

INSIGHTS FROM OTHER UNIVERSITIES ON THE PATH TO CARBON NEUTRALITY

I. EXECUTIVE SUMMARY

This report provides a high-level summary of the approaches taken by selected higher education institutions to achieve their carbon neutrality and climate action goals. Information was gathered from public sources and interviews with sustainability leaders from the respective institutions. This report outlines some strategic responses implemented by these higher education institutions to address their campus/system-wide carbon neutrality/climate action goals, challenges encountered during the process, and lessons learned for the next steps. Most compelling, and specifically applicable to the University of Michigan, among these strategies include:

- The executive leader should proactively seek opportunities to establish their own informal network (in addition to the more formalized networks) that consists of key members within the organization. These individuals are enthusiastic about climate action and have a pivotal role in driving change. The executive leader can utilize official events or even informal gatherings (e.g., conversation or meals) as a platform to initiate conversation and form internal partnerships. This network of key individuals can help bolster efforts initiated by high-level leadership and increase involvement within the middle of the organizational structure. The executive leader can utilize their soft power to increase messaging and actionability for climate action and carbon neutrality initiatives throughout the organization. This is key to the cultural change that is required for carbon neutrality progress, and an executive leader has a unique role.
- The executive leader must sustain an active leadership role and act as a bridge between high-level leadership and departmental- and unit-level leadership. The leader must be in a well-defined, high-level leadership role—not simply a staffing role buried in the middle of the organization—to ensure that signaling from high-level leadership is communicated to all campus stakeholders and department- and unit-level progress is reported back to leadership. Top-down signaling from high-level leadership has garnered positive results at various higher education institutions and the executive leader is crucial in facilitating this clear and visible channel of communication. While implementing campus-wide carbon neutrality developments or renovations, the executive leader must understand that there may be a gap between a campus department/unit’s operational capacity and the new initiative/technology being implemented. The executive leader should employ expertise to eliminate these hurdles in the development process by working with planning/facilities and the campus departments/units involved, as opposed to closing the gaps later. They should have a comprehensive understanding of the value chain to get buy-in from campus stakeholders, especially in executing campus-wide carbon neutrality efforts.
- Utilize higher education climate action and sustainability ranking tools, like AASHE’s STARS reporting framework. Highly-visible national rankings were used as a leverage tool to motivate Arizona State University leadership to implement strategies to reach the STARS Platinum ranking. The executive leader should identify effective strategies, like ASU with ranking systems, to engage and interest high-level leadership to implement and resource carbon neutrality

strategies. This is particularly valuable to address the most challenging changes facing the institution as external pressure and validity can be useful leverage.

- Designate sustainability leaders within each department and unit of the organizational structure. At Colorado State University, climate action and sustainability are initiated by individuals spread across the institution with ‘Sustainability’ (or equivalent) in their job title. University of California, Los Angeles, has identified sustainability officers in each department and unit and officers are tasked with implementing carbon neutrality and sustainability. These leaders should have the most comprehensive understanding of the operational needs of their department/unit and are in a position to be able to execute climate action and sustainability initiatives accordingly. This is an organizational approach that creates an accountability structure throughout the institution.
- In conjunction with the search for an executive leader, it is particularly vital that U-M identifies a full-time high-level leader dedicated to climate neutrality at Michigan Medicine, given how the medical facilities drive greenhouse gas emissions as well as the finances of the institution. This leader should consider forming partnerships with organizations like Practice Greenhealth and employ initiatives like the Healthier Hospitals Initiative and Greening the OR. There is a large room for improvement in relation to energy, facilities, and utilities at the Medical Center.
- An effective strategy is to identify the big levers in the organizational structure of the institution—especially at large institutions like U-M—to drive systemic change through policy, procedures, and standards, etc. Our contact at Arizona State University has noted this to be an effective method given the challenges with handling a large population of over 100,000 individuals. These big levers, the ‘behind the scenes’ powers that influence action that deploys across the entire institution, can change behaviors throughout the organizational structure without having to target each stakeholder group, a method particularly useful at large institutions. This will be a big win especially in the initial stages of implementing carbon neutrality.
- In the long term, the executive leader needs to be able to identify messaging strategies that effectively target each campus stakeholder to create culture change in a large institution. For example, our contact at Arizona State University has noted that the majority of students at ASU do not know of the existence of the sustainability office. As a result, they signal to students by targeting individual-level behavior, e.g., encouraging plant-based diets, reducing waste, and greener transportation. These are actions within a student’s direct sphere of control and immediate influence. Identifying effective messaging strategies with each campus stakeholder significantly improves the outcome of carbon neutrality and sustainability initiatives.
- Currently, the most imminent step that an institution can take to implement climate action is to ensure that all current and future projects (construction, maintenance, renovations, etc.) are designed to be carbon neutral and sustainable. Higher education institutions have been expanding in building and facilities space, and the executive leader must work with operations/planning and academic departments/units to ensure that climate resiliency and sustainability becomes a priority in planning and implementation.

