Reporting

M. Auezov South Kazakhstan University on carbon emissions in accordance with corporate standards

Introduction

In recent decades, the problems of climate change and ecosystem sustainability have become increasingly relevant to the global community. One of the most important factors contributing to climate change is the release of greenhouse gases, including carbon dioxide (co_2), which significantly affects global warming.

South Kazakhstan University named after M. Auezov is aware of the importance of its role in addressing climate change and is actively working to reduce its carbon footprint. In this context, the university undertakes to provide carbon emissions reporting in accordance with the GHG Protocol Corporate Standard or other generally accepted international standards.

These reports make it possible to identify the main sources of greenhouse gas emissions, assess their extent, and develop strategies to reduce them and minimize their negative impact on the environment. GHG Protocol reporting is an internationally recognized tool that ensures the reliability and transparency of data, which, in turn, contributes to improving the environmental responsibility and sustainability of the educational institution.

South Kazakhstan University named after Mukhtar Auezov (SKU named after M. Auezov) is one of the leading educational institutions in Kazakhstan, actively involved in the development of science and technology. In the context of global climate change and increased environmental control, the issue of accounting and reporting greenhouse gas (GHG) emissions, in particular carbon (co_2), is becoming relevant. This document examines the compliance of the university's reporting with international standards, such as the GHG Protocol and other regulatory documents.

The purpose of this reporting is not only to comply with regulatory requirements, but also to strengthen the university's position as a socially responsible and environmentally oriented institution. This report will examine the main categories of greenhouse gas emissions, their sources and measurement methods, as well as recommendations for reducing the university's carbon footprint..

I Regulation of greenhouse gas emissions in Kazakhstan

Kazakhstan has established regulatory legal acts regulating greenhouse gas emissions. In particular, according to the Environmental Code of the Republic of Kazakhstan, enterprises whose emissions exceed 20,000 tons of CO_2 per year are required to keep records of emissions and submit reports to government agencies. This threshold is aimed at industrial enterprises, but educational institutions such as the Auezov Moscow State University may also take emissions into account as part of voluntary reporting or for sustainable development purposes..

II International carbon accounting standards

In recent decades, attention to the problems of climate change, as well as the need to reduce greenhouse gas (GHG) emissions, including carbon dioxide (co_2), has become a global priority. To account for and reduce carbon emissions, international standards have been developed that ensure uniformity, transparency, and reliability of data. These standards are actively used by both Governments and the private sector to monitor, report, and reduce climate impacts.

1. GHG Protocol (Protocol on Greenhouse Gases)

GHG Protocol — it is the most widely recognized international standard for accounting for greenhouse gas emissions. The protocol was developed by **World Resources Institute (WRI)** and **World Business Council for Sustainable Development (WBCSD)**.

- **Approaches and standards:** The Protocol sets out the basic principles for reporting greenhouse gas emissions, including the choice of reporting boundaries, classification of emissions into three categories, and calculation methods.

1. **Scope 1**: Direct emissions from the company's activities, such as emissions from fuel combustion in boilers, transportation, and the manufacturing process.
2. **Scope 2**: Indirect emissions related to energy consumption, for example, emissions from the production of electricity that is used by an organization.
3. **Scope 3**: Indirect emissions that occur outside the direct activities of an organization, such as emissions from transportation of goods, employee business trips, and product consumption.

- **Objective:** The Protocol helps organizations assess, monitor, and reduce their emissions, as well as develop strategies to reduce them.

2. ISO 14064

ISO 14064 — the international standard for accounting and verification of greenhouse gas emissions, which was developed by the International Organization for Standardization (ISO). The standard is divided into three parts:

- **ISO 14064-1:** Establishes requirements for accounting and reporting on GHG emissions at the organizational level. It includes defining reporting boundaries, measurement methods, and approaches to calculating emissions.
- **ISO 14064-2:** Description of accounting and reporting requirements for greenhouse gas emission reduction projects, such as renewable energy or energy efficiency projects.
- **ISO 14064-3:** Requirements for the verification and validation of GHG emissions and mitigation measures.

