

RACE TO ZERO

Matej Bel University in Banská Bystrica

Race to Zero 2050 Action Plan at Matej Bel University



Developed by:

doc. Ing. Marek Drimal, PhD.

Mgr. Katarína Kosková

Mgr. Nikola Benková

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INTRODUCTION

Climate change has had significant negative impacts on our society at the local, national and global levels. The vision of an economy based on decarbonisation can be considered as one of the tools towards mitigating negative anthropogenic impacts in the context of climate change. Carbon neutrality is a concept that we encounter quite frequently nowadays, as greenhouse gas emissions are produced in significantly enormous quantities. Their constant production and subsequent accumulation are not regulated. This has a negative impact on the quality of environment, air and the population's health.

Matej Bel University plays an important role in the acquisition of knowledge important for the correct orientation of an environmental behaviour in the context of climate change. As part of its social responsibility and environmental awareness, Matej Bel University has decided to contribute to the ambitious goal of achieving carbon neutrality.

From the existing environmental, climate and sustainability challenges, the Race to Zero campaign brings concrete and actionable solutions to the alarming situation in life-sustaining systems on Earth. The European Union is committed to achieving carbon neutrality by 2050. The concept of carbon neutrality is based on the achievement of a balance between carbon emissions and their removal from the atmosphere into 'carbon sinks', i.e. natural or man-made systems capable of absorbing more carbon than they can produce. The Race to Zero campaign aims at supporting efforts to move towards a decarbonised economy. This initiative was preceded by the UN Climate Summit COP26 in Glasgow, where countries increased their contributions to the Paris Agreement. The campaign signals to governments that businesses, cities, regions, investors, universities and colleges are united in meeting the Paris goals and creating a more sustainable and resilient economy.

1 RACE TO ZERO AND MBU IN BANSKÁ BYSTRICA

Matej Bel University in Banská Bystrica (MBU) is the first Slovak university to join more than 1,000 universities and colleges around the world that are part of the global Race to Zero (RtZ) campaign.

By joining this campaign, the university commits to become carbon neutral by the year 2050 at the latest and to prepare a strategy for reducing carbon emissions (by means of an Action Plan through short-term, medium-term and long-term objectives) within a period of one year. By joining this campaign MBU in Banská Bystrica is sending a clear signal that it cares about preserving and enhancing the Earth's life-sustaining systems. Furthermore, MBU wants to positively influence the thinking not only of students and academic staff, but also of society at local, regional and national levels. MBU in Banská Bystrica is committed to transitioning to a decarbonised economy, becoming carbon neutral, and thereby making a significant contribution to the global strategy to reduce carbon emissions.

The Race to Zero concept consists of the following four "**P-criteria**":

1. **Promise**

Commit at the level of leading organizations to achieve (net) zero greenhouse gases as soon as possible, no later than mid-century, in line with global efforts to limit warming to 1.5°C. Set a temporary objective to be achieved over the next decade that reflects the maximum effort towards a fair share of 50% of global carbon reductions by 2030, as set out in the Intergovernmental Panel on Climate Change (IPCC) Special Report on global warming of 1.5°C or above.

2. **Plan**

Within 12 months of accession, explain what measures will be implemented to meet temporary and long-term commitments, particularly from the short-term and the medium-term perspective.

3. **Progression**

Take immediate steps to achieve (net) zero in line with meeting temporary set objectives.

4. **Publishing**

At the level of the University, commit to publicly report, at least annually, on progress toward temporary and long-term objectives, as well as implemented measures. If possible, reporting should be realised through platforms connected to the global climate change portal (United Nations Framework Convention on Climate Change).

Activities of the Race to Zero initiative will be coordinated by the "Race to Zero at MBU" working group, composed of MBU staff (academic staff, administrative officers, MBU management) and MBU students. The task of the working group will be to propose adequate measures to achieve ambitious carbon neutrality objectives and to ensure the implementation of activities set out in the Race to Zero Action Plan at MBU in Banská Bystrica.

Race to Zero Action Plan 2050 at Matej Bel University

Matej Bel University in Banská Bystrica is committed to achieving carbon neutrality by 2050, through adaptation and mitigation measures towards achieving set objectives. The objectives defined below (short-term and medium-term ones) are in line with the Long-Term Plan of Matej Bel University in Banská Bystrica for the years 2021-2026 in the context of Strategic Goal V "Long-term sustainable development, efficient management, digitalization, informatization and gradual movement towards the green university".

