Talking about the Application and Sustainable Development of New Energy

Wu Yujia
(Dalian University of Technology, Dalian 116023, China)
E-mail: 1791449849@qq.com

Abstract: With the rapid development of the economy, the dependence of the whole society on energy has been continuously improved. The development and utilization of renewable energy (new energy) such as wind energy, solar energy, ocean energy and geothermal energy have attracted the attention of the power sector. Although these renewable energy sources are widely used in power system power generation and occupy an increasing proportion, the use of these renewable energy sources is restricted due to their randomness and intermittent nature. This paper briefly discusses the background, current status, and environmental impacts of new energy sources and the related countermeasures. Focusing on China as a developing country, the development of new energy not only has an impact on China's economic development, but also on the environment. In addition, a brief description of how to better develop and utilize new energy sources is also provided.

1. China's new energy development background and current situation

1.1 Overview of New Energy
New energy comes in all forms of our lives, and this variety of forms comes directly or indirectly from the heat generated by the sun or deep inside the earth. Compared with traditional energy sources, new energy sources are characterized by less pollution and large reserves. It is of great significance to solve the serious environmental pollution problems and resource depletion problems in the world today.

Generally speaking, conventional energy refers to energy that is relatively mature in technology and has been utilized on a large scale. New energy usually refers to unconventional energy that has not been widely used and is actively researched and developed. Therefore, coal, oil, natural gas and large and medium-sized hydropower are regarded as conventional energy sources, while solar energy, wind energy, modern biomass energy, geothermal energy, ocean energy, nuclear energy and hydrogen energy are used as new energy sources. With the advancement of human technology and the establishment of the concept of sustainable development, industrial and domestic organic waste, which has been regarded as garbage in the past, has been re-recognized, and it has been deeply researched and exploited as a material for energy resource utilization. Therefore, the resource utilization of waste can also be seen as a form of new energy technology.

1.2 Basic characteristics of new energy power system
The power system is a power production and consumption system consisting of power generation, transmission, distribution, and electricity. Its function is to convert primary energy from natural power...
into power through power generation, and then supply power to users through the transmission system. The basic feature of the power system is to ensure the balance of supply and demand of energy. Since electric energy is difficult to store in large quantities, the power system generally relies on medium and long-term load forecasting and planning, short-term load forecasting and unit optimization scheduling, ultra-short-term load forecasting and automatic generation control (automatic generation control. The power supply side is controlled to ensure the balance between supply and demand of electric energy. When the system is running in real time, when the power generation side control cannot ensure the stability of the power grid, the method of removing the load will be adopted to maintain the stable operation of the power grid.

2. The importance of sustainable development of new energy

2.1 Developing new energy is the only way to solve climate change
The 1990s was the warmest decade on record, and the earth is heating up. The global average temperature will rise by 2-3 degrees Celsius in the next 5 to 10 years. If greenhouse gas emissions continue to increase, it will increase by a few degrees. If no appropriate measures are taken for greenhouse gases, the world will have a Great Depression like the 30th century. Floods and droughts caused by climate warming will displace 200 million people.[3] The warming of the ball will cause more than a quarter of the world's more than 1 million species to disappear in the next 50 years. The continued warming of the climate will also lead to more frequent extreme weather. How can we survive on such an earth? From this point of view, climate change is more important than the financial crisis, and the fundamental measure to solve the climate change problem is to develop new energy.

New energy development highlights clean energy and renewable energy, including hydropower, nuclear power, wind power, solar power, biogas power generation, as well as geothermal utilization and clean utilization of coal. In particular, the wind power industry is a strategic and leading industry of the national economy. The development of the wind power industry is of great significance for adjusting the energy structure, saving energy and reducing emissions, and coping with climate change. The development of new energy sources, relying on scientific and technological progress, continuously improve the ability to cope with climate change, and make positive contributions to the protection of the global environment.

2.2 Develop new energy sources for sustainable development
Nearly 70% of China's current energy consumption is supplied by coal. This over-reliance on fossil fuel energy structure has caused great environmental, economic and social negative impacts. If we do not pay more attention to increasing the proportion of clean energy and improve energy structure, trends are expected to reduce China's carbon dioxide emissions by 28% of global emissions by 2020. Our own environment and international public opinion do not allow us to follow this path. Now the global oil measurement can still be mined for 47 years, and coal can be mined for 140 to 150 years. If the mode of production and use of energy in the past two hundred years is not major adjustment, the survival of human society will be seriously dangerous. After all, energy is limited.[4] The development of new energy sources no longer depends on traditional energy sources, not only the sustainable development of energy, but also the sustainable development of mankind.

2.3 Developing new energy is the most direct means of improving environmental pollution
The exhaust gas emitted by various vehicles, the dust and exhaust gas produced by various types of factories, and the gas generated by the combustion of gasoline and coal carbon have undoubtedly had a serious impact on the environment. Air pollution, whether it is gas or particulate pollutants, when the concentration is too high and too much, will cause the human or animal respiratory organs to lose their defense and clearing functions, and endanger life. In addition, it also acidifies rivers, lakes and soils, and destroys the entire ecosystem. More serious, it will produce acid rain, greenhouse effect, and damage the thermal energy balance of the atmosphere. Not only that, industrial wastewater accounts
for 54% of all water pollution, and is the most important source of pollution in rivers. Industrial waste water contains various oxygen-consuming substances (such as heavy metals, pesticides, etc.). If accumulated in animals and plants through bioconcentration and food chain action, it will cause various diseases and directly endanger life. Moreover, after the Second World War, countries advocated the peaceful use of nuclear energy. Therefore, radiant energy is applied to medical, agricultural, industrial, and nuclear power generation. The progress of nuclear power generation is the most important, because if it is not careful, it will cause The leakage of radiation causes pollution. No matter what kind of pollution directly harms the lives of humans, animals and plants, can we sit still? Is it necessary to develop new energy sources and change the drawbacks of traditional energy use?In summary, the development of new energy can be regarded as an arduous task for human beings, and its importance can be imagined.

