



Maryland Green Registry MEMBER

The Maryland Green Registry promotes and recognizes sustainable practices at organizations of all types and sizes. Members agree to share at least five environmental practices and one measurable result while striving to continually improve their environmental performance.

UMBC

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Baltimore, MD 21250
410-419-5664
sustainability.umbc.edu
Higher Education
Member since August 2009

Management and Leadership

Environmental Team

Full Time Environmental Sustainability Coordinator, interns and eco-ambassadors support UMBC's environmental teams. The Climate Action Steering Committee is chaired by VP of Administration & Finance, Lynne Schaefer, and Professor of Geography and Environmental Systems, Dr. Matt Baker. The Task Force is comprised of faculty, staff and students and is charged with carrying out the university's Climate Action Plan.

The group meets quarterly or as needed to advise the President on strategies to reduce greenhouse gas emissions generated by the campus community, to engage the campus community in efforts to reduce greenhouse gas emissions, and to promote and support instruction and research on the impact of greenhouse gas emissions. In addition to the Steering Committee and four work groups focused on Transportation, Energy, Waste and Research/Education relating to UMBC's carbon footprint. The Landscape Stewardship Committee oversees the landscape and land use planning and design for the campus while several students groups also address environmental issues.

Annual Environmental Goals

UMBC conducts an annual greenhouse gas emissions inventory, and has set incremental goals to reduce the campus carbon footprint.

Environmentally Preferable Purchasing

UMBC has a policy specifying the procurement of Energy Star-certified products where applicable. Our roof sealant application is Energy Star approved. It reflects sunlight, heat and UV rays, which lowers room temperatures and energy use. It also prolongs the life of the roof which reduces waste sent to landfills. We also purchase gel cell batteries instead of wet lead acid for most applications (emergency light packs, fire alarm panels, high voltage switching battery units, etc.)

Environmental Restoration or Community Environmental Projects

There are a number of sustainability outreach efforts both on and off campus. In addition to offering degrees and courses with an emphasis on sustainability, UMBC is making sustainability part of the campus culture by including it as part of every new student's orientation. Also, sustainability initiatives, seminars, and events are periodically featured as a "Spotlight" on the main campus website, an up to date sustainability website, and engaging social media presence. UMBC has a sustainability intern program; four students are selected each year to promote sustainability awareness and initiatives throughout the campus community. UMBC students, faculty, and staff participate in annual sustainability events, such as: RecycleMania, EcoFest, Earth Day, Food Day and Campus Sustainability Day. The Green Pledge is a new campus wide effort to engage the community in a public commitment to engage and inspire personal action and involvement. There are also a number of efforts to reach out to the community around the campus. UMBC has also been coordinating with the Catonsville Rails to Trails to establish local bike routes to connect the campus with the area. Student groups such as Students for Environmental Awareness and the Environmental Task Force are supported in volunteer efforts with community partners and the University offers local "Alternative Spring Break" trips to stay in the area and contribute through service. The local watershed association, Patapsco Heritage Greenway has planted and regularly maintained trees on campus along the Herbert Run stream.

UMBC's community partnerships include the Clean Energy Technology, the Maryland Climate Communication Consortium, the Baltimore Electric Vehicle Initiative, and USGS. Student led organizations including Students for Environmental Awareness, Alternative Service Break and the Environmental Task Force serve community partners. Additionally, graduate students have partnered with local schools and communities through the Shriver Center's Peacemaker program and 'Food for Thought'. UMBC and NASA's Joint Center for Earth Systems & Technology (JCET) runs 'Beautiful Earth: Experiencing and Learning Science in a New and Engaging Way' (beautifulearth.gsfc.nasa.gov) engaging

students and the general public in NASA Earth Science through music, art, and indigenous perspectives. Additionally, many UMBC faculty research projects and courses incorporate community climate change and sustainability partnerships. These are listed at <http://sustainability.umbc.edu/community-partnerships/>

UMBC partners with the other University System of Maryland (USM) institutions to advocate sustainability priorities and public funding and investment on sustainability at a system-wide/state-wide level. We have created a coalition with the Maryland colleges and universities as well as with Baltimore area campuses to have a stronger voice in this region. We also work with the Department of Transportation to advocate for better and more sustainable connections to the community through infrastructure for pedestrians, bicyclists and public transit.