The engagement and active approach of both domestic and international MBU students can not only contribute to the creation of an environmentally friendly study and employment environment, but also reflect their future career orientation. Building environmental awareness of higher education students is important, as graduates become key actors and stakeholders in society, able to take decisions with competences to change the functioning of society.

The MBU Action Plan initiated the involvement of students in a project called "Youth Embassy" under the auspices of the weekly "Slovenka". The project focuses on the economic and environmental context of MBU's activities in Banská Bystrica in the context of the gradual transition to a carbon-neutral university. It presents a series of concrete measures and proposals that support and complement objectives of the MBU Action Plan.

2 SHORT-TERM OBJECTIVES

(2021 – 2025)

2.1 Analysis of current situation through the implementation of audits

2.1.1 Carbon audit (including carbon footprint)

Implementation: development of a certified carbon audit based on a methodological protocol complying with the technical standard. Use of environmental probes for selected emissions of greenhouse gases and other pollutants, including monitoring of meteorological and climatological factors.

Calculation of the carbon footprint for the university according to a calculator, indicating MBU's environmental impact in eight main consumption categories (electricity, heating, water, catering, waste, transport, buildings and land, purchasing and equipment). For the comparison of the entities involved in the Race to Zero initiative, a common methodological approach should be followed, including calculating the average carbon footprint per student or university employee.

2.1.2 Energy audit

Implementation: the energy audit (EA) is a tool/procedure to assess the current state of a building and its energy performance. The result of the EA is a proposal of measures that lead to a reduction of energy intensity, quantification of the expected investment costs, quantification of the economic benefit of energy savings and quantification of the return on investment costs. It serves as a basis for projection works.

2.1.3 Vegetation audit

Implementation: an in-situ vegetation audit (respecting previously identified climatological factors and environmental conditions) for individual land and buildings will

ensure the implementation of blue and green infrastructure in the university campus environment.

The audit will include the design of vegetation compensation measures - offsets (planting activities, promotion of renewable energy sources) - reducing the amount of greenhouse gases in the atmosphere.

The vegetation audit will include a synergistic view to addressing the challenges of climate change, biodiversity and soil conservation.

2.1.4 Audit of MBU land and buildings suitable for the implementation of measures

Implementation: examination and identification of the usability of individual land and buildings of MBU (mapping documents and utility networks) is essential for the implementation of mitigation and adaptation measures in the process of gradual reduction of the carbon footprint.

2.2 Reducing energy consumption of MBU buildings

Implementation: implementation of projects aimed at increasing energy efficiency by reducing energy consumption of selected faculty buildings at MBU, thereby ensuring an increase in the level of energy savings.

2.3 Circular economy

Implementation: use of reusable certified materials in recycling processes; life cycle analysis of materials - effective life cycle phases of materials.

2.4 Preliminary preparation of the transition process to the so-called "green university"

Implementation: summary of planned activities towards effective transition to the "green university".

2.5 Project activities and sources of funding

Implementation: monitoring and participating in the project calls for proposals to secure necessary funding for the implementation adaptation and mitigation strategies included in the MBU Action Plan.

The investments in measures will be financed from existing financial resources as well as from potential financial resources. The current existing financial resource is the grant scheme of the “Quality of Environment” Operational Programme, which allows the use of funds for the implementation of the submitted projects focused on environmental measures. Potential financial resources come from the forthcoming Recovery Plan, which consists of five top priorities:

- **Quality education** (the amount allocated: €892 million)
 - o 3 main components: access, development and quality of inclusive education;
 - o Education for the 21st century; increasing the performance of Slovak universities;
- **Science, Research, Innovations** (the amount allocated: € 739 million)
 - o 2 main components: more efficient management and strengthening of funding of research, development and innovations; ;tracting and retaining of talents;
- **Green Economy** (the amount allocated: € 2 301 million)
 - o 5 main components: renewable energy and energy infrastructure, renovation of buildings, sustainable transport, decarbonisation of industry, and adaptation to climate change;
- **Effective Public Administration and Digitalisation** (the amount allocated: €1 110 million)
 - o 5 main components: the improving of business environment, reform of justice, fight against corruption and money laundering, public safety and security, digital Slovakia the state in mobile, cyber security, fast Internet for everyone and digital economy, sound public finances;

- **Better Health** (the amount allocated: € 1 533 million)
 - o 3 main components: modern and accessible health care; humane, modern and accessible mental health care; accessible and quality long-term social and health care.