3. Countermeasures for sustainable development of new energy

3.1 Increase the research and development of new energy technologies
Strengthen R&D and technological innovation in the field of renewable energy, and incorporate it as a priority in the national medium- and long-term science and technology planning. Renewable energy technology is a high-tech field that China's strategy must strive for. It is the core technology for the country to establish a sustainable energy system, and it also reflects the country's comprehensive An important symbol of scientific and technological strength and national comprehensive competitiveness. China's institutions engaged in research on new energy technologies are distributed in hundreds of universities and research institutions. Although the number is large, due to the scattered power, there are not many world-level research results. A new-level new energy science research institute should be established, adhere to the principle of combining independent research and development with technology introduction, master core competitiveness technologies, and achieve industrialization. We should grasp the favorable opportunity for the global layoffs caused by the financial crisis, actively create conditions to attract foreign high-end research talents, increase the support for new energy development, and create a good market environment for the new energy industry. At the same time, focusing on the research of major basic science and technology of new energy, strengthen scientific research, and change the backwardness of China's new energy science and technology as soon as possible.

3.2 Correct choice of new energy development direction

3.2.1 Clarify the long-term importance of renewable energy in China's energy strategy
Clarify the long-term important position of renewable energy in China's energy strategy, strengthen the comprehensive system construction of renewable energy development, promote technological innovation in the renewable energy industry and occupy the market on a large scale, and make renewable energy develop rapidly and healthily. The construction of the system must form a market mechanism of national legislation, policy incentives, and public participation. According to the state of resources and the level of technological development, we will establish a development direction focusing on solar energy, nuclear energy and wind energy. Solar energy is the renewable energy with the greatest resource potential. Fossil energy, wind energy, biomass energy and certain ocean energy are indirectly or directly from solar energy.

3.2.2 Taking wind power as a breakthrough, do a good job in surveying and evaluating the resources of pre-renewable energy development.
The government should organize a resource survey. It is recommended that wind power be used as a breakthrough, and the National Development and Reform Commission will jointly arrange funds, and at the same time, find and investigate the sites suitable for building wind farms and measure winds nationwide.
Today, China mainly solves the "three rural" problem, and the development of new energy has also pointed out a new way for solving the "three rural" problem. Through new energy sources with wind power as the main development, grid companies should make full use of small-scale wind power generation systems, small-scale photovoltaic power generation systems, wind-solar hybrid power generation systems, micro (small) hydropower systems, and other renewable energy technologies, off-grid power generation systems and renewable energy technologies. The energy household power generation system solves the basic electricity consumption and basic energy consumption of the non-electricity population, and the government subsidizes investment and expenses. At the same time, we must actively support and promote the comprehensive utilization model of renewable energy in rural areas by combining energy development, environmental protection and economic benefits, so that the development and utilization of renewable energy becomes an important means to solve the "three rural" problems.

3.3 Adjust and improve new energy development plans and policy measures

3.3.1 Establish a guaranteed investment and financing mechanism for renewable energy
After the release of the national guidelines for priority areas for renewable energy and new energy technology industrialization, governments at all levels and relevant institutions should arrange special funds for technology research and development to support the development of renewable energy development and utilization enterprises with independent intellectual property rights. In addition, state-controlled commercial banks should provide loans to enterprises listed in the national priority support areas and receive support from the government. The state should establish a special financial fund to support renewable energy, include it in the national recurrent budgetary project, and establish a special policy financing system to support the development of renewable energy technology and industrialization. At the same time, the competent government departments should increase regulation and control, strengthen the regulation and supervision of the renewable energy market, regulate the interest differential spread and all aspects of interests, and provide a good market environment for the development of renewable energy industry.

3.3.2 Implement the “going out” strategy early
Although China is a vast country with abundant resources, it is also a country with poor uranium resources. The resources are far from meeting the needs of future nuclear power development and people's lives. The supply of uranium mines must rely on the international market to strengthen negotiations with countries with rich uranium resources. Relevant statistics show that the countries with rich uranium resources in the world include Australia, the United States, Kazakhstan, Canada, Russia and other five countries with a total of two-thirds of the world's resources. Among them, Australia and Kazakhstan are non-nuclear power countries, and the uranium produced is mainly used for export. China has good relations with countries such as Kazakhstan and can be an important target country for implementing the “going out” strategy of uranium mines. The focus of cooperation should be placed on the most upstream exploration and mining areas, seeking to obtain as much exploration and mining rights as possible, and providing a stable, long-term source of nuclear fuel for our nuclear power plants.

4. Conclusion
Energy is the guarantee for human survival, but it is also the constant topic of human development today. In the pattern of world economic development, the development and benefits brought about by energy are of great importance. In today's development, due to the unreasonable use of energy in the development process, energy shortages have occurred. However, the replacement of traditional energy sources of new energy is the necessary path to promote the world economy to sustainable development. Furthermore, regarding the development of new energy sources, there are many environmental conditions and imperfect social conditions, which make it impossible to provide a good market for the
development of new energy.

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