

In August 2007, President Freeman Hrabowski signed the American College and University Presidents Climate Commitment (ACUPCC) <http://www.presidentsclimatecommitment.org/>, officially committing UMBC to:

- Develop a plan by September 2009 to achieve climate neutrality.
- Initiate tangible actions to reduce greenhouse gases while a more comprehensive plan is being developed.
- Complete a greenhouse gas inventory by September 2008.
- Make our plan and inventory reports publicly available by providing them to the Association for the Advancement of Sustainability in Higher Education (AASHE).

The ACUPCC requires signatory institutions to implement two tangible actions (from a list of seven) to reduce greenhouse gas emissions. UMBC has implemented five tangible actions:

1. New buildings to be LEED Silver. The Performing Arts and Humanities Facility (PAHF) to be first, <http://www.umbc.edu/pahf/>. UMBC Facilities Management includes two LEED Accredited Professionals.
2. Buy Energy Star products, such as appliances, lighting, and computers.
3. Encourage use of and provide access to Public Transportation, <http://www.umbc.edu/transit/>.
4. At least 15% of electricity to be from Renewable Sources. UMBC is at 19.5% (4.5% required by RPS + 15% purchased via RECs). Tier 2 RECs (Conowingo Hydroelectric Plant) were purchased from Reliant Energy for about \$7.67/MWh (i.e., a premium of 0.767 cents per kWh).
5. Minimize waste and participate in RecycleMania. UMBC has a Comprehensive Recycling Program and has participated in RecycleMania since 2007. In addition to providing bins for beverage containers and paper, the campus recycles cardboard, fluorescent lamps, ink/toner cartridges, computer equipment, appliances, grass, leaves, branches, construction materials, copper, brass, steel, automotive batteries, and tires. UMBC also donates various office/classroom furniture and athletic equipment to charitable organizations.

Climate Change Task Force (CCTF) – Students, faculty, and staff working together to:

- Determine the campus' carbon footprint.
- Develop mitigation strategies.
- Engage the campus community.
- Integrate environmental issues and research into the curriculum and educational experience.

Divide and Conquer – CCTF has four workgroups:

- GHG Inventory – completed GHG emissions inventory for FY07 and FY08 using Clean Air-Cool Planet's Campus Carbon Calculator, <http://www.cleanair-coolplanet.org/>. The GHG inventories and narrative are posted on UMBC's sustainability website and at AASHE, <http://acupcc.aashe.org/>.
- Mitigation – breaking into 3 subgroups to address major components of carbon footprint and need for long-range plan: Energy (61%), Transportation (37%), and Climate Action Plan (due 9/15/09).
- Outreach – created sustainability website, <http://www.umbc.edu/sustainability/>.
- Education & Research – participated in National Teach-in on sustainability, working to incorporate sustainability into Gen Ed requirements, and investigating adding BS major in Environmental Engineering.

Energy Procurement

- In a consortium with other USM institutions and DGS, UMBC purchases natural gas and electricity in a manner to control commodity costs via competitive bids and hedging programs.
- By implementing strategic measures to reduce electrical load when the electric grid is stressed by high demand, UMBC receives rebates for participating in demand response programs.

## Leadership in Environmental Research

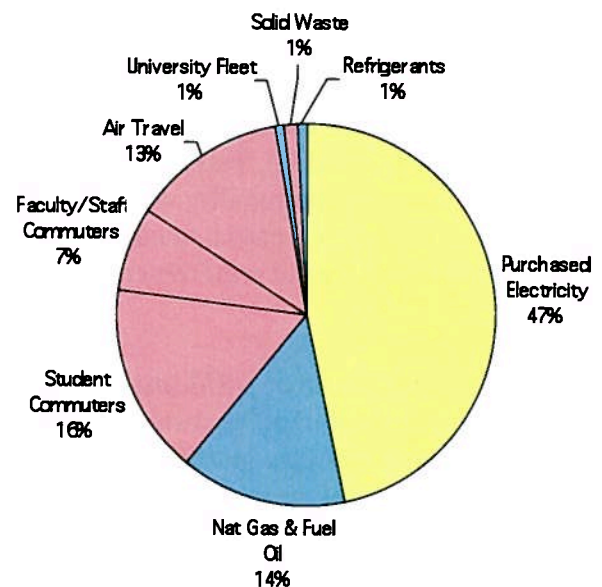
- UMBC ranks second among U.S. universities in NASA funding, according to U.S. Census Bureau data. Much of the associated research is for advanced atmospheric sensing and analysis, useful in understanding, monitoring, and predicting climate change. Links to the university's NASA-funded research centers: <http://jcet.umbc.edu/> <http://jca.umbc.edu/> <http://gest.umbc.edu/> <http://cresst.umd.edu/>
- UMBC's geoscience research ranked third nationally in citation impact for 2001-2005, according to Thomson Scientific's *Science Watch*. The only U.S. universities producing more frequently cited geoscience research papers were Harvard and Georgia Tech.
- UMBC is a charter principal institution in the Baltimore Ecosystem Study (<http://www.beslter.org/>), one of twenty-four research programs established by the National Science Foundation to study ecological systems over long time periods.
- The Center for Urban Environmental Research and Education (<http://www.umbc.edu/cuere/>) was created at UMBC with initial support from the U.S. Environmental Protection Agency and the U.S. Department of Housing and Urban Development. CUERE's mission is to advance the understanding of the environmental, social, and economic consequences of the transformation of the urban landscape.
- Three UMBC faculty members serve on the Maryland Commission on Climate Change, <http://www.mdclimatechange.us/>.

## Conservation Projects

- 1990-2000: Low-hanging fruit (T12 to T8, low-flow water, etc.).
- 1999-2001: Upgraded air distribution systems from constant volume to variable volume via Performance Contracting (Viron).
- 1999-2003: New high-efficiency chillers and boilers (high-pressure high-temp HW).
- 2000: Thermal energy storage tank; 1.6M gallons of chilled water produced during off-peak hours for use during peak hours.
- 2008-2011: Implementing "no-cost" ECMs, such as energy-saving set points, improved scheduling of occ/unocc, and (longer term) improved space/bldg utilization (such as consolidation of night and summer classes into a few buildings).
- 2008-2010: Working with Noresco to quantify additional energy-savings projects to implement via Performance Contracting. Preliminary energy audit of main campus (50+ buildings totaling 3M sq ft) revealed "only" \$6M of potential energy projects resulting in a 6% reduction in energy consumption. Comprehensive "Phase 1" Study is underway.

## UMBC's GHG Breakdown and Analysis

- Energy consumption (electricity and heating fuel) accounts for 61% of carbon footprint.
- Transportation accounts for 37% of carbon footprint.
- Solid waste accounts for 1% of carbon footprint.
- Consequently, mitigation efforts will target Energy and Transportation. Need to reduce energy consumption, green the electricity (RECs and solar), reduce commuting, and reduce air travel.
- Recycling fosters environmental awareness and other sustainable behaviors.



UMBC Info and Contacts can be found at:

- Main website, <http://www.umbc.edu/>.
- Facilities Management, <http://www.umbc.edu/fm/>.