- Gauge the level of buy-in from internal and external partnerships, especially their willingness to fund climate action and sustainability initiatives. For example, at an institution where internal stakeholders (e.g., executive leaders) are generally apathetic for climate action and have other priorities, the more feasible path may be to seek funding from outside partners. External partnerships can provide strong internal leverage and make up for gaps in internal capacity.
- If internal funding is the ideal path, consider appealing to high-level leadership to seek funding from the institution's endowment, especially for investments in campus infrastructure. An approach may be to present a funding plan that outlines the life cycle cost (LCC) of a development/renovation. Colorado State University presented findings for a 60-year LCC for campus electrification and a 30-year LCC for a geothermal project. The geothermal project was funded by the university itself and they are now seeking funding for campus electrification.
- To engage internal stakeholders in campus-wide carbon neutrality and sustainability goals, accessibility and convenience are crucial. Engagement with and implementation of strategies should not feel like a chore, and it is up to the executive leader and office to identify methods of delivery of climate action and sustainability initiatives to the broader campus community. For example, for faculty and staff, the office can create a line-by-line checklist of methods for individuals to reduce their footprint in their everyday activities. For students, the office may increase accessibility for students to recycle by implementing more recycling stations across campus. Identifying strategies that best engage each stakeholder is crucial for motivation and to drive culture change.
- Interviewees have recognized the importance of integrating climate justice into their climate action and sustainability work. These institutions are currently identifying methods of implementation, such as through student academic curricula requirements and partnerships with local communities, etc. Climate justice needs to be a top priority in all decision making processes of an institution and identifying ways to implement this is crucial.

The findings above highlight some best practices, key takeaways, and lessons learned that were gathered from our interviews with contacts at seven higher education institutions. These are some strategies that University of Michigan (U-M) should consider as it implements the President's Commission on Carbon Neutrality (PCCN) Final Report and Recommendations published in March 2021. In particular, various observations and recommendations from our interviews reiterate the urgency for an executive leadership position to spearhead and lead carbon neutrality at U-M. Clear and effective leadership from this role will be the key to executing carbon neutrality across U-M.

II. MOTIVATION AND PROJECT SCOPE

In March 2021, the President’s Commission on Carbon Neutrality (PCCN) released its Final Report and Recommendations. The Board of Regents and President Mark Schlissel have since endorsed the recommendations set forth in the report and have announced commitments and initial steps to put carbon neutrality at the forefront of U-M’s mission. The report details the following guidance: U-M will eliminate Scope 1 emissions (from direct, on-campus sources) by 2040, achieve carbon neutrality for Scope 2 emissions (from purchased electricity) by 2025, establish net-zero goals for Scope 3 emissions categories (from indirect sources including commuting, food procurement, financial investments, and university-sponsored travel, etc.) by 2025, and will prioritize environmental justice and strengthen its relationship with local communities.

These goals require proactive engagement by the U-M community through employment of emissions reduction strategies, cultural change to create conscious awareness on topics surrounding social equity and climate justice, and through embracing technological advances and community development.

Many other peer institutions of higher education have also committed to carbon neutrality and have implemented strategies—cultural and organizational—to progress towards this goal. The planning and implementation of these projects and initiatives require substantial coordination, communication, and capital, among other things. Through these processes, these institutions are most likely to have gathered takeaways, best practices, and areas for improvement—a learning opportunity for U-M.

III. PROCESS

Below are critical actions to be taken as detailed in the PCCN recommendations that [Voices for Carbon Neutrality](#) (VCN) has identified as crucial in actuating U-M’s carbon neutrality goals.

- i. Creating an executive leadership (EL) position focused on carbon neutrality efforts at U-M.**
- ii. Transitioning energy and utilities infrastructure.**
- iii. Identifying strategies to measure and address Scope 3 emissions.**
- iv. Seeking out financing capital for carbon neutrality strategies and identifying potential investment and partnership opportunities.**
- v. Facilitating culture change at all levels of U-M’s organizational structure, including opportunities for all members within the U-M community to take part in carbon neutrality efforts.**

With these recommendations in mind, VCN reached out to higher education institutions to discuss obstacles encountered and successful strategies and actions in rapidly progressing toward carbon neutrality. To select institutions, we reviewed the ‘[Cool Schools 2021 Full Ranking](#)’ published by The Sierra Club, the AASHE STARS rankings and institutions recognized as U-M’s peer institutions as listed [here](#). We also talked with the Executive Director of The Association for Advancement of Sustainability in Higher Education (AASHE), who provided recommendations for institutions to contact. We selected

several institutions that are recognized for academic excellence, include a medical center/campus, have a comprehensive climate action plan, and are making progress towards carbon neutrality.

The strategies identified as crucial for successful execution of the PCCN's recommendations informed our discussion topics during interviews with representatives of these institutions¹:

- Arizona State University (ASU)
- Colorado State University (CSU)
- Duke University (Duke)
- The Ohio State University (OSU)
- The University of Iowa (UI)
- University of California, Berkeley (Berkeley)
- University of California, Los Angeles (UCLA)

The focus of the interviews was to understand more about the strategies employed by these institutions, as well as their best practices and lessons learned, as they make progress towards their carbon neutrality/climate action goals.

A benchmark was also completed to gather relevant information on each institution's climate goals and emissions reduction progress. Data and information were taken from public information available online. A summary of this information is in the attached Excel Spreadsheet.

