

UNIVERSITY OF PENNSYLVANIA

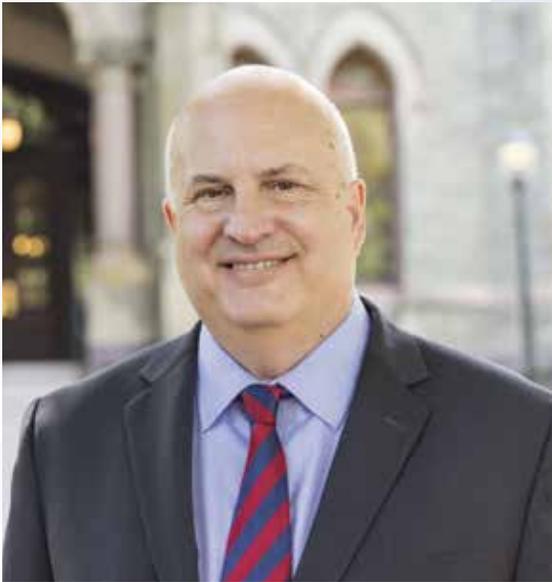
# CLIMATE AND SUSTAINABILITY ACTION PLAN 3.0

ANNUAL REPORT FY23



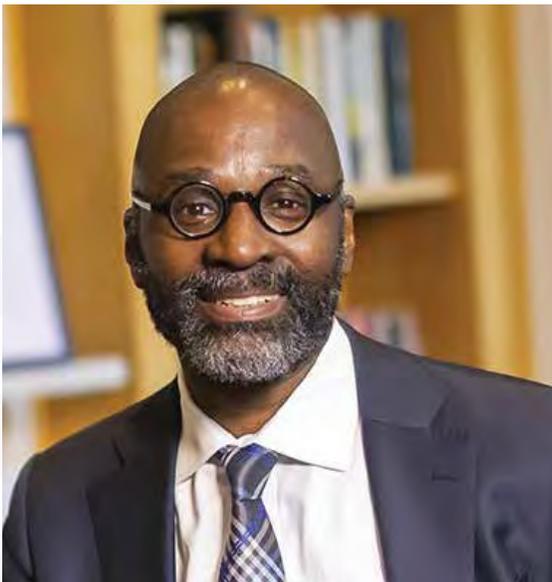
## CONTENTS

- 3 > Introduction
- 5 > Progress Summary
- 9 > Academics
- 13 > Utilities and Operations
- 17 > Physical Environment
- 21 > Strategic Waste
- 27 > Procurement
- 33 > Transportation
- 37 > Outreach and Engagement
- 44 > Looking Forward
- 45 > Acknowledgments



Penn has embedded bold thinking on climate change at every level of our institution. We will continue to take a whole-University approach to the challenge, intertwining sustainable practices and teaching inside and outside the classroom.”

—CRAIG R. CARNAROLI, SENIOR EXECUTIVE VICE PRESIDENT



Sustainability and climate change are two of the defining issues of our time—and vital areas of inquiry across campus. We are very proud of the Penn students and faculty who are at the forefront of new ideas and solutions for these critical global challenges.

—JOHN L. JACKSON JR., PROVOST AND  
RICHARD PERRY UNIVERSITY PROFESSOR

## 2007

### JUNE

President Gutmann signs the *American College and University Presidents Climate Commitment (ACUPCC)*.

## 2009

### SEPTEMBER

Penn launches its first *Climate Action Plan* defining its University-wide sustainability goals through 2014.

## 2010

### MARCH

Penn issues *Century Bonds*, with \$200 million earmarked for projects that combine deep energy retrofits, deferred maintenance, and sustainability.

## 2014

### OCTOBER

Penn launches its *Climate Action Plan 2.0*, reporting on five years of accomplishments and establishing goals through 2019.

## 2017

### JUNE

Penn joins eleven Ivy Plus universities in reaffirming commitment to climate change mitigation after U.S. withdrawal from the Paris Agreement.

## 2019

### OCTOBER

Penn launches its *Climate and Sustainability Action Plan 3.0 (CSAP 3.0)*, reporting on ten years of accomplishments and establishing goals through 2024.

## 2020

### APRIL

Penn announces the signing of a *Power Purchase Agreement (PPA)* designed to offset approximately 70% of electricity use for the University and Health System.

## 2021

### JUNE

The Environmental Innovations Initiative launches its strategic plan to catalyze Penn's role in creating solutions to real-world environmental challenges.

## 2022

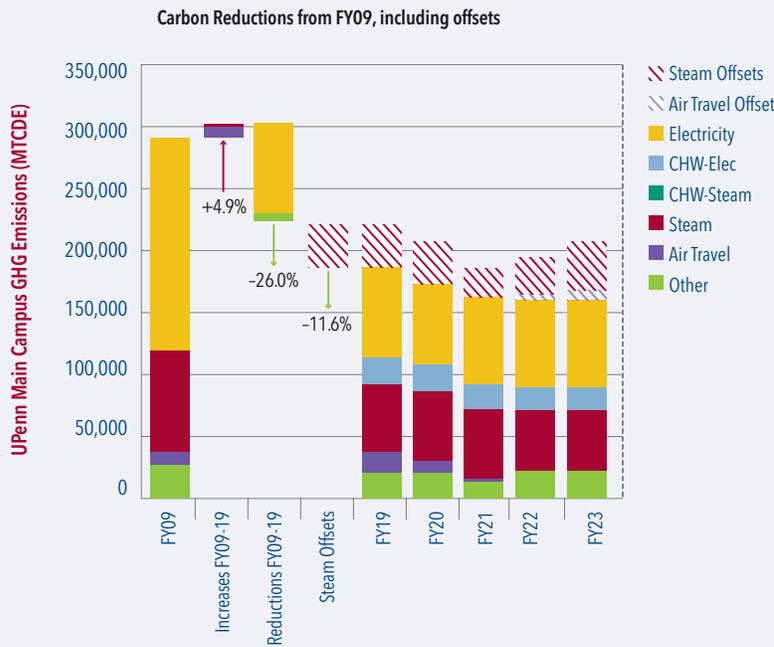
### APRIL

Construction began on the solar energy project that is part of Penn's *Power Purchase Agreement (PPA)*. Two new solar energy facilities will be built in central Pennsylvania, from which Penn will purchase all of the electricity produced - an amount equal to approximately 70% of the total electricity demand of the academic campus and the University of Pennsylvania Health System.

## PROGRESS SUMMARY

This report highlights fiscal year 2023 (July 1, 2022 – June 30, 2023) progress toward achieving the goals of the *Climate and Sustainability Action Plan 3.0 (CSAP 3.0)*, Penn’s guiding document for campus sustainability. Included are key updates on progress made in each of the seven initiatives of the *CSAP 3.0* - initiatives designed to advance Penn toward its goals to:

- Expand the scope of sustainability research in Penn’s academic centers, and connect students to Penn’s abundant resources in this field;
- Continue to reduce carbon emissions and explore expanded use of renewable energy to mitigate the impacts of climate change;
- Embrace circular economy principles to reduce waste and single-use products;
- Make sustainable choices in transportation, purchasing, and business operations; and inform, educate, and empower the Penn community to participate in Penn’s climate change and sustainability goals.



The chart shows Penn’s progress in reducing the main campus carbon footprint over the past three years as compared to the Fiscal Year 2009 baseline year.

### Reduction from FY09

#### NET

**FY19: 33%**

**FY20: 37%**

**FY21: 44%**

**FY22: 45%**

**FY23: 46%**

As the University looks ahead toward the goals set forth in the *CSAP 3.0*, this annual report provides an opportunity for Penn to reflect on what has already been achieved over the past year and prioritize what has yet to be accomplished. Four years into *CSAP 3.0* implementation, the next year will be marked by finalizing the goals set forth within *CSAP 3.0* and preparing for the next phase of planning.

If you have questions, comments, or want to get involved, please contact the Penn Sustainability Office (PSO) at [sustainability@upenn.edu](mailto:sustainability@upenn.edu). For more information, please visit [sustainability.upenn.edu](https://sustainability.upenn.edu).

Throughout the report, we use these symbols to denote progress.



**We are achieving our goal**



**We have made some progress**



**We are not meeting our goal  
and will reevaluate**

## HIGHLIGHTS | Seven Initiatives

<p>Academics</p>		<p>Four <b>Civic Sustainability Fellows</b> were hired and placed with the <b>Philadelphia Water Department, the School District of Philadelphia, and the Philadelphia Energy Authority's Solarize Philly and Green Capital Corp</b> in the Summer of 2023, supporting regional sustainability objectives and providing real-world learning opportunities to Penn students.</p> <p>The Environmental Innovations Initiative collaborated with deans and other leaders from Penn's 12 Schools to craft <b>Academic Climate Commitments</b>: distinct, public-facing statements that declare each School's priorities regarding addressing the climate crisis and ensuring a healthy planet for all its inhabitants.</p> <p><b>4,886 students enrolled in environment-related courses</b> in the 2022-2023 academic year. Of these courses, 2,246 students participated in sustainability-focused courses, and 5,165 students participated in sustainability-inclusive courses, as determined by the Association for the Advancement of Sustainability in Higher Education (AASHE).</p>
<p>Utilities &amp; Operations</p>		<p>In FY23, Penn <b>reduced overall emissions by 46%</b> and building-related emissions by 47% as compared to the 2009 baseline year.</p> <p><b>Construction continued</b> on the solar energy project that is part of <b>Penn's Power Purchase Agreement (PPA)</b>. Two new solar energy facilities are in development in central Pennsylvania, from which Penn will purchase all of the electricity produced – an amount <b>equal to approximately 70% of the total electricity demand</b> of the academic campus and the University of Pennsylvania Health System.</p> <p>School and Center Sustainability Coordinators have been <b>trained in how to utilize Qlikview to better understand energy consumption patterns</b>. Usage data is updated monthly and is delivered in a platform providing powerful data visualization and benchmarking opportunities.</p>
<p>Physical Environment</p>		<p>Penn completed the <b>first carbon footprint for its real estate portfolio</b> with support from the Center for Environmental Building and Design (CEBD), providing an understanding of the absolute magnitude and relative scale of the emissions from the included properties.</p> <p>A <b>Real Estate Building Sustainability Survey</b> was issued, establishing an understanding of how buildings which are part of Penn's real estate holdings are already addressing sustainability and identifying gaps and opportunities for implementing sustainable energy, lighting, waste, and water strategies. The survey included off-campus apartment buildings, fraternity and sorority housing, office and retail spaces, and Pennovation Works.</p> <p>Penn's <b>Stormwater Asset Summary</b> was updated, advancing understanding of current processes for design, implementation, reporting, maintenance and tracking of campus stormwater infrastructure and identifying further recommendations for improvement.</p> <p>Penn's campus in West Philadelphia was given <b>renewed accreditation as a Level II arboretum</b> by the ArbNet Arboretum Accreditation Program, ensuring its status for the next five years</p>

