



West Village at University of California, Davis, is the largest planned zero net energy neighborhood in the U.S.

Energy Efficiency in Campus Buildings

Moving Toward 100% Clean, Renewable Energy on Campus

The task of powering college campuses with clean energy can be made easier through aggressive steps to improve the energy efficiency of campus buildings. Energy efficiency in campus buildings can save colleges money and accelerate the transition to a clean energy future.

Building Energy Efficiency Is Key to a Clean Energy Future

Over two-thirds of the energy we currently consume in the U.S. is wasted. College campuses are no different. In campus buildings, which consume more than four-fifths of the energy used by universities, improved energy efficiency can cut overall energy use by up to 60 percent. Energy efficiency measures are the cheapest way to meet many energy needs and reduce associated emissions. Many solutions are available today and can be deployed quickly.

Campuses Benefit from Improved Energy Efficiency in Their Buildings

College campuses are well equipped to overcome common barriers to energy efficiency improvements:

- **Controlled Environment:** Campuses are highly structured, controlled environments and colleges have the ability to deploy resources quickly.
- **Environmental Awareness:** At many schools, environmentally conscious students, faculty and staff are eager to develop and implement energy efficiency solutions.
- **Innovation Hubs:** Campuses provide testing grounds to save energy, using “intelligent” information technology and experimenting with zero-net energy and passive building techniques. The Georgia Institute of Technology opened a carbon-neutral research lab in 2013 and is building another facility as part of the Living Building Challenge, a green building certification program.

Colleges and Universities Are Fertile Grounds for Building Energy Efficiency Improvements

Colleges spend almost \$6 billion on energy each year, and present multiple opportunities for building energy efficiency gains.

- **Out-of-Date Infrastructure:** Many campuses have older buildings that were not designed to be energy efficient, or that rely on outdated equipment. Universities can make cost-effective investments to improve building performance, such as widespread adoption of low-energy LED lighting, and undertake building retrofits to improve insulation and upgrade heating and cooling equipment.
- **Energy-Intensive Facilities:** Certain facilities on campuses are uniquely energy-intensive and provide powerful opportunities for energy savings. Research laboratories, for example, require energy for proper ventilation to keep lab workers safe. Campuses across the country are taking measures to reduce operational costs in labs, including shutting the sash on fume hoods, using appliance timers, and storing samples at slightly higher temperatures where appropriate.

The Rafik B. Hariri Building at Georgetown University includes efficient lighting and ventilation features.

With Student Help, “Better Buildings” at Allegheny College Save Energy and Money

Allegheny College, a small liberal arts school in northwestern Pennsylvania, located 30 miles from Lake Erie, has successfully reduced building energy use in recent years.

In 2011, Allegheny College joined the U.S. Department of Energy’s “Better Buildings Challenge,” committing to reduce building energy intensity by 20 percent by 2020. Since then, efficiency improvements across campus have reduced energy intensity for all of Allegheny College buildings by 15 percent. One project, a renovation of Carr Hall to make room for Allegheny College’s growing Environmental Science department, made the building 23 percent more efficient through improvements such as better heat recovery and energy-efficient lighting.

Students have also contributed to making buildings on Allegheny’s campus more energy efficient. For example, a group of students helped set sustainability goals for a new residence hall project and provided feedback on its design. As a result, the LEED Gold-certified building has energy-efficient light fixtures controlled by sensors, energy-saving motors in building equipment, large windows that allow sunlight in and bright colored paint to reflect it around rooms, as well as other clean energy and water conservation features. Allegheny College issued a bond to cover the building’s construction and will benefit from energy savings for many years to come.



Georgetown Makes a Commitment to Energy Efficiency and Conservation across Campus

Clean energy adoption at Georgetown University includes extensive efficiency and conservation efforts, as well as on-campus renewable energy installations and renewable energy purchases that surpass the amount of electricity the campus consumes each year.

The university has committed to use energy efficient practices in all new building construction, conducting building energy audits, and investing in energy efficiency retrofits in buildings.

A student-run \$1.5 million fund also provides grants and resources for energy efficiency projects, like LED lighting retrofits in the Hoya Court campus dining hall and in the parking lot of the Rafik B. Hariri building.

The efficiency and conservation efforts Georgetown has invested in since FY14 save at least 3.3 million kWh of electricity and 82,000 million Btu of natural gas annually, cutting CO2 emissions equivalent to taking nearly 1,200 cars off the road.

*This factsheet is one of an 11-piece series.
For citations, and to read the other factsheets,
please visit
EnvironmentAmericaCenter.org/Campus101*



List of Resources

To start saving energy in campus buildings:

- Take advantage of ENERGY STAR resources to measure and track energy use and expenses (www.energystar.gov/benchmark), plan cost-effective building upgrades (www.energystar.gov/bldgmanual), set performance targets (www.energystar.gov/newbuildingdesign), and learn about how to manage building data (www.energystar.gov/businesstraining)
- Access free resources to reduce energy consumption in schools from the Alliance to Save Energy: www.ase.org
- Take the Better Buildings Challenge like Allegheny College and 16 other universities: betterbuildingsolutioncenter.energy.gov/challenge