

CORNELL ENERGY CONSERVATION INITIATIVE

In April 2001, Cornell agreed to strive toward a Kyoto Treaty compliance goal in response to the KyotoNOW! students. The Energy Conservation Initiative (ECI) was created by Utilities and Energy Management in 2002 and aims to reduce year 2000 campus energy use 20-30% by 2015. This is an ambitious goal, since efforts before 2000 already save 30% vs. "no action". Adoption of a Climate Action Plan in 2009 is driving continued reductions in use as we strive toward climate neutrality by 2050.

Major ECI Components

Maintenance Conservation focused preventive maintenance ensures peak performance and minimum energy use. Two new staff were added in 2010 for Contract College buildings. Now, ten technicians tune and repair control systems across 100 buildings. Work includes central and occupied space control and energy systems. Savings exceed \$3 million annually in addition to improved comfort, safety and less breakdowns.

Studies Conservation studies are completed to identify cost and savings for improvements to building heating, ventilating, air conditioning, and lighting systems. Study costs are reduced 50% as part of the New York State Research and Development Authority's (NYSERDA) Flex Tech Assistance program. Cornell's extensive building energy metering and energy use per unit area metrics allow data based decision making and performance verification. 35 studies are complete, over 20 underway in 2011, and more are planned in the future.

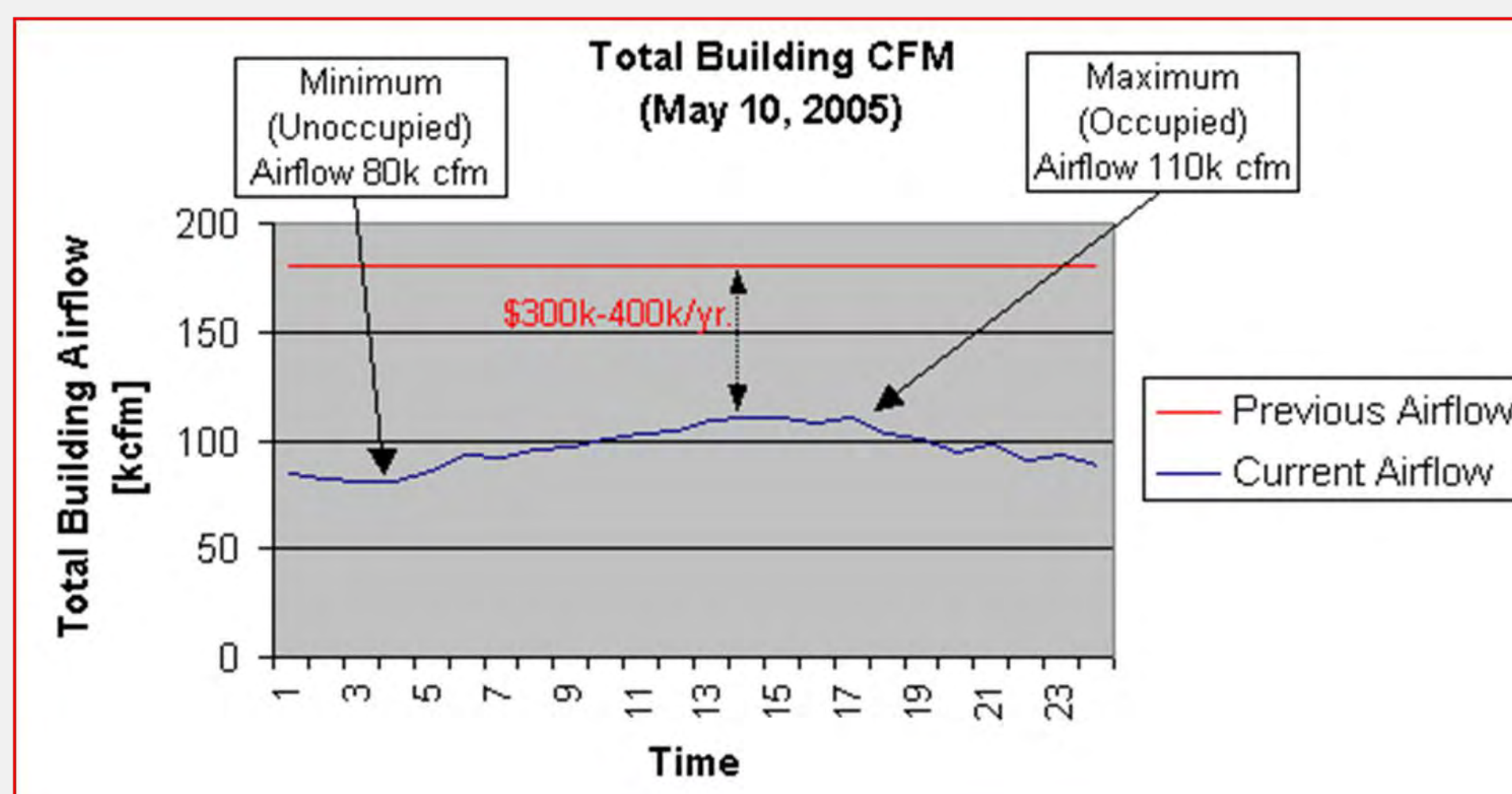
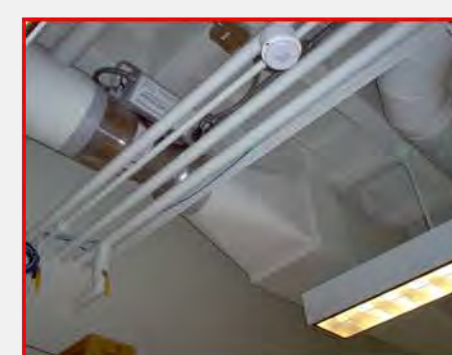
Pilot projects New technology or innovative application of existing technology often requires a pilot installation to ensure success on a large scale. Pilots have included lighting schemes, lab air flow controls, and growth chamber controls. 2009 pilots included greenhouse lighting, growth chambers and active laboratory air quality sensing.

