

Print ISSN: 2288-4637 / Online ISSN 2288-4645
doi: 10.13106/jafeb.2015.vol2.no3.37.

Problems of Decarbonization of the Economy of Kazakhstan

Bakhyt K. Yessekina*

[Received: May 8, 2015 Revised: July 30, 2015 Accepted: August 10, 2015]

Abstract

In this article we consider the modern trends of global warming, GHG pollutions and discussions of the obligations of developed and developing countries before the UN Global Climate Summit in Paris. The article considers decarbonization as a national strategy, including complex tools for the improvement of energy efficiency, reduction of CO₂ and development of emissions trading systems. The author underlines that the Central Asian countries such as Kazakhstan and Turkmenistan, have the largest GHG potential in the region, and for this reason they should be within the framework of the UNFCCC and join the international process on development of the national decarbonization strategies. These measures allow these countries to join the global carbon trade marketing, international financial resources, and significantly reduce CO₂ pollutions in the region.

Keywords: Global climate change, UN IPCC, Low carbon regulation, Decarbonization, CO₂ emission, Emission trade system.

JEL Classification Codes: O57, Q01, Q20, Q56, Q54.

1. Introduction

Climate change is the second consecutive year is on the agenda of World Economic Forum in Davos: the rate of global warming as the result of anthropogenic factors is increasing and climate risks as the factor which significantly impacts the pace of global economic growth. Politicians, scientists and experts from all over the world have continuously raised and continue to raise the issue of global warming which is likely to cross dangerous warming of 2°C in spite of the measures taken to reduce greenhouse gas emissions.

Today, climatic factors have already had a significant impact on the business world and as per the forecast of IPCC experts the pace and extent of such impact in the future will only

increase. Thus, climate change creates significant barriers for agricultural, oil and transport companies, construction and other infrastructure sectors, in general causing a slowdown of economic growth. The Economic Risk of Climate Change, including floods and hurricanes, morbidity and mortality caused by heat, energy demand growth provided in the Risky Business Report¹⁾, indicate that the climate is no longer a problem of the future and every year becomes a more pressing issue for management of companies, shareholders and ordinary citizens.

Summarizing the speakers at the climate session in Davos, it is worth to emphasize the speech of Mr. Ban Ki-moon, UN Secretary General, that "Climate change sustainable development two sides of the same coin" and "One key transformation for the post-2015 era will be to make growth more inclusive (sustainable, based on natural resources management) and green (assuming the use of clean, green technologies)"²⁾ speeches of Mr. Kim and Mr. Leger, heads of the World Bank and IMF on the necessity for more aggressive policy to promote sustainable transport and energy efficiency, and speech of Mr. François Hollande, the President of France on global treaty that promotes effective addressing to the major challenge of the 21st century³⁾

The day before Davos, U.S. President Barack Obama delivering his sixth State of the Union Address to Congress, underlined the importance of studying the problem of climate change "... climate change poses immediate risks to our national security" and again emphasized the importance of adopting new Climate treaties⁴⁾

2. Main Part

The need for comprehensive solutions to mitigate climate change decarbonization strategies - are updated in light of the growing trend to diversify sources of energy supply almost in all

1) Gordon, K. (2014). Risky Business: The Economic Risks of Climate Change in the United States

2) World Economic Forum (2014, January)

3) Kokorin A, & Safonov. G. Information materials to the subsidiary bodies of the UNFCCC.

4) Obama, B. (2015, January). Remarks of the President in the State of the Union address.

* Director, Scientific Research and Education Center "Green Academy".
[20 Dostyk Street, Astana 010000, Republic of Kazakhstan. E-mail:
BYessekina@green-academy.kz or BYessekina0803@gmail.com]

sectors of the economy, and increasing of the renewable energy sources share (RES) in the balance of energy and increase of energy efficiency as a whole. According to expert forecasts, in the next 10-15 years, the dependence on fossil fuels (especially under long-term contracts) will decrease significantly, oil, gas and coal prices will be low and will not secure investments return on many energy projects, at the same time, the activity of companies that supply RES technologies will increase dramatically. One reason for such forecast is the introduction of ten giga watts RES capacities by China and building-up of global technology export of solar, wind and other kinds of RES. In addition, due to increased oil supplies from Iraq and Libya, and shale gas (as LNG) from the United States and Qatar the downward fluctuations in world prices for oil and gas are expected.

