

"TGT-Lcarbon" - A Non-Profit Third-party Carbon Fund Platform

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Abstract: In the context of "carbon neutrality" and "carbon peak", energy conservation, environmental protection, and low-carbon life have become the mainstream of society. As a new force in the development of green economy, carbon trading has become an indispensable part of the financial market. There are unlimited business opportunities in the carbon market, and the good development of carbon funds is of great significance to promoting the development of China's CDM projects and enhancing the international competitiveness of the low-carbon economy. At present, government-led public welfare carbon funds are the main driving force in China's carbon financial market. Narrow financing channels have caused China's carbon financial market to face a funding gap, and there is an urgent need for social funds to participate in the carbon financial market. Therefore, this article first analyzes carbon funds and their operating methods; secondly, sorts out the existing domestic and foreign carbon fund transaction types, focusing on domestic carbon funds; and finally, in order to better serve the real economy's low-carbon emission reduction Develop and better develop China's carbon financial market, and study the role and significance of carbon funds as media investors and financing parties in the financial system.

Keywords: Carbon fund platform, Technical barriers, Energy efficiency, Non-profit.

1. Carbon Funds and Their Operating Models

In 2020, President Xi proposed China's "carbon peak" and "carbon neutrality" goals at the 17th United Nations General Assembly, and repeatedly emphasized them at many important public international meetings. As the world's largest emitter of carbon dioxide, it is of great significance for China to accelerate the formation of green development methods and low-carbon lifestyles and build an ecological civilization and a beautiful China. At this stage, our country has an urgent need for coordinated development of economy and environment. Facing a large number of green financing needs in the market, the support that government finance can provide is limited, and the trend of greening social capital is obvious. As the volume of financial products such as green stocks, bonds and carbon funds continues to increase, the channels for green investment continue to expand, and investors' attitudes towards the environment have also changed from passive risk avoidance to active social responsibility and financial product innovation. The overall trend is positive. Carbon funds allocate more funds to the environmental protection industry. As an important investment tool for both green and environmental investment and financing media, they have also developed rapidly in the past two years.

1.1. Basic definition of carbon fund

In a broad sense, a fund refers to a certain amount of funds established for a certain purpose. It is a financial transaction method that expands the form of personal investment. The so-called carbon funds are mainly investment tools that use public or private funds to invest in greenhouse gas reduction projects or purchase carbon credits in the carbon trading market around the world, which can promote the development of the carbon market and thereby obtain profits. The carbon

funds currently operating in China mainly participate in quota transactions and CCER transactions in the domestic pilot carbon market, buying low and selling high according to market trends, and then trading to obtain differential profits. Carbon funds are a collective investment method in which interests coexist and risks are shared. The funds of investors are concentrated through the issuance of fund shares. The funds are hosted by the fund custodian and managed and operated by the fund manager.

1.2. Operational model of carbon funds

The carbon fund system is an internationally accepted carbon financial investment method, which mainly includes investors using funds to purchase carbon emission quotas, or directly investing in CDM (clean mechanism), JI (joint implementation) and GHG (greenhouse gases), etc. Carbon emission quotas or cash generated by the project. The operating mechanism of carbon funds includes financial investment methods such as ensuring that investors achieve reasonable distribution of post-sale profits in the carbon dioxide emissions trading market through greenhouse emission reduction effect industries. After it is possible to prepare large-scale industrial investment funds for joint investment, combined with the professional information mastered and applied, the investment risk is reduced by constructing the securities management of the project. Although the operation method of this fund is not as good as the general investment income Larger, but more secure.

The operating mechanism of the carbon fund is similar to that of a fund. There are three parties, including promoters and holders (investors). There are also dedicated managers who engage in investment and provide returns to the promoters and holders. It not only purchases and It sells measurable real carbon credit indicators generated from emission reduction or carbon sequestration projects around the world, promotes transactions in the carbon market, and

also provides investment and consulting services for CDM/JI projects to improve project success rates.

The operating models of various carbon funds are basically similar: obtain CCER through low-cost and low-risk methods in the primary market, lock emission control enterprise quotas in the secondary market, and obtain the profit difference through CCER replacement of quotas. The risks of this model mainly lie in the speed of CCER issuance and how to manage the problems of oversupply and insufficient liquidity in the quota market.

2. Types and Development History of Carbon Funds

2.1. Types of carbon funds

According to the establishment methods of carbon funds in developed countries, there are four types of carbon funds: jointly established by international organizations and governments, jointly established by governments, jointly established by governments and enterprises, and jointly established by enterprises.

