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Daha büyük hedeflere...



BURSA ULUDAĞ UNIVERSITY

Climate Action Plan 2025-2030





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Message from the Rector

Sustainable development and climate action is no longer just a choice, but an urgent necessity for the future of humanity. Universities stand at the forefront of this critical battle. They play an indispensable role not only in producing knowledge, but also in transforming this knowledge into practical solutions, sharing it with society and guiding the way forward. As Bursa Uludag University, we are aware of this responsibility and continue our determination to take meaningful steps in the fight against climate change. As a research university, we are not only committed to knowledge creation but to transforming that knowledge into innovative, sustainable initiatives that will shape a better, more resilient future.

We place climate justice at the center of our climate action efforts. As the impacts of climate change exacerbate social inequalities, we are committed to addressing and reducing these inequalities. We firmly believe that true sustainable development can only be achieved in a society that is both equitable and just.

Our 2025-2030 Climate Action Plan is a bold statement of the decisive steps we are taking on this journey. With this plan, we pledge to reach net-zero emissions by 2050, affirming our commitment to a sustainable future not just for our university, but for the broader community and the planet we share. Sustainability is not only an economic necessity, but above all an ethical responsibility. Based on this principle, Bursa Uludag University will continue to lead with a solution-oriented approach in all disciplines, inspire our society and pioneer the climate action movement.



Prof. Dr. Ferudun Yılmaz
Rector



Executive Summary

The first sustainability and climate action plan developed by Bursa Uludag University in 2021 has formed an important basis for the university's sustainability efforts in the last four years. During this time, the university prepared an annual inventory of greenhouse gas emissions and planned actions to reduce emissions. Since 2021, the university's carbon neutrality and sustainability approach has reached a certain level of maturity. In the period 2025-2030, we are committed to taking climate action further with solutions that enhance the education and preparation of Bursa Uludag University students and strengthen the resilience of the university on the basis of social justice, in an inclusive and equitable manner. We are updating our 2053 carbon neutrality commitment to 2050.

BUU Climate Action Plan 2025-2030 is the result of intensive work by the Sustainability Coordinator, Sustainability Student Community and Sustainability Commissions. The plan consists of five focus areas, each with five-year goals and strategies aligned with the university's mission. These specifically address the university's greenhouse gas emissions (GHGs) through sustainable campus operations and resource utilisation.

In developing our Climate Action Plan, we recognised the dynamic and evolving world in which we live and remained open to new ideas and opportunities to support sustainability.

Reducing greenhouse gas emissions has required a collaborative effort and significant investment in the university's infrastructure.

I would like to thank the staff, faculty and students who have contributed to the progress we have made to date and who are now working together to achieve our goal of net zero greenhouse gas emissions. Achieving this goal will not be easy, but it is a responsibility that we undertake to provide a healthy environment for the future and to leave a legacy to those who come after us.

Sincerely,



Assoc. Prof. Yasemin Kaya
Sustainability Coordinator

A Brief History of Campus Sustainability



Established in 2021, Bursa Uludağ University Sustainability Coordinatorship, together with 8 Sustainability Commissions, works for the localisation of sustainability culture at the university. Bursa Uludağ University Sustainability Coordinatorship is one of the 16 coordination units directly affiliated to the university rectorate with a team consisting of a coordinator, two deputy coordinators and an expert. Within the coordinatorship, 8 Commissions related to Sustainable Development Goals have been established in 2025. In these Commissions, a team of 48 academic and administrative staff supports the implementation of sustainability studies throughout the university.

The mission of the Coordinatorship is to raise awareness of sustainability among the students and staff of Bursa Uludağ University and to promote a sustainable lifestyle. In this context, it is to develop strategies and policies for collaborative actions in the fields of environmental, socio-cultural and economic sustainability, to disseminate the impact of these actions, to contribute to the creation of a solid institutional infrastructure in the field of sustainability and to guide university units in these areas. Our team is committed to promoting a culture of sustainability and embedding it as a way of life across the campus. We adopt an open and collaborative approach with all stakeholders to support this mission.



