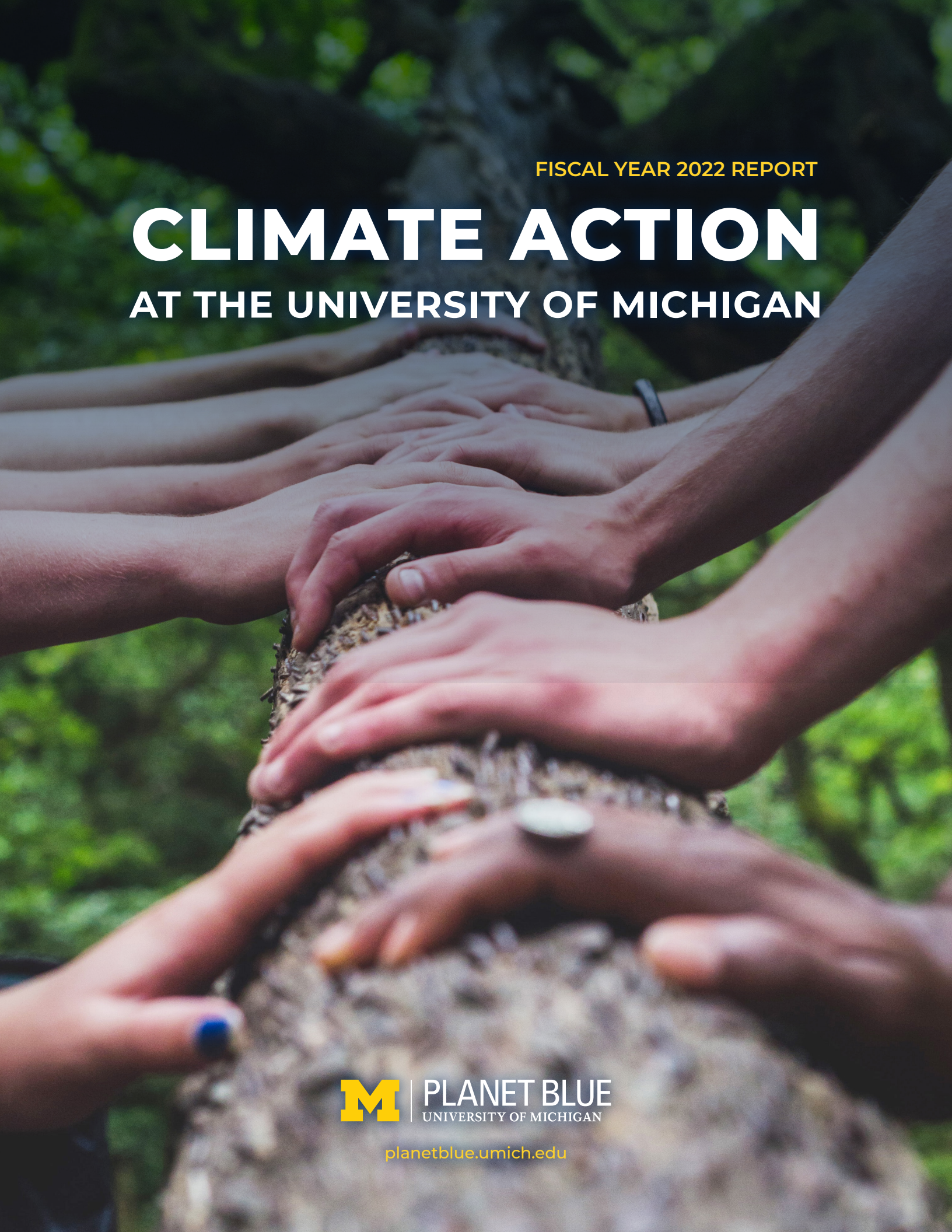
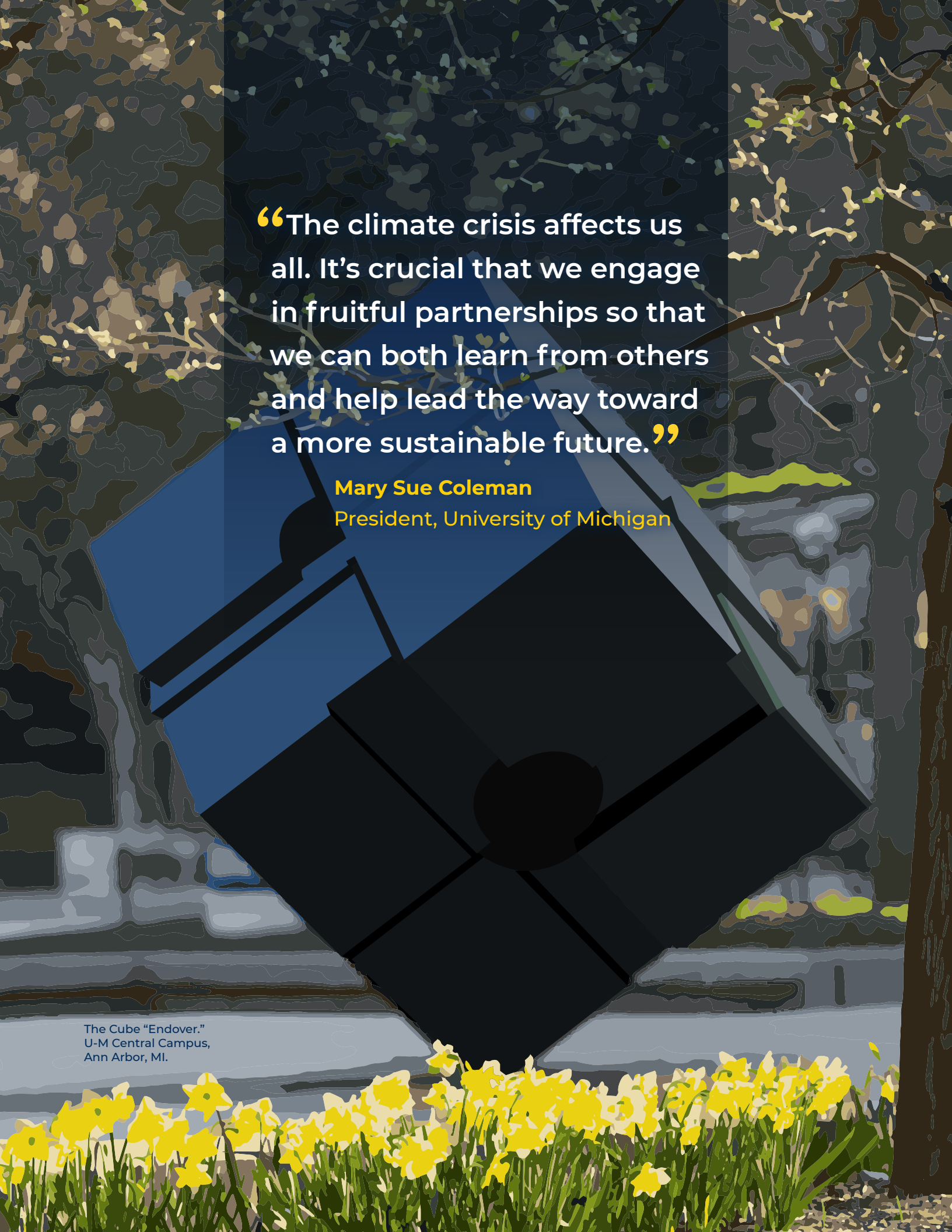


