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PROBLEMS OF TRANSNATIONAL INVESTMENT LOW-CARBON ECONOMY

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Abstract. The article highlights the controversial dynamics of transnational investment processes in a sustainable low carbon development, are covered the reasons for the recession, which has developed into an investment crisis caused by disharmony in the mechanisms of regulation of investment regimes. Based on the analysis of time series, author revealed that major investments aimed at renewable energy, went into solar, wind and bioenergy. Among the countries the main investment resource provider is China, which has surpassed the United States. By using the method of elimination, the author found that the decline in investments in renewable energy in 2009 occurred as a result of the general economic crisis, and in 2012 – as a result of disharmony of regulation and motivation investment mechanisms which led to unfair competition in this market. Scientific novelty of the paper includes justifying the causes and consequences of the first investment crisis in renewable energy. The practical significance of the article is to give recommendations for the introduction of global mutual policy in the regulation of investment regimes and investment motivation of sustainable low carbon development.

Key words: Investment crisis, sustainable low-carbon development, renewable energy, mechanisms stimulating investment

INTRODUCTION

The transition to a sustainable low-carbon development requires large amounts of investment. They can be mobilized at the global and national levels of effective policies and innovative mechanisms. However, in a short period of statistical observation in 2004 the dynamics of investing low-carbon economy has been very

controversial. At first (2004–2008) The volume of investments in renewable energy grew fast enough, but in 2009 declined significantly. This decrease was due to the general economic crisis that began in 2008. However, in 2012, a decrease in investment happened again. It became obvious that investing in a low-carbon economy moved into recession, caused not only by the general economic crisis, but a number of specific features of this sector. Despite the relatively short period of investment in sustainable low-carbon development and a low level of investment saturation, repeated reduction in investment in just 10 years is evidence of serious problems in the investment regime, structural imbalances and disharmony in the system of regulation and motivation. All of this requires in-depth research and this determines the relevance of this publication.

ANALYSIS OF RECENT RESEARCHES AND PUBLICATIONS

Number of researches and publications on the actual state of the investment low-carbon economy is still very small, since the statistical observation of this process did not begin until 2004. Most fully explore this process of international organizations such as the UNFCCC, UNEP, UNCTAD, MEA and others in their periodic reports [1; 5; 6; 7; 8; 9]. Among the scientists significant attention to the study of this problem pay: N. Andreeva [10], N. Demchenko [11] E. Dospehova [2], N. Katcov, N. Kobysheva, V. Meleshko [12], P. Sivokon [3], S. Kharichkov [13], Ye. Khlobystov [14], V. Sezina [15] and others. However, even in these surveys and studies they so far mostly cover investment dynamics and virtually no analysis of the causes and consequences of its environment. Especially are not yet researched investment crisis in the field of sustainable low-carbon development, its causes, effects and ways to overcome them.

The purpose of the article is to cover the objective laws of in low-carbon economy investment crisis, caused by disharmony in the regulatory system and the investment motivation and identifying the way out of the crisis.

LOW-CARBON ECONOMY INVESTMENT CRISIS

Statistical monitoring of the process of investing in low-carbon economy began only in 2004, and only in part of the development of renewable energy investment. It is taken into account that renewable energy, which is the most radical way of energy conversion, while energy conversion is the main direction of sustainable low-carbon development. Since than total investment in renewable energy development in the world grew up to 1.4 trillion dollars. Until 2009, the volume of investment in renewable energy was constantly growing. However, the

decline in 2009 and 2012 suggests that this process was influenced by the global economic crisis as well as the specific features of renewable energy. Dynamics of investments in renewable energy in developing countries were much faster (an increase 15 times) than in developed countries (an increase of 4 times). In developing countries, the dynamics of investment in renewable energy is stable and does not undergo such a situation (no recession) in developed countries (for 8 years – two drops).

The largest volumes of investments were invested in the solar energy sector – 42%, in wind energy somewhat less – 37%. In previous years, the high rate of attracting investment was in wind power, in the recent – on the contrary in the sun. Such dynamics shows the advance investment growth of solar energy.

In terms of accumulated investment for the period of statistical observation, the leaders are the European Union, the United States and China. According to the annual volume of renewable energy investment in recent years, China got the leadership. Significant amounts of accumulated investments (over 5 billion dollars) have also Australia, Japan, Turkey, South Africa and Mexico, and South Korea. China has become a leader in the manufacture and commissioning of renewable energy capacity. In 2012 China produced more than half of all wind turbines and solar panels in the world. In Germany, the bulk of investment in renewable energy (80%) are in the solar energy sector, where small solar panel are widespread. In the US, the bulk of investment in renewable energy (43%) are in wind power and 25% – for solar energy, 17% – for biofuels. The US remains the world leader in the development of venture investment in R&D in renewable energy, but lose their position in the development of production [1].

Significant investments in renewable energy are invested in the form of the acquisition of assets of companies operating in this field. They account for nearly a third of all investments in renewable energy for the 2004–2012 period. First place in the stock market is owned by wind power (almost half of the investment), the second – the sun, the third – bioenergy. However, in 2012, investments in the acquisition of assets declined to pre-crisis 2007. The main reason – the accumulation of excess production capacity and increased competition.

