



# The American University in Cairo's Carbon Emissions Management and Mitigation Plan

NET-ZERO PLAN

AUC NET-ZERO TASK FORCE

OFFICE OF SUSTAINABILITY

August 6, 2023

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## *Executive Summary*

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In 2022, The American University in Cairo (AUC) became a signatory to the global UN-backed [Race to Zero Campaign for Universities and Colleges](#). A task force comprised of AUC faculty, staff, and students was formed to develop the University's Net-Zero Plan in response to this campaign. Launched under the United Nations Framework Convention on Climate Change (UNFCCC) in 2019, the Race to Zero initiative aims to reduce carbon emissions. As a signatory, AUC has committed to reducing its carbon emissions by 2035 and achieving a nearly net-zero campus by 2050. AUC will implement a series of initiatives to achieve emission reductions in the future.

The AUC Net-Zero Plan is based on sustainability best practices across the University's design, operations, activities, culture, research, and academics. It outlines a vision for a nearly net-zero emissions campus, utilizing different scenarios to reduce future emissions.

AUC is the leading University in Egypt and the region and takes a proactive role in sustainability initiatives among local and regional higher-education institutions. Since 2012, AUC has been measuring its environmental impact by quantifying carbon emissions and publishing the University's Carbon Footprint Report. AUC continues to explore opportunities for improved efficiency to address and respond to climate change and introduce best practices in Egypt and the region.

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## *Task Force Team Members and Acknowledgments*

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### Carbon Emissions Management and Mitigation Plan 2023 Task Force Team Members

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### **Acknowledgments**

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### *About AUC*

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Located in Cairo, AUC is an English-language, U.S.-accredited institution of higher education and the center of the intellectual, social, and cultural life of the Arab world. The American University in Cairo was founded in 1919 in Tahrir Square by Americans devoted to education and service in the Middle East. In 2008, AUC opened its 260-acre New Cairo campus. Designed to express the University's educational mission, the campus is technologically advanced, environmentally sensitive, and designed to be accessible to persons with disabilities. Currently, AUC is operating as one University with two campuses. With a commitment to liberal arts education, AUC offers a Core Curriculum that covers the humanities and the natural and social sciences. Additionally, AUC fosters understanding across regions, cultures, and religions.

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### *AUC Mission and Vision*

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#### **Mission**

AUC is the premier English-language institution of higher learning in Egypt. The University is committed to teaching and research of the highest caliber and offers liberal arts and professional education in a cross-cultural environment. AUC builds a culture of leadership, lifelong learning, continuing education, and service among its graduates. It is dedicated to significantly contributing to Egypt and the international community in diverse fields. Chartered and accredited in the United States and Egypt, AUC is an independent, not-for-profit, equal-opportunity institution. AUC upholds the principles of academic freedom and is dedicated to excellence.

#### **Vision**

AUC's vision is to be a world-class University internationally recognized for its leadership and excellence in teaching, research, creative endeavors, and service. It builds on its existing strengths to become the leading University in the Middle East and the destination of choice for students and faculty members from around the world seeking in-depth cultural exposure, combined with outstanding academic programs and cutting-edge research, as well as an ethically engaged, diverse community of scholars.

## Scope of the Report: AUC's Race to Zero Signatory Road Map

The Race to Zero initiative was launched by the United Nations Framework Convention on Climate Change (UNFCCC) in 2019. AUC became a Race to Zero signatory in August 2022. By becoming a signatory to this initiative, AUC will automatically be added to the [UNFCCC Race to Zero campaign](#).

By joining the Race to Zero initiative as a signatory, AUC has an interim goal of reducing its carbon emissions by **2035** and reaching a nearly zero-emissions campus as an ultimate goal in **2050** <https://www.educationracetozero.org/current-signatories>.