Vision & Mission



Vision

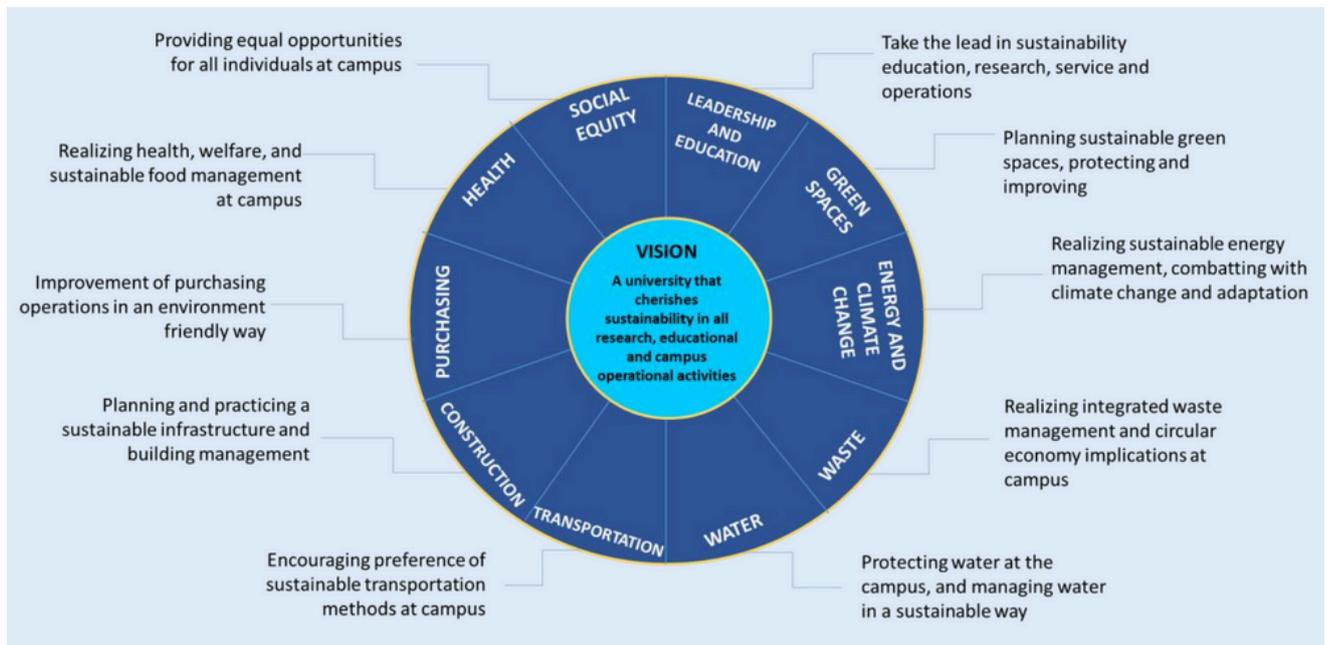
Our vision is to support societal development by implementing necessary initiatives across environmental, socio-cultural, and economic dimensions, enabling the adoption of a sustainable lifestyle throughout the university.

Mission

- 01 **Promote Environmental Responsibility:** To integrate sustainability into the core of university operations, fostering a culture of environmental stewardship across all campuses and departments.
- 02 **Support Research and Innovation:** To drive cutting-edge research and initiatives that contribute to sustainable development, addressing climate change, and creating practical solutions for a greener future.
- 03 **Engage and Educate the Community:** To raise awareness and empower students, staff, and stakeholders through education, outreach programs, and partnerships, encouraging active participation in sustainable practices and climate action.



Figure 1: Goals of Bursa Uludağ University for Sustainable Development



BUU SUSTAINABILITY COMMISSIONS

1. Education and Research Commission
2. Climate and Energy Commission
3. Health and Quality Life Commission
4. Circular Economy and Waste Management Commission
5. Ecosystem Protection Commission
6. Sustainable Settlements and Resilience Commission
7. Social welfare, equality and inclusion Commission
8. Governance Commission



A Review of Campus Emission



Founded in 1975, Bursa Uludağ University is one of Türkiye's universities with the largest campus area. Görükle Campus covers an area of 14259039.06 m² (14259.3 decares) (Figure 1). There are 15 faculties, 3 colleges, 15 vocational schools, one conservatory, four institutes, and 25 research centers affiliated with our university. Bursa Uludağ University educates 20,682 associate degree students, 34,935 graduate students, 4,137 master's students, and 1,743 doctoral students. With its international student population, the university stands out as an inclusive, collaborative, and quality-focused higher education institution and continues to guide young people.