On the other hand, as per the recommendations of the United Nations Framework Convention on Climate Change (UNFCCC) there are planned the tightening of regulations on GHG emissions at the international level, the introduction of standards, technological requirements, carbon credits, establishment of systems of monitoring and reporting, and emissions accounting within implementation of international projects (World Bank, OECD, EBRD, etc)

The target indicator is 2 tons of CO₂ per capita by 2050 which would help to prevent growth in global temperatures more than by 2°C. The following table lists the specific CO₂ emissions from fuel combustion per capita by some countries, including the countries of Central Asia. It is important to underline, that in the world as a whole this indicator has increased from 3.97 to 4.50 tons of CO₂ per capita for the period 1990-2011. The world leader in 2011 was Qatar (38.17 tons per capita). High values of this indicator were observed in the United States (16.94 tons per capita), Kazakhstan (14.14 tons per capita), Turkmenistan (12.06 tons per capita), and Russia (11.65 tons per capita).

<Table 1> CO₂ Emission from Fuel Combustion per Capita Tons by Countries, 1990-2011.

	1990	2000	2005	2010	2011
World	3.97	3.89	4.24	4.43	4.50
Kazakhstan	14.46	7.59	10.37	14.32	14.14
USA	19.46	20.18	19.50	17.53	16.94
Russia	14.69	10.23	10.56	11.11	11.65
Turkmenistan	12.12	8.12	10.07	11.22	12.06
European Union (27)	8.57	7.94	8.07	7.30	7.04
China	2.00	2.64	4.15	5.42	5.92
Indonesia	0.79	1.28	1.48	1.71	1.76
India	0.67	0.92	1.02	1.40	1.41

Source: International Energy Agency (2014).

At present many countries (including Russia, the EU, USA, China, India, Brazil, Japan, South Africa, etc.) conduct studies on deep decarbonization of national economies by 2050, as-

essment of the potential of application of different low-carbon technologies, identification of barriers and challenges which shall be addressed within the global objective of emission reduction (IDDRI Project). The following factors are taken into account: population growth, structural changes in the economy, energy prices, advanced production technologies in sectors of energy, industry, etc.⁵⁾

One of decarbonization directions is development and active expansion and extension of Emission Trading System (ETS). National reports of the EU, USA, Japan and other countries, made under the UNFCCC show that ETS is an effective mechanism to promote measures on emissions reduction, to attract green investments and price carbon. The inclusion of the carbon component in the price of goods and services (including energy) was approved by over 80 countries and over 100 world biggest companies at Lima Climate Change Conference in December 2014⁶⁾.

Countries-members of carbon market made a decision on carbon regulation based on the following factors:

- Easy administration of the CO₂ emissions regulation, emission indicator reflects energy efficiency, substantiality and technological innovation of any production. By monitoring this indicator a lot of Development Goals of national and regional economies could be achieved, including increasing of competitiveness and restructuring in the direction of the development of new technologies and sectors;
- Diversification of energy supply of basic sectors, including the mining industry, transportation, construction, etc.
- Involvement of business in the new "eco-climatic" investment cycle, stimulating participation in international carbon trading, etc.

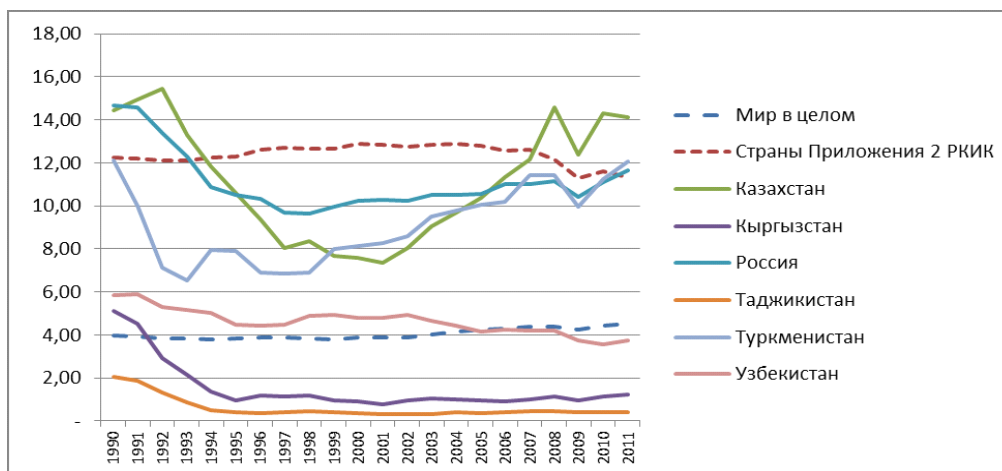
In terms of the dynamics of CO₂ emissions per capita indicator in Kazakhstan substantially exceeds the world average emissions level.