Table 1. Summary table of establishment time and scale of international carbon funds

Carbon fund classification	Carbon fund name	Established	invest funds
International Organization Management Fund	PCF	2000	\$ 180 million
	CDCF	2004	\$ 128.6 million
	NCDMF	2004	44 million euros
	NECF	2004	\$ 180 million
	ICF	2004	US\$ 80 million
	DCF	2005	\$ 70 million
	SCF	2005	170 million euros
	UCF	2006	\$ 250 million
	CFE	2007	50 million euros
	BioCF	2007	\$ 91.9 million
Government establishment and management of funds	Finnish Carbon Fund	2000	10 million euros
	Austrian Carbon Fund	2003	72 million euros
	UK Carbon Fund	2001	£ 66 million
The government manages funds based on an enterprise model			
Jointly established by government and enterprises, commercial management base gold	KFW Carbon Fund	2005	60 million euros
	Japan Carbon Fund	2005	\$ 140 million
Enterprise establishment, enterprise management	European Carbon Fund	2007	50 million euros

2.2. Development history of domestic carbon funds

The China Green Carbon Foundation is under the supervision of the Forestry Bureau and was established on July 19, 2010. It is a nationwide public fundraising foundation that carries out carbon emission compensation and carbon neutrality through afforestation, forest protection and other measures. The China Clean Development Mechanism Fund was established on November 9, 2007. It is under the supervision of the Ministry of Finance of the People's Republic of China. The support objects give priority to CDM projects. It mainly reduces the risks of CDM projects by providing carbon emission reduction technical assistance and funds and promotes the implementation of CDM project emission reductions. volume trading to improve public low-carbon awareness. The China Greening Foundation was established on September 27, 1985, under the supervision of the Forestry Bureau. It has four special funds: China Green Carbon Fund, Green 1+1 Special Fund, Carbon Neutral Fund and Ecological Fund. The Urban Development Fund is a national public foundation. The China Carbon Fund was established in 2006 and is headquartered in the Netherlands. It provides professional services for the greenhouse gas emission reductions generated by domestic CDM projects to enter the international carbon emissions market for trading.

3. Feasibility of A Non-profit Third-party Carbon Fund Platform

The Internet is participating in all aspects of China's social and economic life. Whichever field is combined with "Internet + " will bring about transformation, upgrading and reshuffling of related fields, develop new industries and new models, and will also be pushed into cross-border competition and models. Peak period of innovation. The development of Internet finance in China has experienced three waves: the first was mobile payment, the second was P2P online lending, and the third was crowdfunding. Crowdfunding is public financing or crowd financing, which refers to using the Internet as a platform to mobilize the power of the crowd and use group purchases and pre-orders to pool multiple small amounts of funds to support a project or organization. There are currently four types of crowdfunding internationally, namely reward-based crowdfunding, equity-based crowdfunding, loan-based crowdfunding and donation-based crowdfunding. The non-profit third-party carbon fund platform is a donation-based crowdfunding platform, which means that investors provide funds for projects or enterprises in the form of donations or public welfare without asking for any substantial return. Crowdfunding is developing very rapidly. Crowdfunding has had a significant impact on start-

ups, venture capital investment, bond markets, real estate investment, commodity markets and other fields .

3.1. Crowdfunding has wide coverage and high efficiency

Due to its Internet characteristics, the platform's deep integration with traditional financial services is conducive to forming good support for traditional financial businesses. "When everyone adds firewood, the flames rise" is the interpretation of the form of crowdfunding. It doesn't matter the size of a single investor's capital and lowers the investment threshold. The advantage lies in the large number of investors, who can bring together a large amount of "small money" in a short period of time. In theory, Internet finance can reach any corner of the earth, and ubiquitous mobile clients break through the limitations of physical space to achieve full coverage.

Once a project that is true, effective, complete in details and highly feasible is released, it will be easy to be recognized by project supporters, and the financing efficiency is much higher than traditional amount channels. Just like the origin of crowdfunding business, just to complete an inexpensive piece of art, small amounts of investment are quickly gathered through the magic of the Internet to realize a common dream. For individual investors, a small investment amount means less risk. To a certain extent, it is more in line with the psychology of investors with weak risk tolerance, and the completion of financing activities becomes faster and more efficient.

The wide coverage and high efficiency of crowdfunding may quickly pool idle funds in the hands of many small investors, forming carbon funds to participate in carbon financial market transactions. This is the powerful power of crowdfunding through the Internet.