**HIGHLIGHTS | Seven Initiatives** *(continued)*

<p><b>Strategic Waste</b></p>		<p>Penn Sustainability published an updated <b>map of water bottle refill stations</b>, illustrating the 324 campus locations where water bottles can be filled for free.</p> <p><b>Trash and recycling signage</b> was audited and rehung in residential buildings.</p> <p>Penn Sustainability continued to participate in the <b>City of Philadelphia Solid Waste and Recycling Advisory Committee (SWRAC)</b> meetings.</p> <p>For the first time in its over century-long history, <b>Hey Day</b> was a zero-waste event, featuring compostable food and beverage containers and plastic hats.</p>
<p><b>Procurement</b></p>		<p>In its second year of operation, Penn collected \$191,454 through its <b>Climate Impact Offset</b> charge and will offset the 53,732,321 domestic and international miles flown in FY23.</p> <p>The second investment from Penn's Travel Sustainability Fund is a nitrous oxide (N2O) abatement project at an adipic acid plant in Florida.</p> <p>The sixth annual <b>Penn Supplier Diversity Forum &amp; Expo</b> brought together university buyers and local and diverse suppliers and organizations, who showcased contributions to practices and programs that highlight diversity and economic inclusion at Penn. Over 350 attendees engaged with 34 diverse businesses, 40% of whom were first-time exhibitors.</p> <p>Penn ranked #2 in the Food &amp; Dining category in the 2022 <b>AASHE Sustainable Campus Index</b> and was also recognized for the Sustainable Catering@Penn directory.</p>
<p><b>Transportation</b></p>		<p>Penn Transit operationalized <b>four new electric vans</b>, the University fleet's first full-size electric vehicles.</p> <p>During FY23, <b>101,130 Indego trips</b> started and ended at six locations on or around campus, representing approximately 10% of all system trips. Penn is working with Indego to develop on-campus programming and to plan for future expansion of stations in University City.</p> <p>Penn was awarded a <b>Silver designation as a Bicycle Friendly University</b> from the League of American Bicyclists, a recognition of the University's commitment to campus sustainability and community health by promoting a safe and bicycle friendly environment. Penn has maintained the designation since 2014.</p> <p>Penn collaborated with the Bicycle Coalition of Greater Philadelphia to host <b>Bike to Work Day</b>, where staff, faculty, and community members learned about biking resources available to them on campus and around the city.</p>

---

## HIGHLIGHTS | Seven Initiatives *(continued)*

<p><b>Outreach &amp; Engagement</b></p>		<p>Penn Sustainability hosted <b>Earth Week</b> from April 17 – 23, 2023, with over 50 events planned by students, schools and centers, and partner organizations on campus and in the community.</p> <p>Penn hosted its 3rd annual <b>Climate Week</b> in October. Over 30 unique events were offered across campus, showcasing the expertise of the Penn community and increasing the Penn’s community’s understanding of climate issues and climate justice.</p> <p>Penn Sustainability’s Green Labs intern supported the expansion of the <b>Green Labs program</b> on campus by hosting a Green Labs Vendor Expo during Earth Week and conducting an inventory of the School of Medicine’s Ultra Low Temperature (ULT) Freezers. Penn Sustainability and EHRS began to accept applications for the University’s first Sustainable Labs Manager, who will be hired and begin their tenure in FY24.</p> <p>The <b>Green Fund</b> continued to sponsor campus sustainability projects, including the purchase of an electric edger for the ice rink and birding backpacks to be supplied to campus libraries.</p>
---	---	---



## ACADEMICS

### MISSION

- Make climate change and sustainability part of the curriculum and educational experience available to all students, including classroom instruction, extracurricular experiences, and research and internship opportunities
- Support faculty teaching, learning, research, and scholarship on sustainability
- Inform the entire University community of the principles of sustainability and its three key constituent pillars: environmental protection, economic prosperity, and equitable distribution of resources



## PROGRESS SUMMARY

Diverse initiatives to enhance the robustness of scholarship and academic offerings in climate, environment, and sustainability topics rolled out over the last year. The Environmental Innovations Initiative (EII), charged with facilitating innovative research, helping to recruit and retain outstanding faculty members, and developing formal and informal educational programs, has led several of these efforts. For example, EII facilitated the publishing of an **Academic Climate Commitment for each School** (see below), articulating their dedication to an operational and scholarly focus on climate and sustainability.

A **new course inventory** on the recently launched Initiative website (<https://environment.upenn.edu/>) gives current and prospective students and faculty a window into opportunities to grow their understanding of environmental issues.

In parallel, the Initiative's **interactive faculty database**, also available on the Initiative website, uses the Sustainable Development Goals (SDGs) as a framework to understand how Penn's standing faculty member's teaching and research connect to global priorities.

Finally, a **Faculty Fellows program**, launched in FY23, supports researchers from across the University in forging interdisciplinary connections laying the groundwork for novel educational and research opportunities for students interested in climate and sustainability.

Penn Sustainability continued running the **Integrating Sustainability Across the Curriculum program (ISAC)**, which equips students with the knowledge, skills, and mindset necessary to create sustainable and resilient communities. By integrating sustainability into existing courses from different fields of study, faculty and students can be empowered to be change agents, preparing them for the complex challenges of the future. During Summer 2023, six courses from different faculty members benefitted from the assistance of four students, enriching the list of more than 80 courses that have already been part of this program.



## TOWARDS AN EQUITABLE FUTURE

During FY23, the Environmental Innovations Initiative collaborated with deans and other leaders from Penn's 12 Schools to craft **Academic Climate Commitments**: distinct, public-facing statements that declare each School's priorities regarding addressing the climate crisis and ensuring a healthy planet for all its inhabitants.

Through the lens of their different disciplines, each School's statement speaks to how its innovative research can be leveraged to solve daunting real-world challenges and alleviate the inequitable impacts of the climate crisis, and how training and educational offerings prepare the next generation of climate leaders. These commitments are displayed prominently on the schools' websites as well as on EII's website.

For example, the School of Veterinary Medicine, the first to publish its commitment, uses its "Climate Connections" statement to underscore the close links between animal health and climate change. "Our profession is uniquely and deeply intertwined with climate change," says Penn Vet Dean Andrew Hoffman. "Veterinary professionals have roles to play in the adaptation to, and mitigation of, climate impacts on agriculture and food systems, conservation and biodiversity, and the health of animals, people, and their environment."

In the upcoming year, **EII will work with School leaders to set targets and track progress in research, education, and community engagement**. These metrics will serve as benchmarks by which the University can evaluate its achievements in meeting academic sustainability goals and act as a springboard to becoming a leader among higher education institutions in climate, the environment, and environmental justice issues.



GOALS	STRATEGIES	FY23 PROGRESS
<p>Support cross-disciplinary research and coordination of work between Schools and Academic Centers</p>	<p>Work with the Office of the Provost to promote curricular opportunities, coordination of scholarship in Schools and Centers and promotion of majors, minors, and concentrations in sustainability.</p>	<ul style="list-style-type: none"> <li>• A third round of EII's funded <b>research communities</b> continues to catalyze interdisciplinary collaborations at Penn. Six research communities received more than \$140,000 in funding. All address issues related to the Initiative's pillars of climate action, stewardship of nature, and societal resilience.</li> <li>• Using the United Nations' Sustainable Development Goals as a framework, the Initiative created a <b>program that assesses Penn's academic strengths</b> concerning global priorities and offers a searchable database of faculty members to foster collaboration.</li> <li>• The Initiative's inaugural <b>Faculty Fellows</b> cohort represented all 12 Penn Schools. Working together, the members—representing different career stages—spark synergy and ignite impactful projects that transcend disciplinary boundaries.</li> </ul>
<p>Campus-as-Lab: Support the use of campus-as-lab to promote applied learning</p>	<p>Develop a formal Campus-as-Lab initiative to merge Penn's operational sustainability goals with applied learning and research for faculty and students.</p>	<ul style="list-style-type: none"> <li>• Penn has an ecosystem of applied research and learning that provides students with <b>opportunities for engaged environmental scholarship</b> on both global and local scales. More than 30 centers, offices, and institutes across all 12 Schools offer engagement. In addition, the Initiative's research communities emphasize student engagement in transdisciplinary research.</li> <li>• Penn is proud of its identity as an anchor institution in Philadelphia, and its teaching and research are enhanced by <b>collaboration with community groups</b>. To ensure that local academic activities produce positive outcomes for communities, Penn and Drexel University are working together to establish guidelines for faculty and students and processes for local stakeholders to be heard on environmental and social justice topics.</li> </ul>
<p>Help advance the City's regional sustainability objectives and provide professional development and real-world learning opportunities to Penn students</p>	<p>Formalize a Civic Sustainability Fellowship program to place Penn students in internships with City agencies.</p>	<ul style="list-style-type: none"> <li>• <b>Four Civic Sustainability Fellows</b> were hired and placed with the Philadelphia Water Department, the School District of Philadelphia, the Philadelphia Energy Authority's Solarize Philly program, and Philadelphia Green Capital Corp in the summer of 2023. 37 Civic Sustainability Fellows have been hired since the program's inception.</li> </ul>