IV. KEY OBSERVATIONS AND OTHER FINDINGS

The benchmarking and interviewing process rendered insights into the best practices and lessons learned as these institutions navigate pathways toward carbon neutrality and sustainability on their respective campuses. Many of these insights were common to most if not all the institutions interviewed. They highlight broad overarching themes that U-M ought to consider when developing, implementing, and communicating its carbon neutrality strategies as highlighted and discussed below.

Firstly, take advantage of all reporting activities, whether for internal accountability or public disclosure. Consistent utilization of reporting frameworks and regular benchmarking activity are effective mechanisms to identify areas of best practices, key learnings, and room for improvements within an institution's engagement with climate action. AASHE's Sustainability Tracking, Assessment, and Rating System ([STARS](#)) is a self-reporting framework for higher education institutions to track their sustainability performance. A notable example is Arizona State University's utilization of STARS to deconstruct elements of their past performance to identify areas to present to leadership as next steps in their carbon neutrality efforts. Publicity of the national rankings was leveraged to motivate leadership to implement the recommended actions. Data reporting increases accountability within the organizational structure and provides transparency to stakeholders that may boost confidence and encourage proactive engagement within and beyond the campus community.

¹ We also reached out to the following institutions but were unable to establish contact: Ball State University, Cornell University, Massachusetts Institute of Technology, Stanford University, University of Illinois-Urbana Champaign, University of Maryland-College Park, and University of New Hampshire.

Identify methods to integrate elements of sustainability- and social justice-related topics into academics and research, e.g., academic curricula, research programs, and/or co-curricular opportunities. Activism and conversation from student groups and other campus stakeholders have continued to shed light on these important topics across campus. The next step is to integrate social justice and sustainability in all aspects of higher education—from academics to facilities and operations. Other institutions, and some units within U-M, are working with students and faculty to identify areas where the topics of carbon neutrality, social justice, and sustainability can be integrated into academic learning, even in courses where these topics are not typically addressed. Duke University funds students to work with faculty members to improve course curricula by incorporating elements of climate and sustainability. Highlighting the relevance of social justice and sustainability across all aspects of higher education is key to connecting stakeholders and creating integrated campus networks to mobilize change.

Additionally, there needs to be diverse offerings of opportunities that ensure accessibility, equity, and inclusivity. As Michael Shelton, Associate Director for the Sustainability Institute at The Ohio State University, notes, the campus community is extremely diverse—ethnically, racially, and socioeconomically—and some voices of the community may not necessarily be aligned with climate action. Likewise, U-M is an extremely diverse community and this should be a key consideration in all decision making processes. Also, ensuring diverse and inclusive offerings across campus is the best method to foster active engagement from more campus groups.

Faculty, staff, and student engagement with the topics of carbon neutrality and sustainability beyond academics and research are pivotal in creating environmental and social consciousness around campus. For example, Duke University has taken action to address solid waste-related issues in its operations, including addressing waste at its sporting events. Duke Facilities Management and Sustainable Duke have collaborated with Athletics Facilities and Game Operations and Championships to engage in a Zero Waste Initiative at their football games. This initiative is being expanded to basketball games and any other big events on campus—like Zero Waste Kville—to foster a sustainable campus life culture. Other actions include green certification programs, which target various aspects of campus culture, including classrooms, dorm rooms, labs, workplaces, and events. These programs provide checklists for faculty, staff, and students of actions and behavioral changes to reduce their environmental footprints in everyday living and operations.

Ensure that climate action becomes a priority in decision-making processes across the institution regardless of the level within the organizational structure. This includes establishing climate action and sustainability as topics within departmental and unit-level decision-making and for these individual departments and units to become involved in campus-wide climate and sustainability initiatives. In the formation of its 2030 goals for sustainability, University of Iowa initiated retreat events to engage leaders of campus departments and units in conversation with each other in order to establish a network of support and gain buy-in from different campus stakeholders. Very recently, University of California, Los Angeles, has created a sustainability liaison program where individual departments and units nominate an individual as a sustainability officer. These sustainability officers are tasked with pushing department- and unit-level involvement in climate and sustainability initiatives. They report to the Office of Sustainability and meet regularly amongst themselves to establish connectivity between different campus stakeholders. This emulates an initiative established by Los Angeles as part of the L.A. Green New Deal in their

Sustainable City pLAN where each department identifies an individual to become the Chief Sustainability Officer within the department. This example of an initiative that establishes a role responsible for tracking the progress of department- and unit-wide climate and sustainability efforts ensures that every entity—within the campus or even city-wide—are held accountable for their footprint and are taking appropriate steps to mitigate it in an effective and timely manner.

Effective and timely climate- and sustainability-related action requires proactive engagement from high-level leadership. Many if not all of the interviewees have noted the importance of leadership within their institution’s organizational structure and their role in initiating conversation and encouraging action on the carbon neutrality front. Leaders need to set expectations for progress and outcome in terms of their institution’s climate and sustainability progress and need to be involved in the decision-making process to catalyze and speed up the action. For example, Michael Shelton, Associate Director for the Sustainability Institute at The Ohio State University, has highlighted one of their challenges encountered and future steps—the need for directives and messaging to internal and external stakeholders on the importance and priority of climate action. Arizona State University has adopted a top-down leadership approach in its carbon neutrality efforts. This includes being consistently engaged in all aspects of carbon reductions across the university—high-level leadership takes part in sustainability monthly meetings with leaders of campus departments and units to apply pressure on and push for more change. Consistency in communication from high-level leadership holds campus departments and units accountable for progress towards the institution’s climate and sustainability goals.

