

CERTIFICATION OF BIOMASS SUSTAINABILITY FOR BIOFUEL PRODUCTION

Nataliia Dreshpak, Assoc. Prof. PhD-Tech.,
Yurii Makukha, Senior Lecturer
Dnipro University of Technology, Ukraine

Introduction. The article presents review of Roundtable on Sustainable Biomaterials (RSB) Standard in Ukraine. The effectiveness of RSB Standard for Ukraine is substantiated. The purpose, principles and major elements of the Roundtable Standard are explained. Statistics on applying RSB Standard around the world is analysed.

As a result of the EU renewable energy policy (EU Directive 2009/28/EC of 23 April 2009, Renewable Energy Directive - EU RED), EU Member States are going to increase the consumption of vegetable oil for energy production in order to meet the EU renewable energy targets. Under EU RED, member states must have 20% of their overall energy consumption and 10% of the fuel in the transport sector coming from renewable sources by 2020 (CMU, 2013). Currently, only 50% of the vegetable oil used in the EU is grown on EU fields. For net exporters of agricultural commodities, such as the Ukraine, the EU biofuel market will offer attractive prices. The demand will be of particular relevance for rapeseed from Ukraine.

Presentation of the main research. However, producers will have to show compliance with EU RED sustainability criteria, otherwise they cannot enter the EU RED regulated market. Compliance will be possible by using recognized biomass certification schemes. The EU RED criteria contain life cycle greenhouse gas emissions (reduction of emissions by 35%, later 50%, compared to fossil fuels), protection of carbon rich areas (wetlands, continuously forested areas), protection of land with high biodiversity value (primary forests, nature reserves, highly biodiverse grassland), and the protection of peat land.

On the other hand, in order to fulfill its responsibilities for national sustainable development, the new version of the Energy Strategy of Ukraine (ESU) envisages a gradual increase in the

production and use of motor biofuels in Ukraine until 2030. Thus, from 2020 to 2030, it is planned to spread biodiesel as a motor fuel, bringing the share of biodiesel in diesel fuel to 7% by 2025.

The problem in Ukraine are:

- increasing the production of vegetable oil for energy production in order to meet the renewable energy targets for Ukraine (see Table 1);

- implementation of the EU Directive 2009/28/EC (Renewable Energy Directive - EU) under the Association Agreement between the European Union and Ukraine (2014);

- the importance of the vegetable oil for biofuel production as one of the main export commodities (see Figure 1).

Figure 1

Main exporters of the vegetable oil for biofuel production (RBSA, 2021)



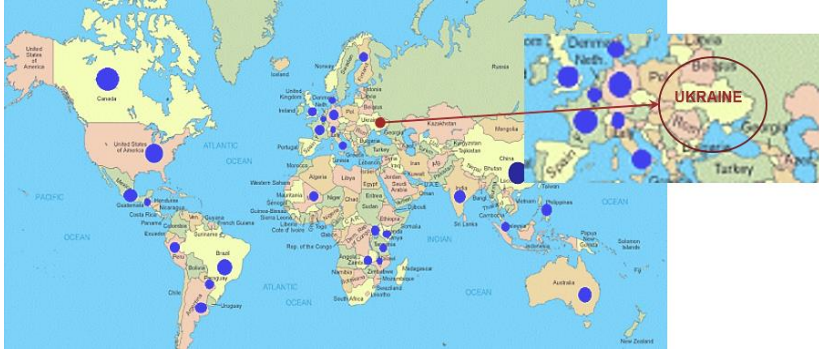
According to experts, the implementation of the planned actions in full will:

- to increase the level of energy independence of Ukraine;
- to increase the share of energy from renewable energy sources in the overall fuel and energy balance of Ukraine;

- to improve the environmental situation in Ukraine by reducing emissions of harmful substances and increasing the level of development of energy production from renewable energy sources to the level of the European Union.

Figure 2

Main importing countries of Ukrainian rapeseed (RBSA, 2021)



The RSB Standard has components designed to ensure the whole system works smoothly and effectively. The main components are shown in Table 1. New laws relating to energy, such as the renewable energy directive in the EU, provide a broad perspective on biofuels worldwide.