Conservation Projects By 2010, over 25 projects were completed totaling over \$10 million dollars. Savings exceed \$4 million annually. Future efforts will continue through all buildings, based on payback and availability of capital. \$9.6 million of new projects were approved in 2010.

Exceptional Buildings As of January 2008, projects over \$5 million must be LEED Silver and 30% less than energy code, and they will strive toward 50% less energy use based on our climate neutrality goal. Cornell is an early adopter and innovator in building conservation features in capital projects on campus. Innovative passive and active cooling and heating systems, dedicated outdoor air with full heat recovery, lighting controls, improved envelopes, aggressive variable volume air controls, sophisticated control algorithms, demand controlled ventilation, low energy use research controlled environment chambers, and heat recovery are all part of our newest buildings.

Outreach and Education All building metered energy use and associated CO2 emissions are fully web accessible. Other tools include fume hood labeling, light switch labeling, email, articles, and presentations. The CALS Green initiative in 2011 is an education and behavior change pilot for the entire campus.

Biotechnology Conservation Project 30% Save = \$350k/yr



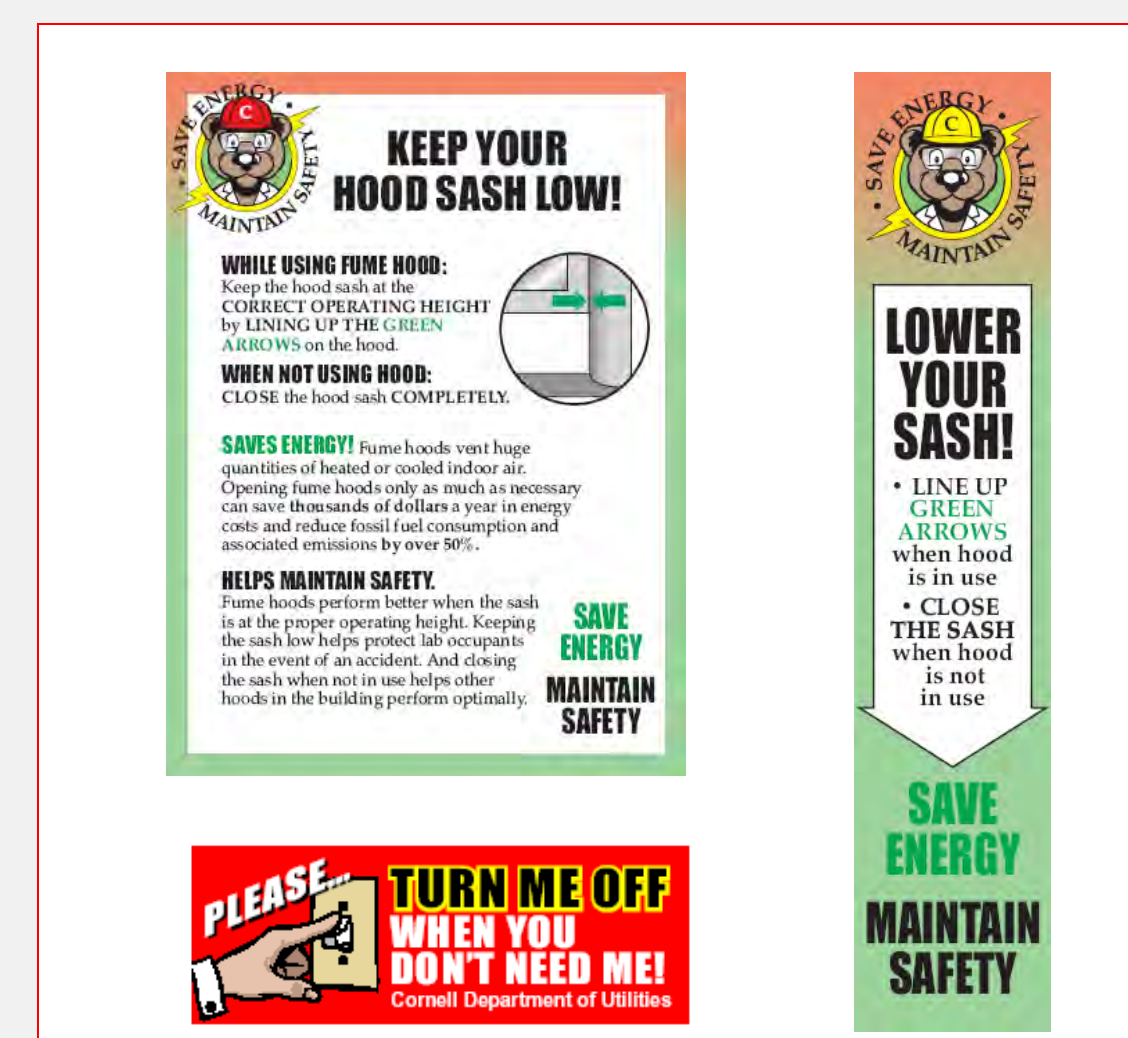
Campus Lighting Project 2007/2008 Save = \$500k/yr, 2% of total campus electricity use



Weil Hall Life Sciences Project LEED Gold application 30%+ below ASHRAE 90.1 energy code



Outreach and Education Labeling Program



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Energy and Sustainability

More Information
energyandsustainability.fs.cornell.edu