Waste

Solid Waste Reduction and Reuse

UMBC Facilities helps donate used office/classroom furniture and athletic equipment to charitable organizations. The campus is informed not to place reusable items into dumpsters. Student Workforce relocates unwanted or reusable furniture, electronics and other large items that can be re-purposed. Surplus furniture, electronics, building supplies and other materials are reused, recycled, or donated to charity.

Recycling

Aluminum cans, metals, paper, cardboard, glass, plastics.

Composting

All food, food soiled paper, plants. Food includes fruits, vegetables, meat, poultry, seafood, shellfish, bones, rice, beans, pasta, bakery items, cheese and eggshells. Food soiled paper includes waxed cardboard, napkins, paper towels, uncoated paper plates, tea bags, coffee grounds/filters, wooden crates and pizza boxes. Plants include floral trimmings, tree trimmings, leaves, grass, brush and weeds. No liquids, grease cooking oil, plastic, Styrofoam, metal or glass.

Energy

Energy Efficiency

Chilled water optimization project upgraded mechanical and electrical equipment to improve the efficiency of the campus cooling (air conditioning)

systems. Completed in 2013, the \$6 million project pays for itself in 10 years via associated utility savings. Annual savings of 5,700,000 kWh, reduces GHG emissions by 3,100 MTeCO₂ per year and results in a 3.5% reduction to UMBC's carbon footprint (versus 2007 baseline).

Conservation upgrades includes interior lighting upgrades throughout most campus buildings, LED lighting for three parking garages, web-based/weather-optimized irrigation controls, and demand control ventilation for several lecture halls. Completed in 2015, the \$5.4M project... pays for itself in 10 years via associated utility savings. Annual saving of 7,000,000 kWh and 3,000,000 gallons of water, reduces GHG emissions by 3,800 MTeCO₂ per year and 4.3% reduction to UMBC's carbon footprint (versus 2007 baseline)

Over the last several years UMBC has conserved energy by:

- **Retrofitting the Central Plant** with high-efficiency boilers, chillers, and hot water pumps
- **Installing a thermal energy storage system** at the Central Plant. Charging the tank at night (making and storing over 1.6 million gallons of chilled water) reduces the load on the electric grid and power plants during peak daytime hours.
- **Converting air distribution systems** from constant air volume to energy-efficient variable air volume (VAV) systems.
- **Upgrading heating/cooling systems for student housing** by replacing stand-alone units with an efficient central Satellite Plant utilizing high-efficiency boilers and chillers
- **Installing process chilled-water loops for equipment (condensers, laser labs, etc.) which had been cooled by city water**
- **Upgrading pneumatic controls** with Direct Digital Controls tied to a Building Automation System with graphical user interface to improve set point control and occupancy scheduling
- **Upgrading exterior lighting** for roadways, walkways, and parking lots to high-efficiency metal halide lamps.
- **Upgrading interior lighting** from T12 bulbs to more efficient T8 and T5 lamps and ballasts.
- **Upgrading bulbs** in most Exit signs to LEDs
- **Replacing incandescent bulbs** with compact fluorescent lamps
- **Installing reduced-flow toilets, urinals, faucets, and shower heads** in all new construction and renovations

Facilities Management has continued to take a lead role in UMBC's sustainability efforts. Summarized below are UMBC's **ongoing** energy-related initiatives.