3.2. The direction of fundraising is clear and the credibility is strong

The number of charitable funds in my country is increasing year by year, and non-profit carbon funds are charitable funds. However, there is a big gap between the development level, governance capabilities and transparency of the foundation industry and the government's requirements for standardized management and the expectations of the public. In recent years, there have been reports of fraudulent donation incidents, the Henan Song Foundation's misappropriation of charity funds for lending, and the Youth Foundation's misappropriation of "Project Hope" donations to invest in stocks and real estate. Each public welfare fund uses its own website to publish information. This kind of self-supervision is inherently flawed and has the worst supervision effect. Both public charities and non-governmental organization charity funds are facing a crisis of public trust, and there are even rumors spread in society not to donate to the Red Cross and others. Public opinion questions the supervision of charity funds and desires transparent public welfare and credibility of charity.

Donation-based crowdfunding means that investors provide funds for specific projects or enterprises in the form of donations or public welfare without asking for any substantial return. This quality is consistent with a non-profit carbon fund. The fundraiser announces a certain project investment direction of the carbon fund on the crowdfunding platform, such as helping companies eliminate technical obstacles faced in the transformation of low-carbon

production models, helping companies and public institutions improve energy use efficiency, etc. While raising funds, the use of previously raised funds, such as the accounts and progress of funded projects, etc., will be disclosed in a timely manner on third-party crowdfunding platforms, so that investors can fully understand the details of the use of donated funds. Third-party crowdfunding platforms are obliged to supervise the release and review of accounting information for all projects, including non-profit carbon funds, and all funds raised are held in escrow by a third party. If the funds raised within the specified time do not reach the expected amount, the fundraising will fail and the original amount of the investor's funds will be returned. The intervention of crowdfunding platforms and fund custodians can greatly improve the effectiveness of supervision. Such a non-profit fund raising method with authentic information, specific investment targets, safe funds, and strong credibility can enhance the transparency of fund use, win the trust of the Internet public, and have a higher success rate of fund raising. In addition, celebrities are generally keen on public welfare undertakings. If there are thousands of celebrities as lead investors, they can attract the public with their social influence and appeal. In addition, combined with the reward-based crowdfunding form, they can give back to investors in a non-financial form, such as a certain Memberships of public welfare organizations, T-shirts with project logos or celebrity signatures, etc., will further increase the success rate of financing.

4. The Role and Significance of Carbon Funds on Both Investment and Financing Sides

Assetization and securitization are the main ways to combine carbon assets with the financial market. Carbon funds, as an important part of the carbon financial innovation tool, have become more and more perfect as the carbon trading market has attracted many investors to invest in the carbon fund market to create carbon funds. Funds, from government guidance to private placement, no matter what the purposes of different funds are different, investing in the economic market means the coexistence of returns and risks. Economic investment is not charity. Even if the government directs funds, it will not let the funds disappear without returns. Which kind of carbon fund investment and operation methods are successful will not only test the investors' vision, but also test the possibility of carbon fund development. The investment properties of carbon funds include good models, many policies, and great significance. These properties have attracted a lot of funds and are an important source of funds for the development of emission reduction projects in the early stages of the development of the global carbon market.

4.1. The functional role of carbon funds in carbon trading

According to different sources of funds, various carbon funds can be divided into three major categories: public funds, public-private mixed funds, and private equity funds. At present, the largest domestic carbon funds are public funds, while private equity funds account for the majority of domestic carbon funds. On the other hand, carbon funds are roughly divided into three types according to the nature of their role in the carbon trading market.

First, it is sold as a credit fund. This fund purchases the

carbon credits generated by emission reduction projects through emission reduction purchase agreements, and then returns the carbon credits to investors as dividends and uses them for performance purposes or resells them in the secondary market. ways to achieve financial gain. The Clean Fund effectively plays the role of " seed capital " through the public-private partnership (PPP) model . As of December 31 , 2013 , the Clean Fund had collected a total of 2,486 state revenue payments, equivalent to RMB 13.39 billion. The Clean Development Fund has tried to promote public-private sector cooperation in various places by providing loss risk sharing, clean fund loans, etc., driving more market-oriented funds to enter energy-saving and emission reduction projects, so that public funds and market funds can each play their respective strengths. For example, the Clean Fund cooperated with Beijing Guolian Energy Industry Investment Fund, a subsidiary of China National Petroleum Corporation, and invested 68 million yuan in Beijing Guolian Energy Industry Investment Fund in the form of a limited partnership to jointly invest in the second line of the West-East Gas Transmission Project, leveraging social The capital is nearly 19 billion yuan. The Clean Fund guides society to carry out market emission reduction, industrial emission reduction and technological emission reduction actions through investment, and helps green and low-carbon enterprises solve the financing problem in the early stage of development.

solve difficult problems, drive more market funds into low-carbon industries, support industrial transformation and the development of emerging industries, increase employment, and achieve a win-win situation for the government, market, and society.