Table 1

The major elements of the RSB standard (RBSA, 2021)

Legal	The RSB Standard ensures legal compliance, including traditional land and water rights.
Social	The RSB Standard ensures human and labour rights, rural and social development in regions of poverty, and local food security.
Environmental	The RSB Standard ensures the preservation of conservation values, soil health, water quality and availability, mitigation of climate change, as well as control of air pollution.
Management	The RSB Standard ensures the reduction of risks and continuous improvement through an effective management approach.

Six biomass certification schemes for biofuels can be used in Ukraine. Composed of a variety of different standards, the RSB Standard has been designed and continuously developed to support certification in all circumstances, anywhere in the world. In Ukraine, since 2010, only 20 companies have passed the certification of biomass production, a total of 30 ISCC certificates (today, 10 of them are valid), as well as 2 RBSA certificates, have been issued.

Why is the RSB Standard an effective standard for Ukraine? Certification to the RSB Standard covers the production of any bio-based feedstock, biomass-derived material and any advanced fuel, as well as complete supply-chains and novel technologies. The RSB Standard has five features that provide with a foundation for sustainable production:

- It ensures food security, rural development and protection of ecosystems.
- It has been developed by the RSB alongside stakeholders from across sectors, regions, supply chains, government and NGOs.
- Through support for innovation and development of partnerships, the Standard is actively driving the bioeconomy.
- It is committed to mitigating social and environmental risks and finding solutions.

Figure 3

RSB Standard is an effective standard for Ukraine (RBSA, 2021)

12 RSB principles

1. Legality
2. Planning, Monitoring and Continuous Improvement
3. Greenhouse Gas Emissions
4. Human and Labour Rights
5. Rural and Social Development
6. Local Food Security
7. Conservation
8. Soil
9. Water
10. Air
11. Use of Technology, Inputs and Management of Waste
12. Land

Five features of the RSB Standard

1. It ensures food security, rural development and protection of ecosystems.
2. It has been developed by the RSB alongside stakeholders from across sectors, regions, supply chains, government and NGOs.
3. Through support for innovation and development of partnerships, the Standard is actively driving the bioeconomy.
4. It is committed to mitigating social and environmental risks and finding solutions.
5. It will help to achieve the Sustainable Development Goals.

Conclusions. Roundtable on Sustainable Biomaterials (RSB) is an independent, global coalition of a wide range of stakeholders working to promote stability of biomaterials (Palekhova, 2016). Roundtable on Sustainable Biomaterials includes more than 120 organizations. And 30 non-governmental organizations are known as RSB members, for example, World Wildlife Fund, International Union Conservation of Nature and Natural Resources Defense Council. Application of the RSB Standard showcases a company's commitment to sustainability and the realization of the UN Sustainable Development Goals.

References

CMU (2013). New Energy Strategy of Ukraine until 2030. Cabinet of Ministers of Ukraine. URL: <https://de.com.ua/uploads/0/1703-EnergyStratgy2030.pdf>

Palekhova, L. (2016). Experience of using voluntary sustainable development standards in energy sphere. *NESEFF-NETZWERKTREFFEN 2016*. Brandenburgische Technische Universität Cottbus-Senftenberg. ISBN 978-3-940471-25-3.

RBSA (2021). Biomass Sustainability Certification: Experience of Ukraine and Development EU Biofuel Policy. URL: https://www.apd-ukraine.de/images/exklusivnye_technologii.pdf

Palekhova, L., Podzolkova, D. (2018). Problems of the renewable energy market development in Ukraine. *NESEFF-NETZWERKTREFFEN Brandenburgische Technische Universität Cottbus-Senftenberg*.

Ruysschaert, D., Salles, D. (2014). Towards global voluntary standards: Questioning the effectiveness in attaining conservation goals: The case of the Roundtable on Sustainable Palm Oil (RSPO). *Ecological Economics*, 107, 438-446.

Angulo-Mosquera, L. S., Alvarado-Alvarado, A. A., Rivas-Arrieta, M. J., Cattaneo, C. R., Rene, E. R., & García-Depraect, O. (2021). Production of solid biofuels from organic waste in developing countries: A review from sustainability and economic feasibility perspectives. *Science of the Total Environment*, 795, 148816.