Bursa Uludağ University's mission is to cultivate scientifically and professionally equipped individuals who are highly sought after, produce qualified and original knowledge, and contribute to societal development by sharing this knowledge with all its stakeholders. With a vision to be a pioneering research university shaping the future through quality education, qualified scientific research, innovation, and entrepreneurship, it operates as one of the 23 research universities in Türkiye.



Figure 2: Bursa Uludag University Campus Area

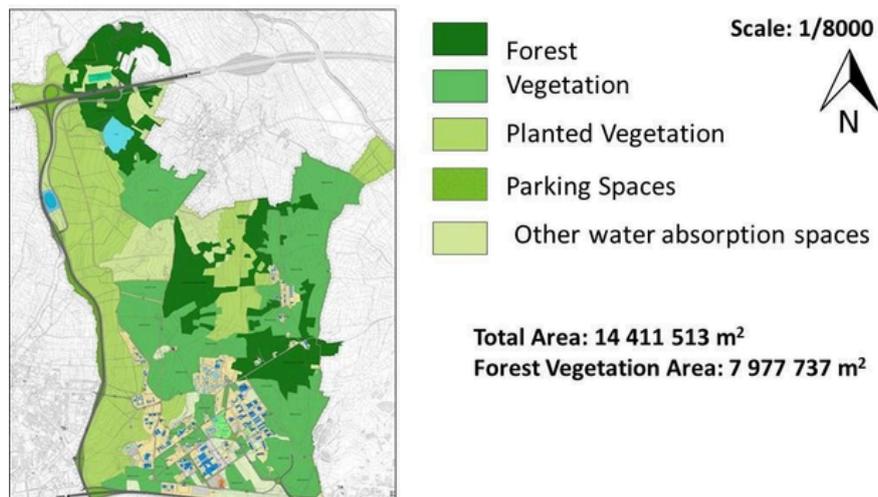


Figure 3: Green Spaces in BUU

Table 1: Land Cover Distribution

Category	Square kilometer (km2)	% in the total
Forests	7.98	55.4
Garden & Arable Field	3.74	26.0
Roads	0.28	2.0
Settlement & Buildings	0.18	1.3
Parking Area	0.13	0.9
Irrigation Pond	0.09	0.6
Sport Space	0.06	0.4
Other	1.95	13.5
TOTAL	14.41	100.0

The carbon footprint calculation of Bursa Uludağ University Görükle Campus has been prepared in accordance with the GHG Protocol defined by the World Resources Institute (WRI), the ISO 14064-1 standard defined by the International Organization for Standardization and IPCC guidelines.

While calculating the carbon footprint, the amounts of natural gas and electricity consumed at Bursa Uludağ University, the amount of diesel and fuel oil consumed by the vehicles within the university, and the amount of fuel consumed in generators were considered.

For emissions, we have first sought to document the current emissions of the university from all sources and then establish a baseline scenario against which our recommendations, and eventually the university's progress, can be measured. Emissions are represented as CO₂-e (CO₂- CO₂-equivalents), which accounts for trace amounts of methane and other GHGs. However, the vast majority of BUU's emissions are simply in the form of CO₂.