- **Fleet Vehicles** – Facilities Management fleet includes electric vehicles and compressed natural gas vehicles to perform many maintenance tasks around campus, reducing fuel consumption and greenhouse gas emissions.
- **Energy Procurement** – By combining the buying power of several University System of Maryland (USM) institutions, UMBC strategically purchases natural gas and electricity at favorable rates and reduced pricing volatility.
- **Peak Demand Response** – By implementing strategic measures to reduce electrical load when the electric grid is stressed by high demand, UMBC increases the reliability of the region’s distribution network and qualifies for energy rebates.
- **LEED Construction** – All new construction will be a minimum of LEED Silver or equivalent. The Patapsco Hall Addition and Performing Arts and Humanities received LEED Gold Certification.
- **Energy Star Equipment** – The campus standard is to buy Energy Star products (computers, appliances, lighting, etc.) when possible.
- **Set Point Standards** – Space temperature set points were lowered in the heating season (70° F) and raised during the cooling season (76° F).
- **Occupancy Scheduling** – HVAC equipment on/off times were adjusted to more closely match the actual occupancy. Special events are scheduled in buildings that are already on whenever possible.
- **Night Setback** – When in unoccupied mode, energy-saving space temperature set points are implemented (60° F in the heating season and 85° F in the cooling season).
- **Central Plant Boilers** – Upgraded two primary boilers with high-efficiency boilers including stack economizers.
- **Energy Performance Contracting (EPC)** – EPC is a means for implementing energy-saving projects that essentially pay for themselves over time via the associated energy savings. An array of Energy Conservation Measures (ECMs) have been evaluated for feasibility and cost-effectiveness. An ongoing ECM is called Chilled Water Optimization. Other cost-effective ECMs in the works include: interior lighting upgrades, LED lighting for parking garages, irrigation improvements, and control upgrades.
- **Chilled Water Optimization** – Ongoing project to significantly improve the efficiency of the Central Plant and cooling for most of the campus. This project will reduce annual energy usage by 5,700,000 kWh and reduce annual GHG emissions by 3,100 MT eCO₂. Compared to UMBC’s baseline year of 2007, this is a 7% reduction in electricity and 3.5% reduction in carbon footprint.
- **Soda Machines** – New vending contract required Energy Star soda machines. Occupancy sensors are used to cycle refrigeration compressor off during unoccupied hours.
- **Electric Vehicle (EV) Charging Stations** – UMBC secured a grant and installed two EV Charging Stations (located in the Stadium Lot near the Warehouse).

These Level 2 (240 VAC, 30 Amp) are free for use by students, faculty, staff, and visitors.

Renewable Energy

In May 2008, UMBC began getting 20% of its electricity from renewable sources, primarily Maryland's Conowingo Hydroelectric Plant. Since then, UMBC has remained committed to getting 20% of its electricity from renewable sources. UMBC now gets most of its renewable energy from regional wind and solar projects.

UMBC was involved in the State's collaborative process for "Generating Clean Horizons," a first-of-its-kind initiative to spur large-scale renewable projects in/near Maryland. As a result of a competitive bid, the awarded projects include land-based wind and solar PV. Additional projects, such as energy from poultry litter and off-shore wind are under consideration. Renewable energy production from Clean Horizons began in 2011 and is ramping toward the target production. Ultimately, 20% of all electricity used by Maryland agencies and universities will come from the Clean Horizons projects. UMBC is buying this clean/green energy via Power Purchase Agreements (PPAs), which include the electricity commodity and the associated Renewable Energy Credits (REC). By making a long-term commitment to buy Clean Horizons renewable energy, UMBC essentially co-sponsored the development of several large-scale projects. UMBC's renewable energy is being produced where it is most physically suitable and economically viable, further enhancing the triple bottom line of social, environmental, and economic sustainability.

UMBC has solar bus stops on the main campus and a 9 kW solar array on the roof of the Clean Energy Technology Incubator (CETI) building at bwtech @ UMBC South. Other solar projects are being considered for the main campus (such as the Warehouse roof or Library roof) for practical benefits and/or demonstration purposes. Five solar tables at three different sites (Administration Plaza, Commons terrace and Harbor Hall Courtyard) also allow users to plug directly into solar outdoors.

Transportation

Fleet Vehicles

Facilities Management fleet includes electric vehicles and compressed natural gas vehicles to perform many maintenance tasks around campus, reducing fuel consumption and greenhouse gas emissions.

Water

Water Conservation

UMBC's project to upgrade efficiency of irrigation controls results in annual saving of 7,000,000 kWh and 3,000,000 gallons of water.

Green Building

LEED Certified

LEED Silver

LEED Gold

UMBC has 3 LEED certified green buildings on site. The 2 LEED Gold Buildings are Performing Arts & Humanities Building and Patapsco Hall and the LEED Silver building on campus is the Apartments Community Center. All new buildings will be built to LEED standards and are being designed as such.

Other

- In 2007, President Hrabowski signed the American Colleges and Universities Presidents' Climate Commitment (ACPCC). This committed UMBC to achieving carbon neutrality. UMBC is also recognized by the Arbor Day Foundation as a "Tree Campus USA".*

Profile Updated April 2016



Help build a greener, more sustainable Maryland through voluntary practices that reduce environmental impacts and save money.

Learn more at www.green.maryland.gov/registry

