

# NJC «Kazakh National Agrarian Research University»



Approved

Chairman of the Board - Rector

NJC "Kazakh National Agrarian  
Research University"

A.K. Kurishbayev

2025 year



## STRATEGY FOR ACHIEVING CARBON NEUTRALITY AND SUSTAINABLE DEVELOPMENT OF KAZNARU (CONCEPT)

Quality management representative

M. Alexseeva

Carbon neutrality is a state of net zero carbon dioxide emissions. This can be achieved by balancing emissions of carbon dioxide by eliminating emissions from society (the transition to the "post-carbon economy") or carbon dioxide removal (such as through carbon offsetting). The term is used in the context of carbon dioxide-releasing processes associated with transport, energy production, agriculture, and industry.

**Developers:**

**Vice-Rector for international relations**



**R.F. Abazov**

**Senior manager of the Institute for  
green and sustainable development**



**M.M. Suyunchaliyeva**

## Table of Contents

1.	Normative documents .....	4
2.	Basic concepts and terms.....	5
3.	General provisions.....	6
4.	Principles/Relevance.....	7
5.	Goals and Objectives.....	8
6.	Expected results.....	9



## Normative documents

1. Transforming our world: the 2030 Agenda for Sustainable Development (<https://undocs.org/en/A/RES/70/1>)
2. UN Global Sustainable Development Report (GSDR) (Global Sustainable Development Report (GSDR) | Department of Economic and Social Affairs (un.org))
3. Carbon Neutrality in the UNECE Region Technology Interplay under the Carbon Neutrality Concept 2022 (Carbon Neutrality in the UNECE Region Technology Interplay under the Carbon Neutrality Concept | UNECE)
4. Guide to Carbon Neutrality – Path to Net-Zero 2024 (Achieving Carbon Neutrality: A Step-by-Step Guide (tracextech.com))
5. The CarbonNeutral Protocol 2023 (The\_CarbonNeutral\_Protocol\_Jan\_2023.pdf)
6. Strategy of carbon neutrality of the Republic of Kazakhstan till 2060 from 02/02/2023 (adilet.zan.kz/rus/docs/U2300000121)
7. European economic commission (<http://unece.org/fileadmin>)
8. The concept for the Development of Higher Education and Science in the Republic of Kazakhstan for 2023-2029 (adilet.zan.kz/rus/docs/P2300000248)
9. On approval of the updated national contribution of the Republic of Kazakhstan to the global response to climate change. Resolution of the Government of the Republic of Kazakhstan dated April 19, 2023 № 313 (<http://adilet.zan.kz/rus/docs/P2300000313>)

## Basics concepts and terms

Sustainability covers economic, environmental and social aspects

economic sustainability (economic efficiency): although public debate about sustainability often focuses on ecological goals, in fact, a sustainable development cannot be achieved unless the effects on the economy, employment and the provision of goods are considered;

environmental sustainability (ecological stability): this requires that the environmental balance is not overburdened by human emissions and resource use in order to guarantee the functional stability of present eco-systems, both on a local and global scale;

social sustainability (distributional/social equity): social and distributional needs are met by ensuring a fair distribution of resources, poverty reduction, stable human development, public participation, and democratic policy formation

Regulatory and Planning Instruments:

The regulatory approach administratively sets standards, restrictions, administrative procedures, etc. Regulatory Instruments basically follow a command and-control approach.

Cooperation Agreements:

Cooperative approaches try to get all the people engaged in a specific issue involved in a process of voluntary communication and negotiation. The aim is to reach a consensus on policy goals and to design voluntary measures to reach these goals. Cooperative solutions can be found in various forms, including all kinds of negotiations between states and/or private entities

Economic Instruments:

Market-based approaches use economic incentives and/or disincentives to pursue a policy goal. The price mechanism serves as a vehicle for policy



enforcement. By changing the price of private transport supply and demand, the decisions of the users and providers can be guided into more favorable directions

## **General Provisions**

Kazakhstan, like the entire world community, is actively seeking ways to adapt to global climate change, achieve carbon neutrality and sustainable development, striving to ensure sustainable and progressive growth, social inclusion and environmental protection in partnership and peace. In early 2023, the Republic of Kazakhstan adopted the "Strategy for achieving carbon neutrality of the Republic of Kazakhstan until 2060", 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", development and implementation of state Programs of industrial and innovative development, and implementation of the UN Sustainable Development Goals (SDGs).