### Official Race to Zero Signatory

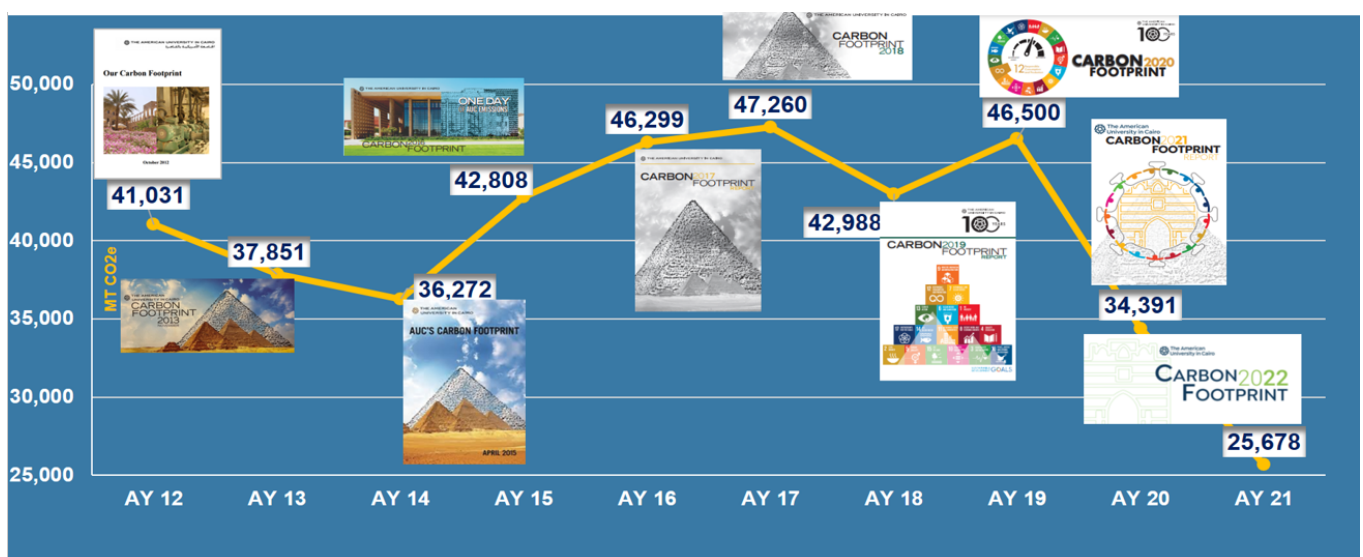
We are part of the Race to Zero and are leading the education sector for a healthy and resilient zero carbon recovery in the lead up to COP26!



AUC aims to achieve a nearly net-zero campus by 2050, joining [1,118 other educational institutions](#) in the race for a healthier, fairer, and cleaner world. [Net-zero](#) entails balancing the amount of greenhouse gas emissions emitted into the atmosphere with the amount removed. Thus, achieving a nearly net-zero campus involves reducing emissions and investing in carbon-offsetting projects.

AUC accomplished significant steps toward an environmentally friendly campus through various initiatives and projects. It has quantified its environmental impact using a carbon footprint calculation and continues to identify areas for emission reductions by improving operational efficiency across the campus. AUC's [Carbon Footprint Report](#), published biennially, details the annual total of Carbon Dioxide (in metric tons of CO<sub>2</sub> equivalent) and other significant greenhouse gases (GHG) resulting from daily activities and campus operations. AUC is actively working to improve areas such as energy use, transportation, water consumption, solid waste disposal, and campus operations based on recommendations from the published Carbon Footprint Reports since 2012.

## The Documentation of AUC's Emissions History



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## *The Institution's Sustainability Approach: Embodying Sustainability*

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### **Establishment of the Office of Sustainability**

The Office of Sustainability at AUC was established in September 2011 to address environmental challenges, such as climate change, resource scarcity, pollution, and waste management. Its objective is to integrate environmental and social sustainability into the culture and structure of the University. By supporting programs in education, research, and operations, the office aims to reduce natural resource use and operating costs and instill a sustainability mindset within the AUC community. Additionally, it seeks to gain international recognition for AUC's sustainability achievements through its commitment to weaving sustainability into the University's culture, mission, and activities. To facilitate University-wide input, the Office of Sustainability engages various committees, including Energy Resource Conservation and Efficiency (ERCE), Water, Food, Plastic and Environmental and Social Management System (ESMS).