In this regards, our country, being an active participant of international processes "Environment for Europe" and "Asia-Pacific Sustainable development", Party to UNFCCC, shall develop its Agenda for the new Climate treaty that is to be adopted in Paris in December. Within the Concept for transition of the Republic of Kazakhstan to Green Economy, the key indicators have already been adopted on GHG emission reduction in power industry and RES development by 2050 by 40% and 50% respectively⁷⁾.

5) Sachs, J., & Tubiana, L (2014). Pathways to deep decarbonization 2014 report.

6) United Nations (2014).

7) Concept of transition of the Republic of Kazakhstan to "green" economy



Source: International Energy Agency (2014).

<Figure 1> CO₂ Emission per Capita (Tons, 1990-2011)

3. Conclusion

To sum up, it is necessary to clarify the obligations with respect to 1990 and develop a strategic plan for decarbonization and carbon regulation at the national level which, with the participation of leading international and national experts, will study and analyze:

- Existing risks of international carbon regulation for domestic producers (emissions credit for air transport, maritime transport, introduction of ISO carbon standards, requirements for CO₂ emissions pricing, etc.);
- Mechanisms for international cooperation to reduce carbon emission (joining the projects under UN Green Climate Fund UN, JCM agreement on joint financing of carbon projects, linking domestic and international carbon markets, including individual provinces of China, US, the EU, in the long term EEU countries - Russia, Belarus, etc. Of course, any financial and technical assistance will involve compliance with the terms MRV (monitoring, reporting, verification), planned and achieved objectives, which should also be provided in the plan;
- Possibility of reducing the administrative burden and costs for business to fulfill environmental requirements at the expense of replacement of the part of environmental regulation by carbon regulation;
- Expansion of the sector of low-carbon technologies in energy, industry, public utilities and other industries as a vector for economic diversification, reducing its vulnerability and adaptation to fluctuations in energy markets.

The experience of developed countries shows that the economic impact of carbon regulation now reaches hundreds of billions of US dollars, including the cost savings from environmental administration system, energy savings in particular, increase in employment, improvement of environment and, in general, provision of stability of the national economy, etc.

References

- Gordon, K. (2014). Risky Business: The Economic Risks of Climate Change in the United States. Retrieved April 27, 2015 from <http://riskybusiness.org/reports/national-report/executive-summary>
- Kokorin, A., & afonov, G. (2014). Information materials to the subsidiary bodies of the UNFCCC, Bonn, 4-15 June 2014. UNDP, WWF Russia. Retrieved May 5, 2015 from <http://www.wwf.ru/data/climate/reviews/unfccc-review10june14.doc>
- Obama, B. (2015). Remarks of the President in the State of the Union address. Washington, D.C.: The White House. Retrieved April 27, 2015 from <https://www.whitehouse.gov/the-press-office/2015/01/20/rem-arks-president-state-union-address-january-20-2015>
- Sachs, J., & Tubiana, L. (2014). Pathways to deep decarbonization 2014 report. SDSN and IDDRI. Retrieved April 27, 2015 from <http://deepdecarbonization.org>
- The Ministry of Environment and Water Resources of the Republic of Kazakhstan (2014). Concept of Transition of the Republic of Kazakhstan to "Green" Economy. Available from http://gbpp.org/wp-content/uploads/2014/04/Green_Concept_En.pdf
- United Nations (2014). 2014 Climate change summary - Chair's summary. Climate Summit 2014. Lima, Peru. Retrieved April 27, 2015 from <http://www.un.org/climatechange/summit/2014/09/2014-climate-change-summary-chairs-summary/>
- World Economic Forum (2015). Tackling climate, development and growth. World Economic Forum Annual Meeting 2015. Davos, Switzerland. Retrieved April 27, 2015 from <http://www.weforum.org/sessions/summary/tackling-climate-development-and-growth>