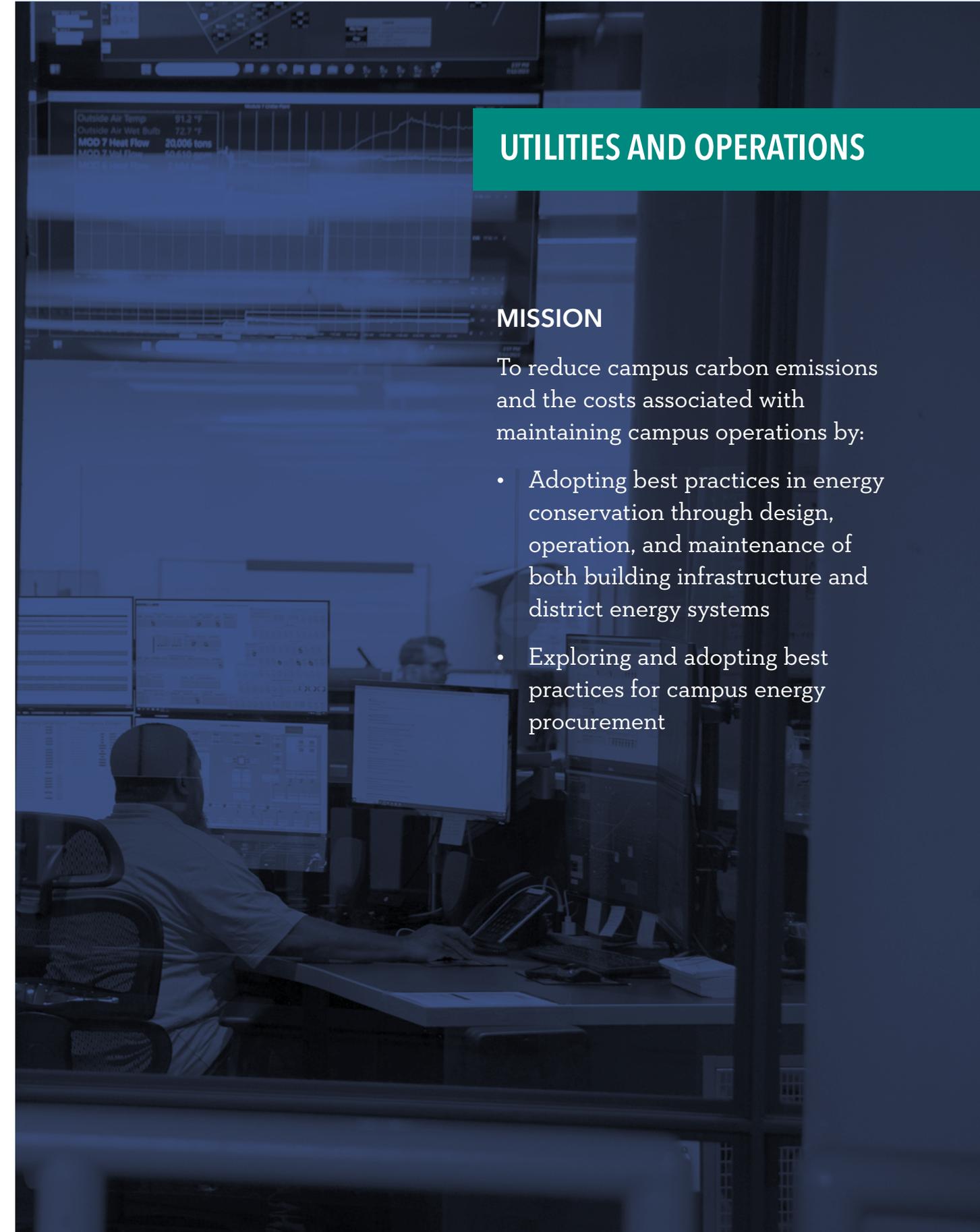


GOALS	STRATEGIES	FY23 PROGRESS
<p>Improve the Climate Literacy of Penn Students</p>	<p>Develop a climate literacy assessment of Penn’s undergraduate student body and recommendations to strengthen climate change education across the curriculum.</p>	<ul style="list-style-type: none"> <li>• Building on the momentum of establishing Academic Climate Commitments for Penn’s 12 Schools, the Initiative is now partnering with each School to develop key performance indicators (KPIs) that offer benchmarks and targets for sustainability-related academic activities. As a part of this strategy, each School will be able to issue a climate literacy survey to its students. The survey can be conducted every two years and will inform educational interventions while allowing the schools to track progress.</li> <li>• Student groups involving all education levels in the University are essential. Penn Climate Ventures (directed to undergrad students), Climate Leaders @ Penn (directed to grad students), and EnviroLab (directed to post-grad students) involved more than 100 students interested in addressing climate change and sustainability issues from different perspectives through more than 50 activities.</li> <li>• Penn’s third annual Climate Week, held in October 2022, featured more than 30 events campuswide. The offerings included academic lectures, hands-on events, and a keynote talk focused on Indigenous knowledge’s role in addressing the climate emergency.</li> </ul>
<p>Expand tracking and reporting of student enrollment in sustainability-related majors, minors, and concentrations</p>	<p>Document students in sustainability-related majors, minors, and concentrations.</p>	<ul style="list-style-type: none"> <li>• Penn offers over <b>30 degrees, concentrations, and certificates</b> related to the environment across several Schools.</li> <li>• <b>4,886 students enrolled in environment-related courses</b> in the 2022-2023 academic year. Of these courses, 2,246 students participated in sustainability-focused courses, and 5,165 students participated in sustainability-inclusive courses, as determined by the Association for the Advancement of Sustainability in Higher Education (AASHE).</li> </ul>
<p>Improve opportunities for a cohesive sustainability education at Penn</p>	<p>Improve opportunities for a cohesive sustainability undergraduate education by identifying course sequencing and essential early-curricular courses.</p>	<ul style="list-style-type: none"> <li>• The Initiative updated the <b>searchable course inventory</b> to support Penn students, featuring environment-related courses. Users can sort courses by keywords, topics, academic units, and priority areas. This online tool is available to Penn undergraduate and graduate students, staff, and faculty.</li> </ul>

Scott Spitzer



Dr. Rebecca Simmons at an event presented by the Philadelphia Regional Center for Children’s Environmental Health



## UTILITIES AND OPERATIONS

### MISSION

To reduce campus carbon emissions and the costs associated with maintaining campus operations by:

- Adopting best practices in energy conservation through design, operation, and maintenance of both building infrastructure and district energy systems
- Exploring and adopting best practices for campus energy procurement

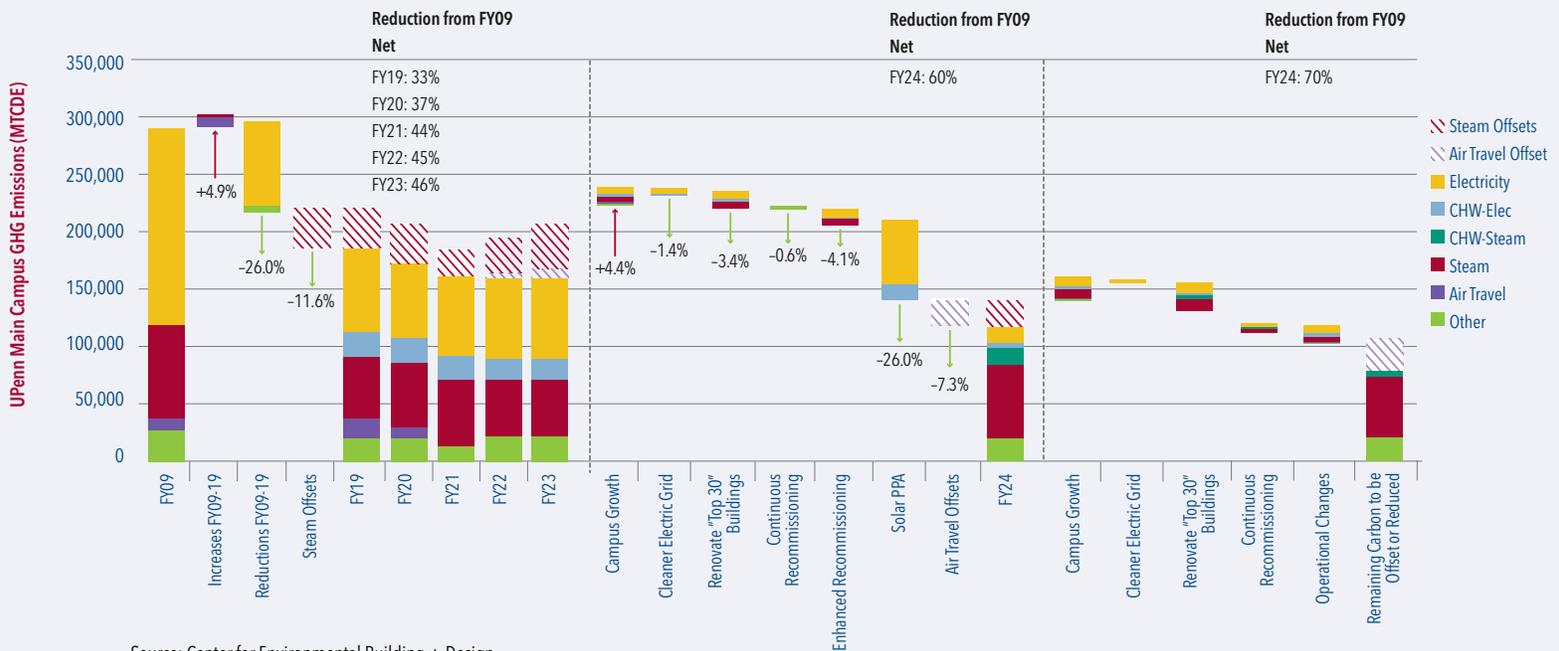


**PROGRESS SUMMARY**

Penn continues to make significant progress toward its goal of 100% carbon neutrality by 2042. Even as the campus continues to grow, offsets purchased with funds from the Climate Impact Offset (CLIO) charge, enhanced recommissioning, renovations of high energy-consuming buildings, and a cleaner electric grid are helping reduce the campus carbon footprint. Offsets purchased with funds from the CLIO charge and offsets transitioning high global warming potential (GWP) blowing agents to low GWP blowing agents purchased by the campus steam supplier further drive down emissions.

Since the launch of Penn’s first Climate Action Plan in 2009, the University has reduced overall emissions by 46% and building-related emissions by 47%. The operationalization of the renewable energy projects part of Penn’s Power Purchase Agreement (PPA) in FY24 is anticipated to make an appreciable impact on the current campus footprint in FY24 and beyond.

**CARBON REDUCTIONS & NEUTRALITY PROJECTIONS 2009-2042**



Source: Center for Environmental Building + Design

As evidenced in the carbon footprint waterfall above, not including offset purchases, Penn has achieved a 29% gross reduction of its carbon emissions on its main campus since FY09. Factoring in offset purchases to account for air travel and steam supply, Penn has nearly halved its carbon footprint since that baseline year.

Encouragingly, further reductions are expected once the University begins to offtake electricity from the currently under construction renewable energy projects part of Penn’s solar PPA. The two projects have a combined capacity of 220 MW. The chart above illustrates the expected substantial reductions to Penn’s carbon footprint, beginning in FY24. The University remains on course to meet its goal of achieving 100% carbon neutrality by 2042.



**TOWARDS AN EQUITABLE FUTURE**

Penn’s continued efforts to utilize energy usage data and to engage the University’s Schools and Centers around sustainability resulted in an August 2022 initiative to better inform staff members about the carbon emissions of their Schools’ buildings. The University’s Sustainability Coordinators are a collaborative group of campus leaders representing those Schools and Centers that strive to lead significant operational and behavior changes through interdisciplinary partnerships to support the University’s CSAP 3.0. The group received a live tutorial from the ESAC Utilities and Operations Subcommittee about the utilization of business intelligence tool Qlikview to access building energy usage data. Providing the Coordinator group access to this valuable information **empowers School and Center staff to make more informed decisions about their energy consumption.** School and Center staff had previously received annual utility reports, but now can access detailed monthly datasets that include present and historical information. Penn Sustainability will work with the Sustainability Coordinators to put this data into action and encourage responsible energy consumption a cross the campus.

AES



Construction on one of the projects that comprises Penn's solar PPA.