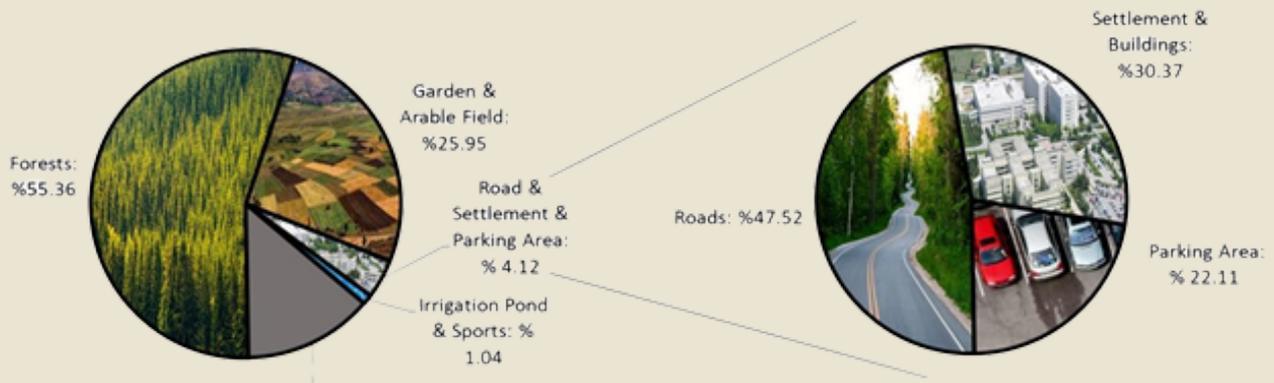


Figure 4: Land Cover Distribution

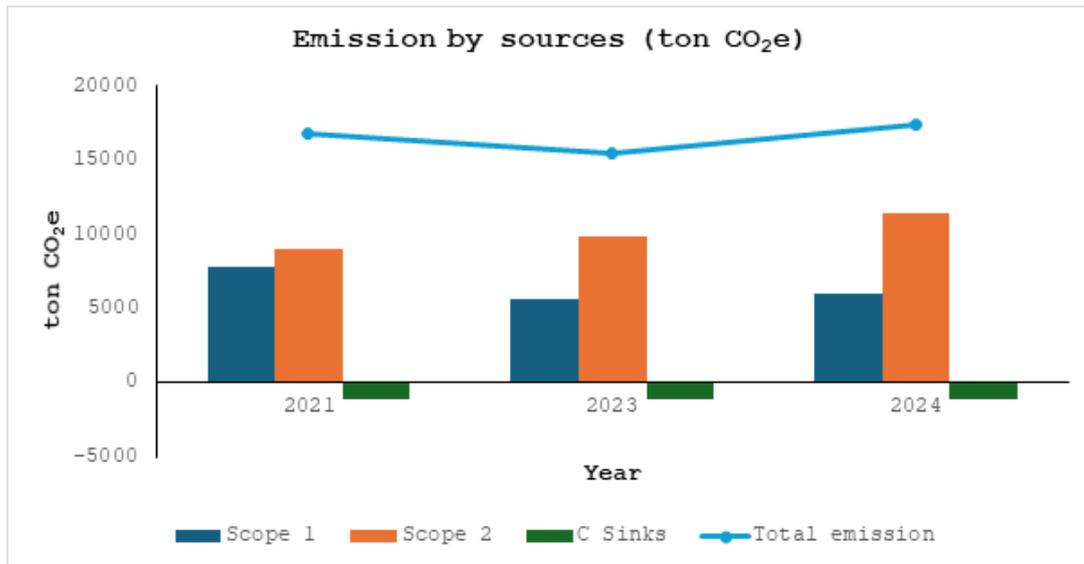


Figure 5. Distribution of emissions from Bursa Uludağ University campus by scope

Scope 1 emissions include all buildings on campus, all university-owned vehicles and the amount of fuel consumed in generators. Scope 2 emissions account for the electricity purchased for the campus. The CO₂ equivalent emissions generated on the BUU campus are shown by scope in Figure 5. It was observed that total emissions increased slightly (3.1%) in 2024. It is clear that this situation is due to the fact that universities were closed for education in 2021 due to the pandemic, but the hospital was active. Forests and other green spaces on campus are also factored into the emissions assessment.

Emissions absorbed by sinks are excluded from the total. Our primary focus is on Scope 1 and Scope 2 emissions. Because these are the emissions that the university directly controls. Scope 3 emissions are indirect emissions from the campus. These emissions are not produced on campus, but campus life requires them to be produced.

Examples include emissions from staff commuting to and from work, emissions associated with students commuting to and from campus during the academic year, emissions from waste disposal, and emissions associated with the purchase of materials and catering services. BUU's emissions from travel, purchasing, and the waste stream the university generates are large and complicated. Faculty at large research universities are often expected to travel as part of their research and service activities.