The second is to develop it as a project carbon fund. This fund is usually managed and invested by a carbon asset management company or foundation with sufficient project development experience to directly finance emission reduction projects and provide professional technical knowledge in development and management. For example, China's first national public foundation approved by the State Council to increase sinks, reduce emissions, and respond to climate change, the China Green Carbon Sink Foundation, is the " Thousand Cities Linkage and Co-construction " project hosted by the China Green Carbon Sink Foundation. "Beautiful China", the third " Greening the Motherland, Low-Carbon Action " Online Arbor Day was jointly launched in 13 cities across the country, including Wenzhou , advocating the public to plant low-carbon trees online and guiding the public to purchase carbon sinks for low-carbon tree planting. Innovate ways to fulfill tree planting obligations and spread green and low-carbon concepts. The money raised through the online Arbor Day event will be remitted to the China Green Carbon Foundation, and then transferred back to the local area based on the afforestation land filled in by the carbon sink purchaser to create a carbon sink forest. Among them, the Wenzhou Special Fund, as one of the national carbon sink special pilot projects, raised a total of 59,753,797 yuan in carbon sink funds from 2008 to the end of 2012 , including 15 million yuan in municipal financial funds and 44,753,797 yuan in social donations . In addition, there are some multi-strategic investment carbon funds that, in addition to purchasing carbon credits and developing emission reduction projects, also invest in companies involved in low-carbon industries.

4.2. The development significance of carbon funds in carbon trading

According to reports, global human activity carbon emissions reached 36 billion tons in 2013 , with each person emitting an average of 5 tons of carbon dioxide, setting a new record. Among them, the country with the largest total carbon emissions is China. China's carbon emissions even exceed the combined emissions of the European Union and the United States, reaching 10 billion tons, accounting for 29% of the world's total carbon emissions ; followed by the United States, accounting for 15% ; Europe accounts for 10% , while India accounts for 7.1% . In terms of per capita carbon emissions, a report jointly published by the Tyndall Center for Climate Change Research in the UK and the School of Mathematical and Physical Sciences at the University of Exeter

The report said that Europe's per capita emissions were 6.8 tons. At the same time, China's per capita carbon dioxide emissions exceeded the EU's for the first time , reaching 7.2 tons. If the total amount of CO₂ emitted into the air does not exceed 3.2 trillion tons, there is a 2/3 possibility of controlling the global temperature rise within 2 degrees Celsius. The current total amount of CO₂ emitted into the atmosphere has reached about 2 trillion . Ton. In 2013 , CO₂ emissions in China, the United States and India increased by 4.2%, 2.9% and 5.1% respectively , while the EU decreased by 1.8% . The recovery of the global economy has led to an increase in carbon intensity, and the increase in carbon emissions in developing countries is also very obvious. At present, China has become the world's largest supplier of CDM projects. Actively developing the carbon fund business can enable better development of China's CDM projects and enhance the overall competitiveness in the international low-carbon economy.

The existence of carbon funds actually creates a hidden OTC market, which may bring about two extreme results: First, it can effectively reduce the transaction costs of enterprises by reducing information asymmetry; but it may also lead to market manipulation. There may be potential threats to the price and liquidity of on-exchange transactions. Transactions are expanding day by day. China's carbon fund transactions are currently making different attempts. Under the international background and the mature carbon fund transactions in the world, China's carbon funds The market has vast room for development.

China's carbon trading market is still in the early stages of development, and the design of the carbon emission rights pilot system is still being gradually optimized. The quota price in the trading market is not stable enough. The price of CCER is also greatly affected by the pilot quota price. Fluctuations in the price of carbon emission rights and emission reductions bring business opportunities to carbon fund investment, but also present risks. Therefore, investing in the carbon market through carbon funds currently requires careful consideration. China's carbon market was active in 2015, and various carbon funds are actively hoarding CCERs and carbon quotas. In the context of possible excess supply of both allowances and CCERs, how carbon funds control risks and ensure returns, as well as what impact it will have on the illiquid carbon market prices, need to be explored in the course of continuous development.

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