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**STRATEGY FOR ACHIEVING CARBON NEUTRALITY AND  
SUSTAINABLE DEVELOPMENT OF THE NON – PROFIT JSC  
"AL-FARABI KAZAKH NATIONAL UNIVERSITY" UNTIL 2035**

ALMATY, 2023



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## INTRODUCTION

Kazakhstan, like the rest of the world community, is actively looking for ways to adapt to global climate change, striving to ensure sustainable and progressive growth, social integration and environmental protection in partnership and peace.

At the beginning of 2023, the "Strategy for achieving Carbon neutrality of the Republic of Kazakhstan until 2060" was adopted, which was preceded by extensive and multidisciplinary work on: the implementation of the "Concept of transition of the Republic of Kazakhstan to a "green economy", the development and implementation of state programs for industrial and innovative development, the implementation of the UN Sustainable Development Goals.

"Kazakhstan has made long-term commitments to achieve carbon neutrality. In fact, our country was one of the first to ratify the Paris Agreement. Following this, we formulated an ambitious but thoughtful policy aimed at diversifying the economy and promoting renewable energy sources and sustainable technologies," President of Kazakhstan Kassym—Jomart Tokayev said at the recent Summit on Sustainable Development in Abu Dhabi, UAE (2023). The implementation of a low-carbon policy aimed at adapting to the effects of climate change should be comprehensive and cover various sectors of the economy, but transformations of scientific, technological and professional staffing play a key role.

For the timely implementation of the planned SDGs, Kazakhstan and other countries of the world need highly qualified specialists, managers and researchers in the field of advanced technologies, whose quality training should be provided by Universities.

The activities of modern universities are carried out within the framework of national and international initiatives and programs aimed at strengthening stability in the region and developing their national contribution to solving global problems, such as sustainable



development. In this regard, the UN initiatives are aimed at strengthening stability in the region and working together with all stakeholders on sustainable development. For example, UN strategic initiatives, such as the proposals made at the UN RIO+20 conference, the UNESCO Decade on Education for Sustainable Development and the UN Academic Impact Program, play a huge role in solving global problems.

The main role of universities lies precisely in solving these tasks: in their scientific support, dissemination, accumulation and dissemination of ideas of sustainable development through university interaction networks, professional communities, mass media and other resources. We need to work ahead of the curve, carry out scientific and practical elaboration of programs and activities aimed at sustainable development.

**The strategy of achieving carbon neutrality and sustainable development of our university** can be represented as an interdependent set of the following basic principles:

**1. Inclusion of sustainable development issues in curricula and research topics.** We strive to ensure that courses of disciplines are taught at the university and whole training programs are offered on the issues of sustainable development of an enterprise, industry, region, country. Scientific research in the field of sustainable development is not only necessary to support the disciplines taught, they create new knowledge, which is then transformed into specific actions, programs and activities.

**2. Building the university's current activities on the principles of sustainable management of infrastructure and the environment,** which involves the use of energy-saving equipment, technologies, alternative sources and types of energy. The principles of sustainable development should underlie all the functions of the university: administrative, economic and financial activities, construction, recruitment, recruitment of students, development of cooperation and partnership programs with other organizations for sustainable development, etc. The concept of a sustainable university should provide for joint programs with commercial and public organizations, state and city structures, and international organizations.

**3. Creating conditions for students and university staff to conduct scientific research,** participate in projects, work in laboratories in order to acquire knowledge, skills and abilities for the implementation of green energy and resource conservation projects within technoparks, business incubators and the creation of start-up companies, etc. Concentration of efforts and intellectual potential of teachers, researchers, students on the creation and implementation of environmentally friendly, resource-saving and energy-efficient technologies, priority development of innovative projects in the field of environmental protection and sustainable development. Raising awareness, forming a culture of social responsibility of society in the field of sustainable development, through environmental



education and upbringing that promote the assimilation of a number of environmental and ethical values, norms of behavior that are required to ensure sustainable development.

As a result of the implementation of the strategy and assessment of the state of all areas of the university's activities in accordance with the key principles and values in the field of sustainable development, it is possible to achieve a systematic transition of universities to an energy-intensive economy through the implementation of measures.