GOALS	STRATEGIES	FY23 PROGRESS
<p>Reduce Penn's overall carbon footprint towards 2042 carbon neutrality goal</p>	<p>Investigate a renewable Power Purchase Agreement to reduce Penn's emissions from electricity.</p>	<ul style="list-style-type: none"> <li>Construction is underway on both renewable energy projects that are part of Penn's solar <b>Power Purchase Agreement (PPA)</b>. The installations will start to come online by the end of 2023 and will begin supplying the campus with renewable electricity. The PPA is expected to supply 70% of the electricity used by Penn's main campus and the Hospital of the University of Pennsylvania.</li> </ul>
	<p>Study options to mitigate emission from campus steam consumption, including low-carbon steam, alternative heating solutions, and viable offsets.</p>	<ul style="list-style-type: none"> <li>Penn purchased carbon offsets accounting for 40,500 MTCDE of steam emissions in FY23. The offsets transition high global warming potential (GWP) blowing agents to low GWP blowing agents and align with the University's carbon offset guidelines.</li> </ul>
	<p>Expand School and Center awareness and training sessions through energy data awareness programs and the expansion Energy Dashboards for Facilities and Real Estate Services (FRES) Operations &amp; Maintenance and School and Centers.</p>	<ul style="list-style-type: none"> <li>School and Center Sustainability Coordinators have been <b>trained in how to utilize Qlikview to better understand energy consumption patterns</b>. Usage data is updated monthly and is delivered in a platform providing powerful data visualization and benchmarking opportunities.</li> </ul>
	<p>Identify and implement approved energy and carbon reducing measures as part of the Enhanced Recommissioning Program.</p>	<ul style="list-style-type: none"> <li>Issues that were identified during eight FY22 recommissioning investigations and completed during FY23 save an estimated 44,326 mmBTU annually – 43% from building steam, 48% from building chilled water, and 9% from building electric.</li> <li>In total, there have been <b>eleven enhanced recommissioning investigations</b> and reports. Implementation of the approved energy conservation opportunities (ECOs) is in progress.</li> </ul>
	<p>Leverage SCADA capabilities to transition towards a continuous recommissioning Operations &amp; Maintenance process.</p>	<ul style="list-style-type: none"> <li>Controls engineers are updating building controls, one building at a time, with the goal of standardizing the nomenclature and graphics for building equipment. By standardizing these elements, it will open the opportunity to employing standardized algorithms in the future, which are the basis for <b>continuous commissioning and improve efficiency and building function</b>.</li> </ul>
	<p>Optimize maintenance activities to improve energy efficiency through proactive maintenance.</p>	<ul style="list-style-type: none"> <li>This strategy has been implemented successfully at the Perelman School of Medicine and is being expanded to additional campus research buildings.</li> </ul>
	<p>Work with academic Centers to determine an internal cost of carbon and incorporate into capital planning.</p>	<ul style="list-style-type: none"> <li>The ESAC Utilities and Operations Subcommittee is <b>studying the feasibility of implementing carbon pricing at Penn</b>. The group is developing a proposal as to whether the University should adopt a shadow price, applying a cost per carbon emission to investment or purchasing decisions, and/or a carbon charge, requiring different business units pay for the emissions related to their operations. In FY23, the group studied similar initiatives at other institutions and is determining a best course for adoption at Penn.</li> </ul>

## PHYSICAL ENVIRONMENT

### MISSION

- Create, maintain, and continuously improve a sustainable campus by increasing ecologically managed green space, reducing building energy consumption, and expanding awareness of sustainable design



## PROGRESS SUMMARY

Penn's commitment to a sustainable built environment and ecologically managed landscape continued in FY23, with focus on the West Philadelphia main campus, as well as Morris Arboretum & Gardens, New Bolton Center in Kennett Square, and Penn's Real Estate portfolio.

**The University completed the first carbon footprint for its Real Estate portfolio, successfully establishing the scope of the footprint and establishing a protocol for data collection to enable continued update in future years.**

Construction began on Vagelos Laboratory for Energy Science and Technology and Amy Gutmann Hall, two new main campus buildings that when complete will feature a number of new sustainable attributes. All new buildings and major renovation projects currently under design are registered with the US Green Building Council (USGBC) and are targeting LEED Silver rating or higher. To date, there are 49 LEED projects certified by the USGBC, with an additional eight under construction and six in design. Of the 49, 37 are Penn campus School/Center projects; nine are Real Estate managed and/or off-campus projects; three are Penn Health System projects.

## TOWARDS AN EQUITABLE FUTURE

Penn continues to take action that reflects an appreciation for the broad impact the University has beyond its campus. In spring 2023, Penn developed its first Real Estate Building Sustainability Report, laying the groundwork for improvements that will benefit tenants and the surrounding community. The report was authored following issuance of a questionnaire to property managers for buildings included within the Real Estate carbon footprint, including off-campus apartment buildings, fraternity and sorority housing, office and retail spaces, and Pennovation Works. Data collected from the survey has helped build an understanding of how buildings included in Penn's Real Estate holdings are already addressing sustainability issues. It identified gaps and opportunities for implementing additional sustainable strategies. Most surveyed buildings are over 75 years old, indicating there may be opportunities for recommissioning or retrofits to improve the sustainability and efficiency of the building systems. New questionnaires will be issued annually to track progress from the FY23 baseline. In the meantime, Penn is utilizing data about building utilities, lighting, waste, and water to make informed decisions about how these properties are maintained and improved.

Further attention was paid to Penn's footprint in surrounding neighborhoods throughout the spring 2023 Off-Campus Move Out pilot program. **Penn Sustainability, Residential Services, and the Office of Social Equity and Community collaborated to educate students about how to sustainably and responsibly manage unwanted items at the end of the academic year.** In addition to Goodwill bins and Penn Closet's on-campus location, monthlong collections for usable and unusable items were set up at Resurrection Philadelphia Church. Students were also emailed about Philadelphia's trash and recycling rules, as well as how to dispose of mattresses.



GOALS	STRATEGIES	FY23 PROGRESS
Update Campus Design Standards	Review and revise as needed Penn’s engineering and design guidelines	<ul style="list-style-type: none"> <li>The Office of the University Architect will work with a consultant in FY24 to update and <b>issue a revision of the current green guidelines</b> and improve how they are applied to projects at Penn.</li> </ul>
	Review and revise Penn’s non-LEED project Sustainable Building and Renovation Guidelines.	<ul style="list-style-type: none"> <li>The Physical Environment Subcommittee will integrate <b>revised renovation guidelines for non-LEED projects</b> into instructions for issue to design professionals.</li> </ul>
Improve Penn’s Landscape Ecology Practices	Identify priority areas within the Ecological Landscape Stewardship Plan (ELSP).	<ul style="list-style-type: none"> <li>Penn’s ELSP recommendations are actively being implemented. <b>Out of the 29 recommendations, eleven are complete, two are incomplete, and sixteen are ongoing.</b></li> <li>Penn’s campus in West Philadelphia was given <b>renewed accreditation as a Level II arboretum</b> by the ArbNet Arboretum Accreditation Program, ensuring its status for the next five years.</li> </ul>
	Reduce the number of bird strikes on campus.	<ul style="list-style-type: none"> <li>A Student Eco-Rep group working with Facilities &amp; Real Estate Services and Penn Medicine designed <b>outreach programs to promote bird-friendly practices</b> on Penn’s campus. The group recruited 22 Real Estate buildings, 14 College Houses and one Penn building to participate in the Lights Out program, encouraging lights to be turned off at night.</li> <li>Weitzman School of Design organized a <b>bird-friendly design competition</b>. Five winners were announced, offering expanded options for making Penn’s existing buildings more bird-friendly through new, innovative designs, including at Lauder College House and Pottruck Gym.</li> </ul>
Continue to Improve the Sustainability of Penn’s Real Estate Holdings	Emphasize Penn’s commitment to sustainability and work with landlords to integrate sustainability-related policies.	<ul style="list-style-type: none"> <li>Following a survey of over 40 property managers of buildings in the real estate portfolio, Penn Sustainability authored <b>the University’s first Real Estate Building Sustainability Report</b>. Included are an assessment of current sustainability practices and recommendations to lower the carbon footprint of off-campus apartment buildings, fraternity and sorority housing, office and retail spaces, and Pennovation Works.</li> </ul>
	Integrate green leasing policies for Penn-owned retail and commercial tenants and encourage sustainability-related policies.	<ul style="list-style-type: none"> <li>Penn’s Real Estate team now sends its <b>revised Tenant Handbook</b>, which includes sustainability practices that promote sustainability in leases to all new tenants.</li> </ul>
	Continue to track energy use and develop metrics to quantify the impact across the Penn Real Estate portfolio.	<ul style="list-style-type: none"> <li>Penn Sustainability worked with the Center for Environmental Building + Design (CEBD) and Real Estate to complete the <b>first Real Estate carbon footprint</b>.</li> </ul>



GOALS	STRATEGIES	FY23 PROGRESS
Expand Penn's carbon footprint geography to include Morris Arboretum and New Bolton Center (NBC)	Expand Penn's carbon footprint to include Morris Arboretum & Gardens and New Bolton Center.	<ul style="list-style-type: none"> <li>• CEBD and Penn Sustainability completed <b>carbon footprints for FY22 for the New Bolton Center and Morris Arboretum &amp; Gardens</b>. Emissions figures will continue to be updated annually.</li> </ul>
Integrate best practices in occupant health and wellness to Penn's building standards	Assess opportunities for implementation of wellness criteria in new construction and major renovations.	<ul style="list-style-type: none"> <li>• Using suggestions from a working group of building experts, the Physical Environment Subcommittee will explore how to embed WELL building standard practices in Penn's building design guidelines.</li> </ul>
Improve water use and management on campus	Minimize potable water use.	<ul style="list-style-type: none"> <li>• Penn continues to add <b>native plants and drought tolerant plants</b> to its landscapes, helping reduce irrigation volumes after plant establishment. Plants in the newly established native landscape underneath the Highline Rail in Penn Park need less irrigation compared to the lawns that once occupied the same space.</li> </ul>
	Improve stormwater management.	<ul style="list-style-type: none"> <li>• A stormwater working group assessed Penn's current stormwater management assets and developed recommendations for improving stormwater management at Penn. With data maintained by the University and the Philadelphia Water Department, the Office of the University Architect developed a <b>map of campus stormwater assets</b>.</li> <li>• The University contracted a consultant to perform <b>inspections and maintenance on Penn's stormwater management system</b>. Reports and photos are provided to FRES following visits, which detail site conditions and work performed.</li> </ul>
Improve Penn's Preparedness, Resiliency, and Adaptation to Climate Change	Aggregate information to combine resiliency, adaptation, and mission continuity.	<ul style="list-style-type: none"> <li>• This year's <b>Mission Continuity exercise</b> was with a hurricane table-top exercise for all of Penn.</li> <li>• Subcommittee discussions amplified a need for <b>enhanced focus on resiliency</b> in Penn's future sustainability planning and operations, and to consider implications for the broader community beyond the campus border.</li> </ul>

Eric Slocar



Construction underway at Amy Gutmann Hall

## STRATEGIC WASTE

### MISSION

- Increase diversion and minimize solid waste through community education, strategic purchasing, appropriate infrastructure, and proper disposal, strengthened by relevant and accurate metrics





**PROGRESS SUMMARY**

Strong collective action and careful planning were rewarded with Penn increasing waste diversion rate in FY23 from FY22. **The University diversion rate was 21% in FY23, up from 20% in FY22.** 1,428.21 tons of waste was diverted from landfills, compared with 1,191.74 tons diverted the previous year. The percentage of diverted materials increasing is thanks largely to Penn’s heightened commitment to recycling, electronic waste handling, and composting. Some campus locations restarted their compost collections following an offline pandemic period, while others are diverting more organic material from landfills than they have in years.