The ISO 14064 standard is widely used by companies that want to improve their environmental reporting and verify their carbon information with the help of independent parties..

3. CDP (Carbon Disclosure Project)

CDP — it is an international organization that provides a platform for companies, cities, regions, and countries to report on their carbon emissions and climate mitigation actions. CDP works with more than 18,000 companies worldwide and helps them disclose their emissions data, as well as analyze the risks and opportunities associated with climate change.

- **Approach:** Companies and organizations providing information under the CDP fill out detailed questionnaires about their emissions, carbon footprint reduction strategies, and possible risks and opportunities related to climate change.
- **Transparency:** CDP also provides climate reporting data based on environmental performance assessments, enabling companies and investors to make informed decisions to reduce carbon risks.

4. UNFCCC (The United Nations Framework Convention on Climate Change)

The UNFCCC has developed various guidelines and methodologies for accounting for greenhouse gas emissions, which are used by countries as part of their national commitments. The important elements are:

- **Emissions inventory:** Countries are required to provide annual reports on their emissions and mitigation actions as part of their obligations under the United Nations Framework Convention on Climate Change.
- **Emission calculation methodology:** Standard methods developed and agreed with the international community are used to calculate emissions at the country level. This includes the classification of emission sources, calculation methods, and data accuracy.

5. RE100 and Science Based Targets initiative (SBTi)

- **RE100** is a global initiative bringing together companies that commit to switching to 100% renewable energy. RE100 participants are required to monitor and report their carbon emissions, as well as develop plans to reduce them.
- **SBTi** is an initiative supported by a number of organizations such as CDP, the World Wildlife Fund (WWF) and the World Economic Forum that helps companies set science—based emission reduction targets consistent with the goals of the Paris Agreement.

6. PCAF (Partnership for Carbon Accounting Financials)

PCAF — it is an international initiative that has developed a standard for accounting for carbon emissions in the financial sector. This guide helps financial institutions assess

and disclose the emissions associated with their investments, loans, and other financial products.

Among the most well-known carbon reporting standards are:

- **GHG Protocol (Corporate Standard of the Greenhouse Gas Protocol)** – the most common international standard used by companies and organizations to account for GHG emissions.
- **ISO 14064** is an international standard defining requirements for the quantification, monitoring and reporting of GHG emissions.
- **European Union Standards (EU ETS) –** applied in European countries, but may be useful for universities cooperating with European partners.

III Reporting by SKU named after M. Auezov

At the moment, SKU named after M. Auezov is actively implementing initiatives in the field of sustainable development, such as:

- The use of energy-saving technologies on campuses.
- Implementation of waste recycling programs.
- Conducting research in the field of ecology and sustainable development.

As part of these initiatives, it is possible to conduct internal calculations of CO_2 emissions related to energy consumption, transportation, and university activities.

IV Prospects for the implementation of the reporting system

The implementation of the carbon emissions reporting system at SKU named after M. Auezov may include the following steps:

1. Assessment of the current level of carbon emissions.
2. Development of an internal emission accounting standard.
3. Integration of data into international platforms to ensure transparency.
4. Working with international organizations to adapt best practices.

The introduction of a carbon reporting system at the SKU named after M. Auezov will allow the university to meet modern requirements in the field of ecology and sustainable development, as well as strengthen its position in the international educational space. In the future, it is advisable to develop an internal emission accounting methodology based on international standards, which will help increase environmental responsibility and attract partners for joint initiatives.

South Kazakhstan University named after M. Auezov, as a large educational institution, plays an important role in shaping the ecological culture and sustainable development of the region. In the context of global challenges related to climate change, the introduction of a carbon reporting system at the university will contribute not only to

improving the environmental situation, but also to strengthening the image of the educational institution as socially responsible and focused on sustainable development.