FISCAL YEAR 2022 REPORT

CLIMATE ACTION
AT THE UNIVERSITY OF MICHIGAN

PLANET BLUE
UNIVERSITY OF MICHIGAN

planetblue.umich.edu



“The climate crisis affects us all. It’s crucial that we engage in fruitful partnerships so that we can both learn from others and help lead the way toward a more sustainable future.”

Mary Sue Coleman
President, University of Michigan

The Cube “Endover.”
U-M Central Campus,
Ann Arbor, MI.

To the University of Michigan community,

Over the past year, catastrophic flooding destroyed bridges and swept away buildings in Yellowstone National Park, India experienced its hottest month in 122 years, and temperatures in Antarctica soared 70 degrees Fahrenheit above normal for more than three consecutive days. The global climate crisis is accelerating, the University of Michigan must work harder than ever to develop solutions and reduce our carbon footprint. This is our responsibility as the nation's preeminent public research institution.

Since U-M announced university-wide carbon neutrality commitments more than a year ago, we have accelerated meaningful climate action across our Ann Arbor, Flint, and Dearborn campuses. This report allows you to review the breadth and depth of our commitments and activities—efforts that will grow and scale going forward.

Over the last year, we have made great strides on innovative financing for energy conservation across the university, building standards that include CO2 emissions targets, geo-exchange heating and cooling projects, and collaborative partnerships— just a few areas of emphasis. There is much more to come.

In the year ahead, we will take definitive steps toward procuring all our purchased power from renewables, deploying on-campus solar energy projects across the university, and working with community partners toward common goals. In addition, we will continue to engage throughout the university to promote a culture of sustainability and learn from the communities we serve.

The wide-ranging involvement of people throughout the U-M community has shaped our progress to date, and active engagement will remain essential as we move forward. Your passion, expertise, and contributions are vital to our work. The urgency of the climate crisis demands nothing less.