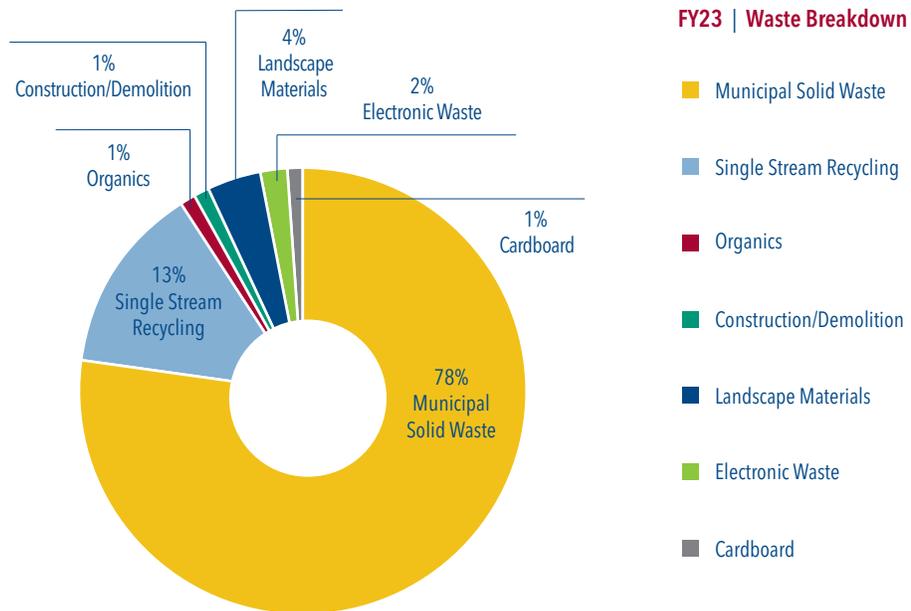
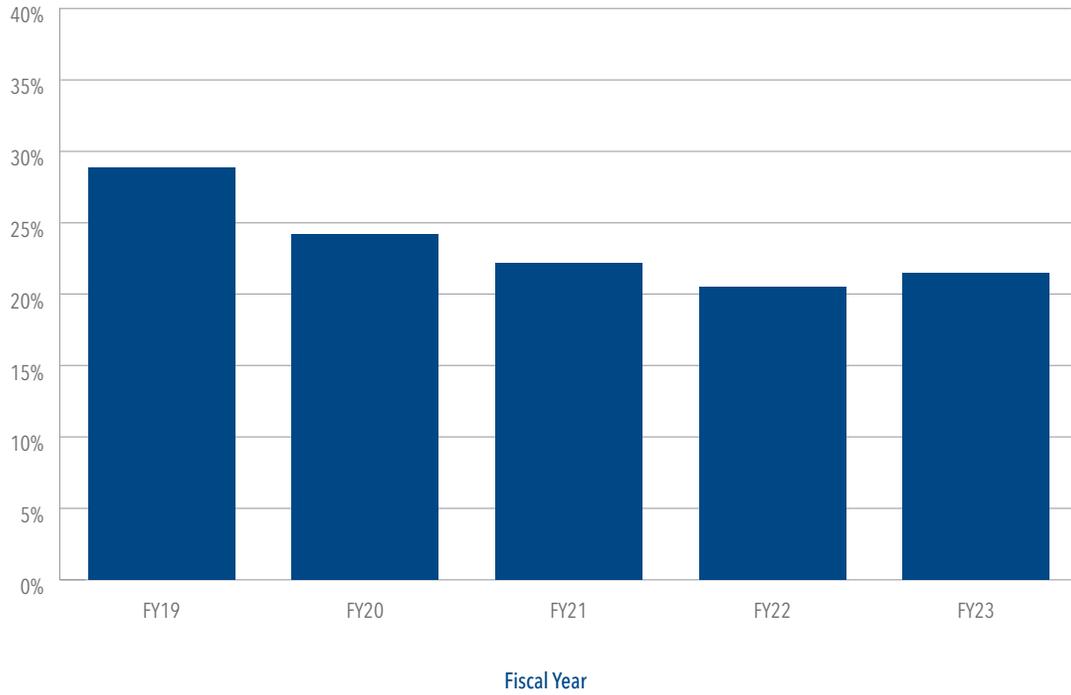
1920s Commons diverted 11 tons in FY23, the most in seven years, while the Left Bank diverted .4 tons, the most in three years. Gutmann College House joined the other organic diversion sites in 2022, totaling 2.4 tons in their first year. Also notable are the start of a partnership with a vendor in November 2022 to collect at several campus locations, and the increase in material being diverted to Penn’s BioBiN, an on-campus composting container. Looking ahead, Penn has secured a new waste hauler and waste audit partner that will aid the University in realizing its strategic waste goals next year.

Matt Bender





**FY23 | Annual Percentage of Waste Diverted from Landfills or Waste-to-Energy Incineration**





## TOWARDS AN EQUITABLE FUTURE

Over the past year, the University has strengthened its partnership with PAR-Recycle Works, a North Philadelphia non-profit electronics recycler providing transitional employment to people returning from prison. While e-waste management remains a complex issue for the University, PAR has proven to be a valuable collaborator, and one who centers building safer communities and societal reintegration throughout their sustainability-focused work. PAR is now included in Procurement Services' Supplier Portal, making it easy for anyone at the University to connect with them and establish a working relationship. The organization's general manager met with Penn's Sustainability Coordinators in March 2023 to discuss how Schools and Centers can partner with PAR to find a home for their e-waste. Penn Dental went on to partner with PAR for an e-waste collection event during Earth Week, receiving items from more than 50 donors. Electronic recyclables donated to PAR by Penn during Earth Week enabled PAR to increase its program participation, and the University remains in conversation with the organization about future collaboration.

Matt Bender





GOALS	STRATEGIES	FY23 PROGRESS
<p>Increase Penn's Overall Waste Diversion and Minimize Waste Sent to Landfill</p>	<p>Improve waste data tracking and reporting.</p>	<ul style="list-style-type: none"> <li>• Penn Sustainability is exploring opportunities to use the recently developed waste precinct map and Qlikview business intelligence tool to <b>more easily share and report waste data</b> to Schools and Centers. A collaboration with the Center for Environmental Building and Design is underway to provide streamlined access to Sustainability Coordinators and other campus stakeholders.</li> </ul>
	<p>Evaluate and improve campus waste practices, recycling, and all diversion streams.</p>	<ul style="list-style-type: none"> <li>• Urban Park's <b>truck with a scale is now operational</b> and a strategy is being developed for collecting and reporting data.</li> <li>• Following issue of an RFP, Penn selected a <b>new waste hauler</b> who will arrange for rear load trucks to be unloaded at a transfer station located within two miles of campus, helping Penn shrink its carbon footprint as well as saving time and increasing operational efficiency. They will also service Penn with a majority of collection vehicles that run on alternative fuel as they convert to a fleet run entirely on compressed natural gas (CNG). The new hauler's CNG trucks produce fewer undesirable gases than fossil fuels, resulting in improved air quality emissions, and run much quieter than standard diesel engines.</li> <li>• Following issue of an RFP, Penn selected a consultant to conduct <b>waste audits of both trash and recycling</b>. After each of the twelve waste audits that they will conduct over the next year, they will deliver written reports that include weights of trash, recyclables, compostable items, and other recoverable materials.</li> <li>• A working group concluded its assessment of bottled water use on campus and inventoried water bottle fillers to identify opportunities for improvement. A map of all water bottle filler stations in Penn buildings was created and will be updated annually.</li> <li>• 15 Student Eco-Reps <b>expanded the Green2Go container collection program</b> to an additional three College Houses, bringing the total to six: Harrison, Rodin, Harnwell, and now Gregory, Stouffer and DuBois. Penn Dining Services began utilizing Green2Go reusable containers in the 2013-2014 academic year. The program has completely eliminated the use of Styrofoam and single-use plastic containers in Penn's dining facilities.</li> <li>• Student Eco-Reps developed a deskside recycling presentation to promote the <b>deskside recycling program</b> which will be presented to building administrators.</li> <li>• For the first time in its century-long history, <b>Hey Day was a zero waste event</b>. Penn Sustainability, Penn Dining, Urban Park, and Student Eco-Reps collaborated to source compostable food packaging and provide onsite waste diversion direction to participating students.</li> </ul>



GOALS	STRATEGIES	FY23 PROGRESS
Increase Penn's Overall Waste Diversion and Minimize Waste Sent to Landfil	Evaluate and improve campus waste practices, recycling, and all diversion streams.	Penn partners with three composting vendors, helping serve the different sizes and operations of the Schools and Centers. One vendor hauls the BiobiN, while two employ a tote swap model. At the end of FY23, both Joe's Café and Steinberg Conference Center were added to the tote swap program. In May and June of 2023, 10.8 tons of organics was collected from these two locations combined, diverting the material from the municipal solid waste stream, and helping take the University <b>over a 30% diversion rate for June 2023.</b>
	Strengthen education, training, and transparency.	<ul style="list-style-type: none"> <li>• Move in Green volunteers provided <b>education and training for students</b> arriving to Penn on how to properly recycle at Penn, and tabled at the New Student Orientation Expo to further educate Penn students on how to recycle. All on-campus students received a magnet with instructions on how to recycle at Penn.</li> </ul>
	Expand the University's Surplus Property Program.	<ul style="list-style-type: none"> <li>• Penn Sustainability Consulting, a student group, developed a draft <b>surplus property survey</b> in partnership with Penn Sustainability, which was issued to relevant School and Center stakeholders in summer 2023. By understanding the current practices in handling surplus property, areas for improvement will be identified and targeted solutions implemented to promote resource efficiency on campus.</li> </ul>
Support Regional Waste Goals	Support the City's 2035 Zero Waste Goal.	<ul style="list-style-type: none"> <li>• Penn continues to serve as a member of the <b>City of Philadelphia's Zero Waste Partnership Program</b>, committing to work closely with the City to reach its goal of zero waste and litter by 2035. Involvement in the program includes providing monthly waste data to the City. Representatives from Penn Sustainability participated in the City of Philadelphia Solid Waste and Recycling Advisory Committee (SWRAC) meetings.</li> </ul>

## PROCUREMENT

### MISSION

- Increase awareness and enable the procurement of environmentally responsible products and options
- Engage with suppliers and campus partners to reduce waste; and to identify and promote sustainable supply chains





**PROGRESS SUMMARY**

Penn continues to increase its spend with Black-owned businesses, with spend totaling \$47.3 million in FY23, an increase of 62% over FY19. The sixth annual Penn Supplier Diversity Forum & Expo on May 31 highlighted the University's commitment to businesses owned locally and/or by minorities, LGBTQ+, women, veterans, or people with disabilities. Over 350 attendees engaged with 34 diverse businesses, 40% of whom were first-time exhibitors.

Honored at the event was **FRES Procurement Manager Karoline Proseri, who received the Penn Supplier Diversity Impact Award.** Over a two-year period, Karoline had served in the lead procurement role in directly awarding over \$400,000 in diversity spend across several initiatives, with individual agreements ranging from \$15,000 to \$175,000. Karoline also collaborated with the Design & Construction department to host monthly meet and greet gatherings with new and small minority and women-owned business enterprises.

FY23 was the second year of operationalization for **Penn's Climate Impact Offset Charge (CLIO), which offset 53,732,321 flight miles and collected \$191,454 in fees.** Planning to identify a local project to utilize the offset funds, a working group continued efforts to collaborate with a local partner on the approval and launch of an RFP for construction of a solar array on a building in West Philadelphia.

An **Electric Vehicle Transition Working Group** has been convened to plan for the acceleration of EV acquisition throughout the campus fleet. In addition to the provision of an updated Low Emissions Vehicle Purchasing Guide, the group is organizing a workshop for fleet managers in August 2023 and exploring how to best augment the University's EV charging infrastructure.

In their eighth year, the Green Purchasing Awards again honored the sustainable purchasing contributions being made across the Penn campus. **In 2022, PSOM's Associate Director of Interiors Danielle Cavalcanto was honored for her reuse of furniture and sustainable product purchasing.** Also recognized were the staff of the Division of Finance's Disbursements Department for transitioning to paperless processes and launching a virtual VISA ClinCard option in lieu of a plastic card.



