

Research on the Low Carbon Economy for the Development Trend of Globalization

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ABSTRACT

The development of mankind is inseparable from the rich resources of the earth, but the resources of the earth are limited, and the desires of mankind are unlimited. In the long river of human history development, many resources have been exhausted. The rapid development of mankind, the rapid increase in population, and the unrestrained emission of carbon by mankind have led to global warming, rising average annual temperature, and rising sea levels. This action of mankind is not only destroying the natural environment but also slowly strangling the living environment of all mankind. To allow future generations to have resources and the environment to continue to develop, a low-carbon economy has become the focus of economic development all over the world. Now the rise of the low-carbon economy is doomed to the economic revolution of new energy. The low-carbon economy is a development concept and a ladder of human progress. This development concept is through low energy consumption, low pollution, and low emissions. High-efficiency new energy is accelerating human development day and night. The low-carbon economy not only maintains the development relationship between man and society but also harmonizes the coexistence relationship between man and nature. This paper describes three sustainable new energy technologies: solar panels, new energy vehicles, and clean coal. To protect the environment and save non-renewable energy, we call on everyone to protect the environment and lead a low-carbon life. These three kinds of sustainable new energy technologies promote the circulation of the world economy, and low energy consumption and low pollution have become the main purpose of a low-carbon economy.

Keywords: *Low carbon economy, New energy resources, Economic revolution, Carbon emission, Economic development.*

1. INTRODUCTION

Global warming has become one of the most severe challenges facing the world and reducing carbon dioxide-based greenhouse gas emissions is a common task for all countries. For the first time in human history, in the form of regulations. The limit on greenhouse gas emissions was on February 16, 2015. This regulation requires 38 industrialized countries to reduce carbon dioxide and other six greenhouse gas emissions in 1990 from 2008 to 2012. This is known as the Kyoto Protocol [1]. If carbon emissions are not regulated under the regulations, the economic costs that climate change may cause will be equivalent to the Great Depression and the total economic impact of the world war. Due to the rapid development of various countries, the global energy demand and consumption are increasing sharply. Now the world urgently needs a global energy breakthrough and revolution. We need to vigorously develop a low-carbon

economy and achieve safe and environmentally friendly new energy breakthroughs by transforming energy supply methods. This article will introduce solar panels, new energy electric vehicles and clean coal are the three sustainable new energy sources to tell everyone that a safe and reliable energy supply is the basis for stable economic development. Nowadays human has met a bottleneck in the field of the low carbon economy, it is hard to develop new methods to solve human faces the resources scarce and lack of energy and other issues, this article lists the three methods, these three methods, particularly prominent contribution in the field of the low carbon economy, has brought the unprecedented progress and benefit to mankind.

2. THREE WAYS TO A LOW-CARBON ECONOMY

2.1 Solar energy

Solar energy is the most abundant form of energy on earth, and it is also the most important substitute for fossil fuels. Scientists divide the conversion of solar energy into electricity into two methods. The first is photovoltaic conversion. The second is the thermodynamic cycle[2]. It is well known that the power of the sun is produced through nuclear reactions and reaches the surface through electromagnetic radiation. The data shows that the total amount of solar energy reaching the earth in one year is 3,400,000 EJ, the total flux of the sun reaching the earth is 1083008GW[2]. The main advantage of solar energy is that it is a renewable energy source and can be seen everywhere. There is no need to spend time and money to explore, and there is no pollution. There is no negative impact, the amount is huge, the total amount of solar

radiation in a year far exceeds the total consumption of all things on the earth. The emergence of solar panels has promoted the development of new energy for mankind, and the development of solar panels. The composition is also very simple. It is composed of several solar cell modules installed together in a prescribed manner, and directly or indirectly converted into electrical energy by absorbing solar radiation to produce a photoelectric effect. Among them, monocrystalline solar photovoltaic cells are the most effective panel, which has a power conversion rate of 15%-20%, but the fly in the ointment is that the manufacturing cost is too high, so most of the low-cost tri crystalline silicon and polycrystalline silicon circulate in the market[2]. Although the use of solar energy is not universal, and the use of solar energy to generate electricity still has the problems of high cost and low efficiency, but with this inexhaustible solar energy, the future of mankind has been guaranteed to a certain extent, at the same time, it also reduces the consumption of other energy sources.

