Development of a "green" economy: world experience

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Abstract: This scientific article examines the world experience in the development of a "green" economy. The transition to a "green" economy in the world community is demand of the time and real reality. Among the main factors determining the extent to which states are involved in this process are the scarcity of resources and the level of their pollution, the presence of political will at the highest level and public support for government initiatives. Keywords: green economy, natural resources, air pollution, environment, pollution index, agricultural land, water resources, energy.

1 Introduction

According to the classification of the Organization for Economic Cooperation and Development (OECD), the "green" economy is present in the following areas:
- general environmental management (waste management, water and air pollution control, land restoration, etc.);
- production of energy from renewable sources (solar energy, biofuels, etc.);
- climate change mitigation;
- reduction of harmful emissions into the atmosphere;
- improving the efficiency of fuel use, as well as energy efficiency in buildings and lighting fixtures [6].

Experts identify four main channels through which the formation of a "green" economy and related structural reforms can serve as engines of economic growth, leading, among other things, to an increase in GDP.

First, the transition to a green economy can increase natural, physical and human capital inputs. We are talking about increasing the productivity of natural resources (forest, fish, agricultural land, etc.) due to more efficient management of natural capital, improving the quality of human potential from improving health and reducing the incidence of the population due to improved environmental conditions. Finally, about reducing the economic damage from the loss of human resources due to more skillful management of environmental risks, including forest fires, floods, and other natural disasters.

Secondly, this transition should be accompanied by favorable structural changes and involves significant investments in a number of sectors such as energy, construction, housing and communal services, etc., aimed at updating production capacities, increasing energy
efficiency, switching to alternative energy sources and reducing greenhouse gas emissions. All these results are reflected in the increase in the efficiency of the basic sectors of the economy.

Thirdly, investments in the development of “green” infrastructure are independently allocated, including the water supply and sewerage system, public transport oriented towards alternative fuel sources, etc. These structural changes and significant investments can spur economic growth, both on the supply side and on the demand side, while expanding employment and helping to reduce unemployment.

And finally, fourthly, the transition to a green economy stimulates innovation activity, including at the firm level (measured, as a rule, through R&D spending and patent activity), which should be supported, along with the creation of a favorable competitive environment, as well as methods of regulation, including the introduction of standards and regulations. In this case, we are talking about the innovation effect.

2 Main part

Particular attention in the transition to a green economy is paid to the formation of a modern infrastructure necessary to ensure sustainable development. The infrastructure sectors include water infrastructure (including dams and reservoirs), land management and territorial planning, housing construction and urban development, coastal flood protection system, road and transport infrastructure (including ports, bridges, roads), energy (including nuclear power plants) and a number of others.

These sectors are characterized by the long service life of the production apparatus used in them (from 20 to 200 years for the listed range of sectors) and the long-term nature of investments, as a result of which their environmentally oriented modernization is of fundamental importance. At the same time, infrastructure industries are characterized by a pronounced efficiency of economies of scale, network effects and synergies between economic, environmental and social goals.

Let's consider some ways of forming a green economy in countries that consider this area a priority.

South Korea is one of the world leaders in the green economy. In this country, 3% of GDP or 60 billion US dollars since 2011 has been directed to the development of "green" sectors, and 1.8 million jobs have been created [1].

South Korea, which has chosen the concept of "green" growth as a national strategy, focuses on industry, energy and investment, "green" modes of transport, alternative sources of fresh water, waste recycling technologies, development of parks, and improvement of rivers within the city. The various projects that the ministries carried out independently were combined into a single package in order to avoid budget expenditures for secondary purposes.

Since 2011, South Korea has launched a green payment card system to encourage green consumption of goods produced with environmental innovations. With the help of such cards, the consumption of "green" goods and services, the use of public transport instead of personal, as well as the use of energy-efficient goods are taken into account.

Almost all EU countries have developed "green" measures in the field of energy, the development of public transport and infrastructure, the construction of eco-villages, as well as recycling systems.

The EU has adopted Euro-5 standards for automotive emissions and is already preparing the introduction of new Euro-6. Multimillion-dollar subsidies are provided to buyers for the purchase of electric vehicles.

The UK has adopted the green technology economy as its national development strategy and recently unveiled its green projects aimed at creating 100,000 new jobs.
Swedish plans to completely get rid of oil by 2025, as well as eliminate coal and nuclear energy from processes.