## **1. VISION**

Universities play a leading role in addressing the challenges of achieving carbon neutrality and sustainable development through the application of their research, policy recommendations and the education of their students. We will prioritize a program to reduce carbon emissions and increase biodiversity in our organization. The impact of the University on the environment will be identified, prevented and reduced. Our approach will be transparent; We will publish an annual report on our environmental impact and progress towards achieving our Sustainable Development Goals.

By 2035, the University, working in partnership with government, sustainability leaders and its own communities, will become exemplary in its institutional response to environmental and climate emergencies. We strive to play an important role in protecting, restoring and improving nature.

The University recognizes three pillars of sustainable development: social, economic and environmental. The University is taking measures to ensure economic and social sustainability in other areas, such as access and participation, racial equality and reducing the gender pay gap. This strategy is aimed at ensuring environmental sustainability, but the social and economic consequences of its implementation will also be taken into account.

Al-Farabi Kazakh National University aims to achieve carbon neutrality and sustainable development by 2035 to solve global problems related to climate change and environmental protection. The strategy focuses on the following priorities:

1. Scientific research;
2. Education;
3. Infrastructure and environment management;
4. Sustainable environmental management;
5. Value and partnerships.



**PURPOSE:** Combining joint efforts and mobilizing the intellectual potential of the world's universities to achieve low-carbon neutrality and implement sustainable development plans at the university, city and country levels.

**ACTIONS:** Concentration of efforts and use of accumulated scientific and managerial potential of universities to implement sustainable development activities within the framework of university, city and country initiatives.

**UNIVERSITY CONTRIBUTION:**

- creation of a model-matrix of actions, universal criteria, indicators and measures applicable to both universities of the world and other organizations;
- creation of an exemplary model for mobilizing the innovative potential of the university, based on the involvement of all university structures, as well as students, teachers and researchers;
- support of international sustainable development programs: Programs and Declarations "Education for Sustainable Development", developed at the UN RIO+20 Global Environmental Forum; principles of United Nations Academic Impact, UNESCO Education for Sustainable Development Program, etc.;
- formation of a culture of social responsibility of society, promotion of environmental and ethical values and norms of behavior, through environmental education and upbringing;
- implementation of programs and activities to assess and solve global and regional problems in the field of pollution, depletion of natural resources and environmental protection.





## **2. SCIENTIFIC RESEARCH**

Assistance in the implementation of the Sustainable Development Goals by conducting scientific research in the field of achieving carbon neutrality and environmental protection, as well as environmental education and upbringing that contribute to the assimilation of a number of environmental and ethical norms, values, and professional skills.

Modernization and optimization of the educational and research process on environmental protection and sustainable development at the University.



*Tasks:*

1. Increasing the number of projects and research works on environmental protection and sustainable development carried out at the inter-faculty, city, state and international levels.
2. Development of infrastructure for conducting research on environmental protection and sustainable development.
3. Promote communication, coordination and collaboration among scientists in the field of environmental sustainability and environmental justice.
4. Support interdisciplinary research groups on sustainable development in response to key funding opportunities.
5. Strive to influence the priorities of research sponsors to address the challenges of research in the field of sustainable development.
6. To finance research on technologies with negative emissions and net increase in biodiversity in accordance with the objectives of the strategy to address environmental and social justice issues and to recognize the historical influence of the University in these areas.
7. Popularization of knowledge, activities, research and projects on environmental protection and sustainable development among all population groups through mass media.





### 3. EDUCATION

The key role of the education system, and therefore universities, in environmental awareness means that we are witnessing the growing integration of environmental aspects with a variety of disciplines, as well as with management systems. But this is not only a matter of implementing training programs. This strategy affects university life in its entirety. At the same time, confidence is formed that the skills and rules of behavior that are being formed can be exported to the rest of society, especially when they are supported by educational and information campaigns.

The curriculum of Al-Farabi Kazakh National University reflects its extensive experience in the field of climate change, environmental protection and sustainability. Students are offered internship opportunities and training courses related to sustainable development, and student societies are the first to conduct extracurricular courses. These opportunities will be improved and expanded for all students.



#### Tasks:

1. Increasing the content of the component of environmental protection and sustainable development in the educational process of the university.
2. Introduction of new and development of existing curricula and syllabuses, methods and forms of education in the field of environmental protection and sustainable development.
3. Expanding the coverage of faculties and departments of the University with education in the field of environmental protection and sustainable development.
4. Improving the quality of human resources training and meeting the

needs of society for professional personnel in the field of environmental protection and sustainable development;



5. Raising awareness of all groups of the population through environmental education and upbringing, contributing to the assimilation of a number of environmental and ethical norms, values, professional skills that are required to ensure sustainable development.