Sincerely,

Mary Sue Coleman
President

CLIMATE ACTION ON CAMPUS

7,000+

Planet Blue Ambassadors

advancing sustainability through their studies, work and life at U-M, on and off-campus

3,200+

students

engaged in peer-to-peer activities by the Student Sustainability Coalition, U-M Sustainable Food Program and Planet Blue Student Leaders

784

unique customers of the Farm Stand

—a student-run, student-grown, student-access project

281

graduating students

admitted to the Excellence in Sustainability Honors Cord Program, proudly wearing student-made, naturally-dyed, Michigan wool cords

101

Green Teams

motivating their colleagues to create more sustainable workplaces

$58,000

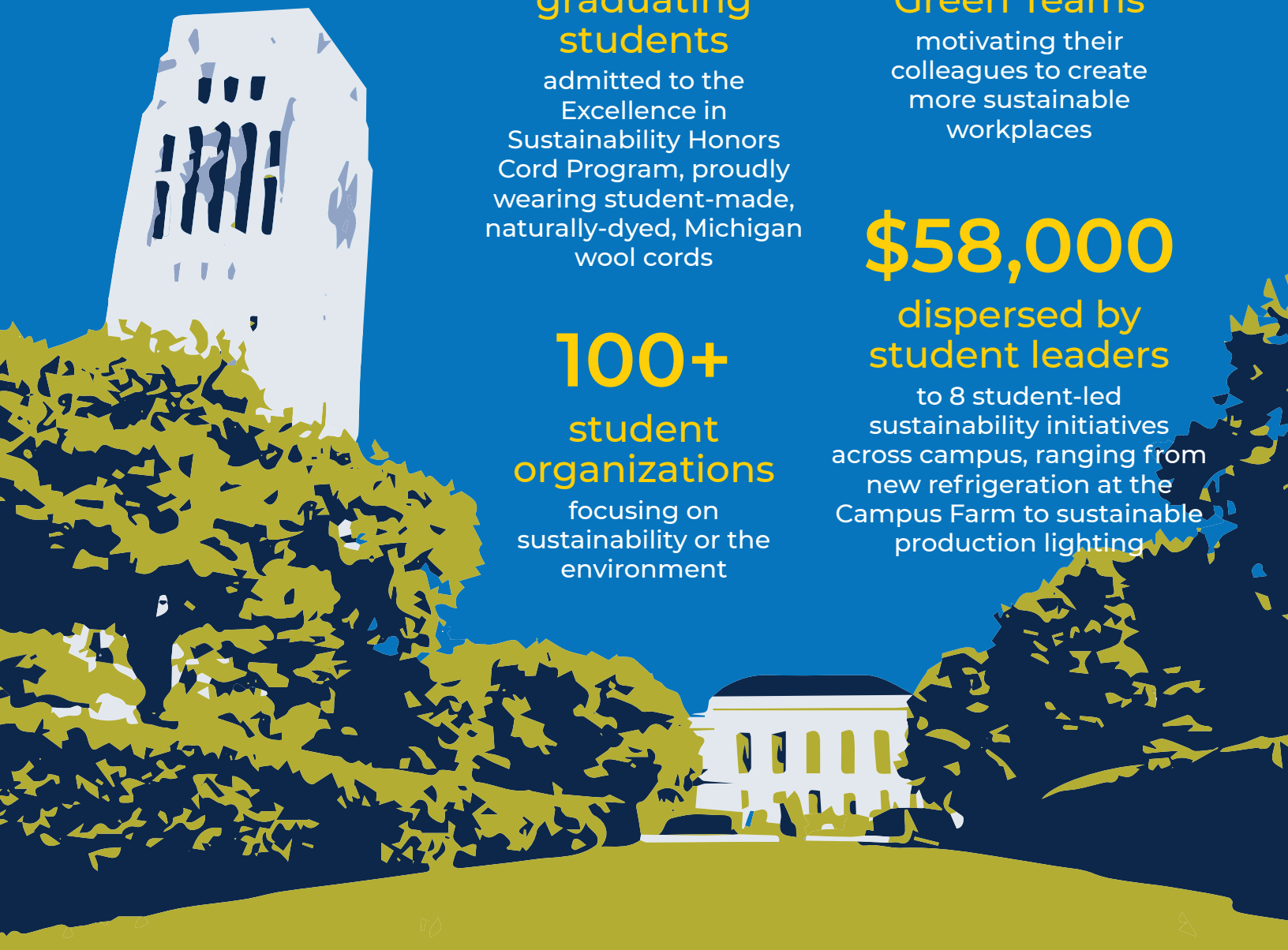
dispersed by student leaders

to 8 student-led sustainability initiatives across campus, ranging from new refrigeration at the Campus Farm to sustainable production lighting

100+

student organizations

focusing on sustainability or the environment



Carbon neutrality commitments

- **2025** — Reduce greenhouse gas emissions from purchased electricity (**Scope 2**) to net zero.
- **2040** — Eliminate direct, on-campus greenhouse gas emissions (**Scope 1**).
- **2025** — Establish goals for a wide range of indirect emission sources (**Scope 3**).
- Foster a universitywide **culture of sustainability,** with **justice** as a core principle.

Aligning with UN Intergovernmental Panel on Climate Change (IPCC) guidance:

- U-M is on pace to reduce Scope 1 and 2 greenhouse gas emissions by 50% by 2025 (relative to a 2010 baseline), which exceeds the IPCC's guidance to reduce emissions by 45% by 2030.
- U-M committed to eliminating 100% of Scope 1 and 2 emissions by 2040—ten years ahead of the IPCC's global net-zero target.

