Analysis of The Impact of New Energy Development and Utilization on The Environment and Economic Growth

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Abstract. Since the reform and opening up, my country’s economy has grown rapidly, becoming the world’s second largest economy, and its energy consumption has continued to increase. Extensive use of traditional energy sources severely damages the ecological environment, and due to its non-renewable characteristics, the world today is facing a shortage of resources, which is not conducive to sustainable economic development. In this context, countries have begun to vigorously develop and utilize new energy. Therefore, this article first introduces the concept, characteristics and basic classification of new energy in order to have an in-depth understanding of it; then analyzes the impact of the development and utilization of new energy on the environment and economic growth; and finally puts forward relevant suggestions on how to better develop and utilize new energy.

Keywords: New energy, environment, economic growth.

1. Introduction
Traditional energy has always been the basic driving force of modern social and economic development. However, traditional energy has the characteristics of non-renewable and high pollution, which has caused the world to face problems such as resource depletion and environmental pollution. This shows that the development and utilization of traditional energy sources cannot promote healthy and sustainable economic development, and will seriously damage the ecological environment. Because of the characteristics of new energy being renewable and low pollution, all countries have begun to pay attention to the development and utilization of new energy. The report of the 19th National Congress of the Communist Party of China emphasized the need to promote green development, and the development of clean energy is an important task for improving the energy structure, ensuring energy security, and promoting the construction of ecological civilization. Therefore, this article analyzes the impact of new energy development and utilization on the environment and economic growth, and provides suggestions on how to better develop and utilize new energy, which has certain practical significance.
2. Concept, characteristics and classification of new energy

2.1. The concept of new energy
New energy mainly refers to the development and utilization of a series of renewable energy based on new technologies, such as solar energy, tidal energy, wind energy, geothermal energy, hydropower, wave energy, biomass energy, geothermal energy and other new energy sources. In addition, hydrogen energy, alcohol, biogas, etc. are also new energy sources. Because the long-term use of traditional energy sources such as oil, coal, and natural gas has severely damaged the ecological environment and caused many adverse effects on our country’s economic development, the development and utilization of new energy sources has received widespread attention and attention, and various social development areas have gradually started to use new energy.

2.2. Characteristics of new energy
First of all, new energy resources are relatively abundant and have strong renewability. People can develop and use new energy sources for a long time, such as geothermal energy, wind energy, and solar energy. Secondly, the energy density of new energy itself is relatively low, and the development and utilization of new energy requires a lot of space; and the carbon content of new energy is relatively low, and its development and utilization have relatively little impact on the environment, which is conducive to smooth development and progress environmental protection work in our country. Finally, the distribution of new energy resources is also relatively wide, which helps to realize the decentralized use of new energy resources. In addition, new energy has many other characteristics. People can obtain more benefits in the continuous development and utilization of new energy, and can provide more powerful energy guarantees for social and economic development.

2.3. Classification of new energy
The United Nations Development Program divides new energy into three categories: one is large and medium-sized hydropower; the other is new renewable energy, including wind energy, modern biomass energy, ocean energy, solar energy, and geothermal energy; and the third is traditional biomass energy. In fact, with the continuous development of social history and the continuous improvement of technological development, the connotation of new energy has also changed. According to existing research, new energy sources mainly include solar energy, nuclear energy, ocean energy, wind energy, biomass energy, geothermal energy, hydrogen energy, etc. Among them, biomass energy also includes various forms of energy: biomass power generation, biofuels, biogas, etc. Figure 1 explains the types, meanings and characteristics of new energy in detail.

3. China's energy consumption structure
Figure 1 shows my country's energy consumption structure in 2019. It can be seen from the figure that my country’s current energy consumption is still dominated by traditional energy sources such as coal and crude oil. In 2019, coal energy consumption accounted for 57.7% of all energy consumption, reaching more than half, while new energy sources such as wind, hydropower and nuclear power The proportion is still low, which shows that my country's energy consumption structure is still unreasonable and the level of development and utilization of new energy is still relatively low. The development and utilization of new energy can optimize China's current energy consumption structure, reduce the use of traditional energy sources such as coal, save energy and reduce emissions, and protect the environment. The new energy industry is currently a new industry, full of vitality and very promising for development. The development and utilization of new energy can also optimize China's industrial structure, promote the upgrading of industrial structure, and promote sustainable economic development.
Table 1. Classification and characteristics of new energy