6. Expand existing opportunities for extracurricular environmental sustainability studies, internship programs and short-term courses for all students.

#### 4. INFRASTRUCTURE AND ENVIRONMENT MANAGEMENT

We will strive to make the impact on the environment beneficial with the help of students, teachers and staff on the development and operation of the university campus in order to save resources, reduce environmental pollution and increase personal well-being.



Optimization and improvement of coordination activities in the field of strategic planning and design of the university campus and all its components through the introduction of the latest achievements of science and technology in improving the energy efficiency of the campus, improving and further greening of the campus and its integration into the environment, ecosystem of the city, region and country.

Activation of the annual reporting system for achieving carbon neutrality and sustainable development during the first year; reports will be published on the university's website, on the "Green Bridge across

Generations" web platforms <https://greenbridgework.kaznu.kz/>, «Green Office KazNU» <https://greenoffice.kaznu.kz/>.  
<https://greenbridgework.kaznu.kz/>, «Green Office KazNU»  
<https://greenoffice.kaznu.kz/>.

Tasks:



1. Integration of knowledge and international experience on sustainable development issues.
2. Study, adaptation and implementation of advanced technologies and projects with a focus on: optimization and use of the campus and its infrastructure and university buildings; improvement of energy efficiency, including educational buildings, scientific laboratories and dormitories of buildings; optimization of recycling of secondary raw materials and waste disposal.
3. Integration of the campus and the university itself into the environment at the city and country level as a smart campus or smart university through cooperation with city and national authorities in the role of experts and consultants when making certain management decisions on the development of urban infrastructure and the formation of national strategies.
4. Creation of a separate department or council, committee or working group at the university consisting of the heads of individual departments for systematization and coordination of the university's activities in the field of sustainable development; planning and decision-making, creation of appropriate infrastructure and regulation (including legal) of activities at all levels.
5. Cooperation with universities and international organizations in the study and dissemination of accumulated experience, mutual support and popularization of ideas and new technologies for sustainable development through the organization of joint international conferences and seminars, joint projects, trainings and programs on sustainable development.





## **5. SUSTAINABLE ENVIRONMENTAL MANAGEMENT**

The implementation of this strategy will require interaction and changes in practice and culture throughout the university. As the most important asset of Al-Farabi Kazakh National University, its faculty, staff and students will be the main driving forces of change and improvement of our environmental sustainability indicators. We hope to inspire staff and students to embrace change and find new ways of living and working based on the principles of sustainable development.

Formation of a systematic, integrated approach to the transition of the university to an energy-intensive economy through the implementation of energy efficiency measures, saving water, electricity, waste disposal, etc., as well as the adoption of their own plans to create "sustainable green university campuses".





**Tasks:**

1. Carrying out measures to save and improve the efficiency of electricity and thermal energy consumption.
2. Development and implementation of programs for electricity distribution, electricity metering in buildings and buildings of the University.
3. Implementation of energy-saving programs, encouraging reduction of energy use.
4. Development of programs and measures to save water consumption, consideration of alternative sources of water: groundwater, sewage, spring, etc.
5. Development of measures and promotion of the use of water flow management systems.
6. Implementation of programs to reduce greenhouse gas emissions.
7. Implementation of programs and activities that encourage employees and students to dispose of waste.
8. Initiation of agreements with city organizations for the collection, disposal, recycling of waste.
9. Processing of inorganic waste and organic waste, creating conditions for separate waste collection, etc.
10. Creation of programs and measures to reduce the harm caused by non-ecological modes of transport. Limiting the number of vehicles used on campus.
11. Promotion and promotion of the use of environmentally friendly transport on campus.

## **6. CARBON MANAGEMENT PLAN**

Research and development, innovation and education are important for low-carbon development and transition to carbon neutrality and adaptation to the effects of climate change in accordance with the strategy for achieving carbon neutrality of the Republic of Kazakhstan until 2060, approved by Decree of the President of the Republic of Kazakhstan dated February 2, 2023 No. 121. Transformation of the economic structure of Kazakhstan within the framework of low-carbon development and transition carbon neutrality requires the provision of scientific, technological and professional personnel. In this regard, Al-Farabi Kazakh National University expressed its desire to achieve carbon neutrality by 2035.