Emissions reduction progress

25%
Total greenhouse gas emissions reduction since 2010

13%
year-over-year Scope 2 emissions reduction from FY21

4%
year-over-year total emissions reduction from FY21

Innovation in operations

- 50 energy conservation projects approved for financing in the revolving energy fund's first year—estimated to reduce emissions by more than 5,600 metric tons annually
- 155 buildings offering composting, enabling the U-M community to compost more than 1,100 tons during FY22

Multidisciplinary and cross-sector research

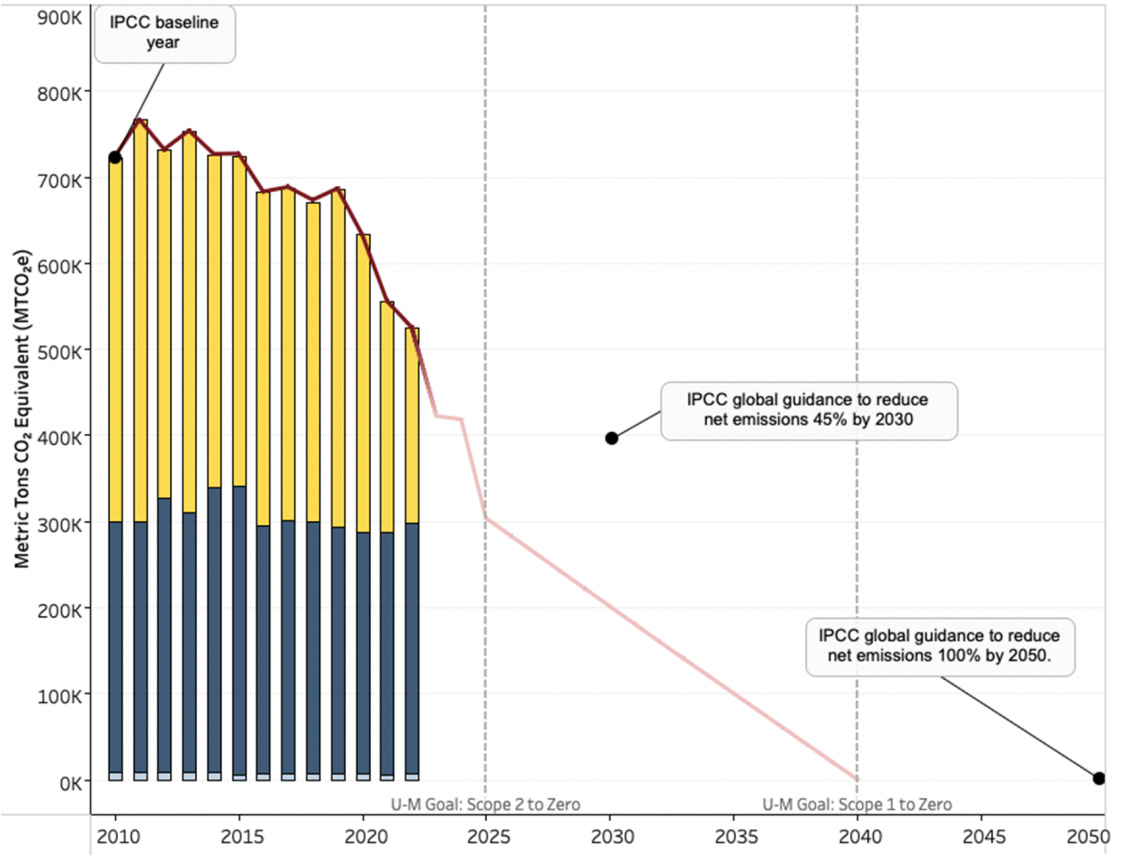
- The Carbon Neutrality Acceleration Program (CNAP) supported 7 teams (25 researchers across U-M) with $1.75 million to pursue leading-edge carbon neutrality research.
- CNAP released two requests for proposals for an additional $1.5 million in funding to be awarded during FY23.
- In May, CNAP convened 56 faculty, researchers, and staff from across U-M to network, learn about the new funding opportunities and hear from external funders supporting decarbonization work.

Sustainable investing

- Discontinued direct investments in companies that are the largest contributors to greenhouse gases.
- Discontinued new investments into funds whose primary focus is oil reserves, oil extraction, or thermal coal extraction.
- Shifted natural resource investments to renewable energy, low-carbon fuel and other investments to help build a sustainable economy.
- Issued $300 million in "green bonds" for sustainable capital projects.
- Pursuing a net-zero endowment by 2050.

