

DECARBONIZATION: UZBEKISTAN AND KAZAKHSTAN ARE PLANNING TO REDUCE CARBON EMISSIONS

In the current context of global climate change, macroeconomic instability and resource depletion, **the decarbonization strategy is becoming increasingly widespread around the world.**

The countries of the world have different approaches to the problems of implementing the **Paris Climate Agreement**, which is due to the peculiarities of the socio-economic, political and geographical situation. In order to fulfill the commitments of the Paris Climate Agreement, Kazakhstan and Uzbekistan needs to develop their long-term vision for the transition to a low-carbon economy by 2050.

In accordance with the **Paris Climate Agreement**, adopted at the 21st session of the UN Climate Summit (COP21), starting from 2020, all countries of the world must submit their national commitments to reduce harmful emissions to the atmosphere every five years at COP21. Over the time, they will be revised upwards. Thus, the Paris Agreement was a launching pad in the implementation of a global policy for the transition to low-carbon development and decarbonization of the world economy.

The impact of the Paris Agreement

Industry is one of the important foundations of the well-being and prosperity of the state and the nation on an international scale. Industrial companies provide about a quarter of the world's GDP and employment. They produce the materials and goods without which our daily life is unthinkable. At the same time, the industry causes significant damage to the environment. Through the integrated application of decarbonization technologies, industrial CO₂ emissions can be reduced to almost zero. We are talking about such methods as:

- demand management;
- improving energy efficiency;
- carbon capture and storage;
- electrification of heat generation;
- use of hydrogen (produced with carbon-free electricity) and biomass as raw materials or fuels, as well as other innovative approaches.

Large-scale efforts to decarbonize European energy, for example, are characterized by a transition to clean energy, which has already led to a steady reduction in harmful emissions. Using the example of the European community, the Central Asian countries are actively engaged in the transition to alternative energy sources.

UZBEKISTAN

Uzbekistan intends to switch to carbon-neutral electricity production by 2050. A consortium of international experts was involved in the development of the road map.

The Ministry of Energy, in cooperation with the Ministry of Investment and Foreign Trade of Uzbekistan, with the support of the EBRD and the Government of Japan, has engaged a consortium of international experts (*Corporate*

Solutions, Tractebel and Guidehouse) to develop a roadmap to explore the possibility of creating a carbon-neutral electricity generation sector in Uzbekistan by 2050.

According to Report, the transition of the republic to a zero-carbon energy sector by 2050 is quite feasible, both technically and economically.

The action plan described in the roadmap is structured around five priority areas:

- transformation of the electricity generation infrastructure;

The first priority is to continue the ongoing reform and develop more efficient and low-carbon generating capacity, as well as the grid, which will allow for the integration of a larger share of renewable energy sources in the future. This includes continuing the transition to more efficient heat generation, as envisaged in the latest Concept of the Ministry of Energy of Uzbekistan for 2020-2030. Now, the construction and implementation of wind and solar power plants in the electric power system will be carefully monitored and taken into account when designing future developments in the field of electric networks.

- creating a regulatory framework to increase the penetration of renewable energy sources;

The second priority was identified as regulatory and institutional reforms that allow and support the development of renewable energy sources in Uzbekistan.

Further financial support for renewable energy sources to ensure the financial viability of low-carbon installations in the absence of a sufficient carbon price signal will only increase investment attractiveness, as well as the development of a transparent, long-term plan for auctioning renewable energy production capacity. Financial guarantees provided to investors in renewable energy installations should be protected on the basis of stability obligations that can be enforced prior to arbitration.

- subsidy reform and carbon pricing mechanism;

In order to promote the alignment of the rule for all participants, it is necessary to abandon regulatory and institutional preferences in favour of carbon-intensive sources. This starts with phasing out energy subsidies, which should be replaced by cost-reflecting tariffs, and providing subsidies to vulnerable consumers.