1. Goals and objectives of the reporting system implementation

The main objectives of the implementation of the carbon emissions reporting system at the M. Auezov State University:

- **Emissions monitoring:** Assessment of the university's carbon footprint by accounting for emissions related to the institution's activities (energy consumption, transport, waste, etc.).
- **Climate mitigation:** Development and implementation of strategies to reduce carbon emissions, which will help the university contribute to the fight against climate change.
- **Transparency and accountability:** Reporting to students, faculty, staff, and other stakeholders on the state of carbon emissions and measures to reduce them.
- **Compliance with regulatory requirements:** In accordance with national standards and international commitments such as the Paris Agreement, the university must demonstrate its commitment to sustainable development.

2. The main stages of the reporting system implementation

a) Estimating the current carbon footprint

At the first stage, it is necessary to assess current carbon emissions based on data on energy consumption (electricity, heat), emissions from transport, as well as other sources. To do this, a data collection plan will be developed, including the following steps:

- Analysis of energy consumption and identification of the main sources of emissions (e.g. heating, lighting, computer and laboratory systems).
- Assessment of emissions from vehicles used by the university (e.g. office vehicles, student and faculty transport).
- Accounting for waste, its disposal and possible emissions from university activities.

b) Development of a reporting system

After the emissions assessment, a reporting system should be developed. It will be important to select appropriate accounting and reporting standards, such as GHGProtocol or ISO 14064, to ensure international recognition and reliability of data.

- The reporting system will define emission categories (Scope 1, Scope 2, and Scope 3), which will highlight direct emissions, indirect emissions from energy consumption, and other indirect emissions related to university activities.
- Determining the frequency of reporting and the format of reports (for example, an annual carbon emissions report).

c) Setting targets to reduce emissions

Based on the collected data and reporting, a **plan to reduce carbon emissions** will be developed. This plan should include specific targets for reducing emissions, such as:

- Transition to the use of renewable energy sources (for example, solar panels, wind turbines).
- Energy efficient technologies to reduce energy consumption.
- Measures to reduce emissions from transport, such as switching to electric vehicles or using public transport.

- Development of a waste management system for recycling and minimizing emissions.

d) Training and engagement of staff and students

It is important that the implementation of the carbon reporting system be supported not only by the administration, but also by the active actions of students and teachers. In this context:

- Organization of training seminars and trainings for staff and students on the importance of reducing the carbon footprint.
- The inclusion of the topic of sustainable development and ecology in the curricula.
- Encouraging students and staff to take initiatives aimed at reducing emissions (for example, participation in green university projects).

e) Monitoring and regular reporting

Continuous **monitoring** will be organized to monitor the implementation of the emission reduction plan and evaluate the effectiveness of the implemented measures. Once a year, the university will publish a carbon emissions report, analyze the results and adjust strategies if necessary.

3. Advantages of implementing a reporting system for SKSU named after M. Auezov

a) Environmental responsibility

The implementation of the reporting system strengthens the university's image as an environmentally responsible institution. This helps to increase trust among students, teachers, partners and the public.

b) Economic benefits

Reducing carbon emissions will also lead to cost savings related to energy consumption and transportation. For example, the introduction of energy-saving technologies and the use of renewable energy sources will help reduce energy and heating costs.

c) Compliance with regulatory requirements

Active compliance with reporting and carbon reduction requirements will help the South Kazakhstan University named after M. Auezov meet national and international standards, as well as enhance its participation in global climate change initiatives.

d) Educational potential

The reporting system will become a valuable educational tool for students who will be able to learn in practice about modern environmental problems and methods of their solution, which corresponds to global trends in the field of sustainable development.

4. Development prospects

In the long term, the carbon emission reporting system at the SKU named after M. Auezov can become the basis for the implementation of more ambitious projects in the field of sustainable development, such as the creation of a "green campus", the

development of environmentally friendly technologies in scientific research, as well as the integration of sustainable development principles into educational and research processes.

Conclusion

The introduction of a carbon reporting system at the South Kazakhstan University named after M. Auezov represents an important step towards sustainable development and environmental protection. This process will not only allow the university to reduce its carbon footprint, but will also become an important example for other educational institutions and organizations in Kazakhstan.