The European Union also adopted a program for the period up to 2050 for the transition to a low-carbon economy. The program sets targets for reducing greenhouse gas emissions by sector by 2030 and 2050 (by 40–44% and 79–82%, respectively). In addition, the program outlines measures to achieve these and other goals, such as reducing fuel costs (by 175-320 billion euros annually).

After representatives of the UK business community asked the government to clearly declare the state's position on green growth, determine its main directions and inform business about upcoming plans to adopt new tools of economic regulation in this area, in 2011 a and published a "route map" for the country's transition to a "green" economy. And although many called this document insufficiently specific, nevertheless, it provided recommendations on the form in which business and the state can contribute to the transition to a green economy.

The aim of the partnership is to support the infrastructure for the market for environmental goods and services, with the goal of not only increasing its market value by £617 million over five years, but also creating up to 4,000 new jobs.

Germany is undoubtedly one of the leaders in the world market of "green" technologies. It accounts for about 20% of all environmental technologies patented in the world and more than 30% of technologies in the field of renewable energy. The "green" sector employs 4.5% of the total economically active population of the country, and this figure is constantly increasing. In addition, today Germany ranks first in terms of trade in environmentally friendly products (this is 16% of the entire world market) [4].

Most of the world market for automated waste sorting systems is also in Germany. Although the main and most successfully developing "green" industry in Germany is the field of renewable energy.

The main reason that predetermined the intensive development of renewable energy sources in this country is, of course, dependence on imported energy supplies. By main types Germany's energy carriers are almost 90% dependent on supplies from abroad.

The development of green energy in Germany is tightly controlled by the state. However, state regulation is not based on bringing plan targets from above, but on creating an appropriate infrastructure, organizing explanatory work, legal support and the use of market incentive mechanisms.

3 Discussions

The introduction of green technologies in the energy sector is accompanied by intensive propaganda work, covering virtually the entire population of the country. Classes on renewable energy with an explanation of its importance for the economy and the environment, types and principles of operation of devices operating on alternative energy, are organized in kindergartens, schools and universities. The topic of renewable energy does not leave the TV screens, it occupies an important place in socio-political discussions and speeches by the country's leadership.

The United States has chosen the development of alternative energy as the main direction for the development of the green economy. By 2030, solar installations will produce 65% of the energy consumed by the country and 35% of heat. The governments of the US states have been given two years (starting from 2014) to independently develop specific measures to achieve this goal. Barack Obama, when he was President of the United States, announced his plan to invest in the development of environmentally friendly technologies for the next 10 years, in order not only to improve the environmental situation, but also to create up to 5 million jobs [3].
The American president proposed to make the USA the first state in the world so that by 2035 80% of the electricity produced in the country would be of "clean" origin, i.e. so that wind, sun, nuclear materials, "clean" coal and natural gas are used for its production [5].

As the main directions of the efforts of the US federal authorities, designed to ensure the development and competitiveness of the American economy, highlight the creation of a structured market for green economy products, the creation of a favorable investment climate, the promotion of the development of advanced technologies and the provision of support for green initiatives at the local level.

The approach assumes that the government at all levels should strive to purchase for its own needs, first of all, the products of the green economy. About 20% of the total anti-crisis financing package was allocated for the development of renewable energy.

4 Results

In China, by 2025 it is planned to receive 15% (now 9%) of electricity from renewable sources, and reduce the carbon intensity of the economy by 45%. The trend towards the development of green technologies in China has been established for five years since 2011.

More than 2,000 environmentally polluting companies have been forcibly closed in China. The volume of public investments in energy conservation, renewable energy, and related technologies in China exceeded the US and EU figures by several times. Chinese manufacturers already account for 40% of global exports of solar panels and 20% of wind turbines.

Another area of "green" technologies that are being developed in China is nanotechnology. In 2020, the Global Nanofiber Innovation Center Glodal Innovation GICNA was opened. Beijing's undeclared goal is to become a global leader in green technology in the 21st century.

Japan announced a 40% reduction in the use of oil as an energy source. The European Commission has announced a 20-20 by 2020 plan to reduce carbon emissions by 20% along with an increase in the use of renewable energy sources up to 20% by 2020 [2].

5 Conclusion

Thus, we can say with confidence that the transition to a "green" economy in the world community is not a blue dream, but a very real reality. Among the main factors determining the extent to which states are involved in this process are the scarcity of resources and the level of their pollution, the presence of political will at the highest level and public support for government initiatives.

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