### **Existing Building Design**

When AUC moved to New Cairo in 2008, sustainability and efficiency were prioritized in the design of the campus. The architects oriented openings from plazas, courtyards, and gateways between buildings toward the prevailing northeast winds, creating a considerable green buffer to mitigate heat and act as a filter during dust storms. This design reduces long-term energy and maintenance costs while contributing to the social design of open spaces. The campus features a hollow-square building design that maximizes natural light and air circulation in offices, classrooms, and labs. Solar shading is integrated into most buildings, using horizontal and vertical louvers to break the solar radiation and provide more shading, which helps reduce heat gain while providing adequate levels of passive natural daylight.

### **Operations**

AUC is committed to conservation and responsible resource usage in its daily operations. The Office of Sustainability regularly tracks and monitors energy consumption, water usage, waste management schemes, and natural gas consumption on campus.

#### *Landscape*

AUC's outdoor landscape demonstrates ecological leadership and best practices in design and operations. Native non-invasive species of vegetation are employed to minimize water usage for irrigation. Over 60 acres of vegetation exist on campus, with all trees and plants, except the date palms, propagated and grown at AUC's nurseries and research stations. The garden's harvested fruits and vegetables benefit the AUC community. One of the great benefits of the campus's green cover is the storage and sequestration of CO<sub>2</sub> from the atmosphere, reducing AUC's overall carbon footprint. Landscaping waste, such as pruned tree branches and grass cuttings, is composted to avoid carbon emissions, utilizing a mix of on-campus compost and a small amount of purchased synthetic fertilizer.

#### *Water*

Given water scarcity in the desert and the energy required for pumping water throughout the campus, AUC employs various water conservation efforts. These include using treated wastewater, drip irrigation, and humidity sensors to irrigate the landscaped areas on campus. Treated wastewater is a low-cost alternative to drinking-

grade water, reducing the University's carbon footprint. Water-efficient appliances, such as low-discharge flush valves in toilets and low-flow shower heads in students' residences, the sports complex, and the faculty housing buildings, are installed to conserve domestic water across campus.

### *Energy*

To maintain efficient daily operations, AUC consumes considerable energy in cooling, heating, and lighting indoors and outdoors. The primary energy source is an on-campus co-generation (combined heat and cooling) plant that runs on natural gas, which is cleaner than coal, with electricity obtained from the Egyptian Electricity Authority (EEA) as a secondary source. AUC utilizes a campus-wide building control–building management system (BMS), along with motion sensors, continuous retro-commissioning, and other technologies, to reduce its energy consumption. Well-designed existing buildings with insulated skin and double-glazed windows also contribute to lower energy demands.

### *Waste*

AUC students, faculty, and staff produce considerable amounts of waste daily, including packaging from food and drink containers and scrap paper. AUC is committed to reducing waste streams and diverting as much recyclable material as possible from landfills. The Office of Sustainability leads the Clean and Green committee, a group of dedicated faculty and staff members that spearheaded a campus-wide recycling program. The program includes 48 sorting stations for plastic, cans, and trash. To reduce plastic water bottle usage, water dispensers supplying filtered, chilled drinking water to fill reusable bottles are installed across campus. Currently, 35 filtered drinking water stations are installed on AUC's New Cairo campus, three in the faculty residences, and 23 stations on the Tahrir Square campus. There are plans to add more water-cooled dispensers in other areas on campus in the near future. Efforts are also being made further to minimize paper waste through the exploration of paperless alternatives.

### *Transportation*

AUC provides a collective transportation system through a bus network offering 13 routes serving greater Cairo. The bus service operates on a set schedule to transport AUC community members to and from campus, contributing to lower emissions. Faculty and staff members can use the service six days a week, free of charge, while students can subscribe for a reasonable fee. AUC continues exploring options to offer increased carpooling incentives as an alternative to private car use.