2.6 Institutional co-operation

Implementation: the creation of a “RtZ network” at the national level seems to be an appropriate solution. Selected universities in Slovakia consider it essential to be proactive on global environmental issues by establishing cooperation and knowledge-sharing, which will contribute to the elimination and mitigation of climate change impacts in the university environment. The establishment of the "RtZ network" consisting of universities that will meet objectives towards carbon neutrality will provide a suitable basis not only for national cooperation, but also for the mutual exchange of information in the process of implementation of short-term, medium-term and long-term objectives set in the Action Plans of Slovak universities.

In order to achieve the set objectives, institutional cooperation with local authorities (Banská Bystrica Self-Government Region, the city of Banská Bystrica) is also necessary to ensure the required synergistic effect towards achieving carbon neutrality, implementation of adaptation and mitigation measures and mitigation of climate change impacts.

3 MEDIUM-TERM OBJECTIVES

(2025 – 2035)

3.1 Construction of the green and blue infrastructure networks for MBU building complex and land

3.1.1 Green infrastructure

Implementation: revitalization of green areas (planting vegetation capable of effectively absorbing CO₂ emissions), "carbon offsets" - carbon offsetting by planting tree avenues; application of vertical green facades and horizontal green roofs on selected university buildings, supporting local climate regulation and biodiversity conservation; insect hotels, herb garden beds, plant spirals.

University students will be engaged in the Race to Zero initiative through the planting of student orchards and avenues with resting areas, which will, in the long term, contribute to CO₂ offsets of an estimated 1t/CO₂/100 years. Thus the environmental legacy of MBU alumni will be passed on to future generations.

3.1.2 Blue infrastructure

Implementation: implementation of water retention measures in university buildings; construction of ponds and water areas (water source: rainwater harvesting from buildings).

3.1.3 Green-blue infrastructure

Implementation: establishment and maintenance of rain gardens, including ponds and flower garden beds supporting and maintaining local biodiversity on individual university campuses.

3.2 Smart lighting methods in relation to energy saving

Implementation: preferential use of natural daylighting; installation of automatic motion sensors to switch off lights in buildings with simultaneous control of lighting intensity (appropriate lighting affects not only the quality and efficiency of work, but also its safety).

The type of lighting chosen will not endanger the life cycles of local flora and fauna, respecting the reproductive and migratory cycles of fauna and the phenological phases of vegetation.

3.3 Promotion of cycling mobility for MBU employees and students

Implementation: completion of bicycle infrastructure by providing bicycle parking spaces, setting up charging stations, introduction of bike sharing system; "Bike to Work" initiative; promotion of the use of public transport.

3.4. Supporting research and development activities aimed at reducing carbon emissions and proposal of measures to achieve carbon neutrality

Implementation: creating job positions for researchers; modernisation of infrastructure focusing on eco-environmental and sustainable areas of research for top scientific teams; support for international cooperation and mobility; provision of continuous education and awareness in the field of global Earth issues for MBU students realised within the framework of pedagogical activities.

4 LONG-TERM OBJECTIVES

(2035 – 2050)

4.1 Environmentally friendly technologies, BAT technologies, RES (renewable energy sources)

Implementation: investments in renewable energy sources or other environmentally friendly technologies that increase energy efficiency and contribute to achieving carbon neutrality.

4.2 Institutional transition of MBU to the green university

Implementation: building an institution capable of resisting adverse environmental and socio-economic impacts and fluctuations.

4.3 Review of the accomplishment of set objectives

Implementation: monitoring and evaluation of the fulfilment of the main objective; quantification of the carbon footprint per MBU student/MBU employee in selected consumption categories as an indicator of the effective implementation of measures aimed at achieving carbon neutrality and comparison with the baseline status from the carbon audit.

CONCLUSION

Presented Action Plan is designed to flexibly respond to the situation in changing society, to contribute to the restoration of disturbed ecosystem functions and services and to maintain ecological stability of local ecosystems.

By gradually meeting the set short-term, medium-term and long-term objectives towards carbon neutrality, Matej Bel University in Banská Bystrica has an ambition to become a motivator and a good example for other institutions in the city and the region of Banská Bystrica.

The Action Plan was approved by the rector's college on 7/7/2022 and entered into force on 7/8/2022.

doc. Ing. Vladimír Hiadlovský, PhD.
rector UMB