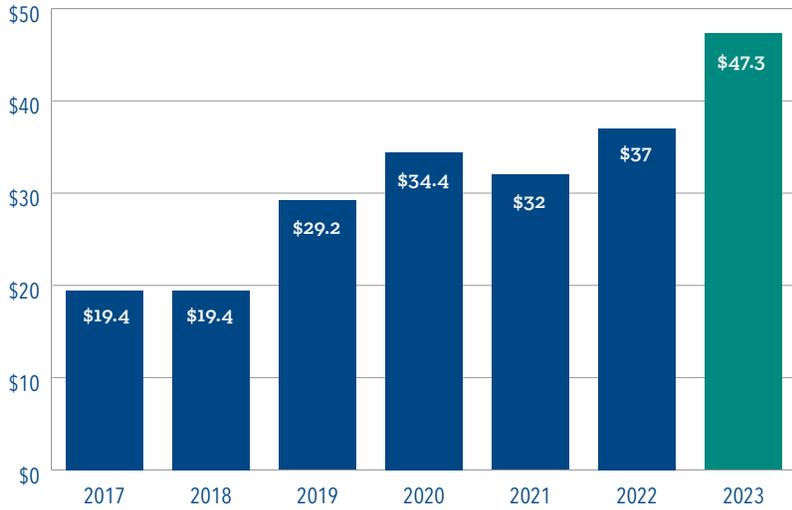
One of the University's Green2Go containers



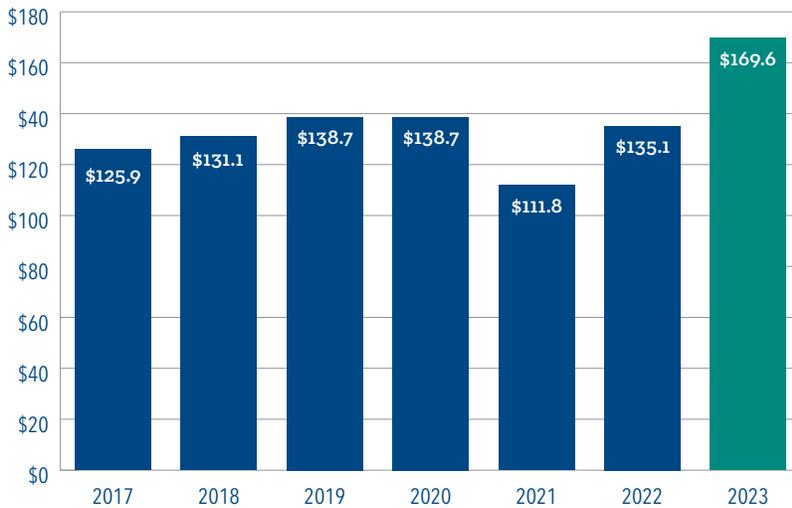
**FY23 | Collected CLIO Amounts by Fiscal Quarter**



**FY23 | Black-Owned Business Spend (millions)**



**FY23 | Diversity Spend (millions)**



Source: Penn Procurement Services



**TOWARDS AN EQUITABLE FUTURE**

Responsible sourcing is a hallmark of Penn Dining, with continued emphasis on supporting local and sustainable food systems. The Common Market is a nonprofit regional wholesale food distributor whose mission is to connect communities to good food grown by sustainable family farmers. All of the farms in The Common Market’s Mid-Atlantic network are within 250 miles of Philadelphia and are privately held, family or cooperatively owned enterprises with annual revenue less than \$50M. In FY23, they recognized Penn’s commitment to supporting local, sustainable farms.

Penn Dining, Quaker Kitchen, and Penn Park Farm collaborate to prepare food grown on the Farm. In the summer months, Penn Dining chefs prepare freezable foods such as soups and sauces as well as dry herbs. These items are returned to Penn Park Farm staff, who distribute them via the Good Food Bag Program, providing food to students who are experiencing food insecurity.

Quaker Kitchen also supports student organizations such as the Penn Beekeeping Club. Honey harvested from the group’s hives was sold there, with proceeds supporting the club.

Dining halls observed Earth Day by featuring bean-based recipes aimed to combat climate change, promote wellness, and create delicious, affordable food.

Eric Suocar





GOALS	STRATEGIES	FY23 PROGRESS
<p>Increase Procurement of Sustainable Food Products</p>	<p>Increase procurement of sustainable food in Penn Dining Cafes.</p>	<ul style="list-style-type: none"> <li>• Penn was recognized as a <b>top performer in AASHE's 2022 Sustainable Campus Index</b>, achieving the number two spot in the Food &amp; Dining category. The Food &amp; Dining category considers how much of the food procured for Penn's campus is plant-forward or is certified by a third party to encourage environmentally friendly and humane farming methods, help eliminate unsafe working conditions and alleviate poverty for farmworkers.</li> </ul>
	<p>Improve catering practices on campus.</p>	<ul style="list-style-type: none"> <li>• Penn Procurement Services' catering website "<a href="#">Catering@Penn</a>," includes details about <b>sustainable services and products offered by vendors</b>, as well as business ownership information and whether the supplier is local.</li> <li>• Penn Catering played a central role in transitioning Hey Day to a zero-waste event by supplying <b>compostable products</b>.</li> </ul>
<p>Encourage purchasing of low- or zero-emissions vehicles</p>	<p>Encourage purchasing of low- or zero-emissions vehicles.</p>	<ul style="list-style-type: none"> <li>• An <b>EV Transition Working Group</b> has been established, focusing on University goalsetting, EV sourcing guidance, infrastructure considerations, funding considerations, and procurement process oversight.</li> </ul>
	<p>Expand campus fleet tracking.</p>	<ul style="list-style-type: none"> <li>• PSO has been able to expand <b>fleet tracking</b> through strategic outreach to asset managers and information provided by the Office of Risk Management. Penn currently has 35 electric vehicles, four gasoline-electric hybrid vehicles, and seven vehicles fueled by a biodiesel blend fuel.</li> </ul>
	<p>Establish a plan to reduce Penn's carbon emissions from air travel.</p>	<ul style="list-style-type: none"> <li>• The <b>Climate Impact Offset (CLIO)</b> fee charged to support offsetting air travel emissions has been deployed for two full years. \$191,454 was collected to be invested in verified carbon offsets.</li> </ul>



GOALS	STRATEGIES	FY23 PROGRESS
Expand Sustainable Office Equipment Purchases, Options, Standards, and Technology	Expand use of auto-replacements.	<ul style="list-style-type: none"> <li>• Penn’s Business Services Division continues to identify and implement <b>auto-replacements for lab supplies</b> in the Penn Marketplace. Penn Sustainability is developing a resource for lab researchers to support in prioritizing more sustainable products.</li> </ul>
	Expand use of Managed Print Services to all Schools.	<ul style="list-style-type: none"> <li>• Eight Schools and 29 Centers are currently using some form of Managed Print Services. New Schools and Centers adopting Managed Print practices in FY23 include the School of Social Policy and Practice, the Gene Therapy Program, and Annenberg Public Policy Center. An outreach plan will be developed and implemented in FY24 for all Schools and Centers who have not yet adopted. Providers will be encouraged to report annual metrics about adoption.</li> </ul>
	Establish Sustainable Furniture Standards for Healthy Interiors.	<ul style="list-style-type: none"> <li>• The Furniture Working Group completed a draft of the <b>Sustainable Furniture Purchasing Guide</b>.</li> </ul>
	Quantify and Communicate Penn’s Supply Chain Impact.	<ul style="list-style-type: none"> <li>• Penn Sustainability Consulting, a student group, developed a draft <b>surplus property survey</b> in partnership with Penn Sustainability, which was issued to relevant School and Center stakeholders in summer 2023. By understanding the current practices in handling surplus property, areas for improvement will be identified and targeted solutions implemented to promote resource efficiency on campus.</li> </ul>



## TRANSPORTATION

### MISSION

- Continue to prioritize a pedestrian and bike-friendly campus
- Encourage the use of local, alternative, and low-carbon transportation options
- Promote pedestrian and cyclist safety on campus

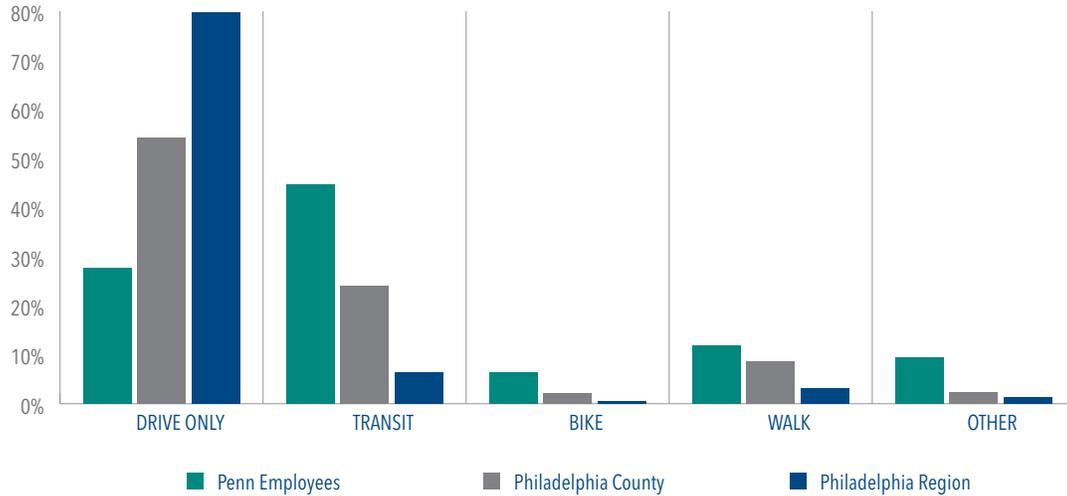


**PROGRESS SUMMARY**

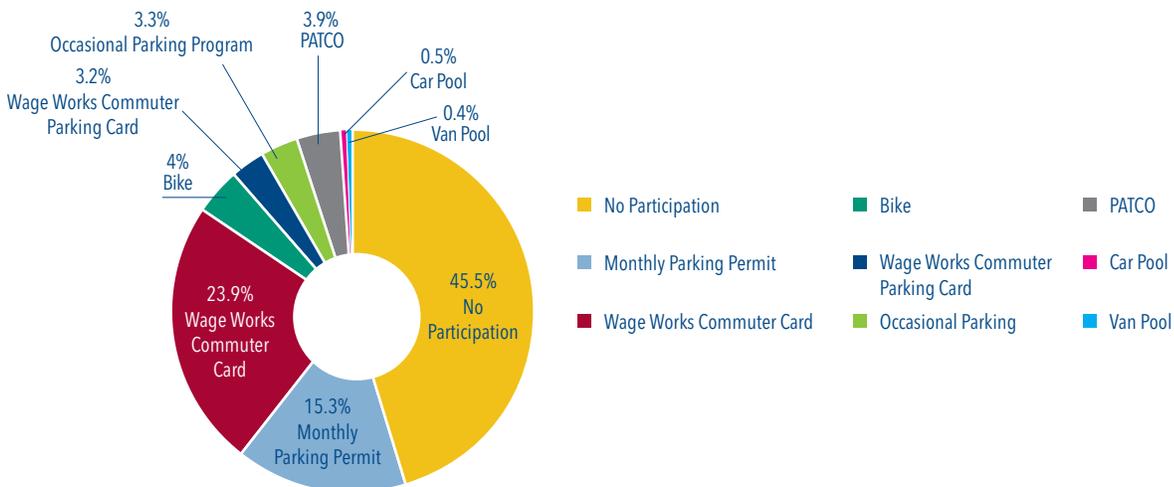
Penn made impactful progress in FY23 to promote safe and sustainable transportation behavior on and around its campus. Notable was the **October 2022 debut of four electric shuttle vans, the first full-size electric vehicles in the University's fleet.** The shuttles serve a number of routes, including the On-Request Evening Shuttles, Penn Accessible Transit, A.M. Medical Service Shuttle, FMC Shuttle, and Pennovation Works Shuttle.