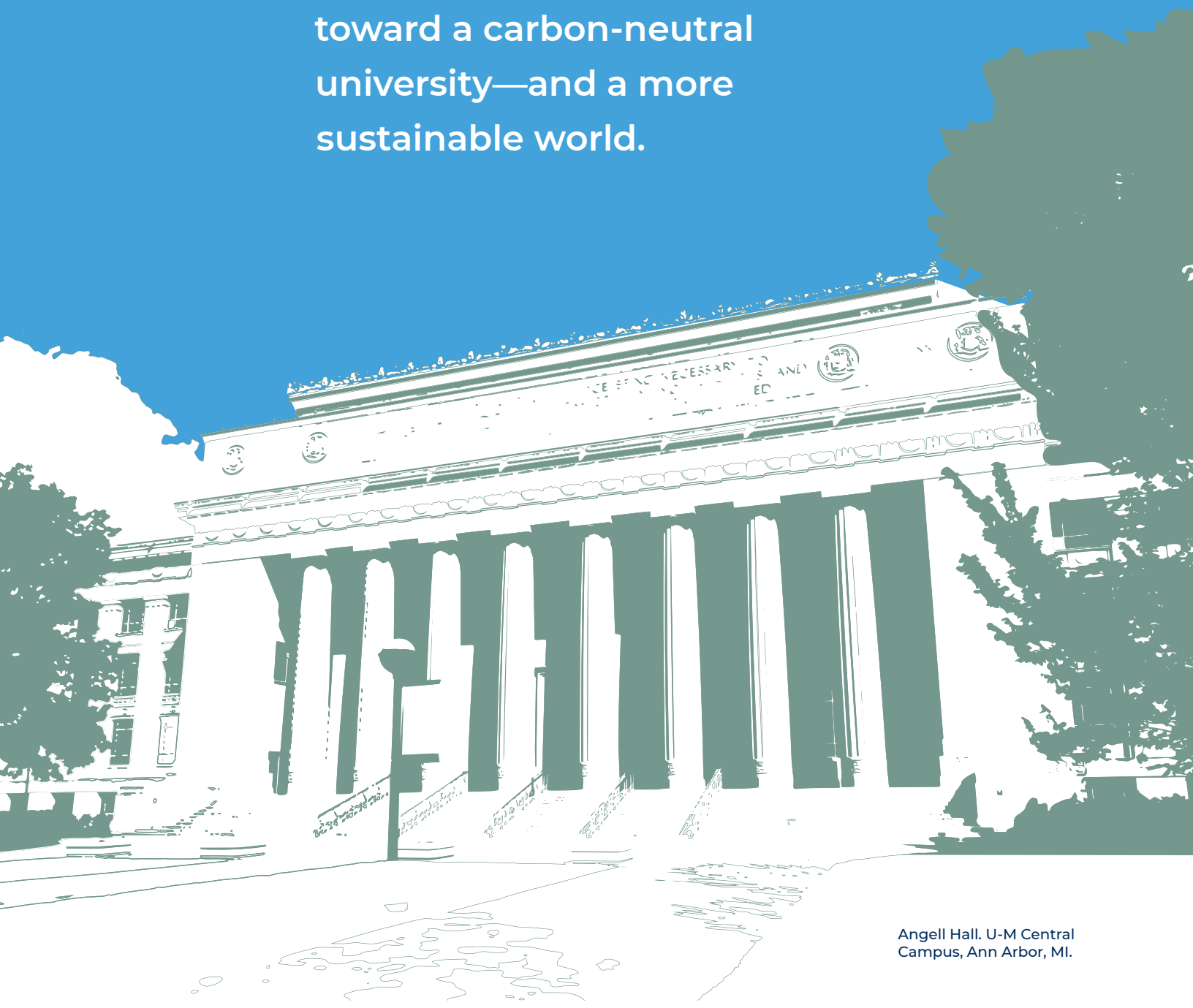
The U-M Emissions Reduction Dashboard, released in March 2022, illustrates universitywide greenhouse gas emissions by year and expectations for how quickly the university will achieve carbon neutrality. As demonstrated below, U-M is markedly reducing its Scope 2 emissions now and expects to achieve net-zero Scope 2 emissions by 2025.

planetblue.umich.edu/carbonneutrality



UM-Dearborn data is not available prior to FY14, so FY10–FY13 values are assumed to be equal to FY14 values. This assumes limited emissions changes between FY10 and FY14, which is consistent with the data-informed emissions trends on the Ann Arbor and Flint campuses. UM-Dearborn data is not yet available for FY22, so FY22 values are assumed to be equal to FY20 values.

U-M is bringing together **research, campus life, operations** and **community** toward a carbon-neutral university—and a more sustainable world.



Angell Hall. U-M Central Campus, Ann Arbor, MI.

Following up on its May 2021 commitment to achieve universitywide carbon neutrality, and building on the final recommendations of the President's Commission on Carbon Neutrality (PCCN), U-M acted quickly to reduce greenhouse gas emissions, spur sustainable investments, advance environmental partnerships, and foster a culture of sustainability.

Purchasing renewable electricity

U-M is procuring approximately half of Ann Arbor campus purchased electricity from Michigan-sourced renewables, largely as a product of the launch of three wind parks. The new facilities enabled the university to meet a 2011 goal to reduce greenhouse gas emissions on the campus by 25% by 2025—three years ahead of schedule.