Over the past 10 years, investment in renewable energy market has undergone significant structural changes. This market began with the US and the EU. They caused the boom in the development of renewable energy in the early 2000s, after amplification mechanisms of state support for the market. Then the market rate of installed capacity grew 30% per year. But soon, the centers of investment in renewable energy has shifted from Europe and the United States to Asia, mainly to China. In 2012, China's investment in renewable energy was 67.7 billion dollars. Most of them came in the development and purchase of solar energy companies. The volume of investments the United States in 2012 was much less – 44.2 billion

dollars. This success in China was made possible thanks to strong government support of renewable energy investment [2].

In 2009 for the first time, and in 2012 again recession came to investing in renewable energy. Main renewable energy investor countries have reduced their investments by 10–20%. Governments have begun to cut the programs to promote environmental investments. Following the govenments, private companies have ceased to believe in this line of business. Reasons for the decline of investments are diverse: the country decide to dramatically increase production of traditional energy sources, rely on nuclear power, or do not see the markets for the industry, which works for the needs of environmental projects.

In the United States energy doctrine changed. Now here predict that in 30 years the US will become the most oil and shale gas producing country. By 2030, the United States plans to cover all of its own energy needs. Congress refused to extend the tax credit for renewable energy (2.2 dollars Per kilowatt-hour) for 2013. This decision caused a reduction in investment in renewable energy [3]. The EU has also pondering what to do next with the support of renewable energy. In 2012, Germany and the UK said they can not afford to spend heavily on "green" projects. Although in 2011 the EU has invested in this area 100 billion dollars of public and private funds. In the UK, believe that it is necessary to increase the use of coal. In Germany are going to run nuclear power plants shut down after the accident at Fukushima in 2011 [3]. Thus, the action of European governments in fact run counter to the EU energy strategy. In this document, the EU has committed itself to 2030 to receive at least one third of energy from renewable sources. But economic problems came out to be more important than environmental. However, the most serious impact to the investment market of renewable energy received from increased competition (mostly unfair) including specific – between the mechanisms of state support in different countries.

Chinese producers of renewable energy capacity have begun actively to sell on the US and EU markets. For five years, their market share of solar panels in the EU has more than doubled – up to 80%. This was made possible primarily due to the continuous decrease in the price of equipment for renewable energy. So the cost of solar panels in China from 2009 to 2012, fell almost three times – up to 761 Euro/kW. In this case, the cost of solar panels of European manufacturers exceed 1 thousand Euro/kW [4]. Production of solar cells in China increased by 40% annually. In the domestic market supply was significantly higher than demand. That's why Chinese companies went to US and EU markets and started dumping and almost pushed out their local producers. For example, the capacity of the largest US manufacturer of solar modules – First Solar – are loaded only by a quarter. A company Solyndra was not saved by strong financial support from the state and filed for bankruptcy.

The main struggle for the market for renewable energy equipment turned on the European continent. After the accident at Fukushima, Germany renounced nuclear energy, which is 22% of its needs. This energy deficit needs to be filled. In general, the EU in 2010–2011, the power shortage of renewable energy, mainly solar, reached 5 GW. Most of them "mastered" Chinese manufacturers – mainly due to lower prices. The cost of solar panels has fallen from 2 thousand Euro/kW in 2010 to 0.6 euros in 2013. A significant portion of European manufacturers realized that this business is not interesting. In late 2012, the corporation Siemens said it would soon sell his business for the production of panels, as in 2011 it brought 150 million euro of losses. American First Solar has also been forced to curtail production in Germany. German companies Solon, Solar Millennium, Solarhybrid and Q-Cells and others have gone bankrupt [2; 3; 4].

Therefore, in 2013, the European Commission launches anti-dumping investigation against imports of solar panels and their components from China for unfair competition and sale of products on the EU market at low prices. The Commission concluded that suppliers from China imported solar panels in Europe at prices twice lower than domestic prices in China (the margin of dumping ranged from 48 to 112%) [4]. But the needs of the European market exceeded the capacity of local producers by almost half. Therefore, it is clear that despite the imposition of duties, some Chinese suppliers would remain in the European market.

In China, the situation is also much more complicated. A crisis of overproduction of solar panels emerged. This put manufacturers on the brink of bankruptcy. But this was preceded by active dumping policy of both the government and the producers themselves. China is one of the few countries that simultaneously stimulates both consumers and producers of solar energy. Therefore, Chinese enterprises due to state subsidies can trade their units even at cheaper cost. However, the Chinese have overestimated the dynamics of consumption. According to the Solar Energy Industries Association, in 2013, the need for the whole world in solar energy is about 30 GW. But Chinese manufacturers can produce panels up to 50 GW. Having captured the world market and faced with a decline in demand for it, China is forced to spend more on subsidies to their own producers. According to the Solar Energy Industries Association, by 2015, China will need to allocate annually to support the solar energy industry 50 billion dollars and it is more than 70% of the total Chinese production of solar panels per year. Further expansion is impossible – it will only increase the debts of the industry [2].