Classification	Efficiency	Area Cm ²	Voc (Open circuit voltage)V	Jsc(Current density MA/Cm ²)
Silicon				
Si (crystalline)	25.6±0.5	143.7(da)	0.74	41.8
Si (multi-crystalline)	21.25±0.4	242.74(t)	0.6678	39.8
Si (thin transfer sub-module)	21.2±0.4	239.7(ap)	0.678	38.5
Si (thin-film minimodule)	10.5±0.3	94(ap)	0.492	29.7
III-V celss				
GaAs (thin-film)	28.8±0.9	0.9927(ap)	1.122	29.68
GaAs (multi-crystalline)	18.4±0.5	4.011(t)	0.994	23.2
InP (crystalline)	22.1±0.7	4.02(t)	0.878	29.5

Figure 1. Above is Photovoltaic cell and sub-module efficiency [2]

2.2 New energy vehicles

With the continuous development of science and technology, automobiles have become a means of transportation for many people to go out. Although the emergence of automobiles has made life easier for human beings and saved a lot of travel time, the oil and exhaust emissions consumed by automobiles are harmful to the earth. The environment has had an indelible impact. Traditional cars are very dependent on oil. As a non-renewable energy source, the oil will be exhausted one day. This will undoubtedly have a huge impact on the future development of mankind. The carbon dioxide emitted by car exhaust also makes urbanized countries feel more anxious. People not only have to work hard, but also face the harm to human health caused by smog in the air. Under the influence of various negative conditions, the technological revolution has created a new type of product --- new energy vehicles. New energy vehicles are the only way for the development of a low-carbon economy and technology, as well as the development

trend of the automotive industry. Nowadays, as a leading company in new energy vehicles, Tesla is deeply sought after and loved by people. Although new cars are expensive, they don't need to change gasoline and engine oil, and their maintenance costs are low. And the cost of the car originally consumed will be recovered year by year, because there is no need to continue to invest in gasoline. As a representative of the low-carbon economy, Tesla can show people that it is environmentally friendly, efficient, and intelligent. Its biggest advantage is that it doesn't need. With gasoline as an energy source, only sufficient power is needed[3]. For 100 miles, only 34 kilowatt-hours of electricity are needed. Converted into US dollars, it only costs 0.12 US dollars per 100 miles. According to the data, driving a Tesla for 15,000 miles. It only costs US\$612, which saves nearly 40 times that of ordinary cars that use gasoline as energy[3]. The emergence of new energy vehicles has undoubtedly accelerated the advancement of human technology and delayed the use of non-renewable energy. The development of the low-carbon economy is inseparable from the outstanding contribution of new energy

vehicles, and Tesla's success is inseparable from everyone who cherishes the environment and loves nature.

2.3 Clean coal

The carbon dioxide produced by burning coal is the culprit of global warming. How to solve the carbon dioxide released after coal combustion has become a common challenge for scientists from all over the world. It was not until the 1980s that the United States first proposed the new topic of clean coal. The emergence of clean coal has reduced the pollution to the environment during the use of coal and has greatly increased the utilization rate of coal. Clean coal can not only save energy and protect the environment but also promote the sustainable development of society. There are five important technologies for clean coal. They are new coal

washing and processing technology, coal conversion, coal briquette technology, coal pollution control technology, and coal water slurry technology[5]. Among them, the new coal washing and coal preparation technology in the clean coal technology can greatly reduce the ash and sulfur content in the raw coal, and before the coal is burned. Desulfurization and ash removal are very effective in reducing the pollution of coal combustion to the atmosphere, and at the same time, they also reduce the funds for repairing the environment and coal combustion[4]. Coal is a non-renewable energy source. Although there are many reserves in the world, sooner or later there will be one that will be exhausted, and clean coal will appear. Provides high-efficiency, environmentally friendly sustainable energy for mankind. The emergence of clean coal as a kind of low-carbon economy in society is vital to the development of mankind and the progress of the world.