In March, U-M issued a request for proposals to enable the university to reach 100% renewable purchased electricity by 2025. Key considerations include community engagement, justice and equity, implications for land use, habitat and wildlife, and research and education opportunities. The carbon reduction from U-M's renewable electricity purchasing will be equivalent to removing every motor vehicle registered in Ann Arbor—approximately 70,000—from the road.

Geo-exchange across campus

In February, U-M announced plans to construct a geo-exchange facility adjacent to the Leinweber Computer Science and Information Building to supply the building's heating and cooling. Once the facility is operational, the Leinweber Building will become the first large-scale university building to not rely on natural gas for heating.

The Leinweber facility will serve as an initial project as the university continues to evaluate implementing geo-exchange heating and cooling across the university in a phased approach. Geo-exchange plans are also currently in the works for the recently announced North Campus residence hall, which will

add 1,200 beds to campus, and for the new Ginsberg Center building planned for Central Campus.

> Geo-exchange systems, which are similar to more widely known geothermal systems, use Earth's constant subsurface temperature as a low-grade energy source. They can be used as either a heat sink in the summer or as a low-grade heat source in the winter. Geo-exchange is a highly effective way to heat and cool buildings, increasing energy efficiency by a factor of three, and is carbon free when powered by renewable electricity.

U-M recently issued a request for proposals to hire a firm to develop a utility master plan for North Campus, with an aim to ultimately decarbonize the entirety of the campus's heating and cooling infrastructure.

Revolving energy fund and energy conservation

U-M established a new $25 million central revolving energy fund to provide units throughout the university with zero-interest financing to support energy efficiency projects.

In January, the university unveiled an initial $5 million investment in energy conservation measures, to be financed by the revolving fund, that includes substantial LED lighting installations and heating, ventilation and air conditioning improvements.

In March, U-M announced an additional $10 million commitment to expand LED lighting across the Ann Arbor, Flint and Dearborn campuses. These projects cover approximately 100 buildings and 10 million square feet of building space.

Green bonds and sustainable investing

In addition to the revolving fund, U-M is financing much of its forthcoming sustainability work through "green bonds," totaling $300 million, which the university recently issued for the first time. The proceeds from these bonds can only fund capital projects that support environmental or climate-related goals.

In 2021, U-M modified its natural resources investing strategy to involve pursuing a net-zero endowment by 2050, discontinuing direct investments in companies that are the largest contributors to greenhouse gases, and discontinuing investments in funds whose primary focus is oil reserves, oil extraction, or thermal coal extraction. The Office of Investments is investing in renewable energy development and production, and is exploring several projects designed to advance carbon sequestration and mitigation.

Planning, transit and municipal collaboration

During the past year, U-M engaged the campus community to develop a set of draft core value statements to guide the upcoming master planning process. Campus Planning convened roughly 35 meetings with approximately 400 faculty members, staff and students and 30 community representatives, and incorporated carbon neutrality and sustainability among core values to guide long-term campus planning and design.

UM-Dearborn Engineering Building, Dearborn, MI.

A working group developed U-M's first maximum emissions targets for 14 building types to cover all new construction and major renovation projects over $10 million. With contributions from faculty experts and unit leaders, the group advanced the work of a PCCN internal analysis team.. Though new standards await formal approval, U-M is applying them to active projects, such as the new Central Campus Recreation Building.

U-M Logistics, Transportation and Parking purchased four all-electric buses for the Ann Arbor campus, to be deployed during the 2022-23 academic year in a step toward completely decarbonizing the university's vehicle fleet.

In addition, U-M Information and Technology Services reduced the university's reliance on wired connections in more than 225 buildings on the Ann Arbor and Dearborn campuses when upgrading to the new WiFi 6E standard. The greater speeds offered by the new system mean that most devices will no longer need a wired connection, which will reduce reliance on energy-intensive hardware in the long term.

U-M representatives met regularly with City of Ann Arbor officials to identify opportunities for collaboration, including a potential expansion of electric-vehicle charging infrastructure on and off campus. The university also participated in the inaugural Washtenaw County Climate Summit in May and serves on a planning committee for an emerging Washtenaw County Climate Collaborative.