A significant barrier to the planning, implementation, and execution of climate- and sustainability relation actions is securing the needed financial capital. This barrier was identified by nearly all interviewees and hinders the abilities of institutions to take transformational climate and sustainability actions. Many of these institutions have already implemented solutions that are considered to be ‘low-hanging fruit’ such as energy efficiency projects like lighting retrofits undertaken by departments and units. Higher impact, large-scale projects, however, are critical for achieving greater reductions in carbon emissions. Funding for smaller projects is relatively easy to come by, and some institutions have revolving funds for these projects (e.g., a revolving energy efficiency fund with around \$1 million/year at Colorado State University, and the Sustainability Initiatives Revolving Fund at Arizona State University, currently with ~\$40 million). Campus-wide projects are expected to be more impactful long-term solutions and require more substantial financial capital, especially in the planning and development phases. For example, Colorado State University has recently completed a Main Campus District Energy Master Plan and one of the key findings was that it is not possible for the institution to continue ‘business-as-usual’ for the next 60 years. Their best solution to address the emissions associated with their energy and utility infrastructure is to undergo electrification, and they are now in the next phase of identifying strategies and funding sources. However, even with a substantial plan that projects an outcome for the next 60 years, there is hesitancy to take steps toward progress given the large capital costs. Potential sources of funding are university endowment and internal financing by the university. Similarly, a lesson learned by many interviewees, is that university endowment is an extremely important financial resource for campus-wide climate and sustainability projects. Utilization of university endowment is a representation of the physical buy-in by leaders to carbon neutrality efforts by providing financial support for initiatives and projects and can also effectively communicate the commitment of high-level leadership

for the betterment of the university community in terms of its long-term environmental and social outcomes.

Interviewees had varying perspectives on the use of carbon offsets, and these were largely affected by the local and state regulatory bodies surrounding their institution, but all agreed that there needs to be thorough planning and research before any action is taken in terms of acquiring offsets to achieve climate goals. The UC system has adopted a comprehensive carbon offset policy and system in accordance with the state of California’s carbon offset policy and has recognized the efficacy of utilizing offsets to achieve their near-term climate goals. Jason Elliot, Sustainability Assistant Director, and Rebecca Hoeffler, Communications Coordinator at Duke University, has noted that their capabilities to explore renewables have been extremely limited due to regulation in North Carolina and, as a result, have adopted carbon offset projects to mitigate some of their carbon footprint. These include solar offsets and a hog waste biogas investment, which are projects that utilize resources abundant in North Carolina while also adhering to state regulations. On the other hand, Colorado State University has realized the limited capabilities of carbon offsets in their campus carbon profile and are moving away from utilizing offsets in the future. This realization came to light when CSU bought RECs to boost LEED building ratings in FY2019, but the impending COVID-19 pandemic shed light on the limited long-term efficacy of offsets as one of their carbon reduction strategies and that they have more effective strategies especially with the City of Fort Collins renewables-friendly policies. Like other strategies, U-M needs to work with local and state governments to advocate for policies that encourage effective and productive action towards carbon neutrality—programs and regulations that promote the use of renewables and/or carbon offsets. This can, in turn, affect various actions and strategies that U-M can employ in addressing the footprint of their energy and utility infrastructure.

In addition to considering initiatives and programs for academic and university operation functions, it is equally important to identify strategies that address the carbon footprint of other university entities, including but not limited to the athletics department and medical campus/center depending on the university. For example, Colorado State University is exploring the scalability of their main campus initiatives for their Veterinary Teaching Hospital, which occupies 101 acres of their 582-acre main campus. As of now, CSU has installed solar PV arrays at the facility, and is hoping to expand the carbon neutrality initiatives within the hospital’s operations. University of California Los Angeles is also exploring opportunities to address the intersection of DEI, health, and sustainability and is committed to furthering sustainability efforts at UCLA Health. They have highlighted the significance of joining national initiatives and programs like Practice Greenhealth, the Healthier Hospitals Initiative, and Healthcare Without Harm. Like UCLA, Michigan Medicine has a medical center and health centres spread across the state and can benefit from cooperation with initiatives and organizations focused specifically on uniting and transforming sustainability in health care. University entities beyond the academic, research, and operations departments may be located elsewhere from the immediate university campus and tend to be more outward-facing—more direct and indirect interactions with members of the local community and beyond. Therefore, climate and social justice issues within these entities are equally of priority as those in academia, and there needs to be appropriate initiatives and programs to address these issues within the community to ensure more equitable and just outcomes for all.

