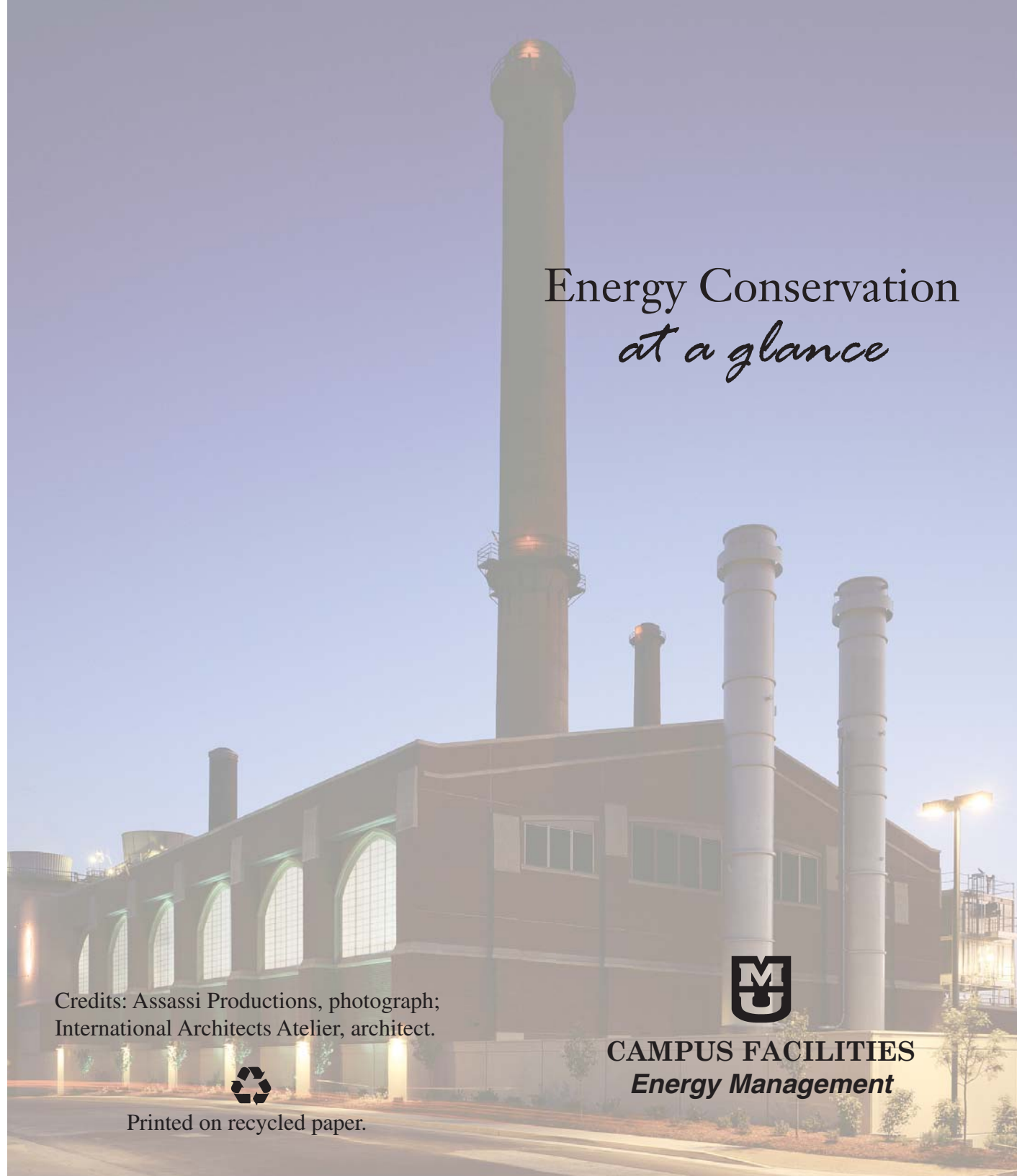


**C**ampus Facilities Energy Management's innovative energy conservation program minimizes the overall waste products and emissions of air pollutants. It's also saving Missouri taxpayers a lot of money.

