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.

University of Maryland, Baltimore County

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sustainability.umbc.edu
Higher Education
Member since August 2009

Management and Leadership

☑ **Environmental Team**

UMBC's Office of Sustainability was established in 2019 to build upon previous successes. The sustainability office is staffed by two full time staffers – an assistant director and a sustainability coordinator. In addition to the two staff members the office annually employs several undergraduate students to serve as Eco-Ambassadors. The office works directly with the UMBC Climate Action Steering Committee (CASC) , an officially sanctioned university committee, tasked with facilitating collaboration with all campus stakeholders to decrease UMBC's carbon emissions.

The CASC 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 CASC's efforts, UMBC also has a Landscape Stewardship Committee which oversees the landscape and land use planning and design for the campus. In February 2020 the CASC and Office of Sustainability released a revised Climate Action Plan (available at cap.umbc.edu).

☑ **Annual Environmental Goals**

UMBC conducts annual greenhouse gas emissions inventories to measure current levels of progress to the university's climate neutral goals. The UMBC Climate Action Plan outlines specific emissions reductions target dates.

Additionally, UMBC increases its procurement of Renewable Energy Credits (RECs) by a minimum of 2% of total annual electricity use each year.

☑ **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 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 Peaceworker 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.

Waste

☑ **Solid Waste Reduction and Reuse**

UMBC Facilities helps donate used office/classroom furniture and athletic equipment to charitable organizations.

☑ **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 $6 million project pays for itself in 10 years via associated utility savings. Annual savings of 5,700,000 kWh, reduces GHG emissions by 3,100 MTCO$_2$e 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 LEDs*
- ***Upgrading bulbs** in most Exit signs to LEDs*
- ***Replacing incandescent bulbs** with LEDs*
- ***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.*

- ***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^{o} F) and raised during the cooling season (76^{o} 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^{o} F in the heating season and 85^{o} 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 eCO_2. 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 is home to 18 EV charging stations located throughout campus. The stations are free to use.*

☑ **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.

Transportation

☑ **Fleet Vehicles**

Facilities Management fleet includes electric vehicles to perform many maintenance tasks around campus, reducing fuel consumption and greenhouse gas emissions. UMBC transit utilizes several hybrid buses to provide mass transportation services on local routes.

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**

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. Additionally, UMBC's 2 newest buildings, the UMBC Event Center and Interdisciplinary Life Sciences Building were built to LEED Silver standards and are in the process of finishing certification.

Environmental Certification Programs, Awards, and Other Activities

☑

- *Signatory to Second Nature's Climate Commitment, which integrates carbon neutrality with climate resilience and provides a systems approach to mitigating and adapting to a changing climate.*

- *AASHE STARS Silver University*
- *AASHE Sustainable Campus Index 2020 recognition for water*
- *Campus Race to Zero Waste participant*
- *Times Higher Education Global Impact Campus*

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