V. SPECIFIC EXAMPLES OF LEADERSHIP STRUCTURES AND CULTURAL AND ORGANIZATIONAL STRATEGIES

Below are examples of specific climate action and sustainability initiatives, programs, and strategies that are being/have been employed at other higher education institutions as highlighted by our interviewees. These are categorized under the five crucial strategies that members of VCN have identified from U-M PCCN's Final Report and Recommendations: leadership structure, developments with regards to energy and utilities, scope 3 emissions management strategies, carbon neutrality financing opportunities, and implementation of cultural change initiatives.

i. Sustainability within organizational structure requires an executive leadership position

A recommendation that is critical to U-M's approach to transition to carbon neutrality is to create an executive leadership (EL) position reporting directly to and advising the President, whose office and staff are responsible for overseeing U-M carbon neutrality efforts. This is an approach to actuate U-M's carbon neutrality priorities in all levels of the structure of U-M—from the administrative leadership to students, faculty, and staff—in order to create effective organizational and culture change.

Understanding the leadership and government structures at other higher education institutions with regards to carbon neutrality and/or sustainability efforts can provide some understanding on the coordination, implementation, and execution of climate action on their respective campus(es). This can provide some potential insights on the organizational structure for the EL position and its office and staff, and its interactions with other U-M departments, offices, and units. It is crucial that the EL position directly reports to the president and has cross-functional reach across the organization. Adequate resources and sufficient staffing are required for the EL position to succeed in their leadership capacity to drive climate action and sustainability at U-M.

Colorado State University's President's Sustainability Commission

Year program initiated: 2017

Objective and scope: The President's Sustainability Commission (PSC) aims to promote and facilitate the effective integration of sustainability across all aspects at Colorado State University. The PSC reports to the President and Executive Leadership, providing perspectives on sustainability by advocating for new ideas and initiatives, leading university-wide sustainability initiatives, and connecting sustainability efforts across university departments and units. Other actions include maintaining a University-wide Sustainability Strategic Plan, which supports the CSU Strategic Plan, annual reporting of the Campus Greenhouse Gas Inventory and updating the Climate Action Plan biannually.

Organizational structure: Within the Commission are Subcommittees, which are groups committed to ongoing work focusing on various campus functions. There are also Working Groups, focused on more short-term climate- and sustainability-related tasks.

What has worked best? CSU does not have an office for sustainability or equivalent; sustainability leadership roles at the University are held by individuals with elements of climate action and/or sustainability embedded within their responsibilities. The PSC is an umbrella organization with

representation from professional staff and student representatives across the University. Members of the PSC are also catalysts that drive action within their respective university departments or units.

University of California System Sustainability Steering Committee

Year program initiated: 2003

Objective and scope: The [Sustainability Steering Committee](#) (SSC) is composed of decision makers across all ten campuses and the health system that engages in the development, implementation, and communication of systemwide sustainability policy. It also oversees the [Sustainable Practices Policy](#)—policy outlining goals for nine areas of sustainable practices—by tracking progress and providing revisions to the Policy based on recommendations and proposals from the Working Groups. Assessing compliance, periodic reviewing of the Policy, and strengthening the implementation of the provisions enable the continued progress towards the UC carbon neutrality and sustainability goals on all ten campuses and other university facilities.

Organizational structure: There is representation from individuals across the entire organizational structure, including from the Vice Chancellor, Associate Vice Chancellor, or Chief Operating Officer level, external experts, the Student Regent, and representatives from the faculty, undergraduate and graduate population.

A total of eleven Policy Working Groups report to the SSC, each focusing on a different policy area related to climate action and sustainability. The policy areas include:

- Climate Change
- Fleet
- Green Building
- Sustainable Foodservice
- Sustainable Operations
- Sustainable Procurement
- Sustainable Transportation
- Sustainable Water Systems
- UC Health Sustainability
- Zero Waste
- Sustainability Tracking, Assessment, and Rating Systems (STARS)

Working Groups facilitate the implementation of their respective policy areas. They identify best practices and draft policy and procedural recommendations to actuate sustainability goals. Some takeaways from Working Groups may include capturing economies of scales and scopes, identifying future policy and procedural recommendations, and an annual update on progress and challenges to the SSC.

Working Groups are composed of members across the UC system, with representation of all UC campuses on each of the Working Groups. They convene multiple times each year by conference call and attend SSC meetings to provide updates and/or proposals.

What has worked best? Representation of sustainability leaders from all ten campuses and the health system ensures that the priorities and needs (from a climate action standpoint) of each entity are recognized and considered in the decision-making process. The Committee also provides a network of

assistance and support as representatives collaborate with each other by sharing their best practices and lessons learned. These sustainability leaders form the high-level leadership and oversee the implementation of carbon neutrality strategies at their respective institutions.

University of Iowa: Integration of the Office of Sustainability & the Environment into the UI College of Liberal Arts & Sciences

Year program initiated: 2018

Objective and scope: The Office of Sustainability and the Environment (OSE) at The University of Iowa was moved from the Office of the Provost and Facilities Management into the College of Liberal Arts and Sciences (CLAS). This places new emphasis on community engagement and learning opportunities, paving the way to more student-centered, climate- and sustainability-focused research and teaching in CLAS. Key areas of focus are student engagement, sustainability education, and sustainability research, whether at UI, in the Midwest, or internationally.