According to the EBRD report, one of the policy priorities in this area is the creation of a functioning electricity market, including support services, combined with the phasing out of subsidies for fossil fuels throughout the supply chain. Long-term policies combined with efficient markets provide the stability that private sector investors need to enter and expand their presence in the sector, especially for the vital growth of the renewable energy segment.

- awareness-raising campaigns to mobilize public support;

The most important aspect of implementing decarbonisation initiatives is the development of public support, which includes measures related to communication and consultation with the public and key stakeholders. Measures to protect vulnerable consumers (for example, by offsetting price increases, subsidizing energy efficiency or installations using renewable energy in residential buildings, ensuring transparency of electricity bills, and recycling carbon revenues) will also contribute to the social acceptability and sustainability of the changes needed in the energy sector.

- environmental protection.

It is known that any production, construction, introduction and operation of projects in one way or another affects the environment. In this case, it is very important to monitor the impact of such projects on biodiversity and protected ecologically vulnerable areas, as well as to continue to improve environmental legislation in general.

The roadmap is aimed at assisting Uzbekistan in identifying priorities for the development of renewable and low-carbon technologies and bringing the development of the electricity sector in line with its obligations under the Paris Agreement. Moreover, the roadmap outlines the actions that need to be taken by responsible stakeholders to ensure a low-carbon future in Uzbekistan's electricity sector.

The decarbonization of the electricity sector will not only contribute to the achievement of national emission targets in line with Uzbekistan's National Commitments (DOE), but will also align Uzbekistan's investment needs with the green lending policies of international financial institutions (IFIs), as well as multilateral and bilateral providers of development finance and climate programs.

The roadmap takes a holistic approach to electricity production planning, which is "value-based", meaning that it sets goals for key performance indicators to guide decisions on the optimal combination of new generating capacity and disposal of old assets, to minimize net present value (NPV) from total system costs over the long-term planning horizon (2021-2050). Achieving early correction and achieving zero carbon emissions by 2050 under different demand growth scenarios, the simulation results show:

- technical considerations and obstacles to creating a zero-carbon energy system, as well as necessary infrastructure changes (production and transportation), assessment of the investment required to completely eliminate emissions CO₂ by 2050, and the incentives that should be offered to achieve the new policy goals, and details on the role of pricing in relation to carbon dioxide emissions.

KAZAKHSTAN

In December 2015, in Paris, within the framework of the new climate agreement, Kazakhstan presented its commitments to reduce greenhouse gases in the country in the amount of 15% from the level of 1990 as an unconditional and 25% as a conditional goal until 2030. According to experts, Kazakhstan is one of the few countries in the world that has real potential to achieve these goals, including opportunities to attract large-scale investments in low-carbon projects of the economy.

It should be noted that today for Kazakhstan, the main preamble to the transition to a low – carbon economy is the task of reducing the level of burning and consumption of fossil fuels containing carbon-coal and fuel oil. According to experts, the technically possible potential of renewable energy sources (RES) in Kazakhstan in the long term may significantly exceed the projected level of electricity consumption in the country. Based on this, it can be reasonably argued that the development of renewable energy – based generating capacities is one of the most effective measures to reduce CO₂ emissions in the country's electricity industry.

Kazakhstan also adopted the Law "On amendments and additions to some legislative acts of the Republic of Kazakhstan on the support and use of renewable energy sources". The legislative act is aimed at stimulating investment activity in this area, supporting investors and ordinary consumers. Thus, Kazakhstan provides compensation in the amount of 50% of the costs of an individual user for the purchase of renewable energy installations of no more than 5 kW, the same measure of support for small renewable energy sources exists in Uzbekistan. This measure will support users who carry out economic activities in the hinterlands, farms and other farms, which contributes to the development of rural areas and ensuring access to electricity for the population and businesses.

The implementation of alternative energy projects will lead to a reduction in the volume of construction of new generating capacities based on outdated principles using coal,

The development of carbon trading is another real step in decarbonizing the economy. This is an effective mechanism for stimulating measures to reduce emissions, as well as attracting "green" investments in the economy.

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