

*Short Reports***LOW-CARBON AND ENERGY-EFFICIENT ECONOMY OF KAZAKHSTAN FOR SUSTAINABLE DEVELOPMENT**

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The Republic of Kazakhstan has developed the concept of transition to a low-carbon economy is the first among the central Asian countries. This document was developed within the framework of the joint project «capacity building» in the field of sustainable development through the integration of climate change issues to strategic planning in the Republic of Kazakhstan.

Kazakhstan pursues an active policy in the field of reduction of emissions of greenhouse gases. In March 2009, our country has ratified the Kyoto protocol to the UN Framework convention on climate change. One of the main requirements of this agreement is to reduce emissions of greenhouse gases (GHGS) and the transition to low-carbon development.

In November 2009, Kazakhstan announced that took on itself the quantitative commitments, which resulted in a 15% reduction in GHG emissions by 2020 and 25% reduction by 2050.

In the project of the concept noted that «low-carbon» or low emission growth is the new development paradigm, which creates a new engine of growth and increases the number of «green» jobs, promotes green technology and clean energy. According to experts, the choice of path of low-carbon development is a critical point for the future of humanity.

At the present time on the volume of greenhouse gas emissions Kazakhstan is the largest source of in Central Asia, occupying the third place in the CIS after Russia and Ukraine. The major share of emissions of greenhouse gases in Kazakhstan (more than 80%) comes into the atmosphere from energy activities, including the electro- and thermal power and other kinds of fossil fuel combustion to produce energy.

In order to meet commitments to reduce emissions of carbon dioxide Kazakhstan has to take in the electricity sector more large-scale and accelerated use of the potential of renewable energy sources in the electric power industry (wind, solar, hydraulic, geothermal, biomass); accelerated and intensive development of nuclear energy; wide-scale implementation of CCS technologies at existing and newly thermal power plants; reduction of energy losses during its transportation to consumers; audit of production facilities, planning of depreciated inefficient capacities and renovation and moderniza-

tion of production facilities to prolong their lives for 10–15 years; introduction of modern technologies and equipment for the capture and storage of CO₂; transfer stations to cleaner fuel.

From non-carbon energy technologies it is required an increase a forestation to enhance carbon sequestration and capacity building of forest biomass; recycling of waste and the production of energy biomass in agriculture.

On the ways of problem solution of energy supply and energy efficiency in the energy sector in Kazakhstan will be implemented 24 projects of the card industrialization. In the framework of the project it is planned to create 12 918 jobs in the period of construction and 6422 place in the period of operation. In particular, the expansion and reconstruction of the Ekibastuz GRES-2 in Pavlodar region will allow to increase capacity up to 1,500 Mw.

JSC «National company «Kazatomprom» has developed innovative projects for the development of solar energy. Projects include the production of photovoltaic modules based on silicon Kazakhstan. Project for the production of solar panels is designed for the production of energy from 50 Mw with further increase up to 100 Mw. Kazatomprom plans to build a new plant in Astana during the two years.

In October 2007, has started the project of construction of a plant elements of solar batteries in Aktau. The project is supposed to realize in three stages. At the first stage there will be organized production of crystalline rods and plates (solar batteries) annual total capacity of 110 Mw. At the second stage is scheduled for production of electronic boards (cells) with total capacity of 77 Mw. At the third stage – the production of electronic displays the total capacity of 20 Mw.

At the Ekibastuz GRES-1 full speed goes a realization of the investment project included in the industrialization Map of the country. The project includes the restoration until the end of 2016 blocks № 8, 2 and 1. Enter them, respectively, at the end of the 2012, 2014 and 2016. Implementation of the investment project «Restoration and reconstruction of TPP-1» will allow to increase considerably the so-called the available power station with 2 500 to 4 000 Mw by the end of 2016, as well as its annual production from 11,7 billion Kwh in 2010 to 21 billion Kwh by 2015. At the end of 2010 on one of the power station was the first high-efficiently electrostatic precipitators was installed with a factor of trapping of ashes up to 99,6% and an reduction in the annual release into the atmosphere of combustion products from 20,5 thousand tons up to 3 thousand tons. At the end of 2011, the second electrostatic precipitators was installed, and in 2012 it is

planned to launch the third electric filter. Geographical and meteorological point of view, Kazakhstan is one of the countries of the world with the best conditions for large-scale development of wind energy. UNDP/GEF project «Kazakhstan – wind energy market development initiative» provides assistance to the Government of the RK in the formulation of the National Program of development of wind energy and the development of opportunities for the development of projects for wind energy, and their financing.

Improving the energy efficiency of municipal heat supply, introduction of new financial models for investment in energy efficiency projects and enhance the capacity of the local stakeholders are key directions of the Project «Removing barriers to energy efficiency of municipal heat supply».

Project proposals in the draft law on energy saving and amended the law on public utilities. In the cities of Almaty, Astana and Karaganda project involves the KSK in trainings and grant program

for modernization of buildings. In Karaganda was created the first private energy service company (ESCO) in Kazakhstan.

Project «**Energy Efficient design and construction in the housing sector of Kazakhstan**» will demonstrate the use of an integrated design of residential buildings in several cities of Kazakhstan.

The aim of the project is to improve the observance of mandatory building codes for energy efficiency standards and labeling building materials. The project will support the development of the domestic production base of energy effective materials and will create the potential for an integrated approach to the design of buildings in general.

In the process of transition to a low carbon economy the country will continue to carry out socially-oriented policy aimed at the accelerated growth of GDP with the aim of increasing the welfare of the population and improvement of living standards. The low carbon economy offers an alternative *path* of development, bringing a certain socio-economic benefits.