We strive to put the best management practices and research and training into practice, using our university as a pilot to implement optimal solutions that can be widely distributed. Our main goal is to pass the red line in the research

and educational mission of Al-Farabi KazNU: to train and expand our students so that they become leaders using their knowledge to create a sustainable society.

This goal mobilized the university community and allowed the administration to lay the foundation for the creation, expansion and achievement of university-wide goals by ensuring collaboration in various fields and sectors. In addition, the university has made significant progress in reducing energy costs and emissions (sustainable transport, energy conservation, resource conservation, sustainable maintenance, involving all employees and students in the parameters of an eco-friendly lifestyle).

The plan sets clear university-wide goals and priorities based on innovations and solutions that have been developed by our faculties and departments. It is designed to optimize the operations and activities of the entire structure of the university.

We have reviewed our sources of greenhouse gas emissions in accordance with the Greenhouse Gas Protocol. The broader scope of category 3 emissions is included in our broader goal of achieving carbon neutrality of direct emissions by 2050, with a small number of emission sources considered out of scope (students in private housing and tourist trips).

Category 1: Direct emissions from own or controlled sources, i.e. natural gas used in boiler houses.

Category 2: Indirect emissions from the production of purchased energy consumed by the university, i.e. purchased electricity.

Category 3: all other indirect emissions occurring in the value chain of the university's activities, i.e. business trip or purchase of goods and services.

As a large complex organization, 80% of the total carbon footprint of universities is associated with emissions that belong to category 3. We have identified three key blocks for achieving the goals and action plans on which the university has been focused since 2014:

- Education and Research;
- Infrastructure and environment management;
- Green energy.

Criteria, indicators of each block, as well as measures to achieve the stated criteria are presented in more detail in the Model Plan for Sustainable Development developed by the NAO "Al-Farabi Kazakh National University", 2014 ([https://www.kaznu.kz /](https://www.kaznu.kz/)).

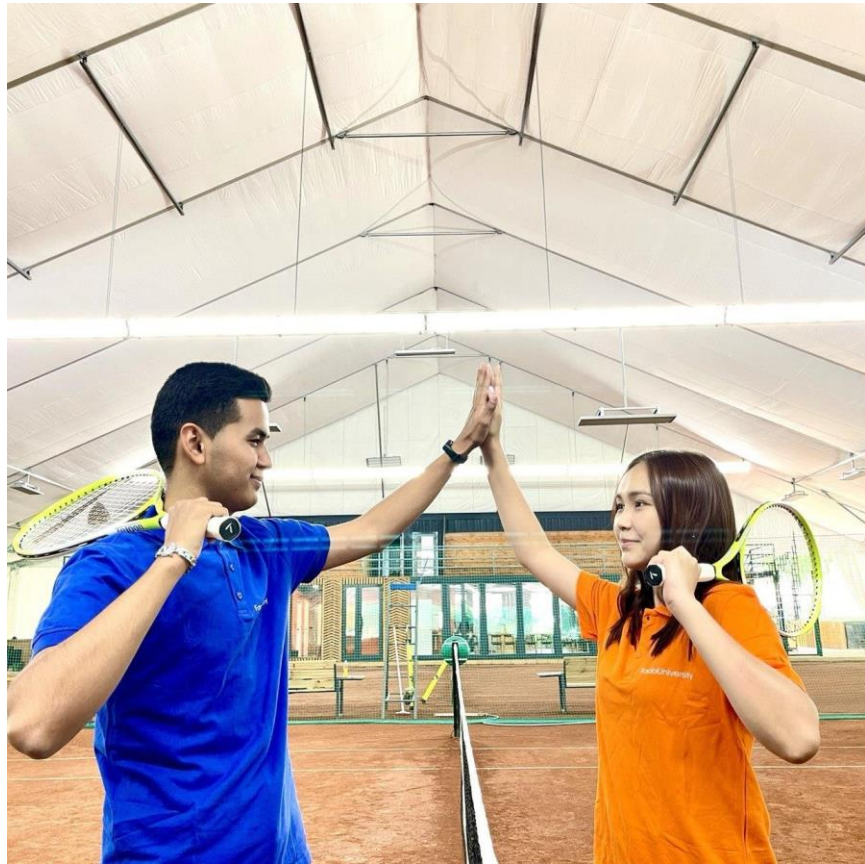
## **7.VALUE AND PARTNERSHIPS**

The university's campus network is a living, breathing ecosystem that includes 16 faculties, administrative and operational teams, a wide range of different buildings and land use systems, as well as diverse groups of faculty, students and staff. From an institutional point of view, we strive to transform the university into a sustainable community, which is facilitated by positive social, economic and environmental benefits.

