



## FACT SHEET: ENERGY



### SUSTAINABILITY OPPORTUNITY

Using energy from cleaner sources while reducing overall energy usage is central to creating a sustainable campus. Stanford has a strong foundation for success, as we are building on a decades-long commitment to energy conservation and efficiency, as well as the advantages of a temperate climate and strong state energy codes. Current energy-saving strategies are expected to push energy consumption down through 2011, but by 2012 additional use from new buildings is likely to require further conservation efforts. And while Stanford currently gets most of its energy from an efficient natural gas-fired combined heat and power plant, the university is also exploring renewable energy solutions for the future.

### TOP INITIATIVES & RESULTS

#### Reducing Demand through Energy Efficiency

- Through the Whole Building Energy Retrofits Program, Stanford is spending \$15 million on major capital improvements to the campus' dozen biggest energy users. The improvements are expected to save \$4.2 million per year in energy costs and reduce total energy use in these facilities by 28 percent. Several of the projects are completed showing better than expected. The Stauffer 1 & 2 projects have seen an over 40% drop in consumption. Several large projects are under construction (Gilbert & Beckman) and two additional projects are about to start. The program will continue until Stanford's top 25 energy-using buildings are upgraded.
- Stanford is systematically reviewing the heating, ventilation, and air conditioning (HVAC) systems in its largest buildings, then adjusting or repairing the systems to insure they work as designed. Technicians who conduct the reviews also recommend ways to further improve energy performance through retrofit projects. At the current pace, the Building HVAC Re-commissioning Program will have addressed 79 buildings by the end of 2010.
- Since 1993, Stanford's Energy Retrofit Program has provided more than \$10 million for projects to improve energy efficiency, reduce building costs, reduce utility demand, and decrease maintenance costs. The result is an estimated cumulative savings of over 240 million kilowatt-hours of electricity — equivalent to about 15 months of the university's current use.
- The Energy Conservation Incentive Program rewards schools and departments with "cash for kilowatt hours." If they use less than

their budget (based on past usage), they keep the money saved. Since 2004, the program has inspired participants to use three percent less electricity than budgeted — netting \$830,000.

#### Exploring a Fossil-Free Energy Supply

With a view toward future energy needs, the university is running several solar energy demonstration projects: the Leslie Sun Field Station at Jasper Ridge has a 20-kilowatt (kW) solar photovoltaic (PV) system and solar thermal water heating system; Synergy House has a 10-kW PV system; a 30-kW PV system offsets energy used for pumping water into a storage reservoir; and the Yang + Yamazaki Environment + Energy Building (Y2E2) showcases three types of PV systems totaling 12.5 kW. A PV system has been completed at the President's residence and two more solar hot water systems are now operating and are shower-ready in the Governor's Corner dormitories. Future installations include the Knight Management Center and the HEC & Nano buildings.

The university has also undertaken a comprehensive assessment of utility-scale renewable energy technologies that might replace or supplement natural gas cogeneration in 2015 and beyond.

#### AWARDS

- Over \$400,000 in Energy Efficiency Rebates, 2007 - 2009
- Y2E2 Photovoltaic Project earned a \$38,000 rebate from Pacific Gas & Electric (PG&E), 2009
- ASHRAE Region X Technology Award for the Stauffer Chemistry building HVAC Retrofit project, 2008-2009
- Climate Action Leader, 2006 and 2007

#### MORE INFORMATION

#### ENERGY & WATER CONSERVATION

<http://ssu.stanford.edu/energy>

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