Transparency, accountability and culture

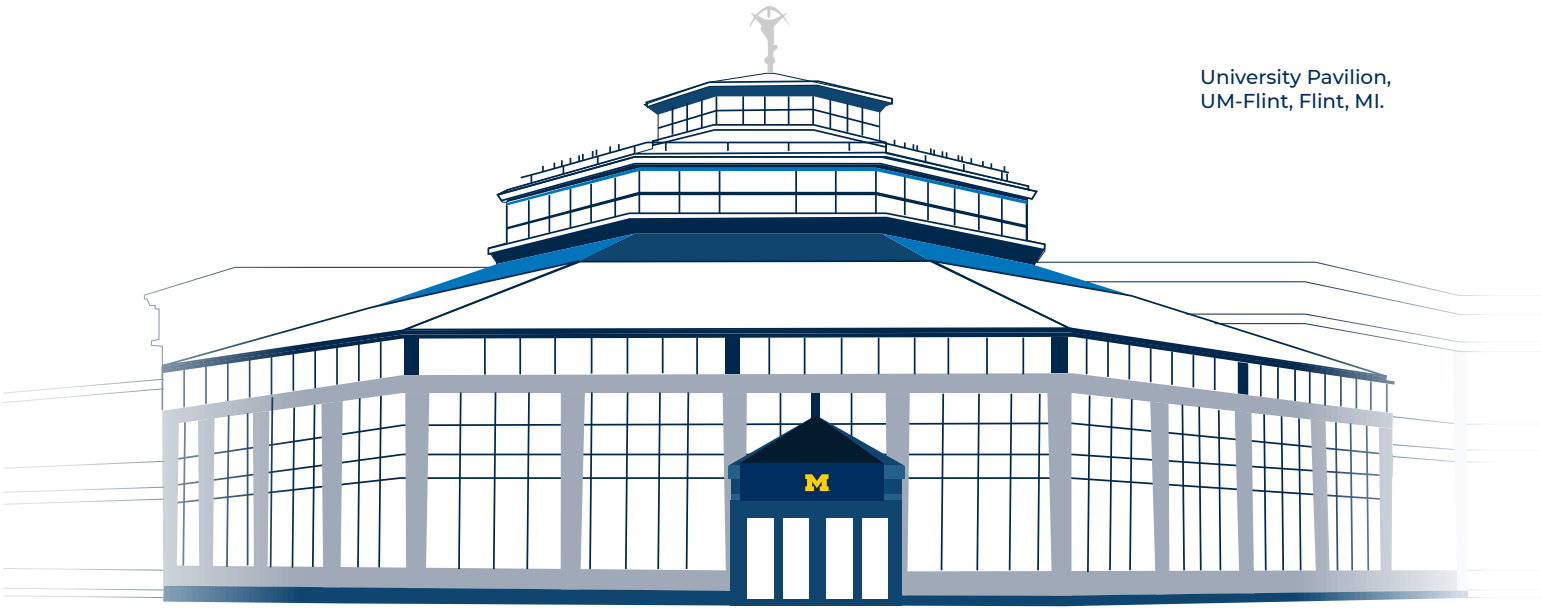
In March, U-M launched version 1.0 of a progress-tracking dashboard, providing interested users a glimpse of past emissions levels, expected trajectories, and how university efforts track against carbon neutrality goals and IPCC guidelines. The tool will integrate continual community feedback and demonstrate how U-M efforts align with announced commitments over time.

Throughout the past year, a campus life workstream convened 20 staff, students and faculty from across the Ann Arbor campus.

This effort included interviews with dozens of units to identify opportunities to engage the university community around climate action.

The Planet Blue Ambassador program, which boasts more than 7,000 certified Ambassadors, began expanding to cover UM-Flint and UM-Dearborn, which recently launched training modules. The Student Sustainability Coalition awarded funds to support student-led projects and connected student organizations with administrators working towards common goals. In addition, the Excellence in Sustainability Honors Cord Program granted locally-made cords to 281 graduating students.

A leadership council, with representation from major units throughout the university now advises the U-M administration on carbon neutrality matters. Representatives also champion and facilitate efforts within their respective units. Michigan Medicine added a chief environmental, social and governance (ESG) component to its executive leadership, the College of Literature, Science, and the Arts established a task force to identify unit-specific carbon neutrality objectives, and UM-Flint has collaborated with the City of Flint toward the city's development of an environmental sustainability plan.



University Pavilion, UM-Flint, Flint, MI.

Organizational partnerships

In February, U-M joined more than 25 universities, nonprofit organizations, corporations and local governments in founding the Midwest Climate Collaborative. The cross-sector consortium aims to develop a cohesive Midwest response to the climate crisis, and in doing so synthesize regional climate knowledge and adaptation strategies and build a network of climate researchers.

In May, U-M joined the U.S. Department of Energy's Better Climate Challenge, through which participating organizations pledge to reduce emissions and share resources on their respective climate action efforts. Affiliated institutions each commit to reducing Scope 1 and 2 emissions by at least 50% within 10 years.

U-M is also an active member of the following organizations.

- The University Climate Change Coalition (UC3) connects 23 of the world's leading research universities toward accelerating climate action on campus, in communities, and at a global scale. U-M president-elect Santa Ono has served as the leader of UC3 while at the University of British Columbia.
- The Big Ten and Friends Sustainability group provides a space for status reports, peer guidance, resource sharing, and collaboration among peer institutions.
- The Ivy Plus Sustainability Listening Post Consortium includes sustainability representatives from Ivy League and peer universities committed to the ongoing exchange of campus sustainability solutions.
- The City of Ann Arbor's A2Zero Collaborators group convenes organizations throughout the local area to inform community climate action.