Commuting by faculty and staff can be estimated reasonably by knowing the number of parking passes issued and home addresses, how many people take advantage of public transport, and through annual surveys of commuting practices. However, no one has previously estimated that either graduate students or undergraduates travel: there is a total of 61,497 students (Figure 6). It is challenging to estimate travel emissions from these sources.

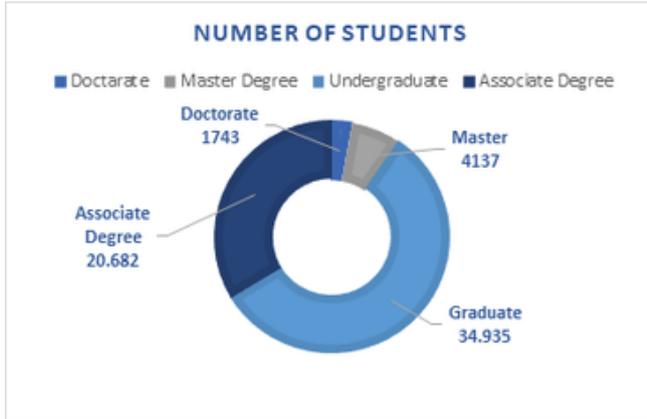


Figure 6. Number of Students

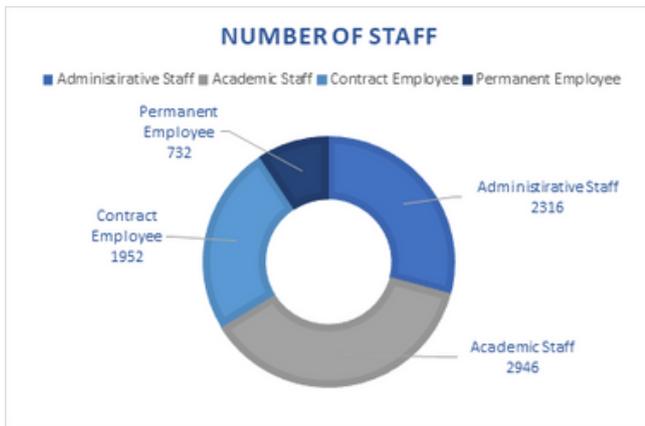


Figure 7. Number of Staff

The large number of students and staff makes it difficult to calculate Scope 3 emissions. While efforts are being made to reduce Scope 3 emissions, they are not yet included in the campus carbon footprint calculation. The last component of Scope 3 emissions is purchasing and waste disposal. To make a quantitative estimate of current emissions, life-cycle analyses for each significant purchasing and waste category are necessary. In most cases, the university has not collected the data required for such studies. Therefore, we are unable to assess their impacts on those emissions quantitatively.

Bursa Uludag University has large green areas, some of which are carbon sinks. The total area of the main campus is 14.41 km² (14411513.8 m²). More than 55% of these fields are covered with forests. (See page 6.)

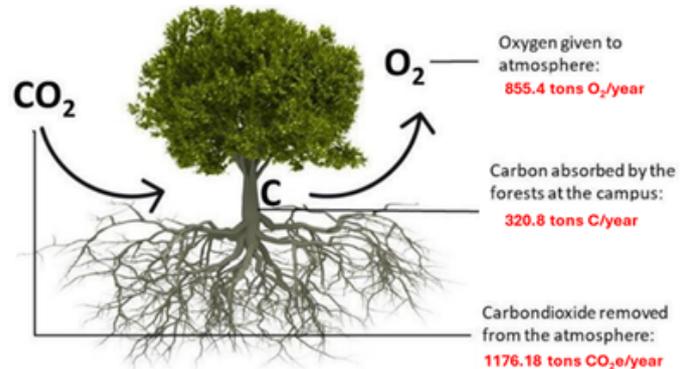


Figure 8. Carbon absorption by the sinks at the BUU Campus

- Annual Carbon absorption by the biomass at the campus: 320,8 C/year
- CO₂ yearly equivalent of the absorption: 1176,18 metric tons

The total carbon richness of forest biomass on campus was calculated according to the 2023 IPCC Guidelines for National Greenhouse Gas Inventories, Agriculture, Forestry and Other Land Uses (AFOLU).