| Type of energy   | Meaning                                                | Features                                                                 |
|------------------|--------------------------------------------------------|--------------------------------------------------------------------------|
| Solar energy     | Generally, refers to the radiant energy of sunlight    | Clean and environmentally friendly, zero pollution rate, high utilization value |
| nuclear energy   | The energy released from the nucleus by transforming its mass | Nuclear waste has potential hazards, and the treatment technology has not been solved; the investment cost is high, the risk is high; the resource utilization rate is low; |
| Ocean Energy     | Renewable energy contained in seawater                  | The energy storage is huge, but the energy per unit volume, unit area, and unit length is small; it is renewable; it has stable and unstable energy; clean energy |
| Wind energy      | Kinetic energy generated by airflow                     | Large reserves, wide distribution, low energy density                     |
| Biomass energy   | Derived from biomass, it is a form of energy stored in organisms in the form of chemical energy by solar energy | Abundant resources, renewable, low pollution                             |
| Geothermal Energy| Natural heat extracted from the earth’s crust comes from the lava inside the earth | Abundant resources, widely distributed, low pollution                     |
| Hydrogen energy  | Energy produced by the reaction of hydrogen and oxygen  | Safety and environmental protection; high temperature and high energy heat loss, high efficiency; renewability; reduction characteristics; variable temperature characteristics |

Figure 1. China's energy consumption structure in 2019

4. The impact of the development and utilization of new energy on the environment
New Malthusian theory believes that excessive consumption of traditional energy will eventually lead to environmental decline. Nowadays, the extensive development and utilization of traditional energy sources have indeed severely damaged the ecological environment. Consuming fossil energy will emit a large amount of sulfur dioxide emissions into the air, which will seriously affect air quality. The
nitrogen oxides produced by burning coal form acid rain. These pose serious threats to our natural resources, ecosystems and public health, and seriously affect the national economy and people's normal lives. The use of a large amount of traditional energy sources such as oil and coal will continuously emit carbon dioxide, nitrogen oxides and other greenhouse gases into the air, accelerating the process of global warming. The mining of coal will cause environmental problems such as subsidence of the ground, destruction of aquifers, and severe degradation of vegetation. Mining coal every year will cause extensive damage to the land, but the repair rate is less than 30%. However, some scholars believe that the development and utilization of new energy sources will also have adverse effects on the environment. If new energy cannot be developed and utilized rationally, new energy may also become a "killer" that destroys the environment, and its harm is no less than the impact of traditional energy. For example, the Fukushima nuclear power plant and the Chernobyl nuclear leak brought devastating blows to the natural environment. In terms of water conservancy, although the construction of the Aswan Dam can irrigate farmland and develop electricity, it has salinized the soil on both sides of the bank and severely damaged the ecosystem on both sides of the bank.

However, as far as the current situation of new energy development and utilization is concerned, the advantages of new energy development and utilization on the environment outweigh the disadvantages, because improving the technical level of new energy development and utilization can greatly reduce its negative impact on the environment. That is, we can develop and utilize new energy more rationally by improving the technical level of new energy development and utilization, reduce its pressure on the environment, and reduce some unnecessary natural disasters. For example, the third-generation nuclear power technology has greatly improved the safety factor, while the fourth-generation nuclear power technology is also expected to make breakthroughs, which will further improve the safety of nuclear energy development and utilization. New energy has the characteristics of renewable, pollution-free, and low emissions. Its development and utilization will help change China’s current energy consumption structure based on traditional energy such as coal and oil, and reduce greenhouse gas emissions caused by the use of traditional energy. Environmental issues such as air pollution and water resource pollution meet the needs of green development of the ecological environment.

5. The impact of the development and utilization of new energy on economic growth
The development and utilization of new energy is conducive to promoting economic growth and bringing huge economic benefits to national development. The impact of new energy development and utilization on economic growth is mainly reflected in the following aspects:

(1) Reduce investment in environmental governance
In the process of economic development, the extensive use of traditional energy sources has severely damaged the ecological environment. Judging from the experience of Western countries, the idea of first pollution and then treatment simply does not work. Once the ecological environment is destroyed, more funds need to be invested in restoration. Every country must take responsibility for the environmental pollution that it produces during its development. But the treatment of environmental pollution is a long-term process, which requires a lot of money, and the effect is not significant. This is currently a difficult point in every country in the treatment of environmental pollution. In this context, the development of the national economy is bound to be affected to a certain extent. New energy has the characteristics of renewable, pollution-free, and low emissions. Therefore, the development and utilization of new energy can fundamentally solve the problem of environmental pollution, and gradually reduce the country’s investment in environmental pollution control, which can promote economic growth to a certain extent.