Going forward, U-M will build on the successes outlined above and pursue bold new steps toward climate action, net-zero emissions, and a culture of sustainability with justice as a central tenet.

Expand geo-exchange

U-M is prioritizing the installation of geo-exchange heating and cooling systems, in a phased approach across the university, to decarbonize all heating and cooling infrastructure. Geo-exchange will be a crucial tool for U-M to eliminate all direct, campus emissions (Scope 1) by 2040.

Next steps include hiring an external firm to conduct a North Campus utility master plan, designing all new buildings and renovations to be compatible with renewable energy-driven heating and cooling systems, and exploring additional geo-exchange opportunities beyond those announced.

Finalize renewable power purchasing

U-M expects in FY23 to finalize its selection process to procure 100% of its purchased electricity from renewable sources by 2025.

U-M has also assessed optimal locations for on-campus solar photovoltaic installations and plans to issue an RFP in the coming year to build out extensive installations across the university.

Address emissions from transit and travel

U-M continues to develop plans to improve connectivity and reduce the carbon footprint of transit across the Ann Arbor campus.

The university is exploring a partnership to reduce greenhouse gas emissions resulting from university-sponsored air travel and help spur the improvement and widespread adoption of sustainable aviation fuel.

Expand energy conservation plans

In addition to the $15 million in announced energy conservation projects to be financed via the revolving energy fund, U-M will continue to refine the fund's mechanisms and support additional projects in FY23. Though global supply chain issues have prompted a recent shortage of LEDs, these and other energy conservation projects remain a key priority.

Reinforce U-M climate action leadership

Drew Horning guides universitywide carbon neutrality work in his role as special advisor to the U-M president, contributing 20 years of experience advancing U-M sustainability. Executive Vice President and Chief Financial Officer Geoff Chatas shares a demonstrated track record of pursuing ambitious sustainability goals at academic institutions. In the year ahead, President-Elect Santa Ono will determine how climate action efforts will be organized to elevate sustainability among university priorities.

Foster a culture of sustainability

Drawing on the campus life work stream's recommendations, U-M seeks to expand opportunities for the university community to engage with carbon neutrality efforts. Another priority for the year ahead involves supporting scalable strategies for UM-Flint and UM-Dearborn.

Collaborate locally, regionally and nationally

U-M aims to expand climate partnerships at the city, county, and state levels. Key initiatives include expanding electric vehicle charging in collaboration with the City of Ann Arbor and joining the EPA's Green Power Partnership.

Build upon progress tracking dashboard

U-M will iterate on and expand its progress tracking dashboard. Priorities include adding interactive filters to the tool that would allow users to sort Scope 1 and 2 emissions by unit type (Athletics, Student Life, Michigan Medicine, General Fund, etc.).

Arriving Home.
Sculpture by Dennis
Oppenheim, 2007.
U-M Central Campus,
Ann Arbor, MI.

"We are and we should be more cognizant than ever of the irreparable damage we are doing to our planet with this climate emergency. This may discourage some people. Not me. This is the University of Michigan. This is where the leaders and best reside, and where leaders and best graduate from. This institution has the ability, through the intellectual capital of the faculty and staff and students, to really address these existential challenges that affect this world. We will do so together."

Santa J. Ono
President-Elect, University of Michigan

PLANET BLUE
UNIVERSITY OF MICHIGAN

ABOUT THE UNIVERSITY OF MICHIGAN

The mission of the University of Michigan is to serve the people of Michigan and the world through preeminence in creating, communicating, preserving, and applying knowledge, art, and academic values, and in developing leaders and citizens who will challenge the present and enrich the future.

DIVERSITY, EQUITY, AND INCLUSION

At the University of Michigan, our dedication to academic excellence for the public good is inseparable from our commitment to diversity, equity, and inclusion. It is central to our mission as an educational institution to ensure that each member of our community has full opportunity to thrive in our environment, for we believe that diversity is key to individual flourishing, educational excellence, and the advancement of knowledge.

A Non-discriminatory, Affirmative Action Employer.

REGENTS OF THE UNIVERSITY OF MICHIGAN

Jordan B. Acker, Huntington Woods
Michael J. Behm, Grand Blanc
Mark J. Bernstein, Ann Arbor
Paul W. Brown, Ann Arbor
Sarah Hubbard, Okemos
Denise Ilitch, Bingham Farms
Ron Weiser, Ann Arbor
Katherine E. White, Ann Arbor
Mary Sue Coleman, *ex officio*

Drafted by the Office of the President and the Office of the Vice President for Communications, with contributions from the Graham Sustainability Institute, the Office of Campus Sustainability, Facilities & Operations, Student Life, Planet Blue Ambassador, Information & Technology Services, and Business & Finance.

Designed by Graham Sustainability Institute Marketing and Communications.

Please consider making the more sustainable choice not to print this report.

planetblue.umich.edu/carbonneutrality