The viability of our university depends on the health of our people. We will strive to improve the health, productivity and quality of life of our students, faculty and staff by developing and maintaining an artificial environment and developing and implementing advanced programs that promote well-being.



Al-Farabi Kazakh National University actively develops international relations and holds leadership positions. Thus, Al-Farabi Kazakh National



University became the first university in the country and in the region to be included in the United Nations Academic Impact (UNAI) program. Al-Farabi Kazakh National University actively participated in international consultations on the action program for the UN RIO+20 Global forum, where he was one of the initiators of a separate panel on education for sustainable development with the participation of universities in Asia, Europe and Latin America. Al-Farabi KazNU was one of the first to sign the RIO+20 University Declaration on Promoting Sustainable Development. Considering the importance of creating a bridge not only between states, science, business, public institutions, but also between generations, it was proposed to unite the efforts of the world's universities in promoting sustainable development and create an international Consortium of Universities "Green Bridge across Generations". The consortium unites the potential of leading scientific





schools specializing in sustainable development issues, coordinates research and training of highly qualified personnel in this field. A virtual communication platform of Al-Farabi Kazakh National University "Green Bridge across Generations" has been created to discuss this project at the global level [www.greenbridge.kaznu.kz](http://www.greenbridge.kaznu.kz).

The International Scientific and Educational Consortium "Green Bridge across Generations" is a voluntary association of higher educational institutions participating in the Consortium, united by the tasks of training personnel on the principles of sustainable development and the "green" economy, the development of science and innovative technologies. The Consortium's mission is to spread the ideas of sustainable development, "green" economy, ecology and climate change, "green" energy-efficient technologies, increasing the level of creativity and spiritual and moral values of young people.

Modern universities should take responsibility in promoting sustainable development ideas. And this is not the work of one university, but the work of universities in the commonwealth and coordination of efforts. It is necessary to carry out institutional and social changes at universities, leading to the creation of fundamentally new structures of "green offices", generating "green development" through curricula, research projects, management of university activities based on energy and resource conservation, waste collection and transformation, development of eco-parks and ecotourism, eco-education and education of ecological culture. The above gave the basis to the Kazakh National Geographical Society to determine Al-Farabi KazNU as a basic university for the implementation of the principles of the "green office" in educational institutions of Kazakhstan.

The concept of a "Green Office", which is the basis for the sustainable development of an educational institution, as a system of views, concepts, representations, takes into account the interrelation of scientific and educational, managerial, environmental and socio-cultural aspects of its activities.

The "Green Office" is the basis for the sustainable development of the university, research institute and company, represents the interrelation of scientific and educational, managerial, environmental and socio-cultural aspects of their activities.

In connection with the above, Al-Farabi Kazakh National University is actively working on the creation of the author's concept of "ECO Office" <https://greenoffice.kaznu.kz/> based on the developed original criteria, including measures for energy, resource conservation, reduction and environmentally friendly waste management.



The purpose of this Program is the dissemination and promotion of advanced green technologies to improve environmental comfort in everyday life, in the workplace, the transition to an ecological and low-carbon lifestyle, as well as the formation of "ECO" thinking among university staff and students.

The ECO Office Program is based on three basic principles (3R):

**\*Reduction** – the principle of economy (reduction of consumption of electricity, water and other resources);

**\*Refinement** – the principle of reuse of materials (rational use of paper, etc.);

**\*Replacement** – replacement of some products with others that are more environmentally friendly (minimizing the negative impact on the environment due to a more responsible approach to the choice of goods, services, etc.).