"Kazakhstan has made a long-term commitment to achieve carbon neutrality. In fact, our country was one of the first to ratify the Paris Agreement. Following this, we have formulated an ambitious but well-thought-out policy that aims to diversify the economy and promote renewable energy and sustainable technologies," said Kazakhstan's President Kassym-Jomart Tokayev at the recently held Sustainable Development Summit in Abu Dhabi, UAE (2023). Implementing low-carbon policies aimed at adapting to the effects of climate change should be comprehensive and involve various sectors of the economy. Still, the transformation of scientific, technological, and professional human resources plays a key role.

Kazakhstan, like other countries of the world, needs highly qualified specialists, managers, and researchers in advanced technologies for the timely implementation of the SDGs. Universities can provide their qualitative training!

The activities of modern universities are carried out within the framework of national and international initiatives and programs that aim to strengthen stability in the region and develop their national contribution to global issues such as sustainable development. In this regard, the UN initiatives aim to strengthen stability in the region and work 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 of Education for Sustainable Development, and the UN Academic Impact program, play a huge role in addressing global challenges. The primary role of universities lies in solving these tasks: in their scientific support, dissemination, accumulation, and dissemination of ideas of sustainable development through university networks, professional communities, mass media and other resources. We need to work ahead of the curve to carry out scientific and practical development of programs and activities aimed at sustainable development. The role of the Kazakh National Agrarian Research University: the university can contribute to the process of planning, development and implementation of effective policies in



terms of the development of hydrocarbon neutrality in the context of the realization of the Sustainable Development Goals (SDGs). Kazakh National Agrarian Research University can mobilize research and student potential to implement the development and mastering of new educational programs to achieve carbon neutrality in KazNARU in the context of the implementation of Sustainable Development Goals (SDGs).

### **Principles/Relevance**

Across the globe, universities are establishing goals to decrease their carbon emissions. Initiatives include signing on to campaigns, expanding environmental education programs, and launching projects to restore local landscapes (Over 1,000 universities, 2021). As the University moves past the midpoint on its journey to becoming a carbon-neutral campus by 2030 and in honor of Earth Day, April 22, it's an appropriate time to assess to effectively drive down carbon emissions and to consider what more we can do as individuals.

The strategy to achieve carbon neutrality and sustainable development of our university can be presented as an interdependent set of the following basic principles:

1. Incorporating sustainable development into curricula and research topics. We strive to ensure that the university teaches courses and offers entire programs of study dedicated to the sustainable development of the enterprise, industry, region, and country. Research in the field of sustainable development is not only necessary to support the disciplines taught, it creates new knowledge that is then transformed into concrete actions, programs and activities.

2. Building the current activities of the university on the principles of sustainable management of infrastructure and environment. This implies using energy-saving equipment, technologies, alternative sources and types of energy. The principles of sustainable development should underlie all functions of the university: administrative, economic and financial activities, construction, staff selection, student recruitment, development of cooperation and partnership programs with other organizations for sustainable development, etc. The university's activities should be based on the principles of sustainable development. The concept should provide for a sustainable university.

Our working group undertook five main areas of research. 1. News analysis. We analyzed campus news coverage, focusing on how campus-sustainability and integrate it with other sustainability themes. 2. Administrator interviews. We interviewed administrative staff and managers, focusing on campus-level university's decision making and implementation. These data provided insight into perceptions of the costs and benefits, effective communication and engagement. 3. Faculty survey and interviews. We used surveys and interviews to explore faculty attitudes and perspectives. Faculty play a critical role in campus initiatives in campus decision making, interaction with students, leadership in relevant research, and thought leadership in regional, state, federal, and global forums. 4. Focus on



students. We assessed student attitudes and perspectives using surveys, a workshop, and focus groups. Student support brings visibility to initiatives they value. 5. Data visualization tests. To understand best approaches to data visualization that will be used support engagement, we assessed data needs and tested design concepts for campus energy dashboards that can help connect individual actions to broader goals.