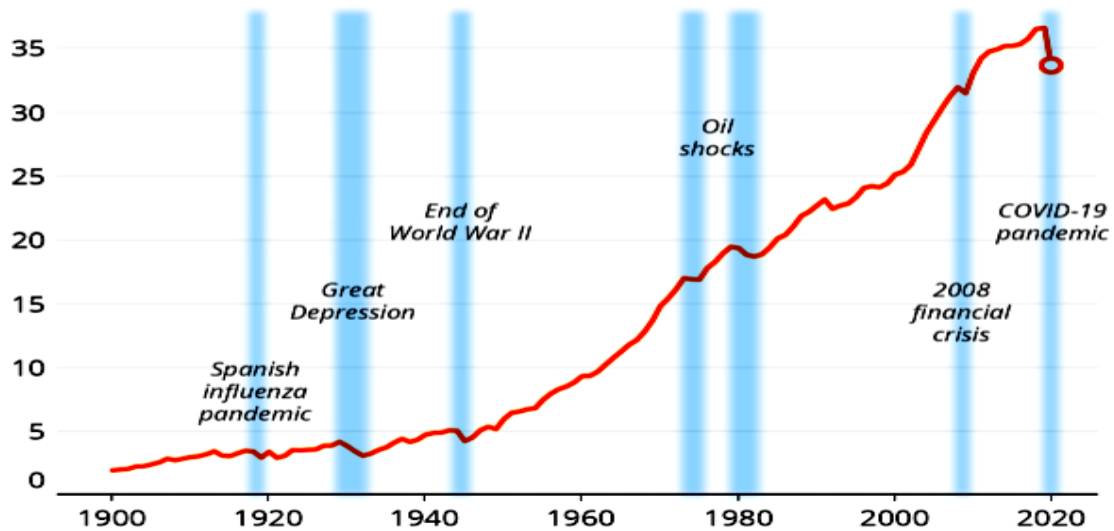


Figure 2 . Annual global fossil emission, billion metric tons of CO2[6]

It can be seen from the figure above that the world's carbon emissions are rising rapidly year by year. Although the emergence of this phenomenon represents the rapid development of human industry, it also paves the way for global warming that is currently occurring. Today the earth will rise by 0.2 degrees every ten years, and the earth on which humans depend for survival in the future will no longer be suitable for human habitation. It is easy to reach the peak of carbon emissions, but it is the most difficult to control and implement zero carbon emissions[4].

2.4 The sustainable development

Due to the excessive exploitation of non-renewable energy sources on the earth, excessive burning of coal, and emission of carbon dioxide, global warming has been caused, and the subsequent greenhouse effect has changed the sea level, which not only reduces the land area but also changes many areas' natural climates, such

as droughts in South Africa and floods in Southeast Asia, etc. Today, there are 7.9 billion people living on the earth, which far exceeds the population density that the earth can bear. It is very difficult to allocate limited resources to a super large population, and it is difficult for everyone to obtain these limited resources equally. The last point is that because of the epidemic, many countries are in a state of stagnant technology and even the national economy is going backward. It is difficult to continue to develop new technologies and seek new renewable energy if human health is not guaranteed.

The early wars were all caused by the snatch of materials and manpower. Although it is an era of peace, if the earth falls into a shortage of materials, will it be followed by the outbreak of wars, and the strong will eat the weak? The territorial consciousness is the human subconscious. Many people think that sustainable development means that human beings do not worry about food and drink and have a life with a high happiness

index, but this is not the case. Human greed makes us have more ambitions and are not satisfied with the status quo. The selfish nature makes more and more people fall into the whirlpool of money. Money is always just a kind of currency. It is renewable, but money is killing those non-renewable energy lives.

3. CONCLUSION

In general, a low-carbon economy is very important for human development and progress. People use various methods such as technological innovation, institutional innovation, and new energy development to reduce energy consumption, carbon emissions, and oil consumption. To reduce greenhouse gas emissions, to achieve these goals, the emergence of a low-carbon economy will become a turning point in the stage of human history. This article elaborates on three sustainable new energy technologies: solar panels, new energy vehicles, and clean coal. And to protect the environment and save non-renewable energy, we appeal to everyone to protect the environment and live a low-carbon life together. The same three sustainable new energy technologies have promoted the circulation of the world economy, and low energy consumption and low pollution have become the main purpose of a low-carbon economy. With the continuous growth of the global population, environmental problems brought about using energy are coming one after another. Human beings blindly excavate and absorb non-renewable energy. The earth's energy will soon be depleted as well. We now require more technological advancement and a technological revolution to replace nonrenewable energy with renewable energy, as well as higher efficiency, higher profits, and lower pollution. There are still many deficiencies in this paper, such as the specific qualitative improvement of clean coal in the future and whether it will replace the non-renewable energy that human beings rely on today. In future research, I will mainly focus on discovering new energy sources and finding new energy sources that can be used sustainably and not harm the environment, which is indeed very challenging.

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