2021 was chosen as the base year as it is the year for which the most up-to-date and complete data are available. Scope 1 and Scope 2 emissions will be monitored over the years.



In the meantime, efforts on campus will focus on improving energy efficiency and increasing the overall proportion of renewable energy. Sinks from BUU's natural areas are unlikely to change much, assuming no disasters (e.g., fires or severe storms) occur. However, afforestation activities will continue regularly.

There are emissions associated with each product that the University purchases, whether paper or food, that result from everything done to produce that product and how it is transported. There are emissions associated with the disposal of waste material, whether construction waste, standard trash, recycling, or food waste. Some of this material is recycled; some is landfilled; other materials are taken to waste-to-energy facilities to be converted to methane/natural gas that is then burned for energy.

Each product's supply chain has a unique GHG signature. However, in order to calculate GHG footprints, the university should make a systematic effort to characterize all supply chain elements. The university currently does not have all the necessary documentation and information to make quantitative estimates of GHG emissions from these sources.



Climate Action: Race to Net Zero

Bursa Uludag University's new target is to reach carbon - neutral campus greenhouse gas emissions - reducing both direct emissions from on-site energy production and fleet fuel use and indirect emissions from purchased electricity — by 2050. Additional indirect emissions from commuting, procurement, and other activities will be tracked and reduced where feasible.

The university's emissions due to its fossil fuel use (Scope 1) and purchasing of electricity (Scope 2) were approximately 5938 and 11390 tons of CO₂-equivalents (CO₂ eq) in 2024, respectively. These emissions include campus' facilities and vehicles.



The small carbon sinks absorb approximately 1176 tons of CO₂ eq. Indirect emissions from transportation (including faculty, staff, and student travel), purchasing, and waste disposal (collectively known as Scope 3 emissions) are more challenging to estimate and are not under the university's direct control.

The current curriculum on climate change and sustainability was analyzed. The share of sustainability courses is over 25% of all courses. It is important to establish a research center on climate change and sustainability to make the University a living laboratory for sustainable development purposes. It can enhance the approach to understand the specific threats of climate change and demonstrate our commitment to mitigate these threats through our actions. Such a research center could play a catalytic role for research and education that spans the entire University by developing collaborative relationships with colleges, schools, departments and existing centers across the University.

The University's path to carbon neutrality relies on strategies that encompass new on-site energy infrastructure, the potential purchase of new off-site renewable electricity generation, and everyday behavioral changes across the campus community.

Bursa Uludag University aims to create a campus that uses innovative technologies, encourages the participation of building occupants to continuously improve building performance, and promotes a culture of energy conservation that provides a conducive learning and working environment.

Steps to be taken in the short and long term to increase the University's commitment and focus on climate change across teaching, research and operations have been identified as follows:

- Increasing the amount of energy sourced from green alternative energy producers (e.g. solar and wind through the university's power purchase arrangements or on-campus installations),
- Increasing energy use efficiency to reduce electricity demand,
- Increasing educational opportunities for students to understand climate change and explore mitigation and adaptation strategies;
- Increasing the University's interdisciplinary coordination and supporting research on climate change, mitigation and adaptation.

The University has recently started measuring GHG emissions and energy emission data. In 2020, an energy transformation and efficiency center was established to reduce overall GHG emissions, campus electricity and natural gas use.

The reductions will be achieved primarily through programs that improve the energy efficiency of some of the most significant buildings. Initiatives, including lighting and equipment upgrades, are in progress.



Future Actions

The 2025–2030 period is critical for reducing carbon emissions and establishing a culture of sustainability at the university in line with the net zero target.

Re-evaluate our greenhouse gas emissions inventory (Scope 1 and 2) to ensure all significant sources of campus-based emissions are included.



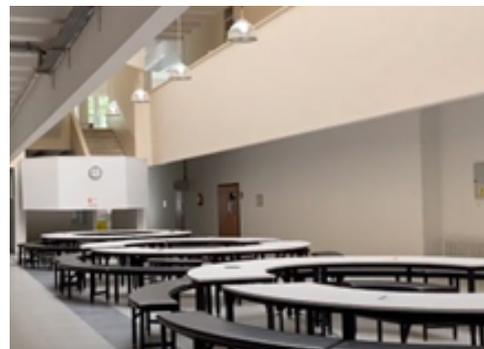
Replacement of the outdated natural gas hot water boiler energy system with a new high efficiency system.