So until recently, very attractive for investors due to the high global relevance and state support, the market for solar energy equipment is undergoing structural changes. In the US and Europe, the companies engaged in the manufacture of equipment for solar power plants close one after another. In 2012 American Amonix, Konarka, Solar Trust of America and Solyndra, German Solarhybrid and

Q-Cells went bankrupt. Many manufacturers of solar panels over the past three years lost 90% of capitalization. Among them were such famous companies like German Solar-Fabrik. And despite the fact that all this happened, since 1999, the global market release of solar modules is continuously growing, and the growth was not less than 30% per year [3].

There was, at first glance, a paradoxical situation: the market is extremely important, is booming and companies are going bankrupt. Some experts attribute this to the active shale gas production and falling gas prices. Others believe that the cause is a global oversupply of equipment for the solar industry. Now the demand for this equipment is already lagging behind the offer: manufacturing companies can provide production of 50–60 GW of capacity, and for a year they set no more than 30 GW.

Problematic situation in the market of renewable energy is indicated by the failure of German industrial concerns Bosch and Siemens to participate in the project Desertec, which provides for the construction by 2050 in the deserts of the Middle East and North Africa of a large-scale solar power plants and wind farms. The reasons for its withdrawal from the project by German companies refer only to "economic conditions" that do not allow to continue to support this initiative. But perhaps a project Desertec, which is supported by 12 countries, will be joined by China, who is willing to support their manufacturers.

At the same time, studies show that there are institutional and political barriers that inhibit private investment in low-carbon projects. This refers primarily the weakness of regulatory measures for the reduction of carbon emissions, disharmony and contradictory application of motivational mechanisms, the absence of a global policy of payments for carbon emissions, centralized form of special funds for financing sustainable low-carbon development, low availability of private finance in developing countries, and especially in the least developed countries; weak interest of developed-country TNCs to invest heavily in the global project of transnational low-carbon development.

To eliminate these barriers to investment in low-carbon economy in recent years a set of international investment initiatives focused on it. However, they are all very declarative and limited. For example, created in 2011 the Green Climate Fund only up to 2020 (10 years) can save about 100 billion dollars, with annual requirements for adequate funding of anti-carbon measures at the level of one trillion dollars.

To effectively address the problems of sustainable low-carbon investment development it is required to powerfully facilitate the integration of public and private financial interests. First, public finances can expand and develop new incentives aimed at a larger scale to attract private financial flows. Secondly, the public finances can be focused on the reorientation of the whole economic (fiscal,

budget, credit) policy of high-carbon to low-carbon economy. Third, government promotion of more active participation of financial institutions, banks and institutional investors in investing in low-carbon economy.

CONCLUSIONS

1. Investment crisis of sustainable low-carbon development – is a classic crisis of global deregulation and disharmony of mechanisms of investment regimes. Investment crisis is an objective law of contradiction and inconsistency of global anti-carbon policy, disharmony in the mechanisms of motivation and regulation; national protectionism; unhealthy (unfair) competition; the absence of a global system of regulation and motivation of investment processes.
2. Overcoming the crisis investment in sustainable low-carbon development is possible through the creation of a single supranational system of joint (coordinated) regulatory and incentive mechanisms to ensure the implementation of key provisions of the global anti-carbon policy.

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PROBLEMATYKA PONADNARODOWYCH INWESTYCJI GOSPODAREK NISKOEMISYJNYCH

Abstrakt. Artykuł zwraca uwagę na kontrowersje związane z dynamiką ponadnarodowych procesów inwestycyjnych w zrównoważonym rozwoju niskoemisyjnym. Ponadto przedstawiono przyczyny recesji, które doprowadziły do kryzysu inwestycyjnego związanego z dysharmonią w regulacjach mechanizmu systemów inwestycyjnych. Opierając się na analizie szeregów czasowych, Autor zauważył, że główne inwestycje związane z energią odnawialną dotyczyły energii słonecznej, wiatrowej i bioenergii. Głównym dostawcą zasobów inwestycyjnych są Chiny, które wyprzedziły na tym rynku Stany Zjednoczone. Za pomocą metody eliminacji Autor stwierdził, że spadek inwestycji w odnawialne źródła energii w 2009 roku nastąpił w wyniku ogólnego kryzysu gospodarczego, a w 2012 roku był wynikiem dysharmonii mechanizmów regulacji i odmiennych motywacji inwestycyjnych, doprowadziło to do nieuczciwej konkurencji na tym rynku. Ponadto przedstawio-

no przyczyny i skutki pierwszego kryzysu inwestycji w odnawialne źródła energii. Autor sformułował zalecenia dotyczące globalnej polityki i potrzebnych globalnych zmian w regulacjach systemów inwestycyjnych i motywacji inwestycyjnych w ramach rozwoju zrównoważonego gospodarek niskoemisyjnych.

Słowa kluczowe: kryzys inwestycyjny, zrównoważony rozwój niskoemisyjny, energia odnawialna, mechanizmy stymulowania inwestycji