Organizational structure: OSE now reports to the Associate Dean for Research within CLAS. OSE is composed of full-time staff employees and project lead interns, where interns engage in various projects and initiatives. OSE also engages closely with student-led organizations and other colleges on campus. The integration of OSE into CLAS has garnered support from other colleges at UI.

What has worked best? Results from this transition prove positive since students and faculty have become more engaged in sustainability with increasing opportunities and improved quality of engagement as a result of the relocation of OSE. This transition has also signaled the urgency of and the important role of academia and research in progressing carbon neutrality goals. Recognizing this, the office has been successful in connecting faculty and students across disciplines to engage in interdisciplinary education and research.

Further considerations: Some preliminary outcomes reveal that continued engagement with Facilities Management is extremely important in the outcomes of more technological- and infrastructure-related climate action initiatives. This may require additional communication and coordination as a result of the transition, but the overall buy-in to climate action at UI as a result of the transition of OSE into CLAS has significantly improved.

ii. Energy and utility infrastructure, including offsets

One of U-M's most urgent priorities is to become carbon neutral (including offsets) for scope 1 and 2 emissions by 2025, as stated in the PCCN Final Report and Recommendations. Many other higher education institutions have set similar targets and have employed different strategies to achieve their goals. Below are approaches that some higher education institutions have taken in addressing their scope 1 and 2 carbon emissions. These strategies include actions to improve campus infrastructure and interactions with authorities that have influenced local and state energy- and utilities-related policies and regulations. These are potential strategies to consider as U-M attempts to improve its energy and utility infrastructure and may also shed light on methods for working with local and state regulatory authorities on energy- and utilities-related matters.

University of California System adheres to state of California regulations and statewide carbon neutrality goals

The state of California has continued to be a leader in climate action and environmental policy on a national and global scale. It has pledged to reduce greenhouse gas emissions by 40 percent below 1990 levels by 2030 and by 80 percent below 1990 levels by 2050. Other goals include 100 percent carbon-free electricity and statewide carbon neutrality by 2045. This has influenced various major decisions within the UC system, which includes the announcement in 2013 where then-president Janet Napolitano has committed the UC system to reduce emissions to 1990 levels by 2020, and to be carbon neutral in its operation by 2025 (addressing scope 1 and 2 emissions sources).

Recognizing the goals set by the state of California and the UC system, University of California, Berkeley has committed to carbon neutrality for scope 1 and 2 emissions by 2025, and carbon neutrality including scope 3 emissions by 2050. Yet, as Kira Stoll, Chief Sustainability & Carbon Solutions Officer at Berkeley, notes, Berkeley is motivated by the statewide carbon neutrality goals and intends to advance some of its scope 3 emissions targets to achieve carbon neutrality by 2045 to be consistent with the state's targets.

With regards to energy and utility services, the UC system is obligated to comply with various policies set by the California Air Resources Board (CARB). This includes the cap-and-trade program, which covers entities that emit 25,000MTCO₂e or more per year. Within this program exists the Compliance Offset Program, which issues ARB Offset Credits to qualifying projects subject to the Compliance Offset Protocols. This is among the various programs that the state of California offers to state entities to further individual carbon neutrality efforts.

As Nurit Katz, Chief Sustainability Officer at University of California, Los Angeles, highlights, the cap-and-trade program poses a great challenge to UCLA—one of the five UC campuses that emit beyond the threshold—as it is not able to achieve the goals set by the UC system without acquiring offsets. Berkeley has also recognized the need for offsets to close the gap after all other potential emission reduction strategies are exhausted. Therefore, in accordance with the Compliance Offset Program, the UC system has developed a portfolio of high-quality carbon offset projects through their own UC-initiated offset projects and through offsets available in the voluntary market. UCLA has currently implemented two projects: [CO2Concrete](#) and [The Ebony Project](#). The availability of guidance and policy informing offsets as a strategy to achieve carbon neutrality is an example of the various tools informed by the state of California to enable and further the ability of statewide entities to progress towards carbon neutrality.

Government programs—like the Compliance Offset Program—under umbrella policies ensure that statewide entities are held accountable for their footprint. This reveals the importance of a symbiotic relationship between the government and statewide entities as programs informed by state policies can greatly improve the abilities of entities to engage in statewide climate goals. Therefore, it is important for U-M to engage with the local Ann Arbor, Dearborn, Detroit, and Flint governments, and the state of Michigan government to advocate for progressive climate goals. In turn, these government entities should provide the appropriate guidance and tools for U-M and others to take action and enact strategies to achieve those goals. The urgency for such engagement and partnership efforts have been highlighted in the PCCN Final Report and Recommendations. The U-M Office of Government relations is

well-positioned to work with local, state and federal governments to advance carbon neutrality partnerships and should be encouraged to engage in ambitious efforts in this area.

Colorado State University works with City of Fort Collins utilities to decarbonize local energy and utilities infrastructure

In 2017, Colorado State University signed a pledge to switch to 100 percent renewable electricity by 2030. Then, CSU already had solar arrays that provided the campus with 10 million kWh/year and is continuing to transform its energy infrastructure on campus. However, about half of CSU's greenhouse gas emissions are from its purchased electricity—mainly sourced from Fort Collins Utilities. CSU, being one of three largest consumers of Fort Collins Utilities, strongly advocated for Fort Collins Utilities to transition its energy infrastructure to 100 percent renewables. This happened in 2018, when the City of Fort Collins also signed a transition mandate to adopt 100 percent renewable energy.