As commuting habits continue to evolve, Penn's sustainable transportation programs continue to be widely utilized. 2,187 faculty and staff took advantage of either a commuter transit discount program or the Bike Commuter Expense Reimbursement Program in FY23. **Penn was recognized by the League of American Bicyclists as a Silver designated Bicycle Friendly University, met with Indego to discuss potential benefits for the Penn community and station expansion, and hosted a successful Bike to Work Day event in May.**

**Penn Employees' Commute Mode Share Compared with Philadelphia County and Region**



**Commuter Benefit Program Participation**



Source: PennPraxis Commuter Survey



## TOWARDS AN EQUITABLE FUTURE

In February, Penn faculty and staff were issued a **commuter survey**, polling on habits and preferences related to accessing campus by biking, driving, long distance travel, and public transit. Having data representative of the different means by which Penn's faculty and staff travel to campus is crucial for University leadership to make decisions that will in time lead to increased use. The survey was conducted by PennPraxis on behalf of the ESAC Transportation Subcommittee, with additional support provided by Facilities and Real Estate Services, Business Services, and Human Resources. Over 4,000 faculty and staff from 28 Schools and divisions responded, providing a trove of valuable data to analyze and act upon.

**Dr. Megan Ryerson, UPS Chair of Transportation, said of the initiative, "The University of Pennsylvania has long been a leader in sustainable, environmentally friendly commuting -- consider that the Penn Community commutes on transit seven times the average Philadelphia commuter, bikes three times the average, and walks almost ten times the average. Penn's Sustainability Office, Office of Facilities and Real Estate Services, and Business Services Division isn't stopping here, and wants to support all faculty, staff, and students who want a more environmentally friendly commute."**

The survey confirmed that many faculty and staff are taking transit, walking, or biking to campus, a signal that current sustainable transportation initiatives are effective. As the University considers how it will make further improvements to encourage and increase access to sustainable transportation, it must contend with the fact that many responders indicated a reluctance to switch from their current preferred mode(s). Consideration is being given to which commuters are most likely to consider switching modes, and how they can be encouraged to do so.

**The report makes several recommendations based on the new data, including transit maps and branded wayfinding, a more coordinated effort to share transit information with new hires, flexible commuter benefit options, and working with SEPTA and other agencies to provide needed options for Penn employees. A final report will be released in early FY24, which will continue to analyze present conditions and aid Penn in further institutionalizing equity in its transportation programs.**



GOALS	STRATEGIES	FY23 PROGRESS
A campus supported by an accessible, integrated multi-modal transportation system	Promote incentive programs for alternative transportation, integrate services with other transit providers, and influence local transportation systems.	<ul style="list-style-type: none"> <li>In November, real-time information about Penn Transit’s on-request shuttle services transitioned to a <b>new app - PennTransit Mobile</b>. Enhancements included improved arrival estimates, ability to see fixed-route and on-demand options on one screen, integration of bike sharing and walking options, and commonly requested campus points of interest.</li> <li>Penn supports <b>12 EV charging stations</b> at three campus locations.</li> </ul>
Have an accessible and safe campus for bicyclists and pedestrians	Promote a pedestrian-friendly and safe campus in support of the City’s Vision Zero efforts.	<ul style="list-style-type: none"> <li>PennPraxis and Penn Sustainability created and released and are evaluating responses to a <b>faculty and staff Commuter Survey</b>.</li> <li>Penn Parking and Penn Transportation completed a University City District <b>crosswalk assessment</b>.</li> </ul>
	Enhance the University’s bicycle policies and coordinate initiatives with the greater Philadelphia bike community.	<ul style="list-style-type: none"> <li>During FY23, <b>101,130 Indego trips</b> started and ended at six locations on or around campus, represented approximately 10% of all system trips. Penn is working with Indego to develop on-campus programming and to plan for future expansion of stations in University City.</li> <li>Penn’s <b>Bike Commuter Reimbursement Program</b> completed its sixth year of subsidizing Penn faculty and staff who commute by bike. This program grew in popularity in FY23, with 267 riders utilizing the benefits.</li> <li>The <b>Penn Bike Committee</b> reconvened in October 2022 for the first time since 2019.</li> </ul>
Improved energy efficiency of parking and transportation facilities and fleet composition.	Improve energy efficiency in parking facilities operations.	<ul style="list-style-type: none"> <li>50% of Penn’s parking garages have transitioned to LED lighting with a goal of fully <b>transitioning to LED lighting by FY28</b>. LED lighting upgrades have been completed for two parking garages, while remaining LED upgrades are planned for FY26-28 as current bulb use is exhausted.</li> </ul>
	Transition Penn vehicles from high carbon to low carbon or renewable fuels.	<ul style="list-style-type: none"> <li>Penn Transit purchased <b>four electric passenger vans</b>, which are now operational on several campus routes.</li> <li>An <b>EV Transition Working Group</b> is developing a plan to accelerate the acquisition of electric vehicles and supporting infrastructure.</li> </ul>

Kylie Cooper



## OUTREACH AND ENGAGEMENT

### MISSION

- Continue to highlight the urgency of global environmental concerns, while building a holistic on-campus culture of sustainability



**PROGRESS SUMMARY**

In FY23, for the third consecutive year, the volume of on-campus activity increased, presenting more opportunities for sustainability outreach and engagement. Penn Sustainability and their partners continued to utilize approaches to reach the campus community, informing students, faculty, and staff about new programs, events, and initiatives. **Event series like Earth Week and Climate Week featured more in-person offerings than recent years, while new participants earned certifications in the Green Office, Green Labs, and Green Living programs.**

**35 first-year students and 12 other undergraduates participated in the PennGreen pre-orientation program in August, receiving an engaging and fun introduction to Penn's and Philadelphia's sustainability programs. Penn Sustainability also presented a preceptorial during New Student Orientation, sharing details about how students can engage with the office's work during their first year and throughout their time at Penn.**

Several Student Eco-Rep groups advanced sustainability outreach and engagement on campus through their project work. One cohort aided the Penn Program in Environmental Humanities (PPEH) on My Climate Story, a project personalizing individuals' relationships with local climate impacts. The group played a crucial role in reviewing an anthology of climate-fiction books and films, produced the Learning Planet Festival Workshop, and added content to the **My Climate Storybank**, the online collection of project submissions.

**Penn Sustainability again collaborated with Philadelphia Parks & Recreation's TreePhilly program for the spring Creating Canopy event, distributing over 140 trees to staff and faculty of the University and UPHS.** Thirteen different tree types were given away, including fruit trees such as apple, fig, and pawpaw, and larger species like white oaks and American hophornbeams.

**FY23 also saw the development of a new Penn Sustainability website, with a full launch set for fall 2023. Earth Week served as a preview for the full build, with the series' full calendar published on the new site's template.**

Scott Spitzer



GreenFest 2023

Matt Bender



New students and their families learn more about Penn Sustainability's programs during Move-In Green.



**TOWARDS AN EQUITABLE FUTURE**

Both [Climate Week](#) and [Earth Week](#), held in October 2022 and April 2023, respectively, featured events centered on environmental justice. Organized by faculty, students, and staff, and often the product of collaboration between two or more campus groups or departments, both series demonstrated the University community’s commitment to an equitable transition to a carbon-neutral Penn.

**Climate Week** at Penn has featured over 100 events and several thousand participants since its launch in 2020, conveying urgency and a spirit of innovation, locally and globally, with an emphasis on the intersections of race, equity, and the environment. Climate Week is run by an organizational committee comprised of key faculty, student leaders, the Environmental Innovations Initiative, and the Penn Sustainability Office, with EII as the administrative lead for the series. It highlights and promotes the wide range of research, education, and outreach that combats climate change and promotes sustainability.

The 2022 Climate Week **keynote event, *Native Land, Native Knowledge: A Conversation and Rap Performance About the Climate Crisis***, kicked off the series on College Green. Alumna Megan Red Shirt-Shaw from the Oglala Lakota tribe keynoted the event. It was followed by a discussion with Megan and John Little from the Standing Rock Dakota tribe which was led by Toyce Holmes with Penn Alumni Relations to share their perspectives on the role of indigenous knowledge in the climate movement. The event that also marked Indigenous Peoples’ Day.



Providing free trees to staff and faculty at May's Creating Canopy event.



**TOWARDS AN EQUITABLE FUTURE** *(continued)*

In a unique call for climate action, with standing-room only, faculty presented a series of 1.5-minute lectures, representing 1.5°C – the maximum amount the average temperature can rise to circumvent some of the most damaging consequences of global warming. Faculty lectures included *Climate Justice in an Unjust World* from Stacy-Ann Robinson, *Urgency and Agency in Addressing the Climate Crisis* from Michael Mann, and *Imagining Climate Futures* from Shelley Welton.

The campus was abuzz again during **Earth Week** at Penn, a weeklong initiative led by Penn Sustainability. From April 17 - 23, over 40 Penn schools, centers, green teams, and student groups organized 52 events centered on themes such as environmental justice, climate action, and nature-based solutions. Campus groups poured creativity and commitment into their events, which included workshops, guest speakers, litter clean-ups, community gardening, e-waste drives, live performances, and more.

Penn Sustainability, along with partners at the Greenfield Intercultural Center, Penn Alumni Relations, the Office of Social Equity and Community, and the Environmental Innovations Initiative welcomed Penn alum Talon Bazille from the Crow Creek Dakota and Chetenne River Lakota tribes along with fellow alum Angelo Matos for a concert and conversation at **The ARCH**. The evening’s live performances and discussions centered on environmental justice and climate action, with Bazille and Matos sharing how their experiences as young people and at Penn shaped the social and ecological consciousness that informs their art. Bazille was especially busy during Earth Week, also visiting Professor Simon Richter’s class and engaging in a small group discussion at Greenfield Intercultural Center.



Matt Bender

Sustainability Coordinator Matina Granieri speaks with students as part of the PennGreen pre-orientation program.



**TOWARDS AN EQUITABLE FUTURE** *(continued)*

Notable were the number of **event organizers observing Earth Week at Penn for the first time in 2023 that focused on environmental justice and social equity**. The Center for Latin American and Latinx Studies hosted Argentine sociologist, writer and activist Maristella Svampa for The Ecoterritorial Feminisms, Relational Narratives and struggles against Neo-extractivism in Latin America, a hybrid event that drew dozens of attendees. Also producing their first Earth Week at Penn event were the Philadelphia Regional Center for Children's Environmental Health and the Center of Excellence in Environmental Toxicology, who invited Dr. Suzanne E. Fenton, Reproductive Endocrinology Lead from the Division of the National Toxicology Program at NIEHS/NIH to discuss the impact of PFAS exposure to pregnant people and fetal development.