The ECO Office program is built as a system for awarding points for contribution to energy and resource conservation in accordance with the Sustainable Development Model developed by NON – PROFIT JSC "Al-Farabi Kazakh National University", 2014 (<https://www.kaznu.kz/>). The main work between the Al-Farabi Kazakh National University and the Commission on Science and Technology for Sustainable Development of the Countries of the South (COMSATS) was based on the development of cooperation in the scientific and educational sphere.

The Commission on Science and Technology for Sustainable Development of the Countries of the South (COMSATS) decided to create a Climate and Sustainable Development Center within the COMSATS network based on common interests and goals to work on cooperation on two issues: climate change and sustainable development.

On November 9, 2018, the establishment of the COMSATS Center for Climate and Sustainability (CCU) in Kazakhstan was approved at the Al-Farabi Kazakh National University.

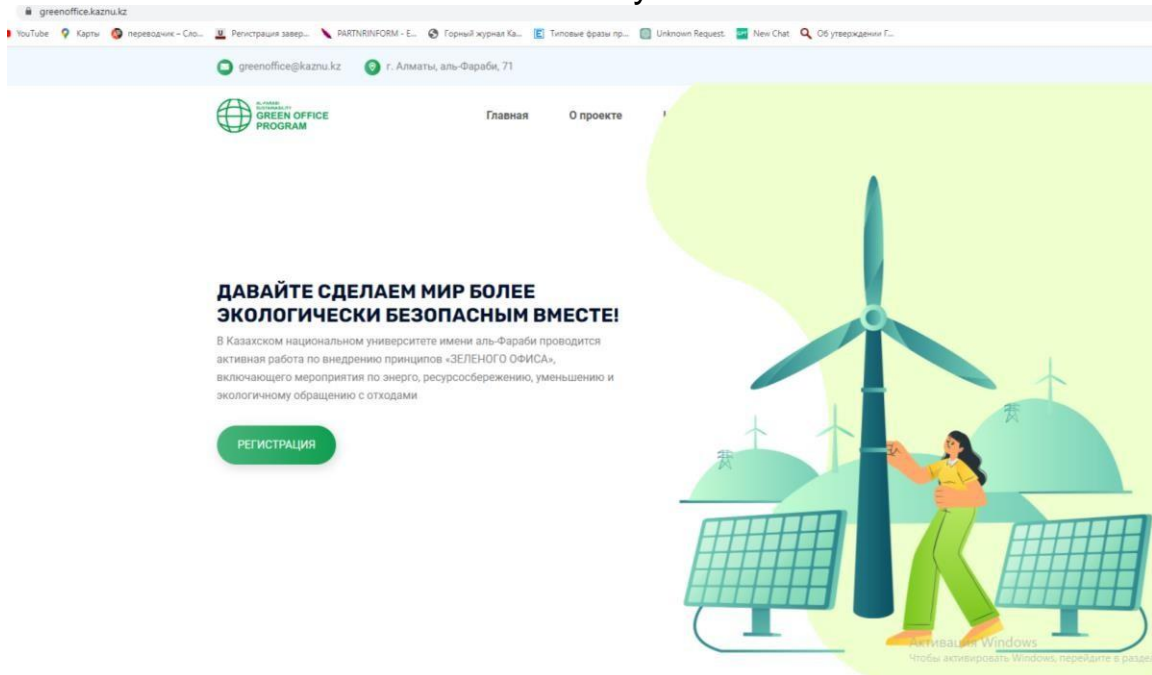
The COMSAT Center for Climate and Sustainability is a multilateral institution working within the framework of South-South and triangular cooperation to bring innovative approaches to planning, financing and addressing climate change issues in line with the policies and practices of developing countries and their international obligations.

The Center focuses on the following tasks:

- deepening scientific knowledge about the South on climate change for appropriate climate action and advocacy;
- assessment of the impact of environmental and climatic variability on livelihoods and economic development;
- combating climate change through mitigation and adaptation to it for sustainable growth and development;



- improving public knowledge and capacity-building on climate change and the environment;
  - development of a knowledge bank of information and data for more effective evidence-based policy-making;
- Encourage regional and global partnerships to take effective measures to ensure climate and sustainability.



We have a special role and a special responsibility to confront the problem of climate change by reducing the greenhouse gas emissions of the university campus to the highest possible level. Reducing energy consumption and emissions remains one of the University's priorities, and we will continue to address this challenge with best-in-class innovations in energy efficiency, energy management and renewable energy sources.