portfolio Manager — Measure and Track Energy Performance: Assess your potential to reduce energy expenses in all campus buildings by using EPA's Web-based Portfolio Manager. By measuring, setting goals, and tracking energy and water use, colleges and universities can gain control of their utility expenses.

www.energystar.gov/benchmark

Perform Cost-effective Building Upgrades: Plan systematic building upgrades using the 5-stage approach in EPA's Building Upgrade Manual. This online handbook offers guidance for each stage — from commissioning to plant upgrades.

www.energystar.gov/bldgmanual

Design to Earn the ENERGY STAR: EPA's easy-to-use Target Finder tool can help colleges and universities set energy performance targets as part of their sustainable building efforts. Eligible projects can earn EPA's recognition for being "Designed to Earn the ENERGY STAR."

www.energystar.gov/newbuildingdesign

Attend Web-based training sessions: Attend or host a working session and receive in-depth instruction about benchmarking, design, technology, or financing options for performing energy efficiency upgrades.

www.energystar.gov/businesstraining

Other Resources for Colleges and Universities:

National Wildlife Federation Campus Ecology (www.nwf.org/campusecology): NWF's Campus Ecology program recognizes climate- and wildlife-friendly practices and cultivates long-term leaders on campus and in the community.

The American College & University Presidents Climate Commitment (www.presidentsclimatecommitment.org): This commitment garners institutional commitments to neutralize greenhouse gas emissions and to accelerate the research and educational efforts of higher education.

Association for Advancement of Sustainability in Higher Education (www.aashe.org): AASHE is a membership-based association of colleges and universities working to advance sustainability in higher education in the United States and Canada.

Recognition for Achievements

Earn the ENERGY STAR: Residence halls, office buildings, and campus hospitals that rate in the top 25 percent of energy-efficient buildings in the nation may qualify for the ENERGY STAR.

www.energystar.gov/eslabel

Visit www.energystar.gov/highered for more information on ENERGY STAR resources and recognition.

ENERGY STAR® is a government-backed program helping businesses and individuals protect the environment through superior energy efficiency.



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