## **Goals and Objectives**

### **Goals:**

1. The main goal is to manage the strategy into the practical aspects
2. The second option is not to criticize the institutions we studied, especially since our analysis is just a snapshot of their continuing efforts. Carbon neutrality can still be a useful concept — even a milestone on a pathway to decarbonization.

### **Objectives:**

1. Increase the number of environmental and sustainability projects and research activities conducted at the interdepartmental, city, state, and international levels.
2. To develop the infrastructure for conducting research work on environmental protection and sustainable development.
3. To promote communication, coordination, and collaboration among scholars in the field of environmental sustainability and environmental justice.
4. Support interdisciplinary sustainability research teams in response to major funding opportunities.
5. Seek to influence research sponsors' priorities to address sustainability research challenges.
6. Fund research on negative emissions technologies and net gain in biodiversity, consistent with the goals of the strategy to address environmental and social justice issues and to recognize the University's historical impact in these areas.
7. Popularize environmental and sustainability knowledge, activities, research, and projects to all constituencies through the media.

### **Strategies for achieving carbon neutrality**

According to the Strategy for Achieving Carbon Neutrality of the Republic of Kazakhstan until 2060, approved by Presidential Decree No. 121 of February 2, 2023, research and development, innovation and education are essential for low-carbon development and transition to carbon neutrality and adaptation to the effects of climate change. Transformation of Kazakhstan's economic structure within the framework of low-carbon development and transition to carbon neutrality will require scientific, technological and professional human resources. In this regard, KazNARU expresses its readiness to consider the issue of achieving carbon neutrality by 2040.

KazNARU aims to introduce best practices in management and implementation of research and teaching in practice, using our university as a pilot in the implementation of optimal solutions that can be widely disseminated. Our main goal, which is a red line in KazNARU's research and educational mission: to



nurture and empower our students to become leaders who will use their knowledge to create a sustainable society.

The main objective of this work -- mobilized the university communities and allowed the administration to lay the foundation for the creation, expansion and achievement of university-wide goals by ensuring collaborative work in different areas and sectors.

### **Expected results**

Three Approaches for Cutting Gas-Related Emissions Our research considered three approaches to reduce the KazNARU's reliance on natural gas:

1. Energy efficiency. Reducing energy demand through investments in deep energy efficiency.
2. Biogas. Replacing natural gas with renewable biogas, with a potential role for hydrogen.
3. Electrification.

Electrifying end uses that currently depend on natural gas and obtaining electricity from carbon-free energy sources. Energy storage will create synergies with all three approaches. Other means of eliminating greenhouse gas emissions from natural gas combustion, such as capturing carbon at the time of combustion and storing that carbon off-site, are not considered in this report. New technology might, in the future, make small-scale carbon capture and storage feasible. Throughout, we have focused on options that actually reduce emissions within the university's system. We have not addressed the potential role for optimizing emission cuts across the university's system as a whole—for example, by allowing the individual units to trade emission credits. Nor have we examined the potential role for the university's system to purchase offsets from other entities—an option that is explicitly envisioned by the Campuses and university's Office of the President if university's own efforts do not achieve net zero emissions by 2025.

In addition, the university has made significant progress in reducing energy costs and emissions (sustainable transportation, energy conservation, resource conservation, sustainable maintenance, engaging all employees, and students in green lifestyle parameters).

The plan establishes 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 university structure. KazNARU has reviewed and analyzed 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 travel).

Category 1: Direct emissions from own or controlled 15 sources, i.e. gasoline used in own transportation system.



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. travel or the purchase of goods and services.

As a large complex organization, 80% of the universities total carbon footprint is associated with emissions that fall under category 3.