Expanding energy efficiency behavior change programs through the Sustainable Campus student club, working with building users in offices and student dormitories.



Upgrade aging outdoor lighting fixtures around the campus with new, high-efficiency systems and install motion-controlled lights in selected common areas of campus buildings and residences.



Future Actions

Align effective practices to reduce indirect and direct greenhouse gas emissions across campus through coordinated departmental action plans.



Establishing the necessary infrastructure to monitor the energy consumption of each building



Establish a Climate Change and Sustainability Research center that will guide and strengthen mitigation and adaptation efforts across the University.



Establish a GHG monitoring system for the supply chain to calculate and monitor Scope 3 emissions.



Measuring Progress

The university has recently started to measure greenhouse gas emissions and energy emissions data. An energy conversion efficiency center has been established in 2023 to reduce overall greenhouse gas emissions, campus electricity, and natural gas use.

The reductions will be achieved primarily through programs that improve the energy efficiency of some most significant buildings. Initiatives including lighting and equipment upgrades, are also in progress.

Targets to this aim are as follows:

Target	Activity / Project	Key Indicator
Achieve a total institutional greenhouse gas emissions reduction of 30% by 2030, relative to 2021 as the baseline year.	The University will enter into agreements with clean energy providers.	To increase the proportion of energy supplied from renewable energy sources by 25 per cent in 2030 compared to the base year.
Reduce campus electricity consumption by 20% by 2030, relative to 2021 as the baseline year.	To make improvements in existing buildings to save energy. To use energy efficient lighting and heating/cooling systems.	5 % reduction in annual electricity consumption of buildings.
Reduce campus natural gas consumption by 20% by 2030, relative to 2021 as the baseline year.	Replacing natural gas-fired heating systems with innovative and energy efficient alternatives.	10 % reduction each year compared to 2021
Implement renewable energy demonstration projects on campus that help reduce greenhouse gas emissions and energy use.	Initiate pilot projects involving renewable energy sources such as solar panels, wind turbines or biomass energy systems on campus.	Reporting the impact of projects on campus energy consumption and greenhouse gas emissions
Increase the use of sustainable vehicles inside the campus.	Establishing charging stations for electric vehicles (EV) on campus	To report the contribution of electric vehicles to the total transport activities .

Acknowledgements

We would like to formally thank all faculty, staff and students who served on our committee and helped develop the goals and strategies that form the core of our Climate Action Plan. Their dedication and commitment were instrumental in creating a robust climate action plan for Bursa Uludag University for the next five years.

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Glossary

Carbon Dioxide Equivalent (eCO₂): a metric used to quantify emissions from six greenhouse gases (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) as established by the Kyoto Protocol. Carbon dioxide is the reference gas for global warming potential.

Carbon Offset: an action or activity (such as the planting of trees or carbon sequestration) that compensates for the emission of carbon dioxide or other greenhouse gases to the atmosphere.

Carbon neutrality: achieving net zero greenhouse gas emissions by balancing those emissions so they are equal (or less than) the emissions that get removed through the planet's natural absorption; in basic terms it means we reduce our emissions through climate action. ("A Beginners Guide to Climate Neutrality", UNCC).

Climate Justice: "Climate justice" is a term, and more than that a movement, that acknowledges climate change can have differing social, economic, public health, and other adverse impacts on underprivileged populations. Advocates for climate justice are striving to have these inequities addressed head-on through long-term mitigation and adaptation strategies.

Climate Resilience: the capacity of a community, business, or natural environment to prevent, withstand, respond to, and recover from a disruption caused by climate change.

Greenhouse Gas Protocol: Establishes comprehensive global standardised frameworks to measure and manage GHG emissions from private and public sector operations, value chains and mitigation actions.

Intergovernmental Panel on Climate Change (IPCC): The United Nations body for assessing the science related to the climate crisis.

Onsite Renewable Energy: renewable energy generation (such as solar, wind or geothermal) generated on an organization's property.

Zero Carbon: zero carbon means that no carbon emissions are being produced from a process, operation or service.

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