## **Academics and Research**

Education is the most effective tool for creating change, and AUC is deeply committed to sustainability in its educational mission. Across the University, students are given opportunities to learn about sustainability concepts and find solutions to complex environmental issues. AUC offers a Master of Science in sustainable development with concentrations in green technologies, entrepreneurship, sustainable cities, and sustainable communities. The program is offered as a multidisciplinary collaborative effort between AUC's School of Business, School of Sciences and Engineering, School of Global Affairs and Public Policy, and School of Humanities and Social Sciences. AUC also offers a diploma in sustainable development that prepares students for careers in the green industry and equips them with the skills needed to lead sustainable development in Egypt and the Middle East. Sustainability is integrated into

various courses across departments in both undergraduate and graduate programs. The AUC School of Business has been a signatory of the United Nations Global Compact Principles of Responsible Management and Education (PRME) since 2014, with a mission to inspire and champion responsible management education, research, and thought leadership. AUC is also a leading member of the Africa Chapter of Business Schools for Climate Leadership (BS4CL) global initiative, which advocates for climate action and leadership in business schools worldwide.

The curriculum at AUC incorporates the three pillars of sustainability — environment, economy, and society — across numerous fields of study. Specific schools, departments, and research centers focus on these key thematic areas, enhancing students' understanding of sustainability on local and global levels.

Regarding research, AUC is dedicated to contributing to social well-being, economic prosperity, and environmental health. Sustainability research plays a crucial role in finding innovative and practical solutions to the world's environmental, social, and economic challenges. AUC values innovation and encourages its students and faculty to explore creative academic endeavors across various disciplines. Student and faculty research at AUC addresses sustainability issues on both the local and international scale, with many projects focusing on Cairo and the surrounding areas.

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### *Global Recognition for AUC's Sustainability Practices*

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- In 2022, AUC was named in The Princeton Review's Guide to Green Colleges for the sixth consecutive year, with a green rating of 98/99. AUC is one of the few non-U.S.-based colleges included in the guide, joining schools in Canada, Ecuador, and Greece.
- AUC was ranked as the top sustainable University in Africa and Egypt according to the 2022 UI Green Metric World University Ranking.  
([https://greenmetric.ui.ac.id/rankings/overall\\_rankings\\_2022](https://greenmetric.ui.ac.id/rankings/overall_rankings_2022))
- In 2016, AUC declared its commitment to the [United Nations Global Compact \(UNGC\)](#), aligning itself with the Sustainable Development Goals.
- Sustainability measures and policies' input were included in The Middle States Commission on Higher Education (MSCHE) Accreditation for AUC in 2016.
- AUC's sustainable campus practices were featured as a global example of a green, low-carbon institution in the [United Nations Environment Programme \(UNEP\) Green Universities Toolkit](#) in 2015.
- AUC was the first University in the region to produce a Carbon Footprint Report in 2012 and subsequent years.
- AUC has been a member of [The Association for Advancement of Sustainability in Higher Education \(AASHE\)](#) since 2011.
- University of Indonesia (UI) Green Metric Ranking Timeline:
  - 2022: [AUC ranked first place in Africa and first in Egypt](#)
  - 2021: AUC ranked first place in Africa and first in Egypt
  - 2020: AUC ranked third place in Africa and third in Egypt
  - 2019: AUC ranked second place in Egypt
  - 2018: AUC ranked first place in Egypt
  - 2017: AUC ranked second place in Egypt
- The Princeton Review Guide to Green Colleges Rating Timeline:
  - 2023: AUC scored 95/99 green rating
  - 2022: AUC scored 98/99 green rating

- 2019: AUC scored 91/99 green rating
- 2018: AUC scored 87/99 green rating
- 2017: AUC scored 86/99 green rating
- 2016: AUC scored 92/99 green rating

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## AUC's Carbon Emissions Management and Mitigation Plan: Net-Zero Plan

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Four areas of focus will help achieve the University's aim of a net-zero emissions plan:

### 1. Optimizing the Existing System

To promote sustainable infrastructure development, the University's plan toward a zero-carbon campus can include initiatives and projects for ensuring optimal operations for the cooling, heating, and lighting systems. This can be achieved through strategies such as:

- Efficient Heating, Ventilation, and Air Conditioning (HVAC)
- Higher levels of water efficiency
- Carbon-efficient electricity sources for non-HVAC systems
- Energy-efficient lighting systems
- Upgrading the existing Building Management System (BMS)
- Implementing an Eco-Rep program to monitor electricity usage in campus buildings
- Introducing renewable energy options

### 2. Transportation and Mobility

AUC aims to explore and encourage the use of sustainable mobility for its students, faculty, staff, and visitors. Initiatives and projects can focus on an accessible, pedestrian-friendly, and inclusive campus that caters to the needs of the AUC community guided by the following areas:

- Exploring well-planned use of micro-mobility within the campus.
- Optimizing bus schedules and routes to increase bus ridership.
- Introducing charging stations for electric and hybrid vehicles in select parking spaces nearest to the portal entrances.
- Encouraging AUC community members to use public transportation and reduce dependence on private cars.

### 3. Innovation in Design and Construction

AUC aims to set clear targets for lower carbon emissions in its campus operations toward its ultimate goal of a nearly zero-emissions campus in 2050. This includes:

- Utilizing innovative solutions in the design and construction of new low-energy buildings.
- Employing innovative techniques in sustainable building design.
- Promoting inclusive design that is accessible and safe yet ensures less energy usage per person compared to global benchmarks.
- Incorporating smart, sustainable growth principles into AUC's future development and acquisitions for off-campus real estate.

#### 4. Inspire AUC Community Members to Become Eco-Reps

AUC aims to empower its community to become eco-reps and sustainability advocates beyond its campus boundaries. This can be achieved through sustainable campus practices, awareness campaigns, events, workshops, and actively involving students in sustainability initiatives and encouraging their leadership in this field.

#### Initiatives for the Future

- **Gray Water Recycling and Storage:** Improve water efficiency on campus by reducing domestic water consumption and using treated wastewater when possible. Upgrade the treated wastewater plant and explore solutions to increase graywater use for flushing and capturing rainwater from more frequent rains in New Cairo. Increase the use of drought-resistant and salt-resistant plants in campus landscaping. Raise awareness of the AUC community about responsible water usage and employ water storage strategies for irrigation.
- **Solid Waste Recycling and Disposal:** Work toward a zero-waste campus by phasing out single-use plastic, considering onsite composting facility to capture food waste, encouraging food vendors to use more sustainable takeaway packaging, enhancing the sorting locations of outdoor bins and introducing indoor sorting stations and implementing a permanent paper recycling system. Enact University policy for a zero-waste campus from planning to execution.
- **Natural Gas for Domestic and Lab Use:** Minimize natural gas usage for food preparation by retaining food vendors with low natural gas consumption.
- **Education and Development on Campus:** Integrate sustainability and carbon-related topics into orientation activities for students, faculty, and staff. Establish an Eco-Representative program to promote sustainable behaviors on campus. Develop a mandatory carbon literacy training module for AUC community members, covering: an overview of the current situation and the past interventions, a basic introduction to sustainability and sustainable living, and recommendations for efforts and pro-environmental behaviors that individuals can adopt to help reduce AUC's emissions. Launch awareness campaigns led by students to heighten the sensibility of the AUC community on various topics, such as plastic waste, organic waste and composting, electricity, plug, and HVAC loads. Establish a sustainability fund using energy savings to support future carbon reduction initiatives and other optimization projects.

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### Vision for Moving Forward

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Based on AUC's carbon footprint data, the University plans to focus its efforts, resources, and understanding on tackling its future strategic objectives and most critical emissions categories. The plan will aim to reduce emissions through three main categories:

1. **Optimizing Operations:** Reducing emissions from regular operations of existing and new assets. This can involve cutting emissions resulting from waste, transport, paper use, fertilizers, and refrigerants.
2. **New Initiatives:** Investing in cleaner energy sources like solar energy and improving existing and new building performance through passive and active systems and

- infrastructure controls.
3. **Cultural Transformation:** Encouraging sustainable behavior in transport, consumption, and waste through existing and new campaigns and initiatives.

The task force believes that adopting strategies in these areas can support the net-zero plan's four areas of focus and three categories of action in reducing emissions.