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LOW-CARBON TRANSFORMATION IN FERROUS METALLURGY

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Abstract: Low carbon economy (LCE), or “green economy”, characterized by low consumption of fossil fuels and the associated low environmental impact. The transition to a low-carbon economy is achieved through the implementation of energy efficiency, climate security and environmental security policies. At the same time, the synergistic effect of energy saving is activated

Keywords: low-carbon economy, green economy, energy efficiency, climate security.



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Introduction

The transition of the global economy to green principles gives domestic producers of non-ferrous and precious metals a chance to successfully compete in the global market by reducing the carbon intensity of their products.

Low-carbon economy, decarbonized economy, LCE, NE - an economy based on low-carbon energy sources, with a minimum amount of greenhouse gas emissions into the atmosphere, in particular carbon dioxide. Greenhouse gas emissions from human activities have been the main cause of observed climate change since the mid-20th century. Continued emissions of greenhouse gases could cause highly undesirable long-term climate changes on a global scale, with severe, widespread and irreversible consequences for people and ecosystems.

Results and Discussion

The transition to a low-carbon economy on a global scale can bring significant benefits to both developed and developing countries. Many countries around the world are developing and implementing development strategies to achieve low greenhouse gas emissions. These strategies aim to achieve social, economic and environmental development goals while reducing long-term greenhouse gas emissions and increasing resilience to the impacts of climate change.

A globally implemented low-carbon economy is a necessary prerequisite for the transition to a zero-carbon economy. The transition to renewable energy is expected to have far-reaching geopolitical consequences. Former fossil fuel exporters will lose geopolitical influence, while the positions of former fossil fuel importers and countries rich in renewable energy resources will strengthen.

The mining and metallurgical sector is one of the three main GHG-emitting industries. Therefore, its participants feel growing pressure not only from environmentalists and climate change activists.

The mining and metallurgical industry is one of the energy-intensive and carbon-intensive industries. The production cycle requires high inputs of primary energy for ore mining and metal production, and is associated with a significant amount of greenhouse gas emissions. The industry therefore faces a number of regulatory, market and financial risks from the energy transition taking place in European, Asian and North American markets. Due to the high carbon intensity of production, some products of the metallurgical industry (aluminum, iron and steel) have already been declared as objects of EU border carbon regulation, recalled the head of the department of world economics.

Statistics show that in 2020, emissions from the production of steel, aluminum, nickel, copper and cobalt amounted to 4.5 billion tons of CO₂ (13.5% of global greenhouse gas emissions). And in 2021, ferrous and non-ferrous metallurgy accounted for 28% of greenhouse gas emissions.

At the same time, the global energy transition remains a very powerful incentive to increase the production of so-called green metals - copper, nickel, aluminum. This is explained by the fact that the development of electric transport, renewable energy technologies, hydrogen energy and other energy transition technologies opens a window of opportunity for Uzbekistan to increase the production and export of non-ferrous and precious metals.

Today, domestic companies are faced with supplier refusals, and a number of industry enterprises are subject to legal restrictions. Thus, difficulties arose with selling products in Western markets. China is a net importer of copper and is willing to buy it, just like nickel. But aluminum cannot be redirected to the Chinese market, because China is the lowest-cost aluminum importer. As Vladimir Zhukov says, the most pressing risks can be considered the risks of reduced demand for products with a high carbon footprint.

A key indicator of the competitiveness of the mining and metallurgical industry in the context of the energy transition is the carbon intensity of production. At the same time, the carbon intensity of aluminum, copper, lead, zinc, uranium and tin ores, as well as non-ferrous metal concentrates in Russia is below the world average.

Access to global markets for selling products may be significantly limited, it states. And yet, it is difficult today to predict how the energy transition will take place in the world, and in particular in Uzbekistan, due to constantly changing factors that influence many processes. He noted that on the horizon until 2030, the speed and direction of processes will decarbonization both in the world and in Uzbekistan will be largely determined by the speed of recovery of the global economy and the general level of conflict in international relations.

Conclusion

The global shift to a low-carbon economy presents a significant opportunity for domestic producers of non-ferrous and precious metals to enhance their competitiveness by reducing the carbon intensity of their products. As greenhouse gas emissions from human activities are the main cause of climate change, transitioning to low-carbon energy sources is crucial for achieving sustainable development and mitigating long-term climate impacts. This transition will particularly affect the

mining and metallurgical sector, one of the largest GHG emitters, which faces increased regulatory and market pressures to decarbonize. Nonetheless, the energy transition also opens new markets for "green metals" like copper, nickel, and aluminum, essential for renewable energy technologies. While challenges exist, especially with market access and geopolitical shifts, reducing carbon intensity remains a key strategy for maintaining competitiveness in the evolving global economy.

References

- [1]. Хашимова С. Н. Развитие черной металлургии Узбекистана в условиях модернизации национальной экономики // Молодой ученый. – 2017. – №. 1-3. – С. 24-26.
- [2]. Якубова Д. М., Хашимова С. Н. Экономико-математическое моделирование эффективности производства предприятий металлургической отрасли Узбекистана // Молодой ученый. – 2018. – №. 17. – С. 213-215.
- [3]. Nigmatullayevna X. S. RESOURCE SAVING AT FERROUS METALLURGY ENTERPRISES // INTERNATIONAL JOURNAL OF SOCIAL SCIENCE & INTERDISCIPLINARY RESEARCH ISSN: 2277-3630 Impact factor: 7.429. – 2022. – Т. 11. – №. 01. – С. 133-137.
- [4]. Хашимова, Салима Нигматуллаевна. "МОДЕРНИЗАЦИЯ ПРОИЗВОДСТВА ЧЕРНОЙ МЕТАЛЛУРГИИ И ПОВЫШЕНИЕ ЕЕ ЭФФЕКТИВНОСТИ." Сборник научных статей по итогам работы Международного научного форума (2020): 29.
- [5]. NIGMATULLAEVNA, HASHIMOVA SALIMA, and IBRAGIMOVA SAODAT ABDUMUMINOVNA. "Economic Security Of Ferrous Metallurgy." JournalNX 7.02: 69-72.