Some event organizers looked beyond the campus during Earth Week, making a positive impact in surrounding communities and environs. Two groups led clean-up events along the Schuylkill River, one to kick off Earth Week and another at its conclusion. **Members of the Penn Engineering Green Team again participated in a riverfront trash collection, this year partnering with the Philadelphia Water Department, Philadelphia Canoe Club, and United by Blue for an event in Manayunk. The following weekend, Penn Hillel organized another Penn Schuylkill River Trail clean up event, using Earth Week as an opportunity to think beyond Penn's borders.**

Scott Spitzer



GreenFest 2023



GOALS	STRATEGIES	FY23 PROGRESS
Expand and Strengthen Existing Outreach Programs	Incorporate sustainability as a formal component of the Wellness at Penn Initiative.	<ul style="list-style-type: none"> <li>Environmental wellness has been incorporated as a formal component of the Wellness at Penn Initiative. 1,099 members of the campus community participated in the <b>30x30 Challenge</b>, which incentivizes time spent in nature throughout the month of April. Programming in 2023 included Campus Recreation's Outdoor Bootcamp and Penn HR's Outdoor Wellness Walk.</li> </ul>
	Strengthen the Green Labs Working Group, Green Living, and Green Office programs.	<ul style="list-style-type: none"> <li>Penn Sustainability's Green Labs intern supported the expansion of the Green Labs program on campus by hosting a <b>Green Labs Vendor Expo</b> during Earth Week and conducting an <b>inventory of the School of Medicine's Ultra Low Temperature (ULT) Freezers</b>. Penn Sustainability and EHRS began to accept applications for the University's first Sustainable Labs Manager, who will be hired and begin their tenure in FY24.</li> <li>A Student Eco-Rep team spent the year driving new participation in the <b>Green Living Certification</b>. 267 students completed the Green Living program survey during FY23. All participants commit to practicing responsible recycling habits, turning off unused lights, turning off faucets and reporting leaks, and minimizing energy use.</li> <li>Newly certified <b>Green Offices</b> include the Penn Program on Environmental Humanities and Residential &amp; Housing Services. Offices recertifying at Level 3 were the Division of Business Services 3401 Walnut Street Office, the Penn Nursing ITS / Ops Suite, and the SAS Finance &amp; Administration office.</li> </ul>
	Develop a comprehensive strategic communication plan for sustainability.	<ul style="list-style-type: none"> <li>The <b>Sustainability Marketing and Communications</b> Plan that encompasses media relations, social media, partner promotions and events, website, advertising and collateral materials, photography, and videos continues to be implemented and updated as necessary. A notable strategic plan milestone achieved is the launch of the new version of the Penn Sustainability website that featured Penn's Earth Week events and calendar.</li> </ul>
	Create a Green IT Working Group.	<ul style="list-style-type: none"> <li>Members were identified for a new ESAC Green IT Working Group, which will convene in Fall 2023.</li> <li>Representatives from Information Systems and Computing (ISC) and the Penn Sustainability office met with Amazon Web Services to explore expanding <b>cloud computing</b> across schools and centers. Cloud computing reduces emissions and building energy consumption while increasing security of Penn's data.</li> </ul>
	Launch a new sustainability website.	<ul style="list-style-type: none"> <li>A website RFP was awarded and the first phase of the <b>new website</b> was launched in April 2023 which featured the Earth Week 2023 calendar and events. A complete version of the new site will be published in FY24.</li> </ul>



GOALS	STRATEGIES	FY23 PROGRESS
	<p>Elevate visibility of sustainability as core priority for employee onboarding and training.</p>	<ul style="list-style-type: none"> <li>• Sustainability info sheets and magnets with recycling information were created and included in welcome materials for all incoming first- and second-year students for the 2022 <b>New Student Orientation</b>.</li> <li>• Penn Sustainability trained <b>Move-In Green</b> ambassadors to educate first year students about the University’s recycling programs and sustainability initiatives during New Student Orientation.</li> <li>• Student Eco-Reps developed <b>sustainability trainings for dining staff</b> on how to support sustainable waste practices. The trainings were given by Penn Dining and Penn Sustainability Office staff to all dining employees in August 2022</li> </ul>
<p>Engage Penn’s Leadership to Serve as Sustainability Change Agents</p>	<p>Partner with the Environmental Innovations Initiative to advocate climate action to Deans/Schools; support the creation of school-level climate statements for all schools at Penn.</p>	<ul style="list-style-type: none"> <li>• Launched during Climate Week at Penn 2022, each School at the University has now issued an <b>Academic Climate Commitment</b>, reflecting the role that all disciplines and professions play in advancing climate solutions. The titles and details of each commitment differ among each School, demonstrating unique cultures and deans’ priorities. All the commitments tie back to the University’s commitment of carbon neutrality by 2042.</li> </ul>



## LOOKING FORWARD: COMMUNITY BUILDING

Penn Sustainability and its coalition of collaborators have worked assiduously over the past four years to carry out the goals outlined in the *Climate and Sustainability Action Plan 3.0*. The remarkable progress detailed in this report demonstrates the Penn community's ardor for environmental stewardship and its commitment to pursuing carbon neutrality.

While recent progress should be applauded, even more attention to these issues is required in the years ahead. FY24, the final year covered by *CSAP 3.0*, calls for each ESAC subcommittee to see all of their initiative's goals to completion. Next year will also mark the official commencement of planning for Penn's next plan, an effort that will ultimately involve hundreds of stakeholders with broad representation from throughout the University. All are called upon to put their resourcefulness and ingenuity into action as Penn remains committed to its sustainability vision.

## ACKNOWLEDGMENTS:

Michael Bernhardt, Director of Transportation

Dawn Bonnell, Senior Vice Provost for Research

Mike Borda, Associate Vice Provost for Research, Executive Director of Strategic Initiatives

William W. Braham, Professor of Architecture, Director of the Master of Environmental Building Design program and of the Center for Environmental Building + Design

Melissa Brown Goodall, Former Director, Environmental Innovations Initiative

Craig Carnaroli, Senior Executive Vice President

Mike Citro, Vice President and Chief of Staff, Office of the President

Joe Gaither, Housekeeping Operations Manager

Matina Granieri, Sustainability Coordinator

John L. Jackson Jr., Provost and Richard Perry University Professor

Mark Kocent, University Architect

Barbara Lea-Kruger, Director of Communications & External Relations, Business Services

Mark Mills, Chief Procurement Officer

Walt Molishus, Director of Trades

Nina Morris, Sustainability Director

Chris Nicolais, Director of Design & Construction, Perelman School of Medicine

Anne Papageorge, Senior Vice President, Facilities & Real Estate Services

Colleen Reardon, Senior Director of Strategic Sourcing & Sustainability

Jennifer Rizzi, Director of Communications, Facilities & Real Estate Services

Craig Roncace, Urban Park Manager

Joe Russo, Senior Director of Business Services

Anthony Sorrentino, Associate Vice President, Office of the Executive Vice President

Wendy Sparks, Director of Housekeeping

Ben Suplick, Director of Engineering and Energy Planning

Austin Sutherland, Sustainability Analyst

Noah Swistak, Sustainability Manager

Karla Terroba Rodriguez, Former Program Coordinator, Environmental Innovations Initiative

Xime Trujillo, Senior Research Coordinator, Environmental Innovations Initiative

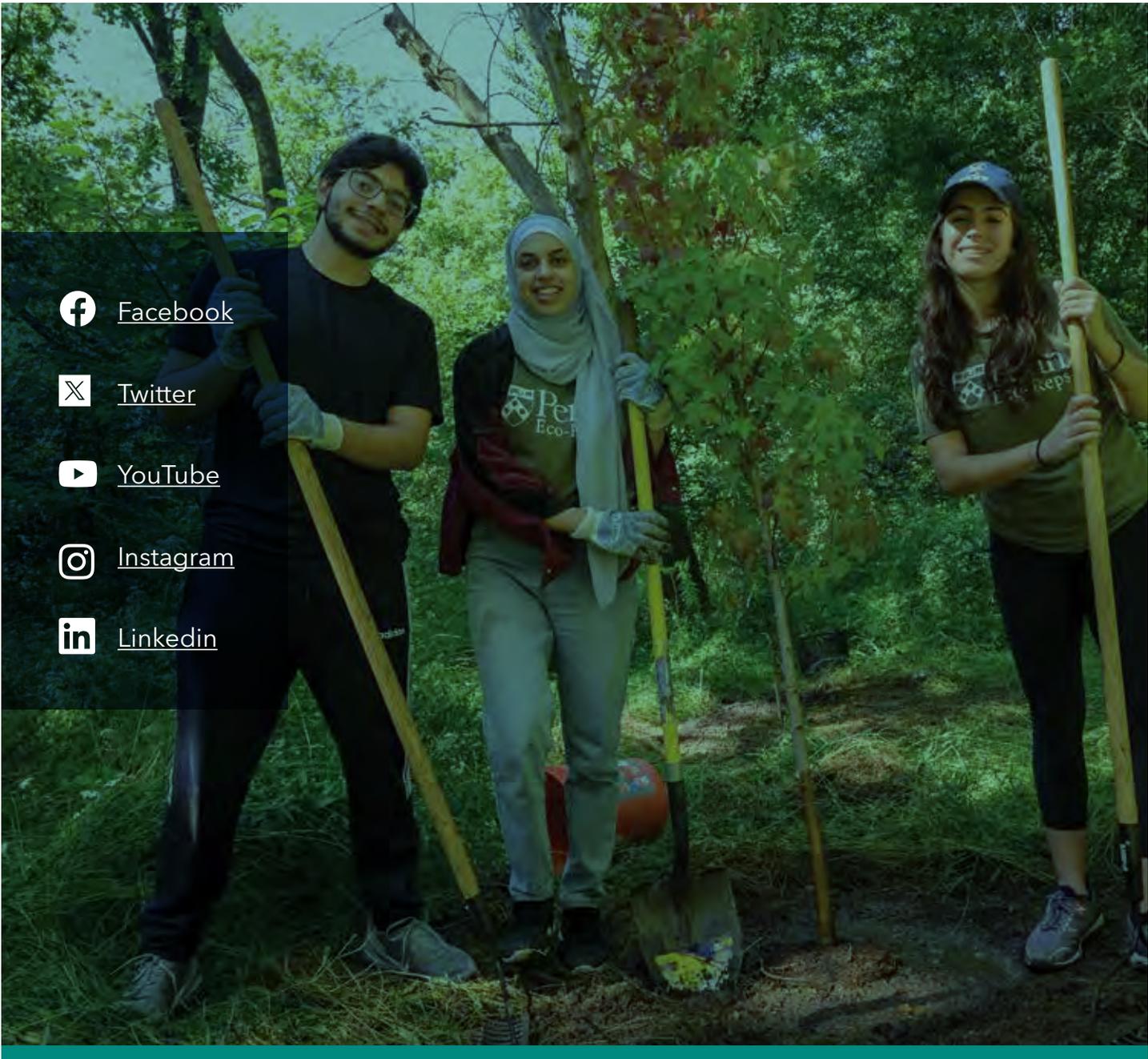
Katherine Unger Baillie, Interim Director, Environmental Innovations Initiative

Famarz Vakili, Executive Director of Operations & Maintenance

Eric Weckel, Senior Executive Director of Space Planning & Operations, Perelman School of Medicine

Marie Witt, Vice President, Business Services

Heidi Wunder, Communications Specialist, Facilities & Real Estate Services



 [Facebook](#)

 [Twitter](#)

 [YouTube](#)

 [Instagram](#)

 [LinkedIn](#)