Our energy conservation program formally began in 1990 and, to date, we've reduced utility costs for education and general space annually by \$4.3 million.



## Energy Conservation *at a glance*

Credits: Assassi Productions, photograph;  
International Architects Atelier, architect.



**CAMPUS FACILITIES**  
*Energy Management*



Printed on recycled paper.

## *By the numbers*

- Total cumulative energy cost avoidance of \$32 million for campus education and general (E&G) space
- The annual cost avoidance of \$4.3 million is equivalent to any of the following:
  - The budget for three degree programs (average annual cost of a degree program at MU is \$1.4 million)
  - Tuition reduction of \$170 per student
  - Salary of 69 full-time employees
- Reduced energy use per square foot by 12 percent.
- Deferred capital expenditures 3-plus years by:
  - Reducing peak steam use by 25,000 pounds/hour
  - Reducing peak electric use by 3 mega watts

## *Environmental benefits*

- Decreased green house gas emissions per square foot by 11 percent.
- Reduced carbon dioxide emissions annually equivalent to removing 18,000 cars from our roadways or planting 28,000 acres of trees.
- Decreased emissions and waste product from more efficient energy production.

## *Initiatives under way*

**Campus Lighting Upgrades:** 99 percent of exterior lights and 90 percent of interior lights now are high-efficiency, and the re-lamping program continues.

**HVAC-system Upgrades:** EM installs high-efficiency motors with variable-speed drives on fans and pumps, converts constant-volume systems to variable-air volume, and uses motion sensors to turn off lights and set back thermostats. EM has completed 23 major building HVAC-system efficiency upgrades.

**Building Controls:** Provide efficient operation of HVAC systems and improve customer comfort and service. Electronic controls are installed and networked for air handlers, lighting systems, chillers, cooling towers and chemical treatment systems, metering (steam, condensate, chilled water and water), door access and locking systems, and fire-alarm monitoring.

**Power Plant Efficiency Efforts:** MU's power plant, which has operated from its current location since 1923, has used cogeneration to produce both steam and electricity for 80 years. Cogeneration provides electricity at an efficiency twice that of a conventional power plant.

Tire-derived fuel has been blended with coal since 1997, and, in fall 2006, the plant, along with faculty from the College of Agriculture, Food and Natural Resources, tested a mixture of coal and corn cobs as part of an overall biomass initiative. This year, 5 percent of the coal supply will be replaced with waste wood chips, saving more than 7,000 tons of greenhouse gas emissions. Future plant upgrades will provide for greater use of renewable biomass fuels.

## *Help lighten our load*

Energy Management is doing its part, but you can help Mizzou conserve energy, too.

Major turn offs:

- Lighting an unused office overnight wastes enough energy to heat water for 1,000 cups of coffee.
- Leaving a computer monitor on overnight wastes enough energy to microwave six meals.
- A photocopier left on overnight wastes enough energy to produce 1,500 copies.
- A window left open overnight in winter wastes enough energy to drive a compact car 35 miles.
- Leaving a non-essential printer or other piece of equipment on overnight wastes enough energy to drive a compact car 100 miles.

## *Take 5 @ home*

- Replace incandescent bulbs with compact fluorescent bulbs. If every household in the United States replaced its next burned out light bulb with a compact fluorescent bulb, the energy saved would be the environmental equivalent of removing 1.2 million cars off our roadways.
- Lower your thermostat 1 degree in the winter and raise it 1 degree in the summer. 1 degree equals a 5 percent energy reduction.
- Unplug small appliances when not in use, and save 5 percent of your annual energy bill.
- Make a "one light per person rule" in your household.
- When you purchase new appliances, make sure it has an "Energy Star" label.