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 works closely with the university's Climate Action Steering Committee (CASC) to engage campus stakeholders and support leadership on tops related to sustainability, environmental stewardship, and climate change. The Office of Sustainability includes two full time sustainability professionals and is supported during the academic year by 5-10 undergraduate peer-educators, known around campus as "Eco-Ambassadors." During Academic Year 2022-2023 UMBC also hosted its first SEI Climate Corps Fellow. The fellowship is a nine-month full time position for a recent graduate. This year's fellow worked on an invasive species management plan for the campus.

The CASC meets regularly to advise campus leadership 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. Additional information about sustainability efforts at UMBC can be found by visiting sustainability.umbc.edu.

☑ **Annual Environmental Goals**

In 2022, UMBC achieved a Gold Rating from the Association for the Advancement of Sustainability in Higher Educations' Sustainability Tracking Rating and Assessment System (AASHE STARS). In addition to improving sustainability efforts across to campus to maintain and improve the Gold rating, UMBC also 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 and sets a Carbon Neutrality date no later than 2050. Additionally, UMBC increases its procurement of Renewable Energy Credits (RECs) by a minimum of 2% of the total annual electricity use each year.

☑ **Environmentally Preferable Purchasing**

As an agency of the State of Maryland, UMBC adheres to the Maryland Department of General Service's "Maryland Green Purchasing" guidelines. The Maryland Green Purchasing Committee (GPC), established by the Green Maryland Act of 2010, administers an environmentally preferable purchasing program for the State of Maryland.

The GPC provides state agencies with the tools and resources to take advantage of solutions that have already been proven as effective, while signaling the commercial sector to continue their commitment to developing new and environmentally beneficial products and services.

In order to reduce our carbon footprint; protect our natural resources; prevent air, water, and soil pollution; and support public health, the GPC encourages the purchase of products that:

- *Have environmentally conscious manufacturing processes*
- *Reduce the use of raw materials*
- *Do not use hazardous or toxic substances*
- *Are biodegradable or recyclable*
- *Are energy-efficient*

☑ **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 also 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 in lieu of sending these items to the landfill.

☑ **Recycling**

UMBC offers single stream recycling of aluminum cans, metals, paper, cardboard, glass, and plastics. UMBC offers an additional recycling program that allows the campus to recycle all plastic wraps and films.

☑ **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 several LEED certified green buildings on site. The campus is home to two LEED Gold Buildings: Performing Arts & Humanities Building and Patapsco Hall and three LEED Silver buildings: Apartments Community Center, the Interdisciplinary Life Sciences Building, and the Chesapeake Employers Insurance Arena. All new construction and major renovation projects are required to be built to a minimum of LEED Silver standards.

Environmental Certification Programs, Awards, and Other Activities

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- *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 GOLD University*
- *AASHE Sustainable Campus Index 2022 recognition for water*
- *2021 MDE Green Registry Sustainability Leadership Award Recipient*
- *Campus Race to Zero Waste participant*
- *Times Higher Education Global Impact Campus*

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