Colorado continues to be a state with progressive climate legislation and has advocated for energy transition-friendly policies statewide. Over 10 cities in Colorado, including Fort Collins, have committed to 100 percent renewable energy. Fort Collins and CSU have collaborated on various clean energy projects and CSU continues to support the utility industry and state renewable energy policy. CSU's proactive advocacy for renewable energy legislation and engagement with Fort Collins Utilities has furthered decarbonization efforts for both parties. It is important for higher education institutions to work with entities within their local and statewide communities and ensure that collaborative decarbonization efforts are leading to equitable and just outcomes.

University of British Columbia infrastructure development: Swing Space and Interim Space

At University of British Columbia (UBC), the Facilities Planning unit of Infrastructure Development has implemented [Swing Space and Interim Space](#) to provide logistical and transition support for faculties and departments when their space is being developed or renovated.

Swing space refers to space that is allocated to faculty and/or departments during a construction project when their original workspace is being renovated or undergoing maintenance. Interim space provides a space for a group from existing swing space inventory until a longer-term space is available. This is for faculty and/or departments that are in the process of designing/construction of a new building. Most of the spaces assigned for swing and interim uses are located in buildings nearing decommission and, therefore, rendering them suitable for short-term occupancy.

(Information provided by courtesy of Bonny Bentzin, Deputy Chief Sustainability Officer at UCLA)

iii. Management of Scope 3 emissions

The PCCN's report recommends a goal that U-M set carbon neutrality goal dates for each scope 3 emission category by 2025 and, in the years leading up till 2025 and beyond, to include additional scope 3 emissions categories into the goals. The report also details specific strategy recommendations for the

following scope 3 emissions categories: commuting, university travel, food, solid waste and water, and leased buildings.

Many higher education institutions are tracking and have included scope 3 emissions in their carbon neutrality goals, or are tracking and are currently integrating scope 3 emission reductions into their carbon neutrality goals. Some institutions are in the process of identifying or have already identified strategies to target their scope 3 emissions. Some of their best practices, key learnings, and future opportunities are highlighted below.

Arizona State University's Carbon Project that prices carbon for air travel

To address scope 3 emission related to air travel, Arizona State University has introduced a price on carbon for air travel, which is \$15 for a round-trip flight (both domestic and international). The program is managed by University Sustainability Practices and each department or unit is responsible for paying this additional cost to air travel. All funds collected are used to fund the ASU Carbon Project, which are initiatives that offset emissions equaling the amount of emissions produced from ASU's air travel. So far, the funds collected from this program have been used to fund scope 1 emissions offsets.

Similar initiatives:

[Duke University and Delta form partnership to offset carbon emissions](#)

[UCLA Air Travel Mitigation Fund](#)

Duke University sees telecommuting as a work arrangement with potential reductions in scope 3 emissions from commuting

The public transportation infrastructure in Durham, NC is not conducive to satisfying the transportation needs of Duke University's students, faculty, and staff. As a result, many within the Duke community opt to drive as their preferred mode of transportation. Commuting made up 17% of Duke's FY 2019 greenhouse gas emissions and is a large source of scope 3 emissions. In addition to all the current strategies to reduce emissions from daily commuting like enhancing public transit access, carpooling, biking, and walking, the COVID-19 pandemic has revealed great potential of another strategy: expanding support for and implementation of telecommuting and flexible work schedules.

Prior to the COVID-19 pandemic, the potential of telecommuting and flexible work schedules as strategies to reduce scope 3 emissions from commuting were not truly realized. Now, according to Duke's Jason Elliot, Sustainability Assistant Director, and Rebecca Hoeffler, Communications Coordinator, there is a push for departments and units that are able to operate virtually to implement options for telecommuting going forward, even as daily operations and functions are reverting back to in-person. Other potential benefits associated with telecommuting include, but are not limited to, freeing up of building space used for work spaces, and reductions in energy/utilities and resource usage associated with office space.

Not all university functions can be easily transitioned to a virtual work environment, however, especially positions that require a physical presence on campus. At Duke, these positions may include facilities and operations staff and those working at the Campus Farm. Therefore, university departments and units need

to fully consider the scope of their operations and need to take this into account when considering telecommuting work arrangements. Strategic planning is important as there is unlikely a one-size-fits-all solution.

Additional information about [A Remote Work Future at Duke](#).

iv. Financing for carbon neutrality strategies and potential investment and partnership opportunities

Most if not all interviewees have noted the challenges with sourcing the financial capital needed for carbon neutrality and sustainability initiatives. This, in turn, limits the ability to employ these strategies that may render significant positive climate action. Therefore, it is crucial that sources for funding, whether internally from university funding or from external sources like partnerships, are identified to eliminate financial barriers to carbon neutrality and sustainability.

Arizona State University outsources its Chief Investment Officer position to BlackRock, Inc.