(2) Reduce the economic cost of energy consumption.
Economic growth must consume all kinds of energy. New energy is a sustainable energy source. Sustainable energy has the characteristics of being reusable, and long-term use of sustainable energy can reduce its development costs. For example, for the construction of photovoltaic power generation
projects, the initial investment cost is very high, but the service life of photovoltaics is generally about 25 years, and net profits can be made after 7 years of use. That is, after a period of development and utilization of new energy, the cost of economic energy consumption will be diluted, and the average cost of energy consumption will be greatly reduced, which is conducive to increasing economic production capacity and promoting economic growth.

(3) Optimize the economic and industrial structure

The rapid economic and social development will inevitably lead to a continuous increase in energy consumption. Energy as a basic element of social production is self-evident for economic development. The development and utilization of new energy plays a significant role in optimizing China's economic and industrial structure. The new economic system of low-carbon industry, low-carbon agriculture and low-carbon service industry with new energy as the core gradually takes shape, which improves the rationality of China's economic development model.

6. How to develop and utilize new energy

Combined with the above analysis, it is found that the impact of the development and utilization of new energy on the environment is a double-edged sword, which mainly depends on the technological level of the development and utilization of new energy. With the continuous improvement of technological level, the negative impact of new energy development and utilization on the environment will become smaller and smaller, and the advantages outweigh the disadvantages. Moreover, new energy can reduce the investment in environmental governance, reduce the economic cost of energy consumption, optimize the economic and industrial structure, and promote the healthy and sustainable development of the economy. Therefore, our country should increase efforts to develop and utilize new energy. Regarding how to develop and utilize new energy, this article puts forward the following suggestions.

(1) Increase the strength of government support

The government's support for the development and utilization of new energy is an important guarantee for its development and growth. The development and utilization of new energy requires a large amount of capital investment. The government can provide strong financial support for the development and utilization of new energy and provide a strong development environment to speed up the development and utilization of new energy. The government can implement fiscal policies such as tax incentives, investment subsidies or interest discounts to curb the problem of high unit costs of new energy, and strive to promote the development and utilization of new energy in my country to achieve the purpose of protecting the environment and promoting economic growth.

(2) Strengthen the research and development of new energy

The development and utilization of new energy requires a high level of technology, so my country needs to strengthen the research and development of new energy in order to better protect the environment and promote economic development. Throughout the world, the countries with good levels of new energy development and utilization are often those that have done very well in basic research. These countries have invested a lot of money in the field of new energy to carry out research on basic technologies and processes of new energy. For example, the United States, Britain and other developed countries have set up national new energy laboratories to actively carry out basic research and technology research and development in the field of new energy, so as to guide the technological development direction of new energy development and utilization in the whole country. Although there are many new energy technology research institutions in my country, they are scattered and have few research results. Therefore, my country should learn from foreign countries and integrate strong scientific research institutions to improve the technical level of new energy development and utilization.

(3) Strengthen international energy cooperation

Excessive consumption of traditional energy will not only destroy the ecological environment, but also cause the world to face the problem of resource shortage. Therefore, new energy must be developed and utilized to protect the environment and promote healthy and sustainable economic
development. The development and utilization of new energy faces many difficulties. Therefore, my country can seek extensive international cooperation in institutional innovation, technology research and development, academic exchanges and other aspects, promote the institutional optimization and key technology breakthrough of renewable energy utilization, promote the rapid development of China's new energy industry, and enhance the level of global new energy development and utilization.

7. Conclusions
All in all, as a kind of renewable energy, new energy has the characteristics of abundant energy resources, relatively low energy density and wide distribution. It can not only make up for the shortcomings and deficiencies of traditional energy, reduce the use of non-renewable energy, but also achieve Protect the environment and promote the sustainable and healthy development of our national economy. Therefore, our government should increase the support for the development and utilization of new energy, strengthen the research and development of new energy, strengthen international energy cooperation, speed up the process of new energy development and utilization, and realize the green and low-carbon development of national economy.

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