In 2017, Arizona State University Enterprise Partners—parent organization to the ASU Foundation and other non-profit entities—sought out BlackRock, Inc. to become its Outsourced Chief Investment Officer (OCIO). BlackRock’s philosophy includes promoting sustainability, mitigating climate change, and to become more transparent about investment decisions. This aligns with the foundation's commitment to building a more sustainable and resilient future, which emphasizes the importance of making investments that are climate- and sustainability- conscious and bringing these issues to the forefront of the conversation. Through this partnership, the ASU Foundation would be able to leverage BlackRock’s expertise in sustainable investment to engage in more targeted and strategic investment opportunities

University of California, Berkeley, leverages faculty and staff connections to seek philanthropic funding to create an unrestricted endowment

University of California, Berkeley, announced in early 2020 a [fundraising campaign to raise \\$6 billion by the end of 2023](#). At the time, the State of California funded about 14% of Berkeley’s budget. The fundraising campaign is a strategy that follows that of private institutions, where they run campaigns to garner large amounts of funding for most if not all the institutions’ needs. Funds from the campaign would create an unrestricted endowment. A part of this campaign is a \$50 million donation from Gordon Rausser, former dean of the College of Natural Resources. A large sum of the donation will be put towards initiatives that progress climate action and sustainability, and will also support Berkeley’s mission to address key economic, social, environmental and health challenges in the State of California and across the nation. The funding campaign is important as it allows deans and mid-level leadership to gain autonomy in decision-making, and to fund initiatives where they see fit.

v. Cultural change, equity, and justice

A key statement from the PCCN Report and Recommendations is to identify climate solutions that center equity and justice given the inequalities that are exacerbated by climate change. Faculty and students, in

particular, have an important role in shaping the future. Thus, it is important to promote conversation and initiate action that center around diversity, equity, inclusion, and accessibility (DEIA) through academics, research, and campus life.

Duke University undergraduate course, UNIV 101: The Invention and Consequences of Race

To actuate carbon neutrality goals within the diverse communities of higher education, it is extremely important to understand the nexus between racial equity and climate change. The course *UNIV 101: The Invention and Consequences of Race* provides students with foundational knowledge about the concept of race through the exploration of its origins and meanings. This course has been a faculty-driven initiative to bring together scholars from across Duke to introduce students to the concept of race and its link to all disciplines. These disciplines include, but are not limited to, public policy, the environment, the arts, and the sciences. The course also features expertise and scholarship of various disciplines from institutions and organizations outside Duke.

This course is open to 300 undergraduate students of any major and has no prerequisites. It takes Duke's interdisciplinary ethos further by utilizing the vast resources at Duke, including student affairs and the graduate program. The course also offers a co-curricular speaker series: [UNIV 101 Presents](#).

Link to the UNIV 101 [course curriculum](#).

University of California, Los Angeles: Sustainable Action Research

The University of California, Los Angeles promotes student engagement with sustainability issues through its Sustainability Action Research (SAR) program in which students are partnered with a campus stakeholder to address a sustainability challenge at UCLA. The program is a two-quarter course where students engage in applied-student work. About 70 students each year are accepted to become team leaders or team members across five to six projects. They initiate, design, and facilitate their own research project, and the outcomes of the project are actionable solutions applied to the UCLA campus. SAR provides an opportunity to connect students with faculty and staff to work with various campus departments and units, increasing engagement between and the interconnectedness across the campus. Students are also able to develop leadership skills in an applied and professional setting for future professional engagements.

UCLA offers various student engagement opportunities, and while there are large efforts to increase student involvement in climate action and sustainability, much of this potential is still largely untapped.

The Ohio State University signs the UN's Sport for Climate Action Framework

In 2020, The Ohio State University signed the United Nations' Framework Convention on Climate Change's Sports for Climate Action Framework. OSU is among four higher education institutions to sign onto the commitment and has joined international athletic programs such as the International Olympic Committee, FIFA, and the NBA to advance climate action in sports. They have committed to reducing their overall athletics' climate impact, educating for climate action, promoting sustainable and responsible

consumption, and advocating for climate action. OSU has already engaged in efforts to improve sustainability at their sporting events, which include zero-waste initiatives at Buckeye game days and reducing the footprint of all athletic operations, including their facilities.

VI. CONCLUSION

It is critical that U-M joins other higher education institutions in progressing towards carbon neutrality. Many other institutions have already begun to or are beginning to implement large-scale climate action and sustainability initiatives on their respective campuses. These institutions have encountered and overcome similar challenges that U-M is currently facing, and U-M should turn towards peer institutions as they begin to identify and implement strategies to achieve the goals set forth in the PCCN Final Report and Recommendations. Their key takeaways, lessons learned, and future steps are valuable learning opportunities for U-M. Addressing the climate crisis is an urgent issue that requires collaborative effort—internally within the U-M organizational structure and with external partners like the local Michigan community, peer institutions, and regulatory agencies. Organizational change requires strong leadership to ensure accountability, measurable progress, and proactive engagement. Equally as important is driving culture change that encourages climate-conscious action by all campus stakeholders. Therefore, it is important for U-M to keep students (and other U-M campus stakeholders)—leaders and best—at the forefront of climate action and sustainability.