

# Research on Building enterprise's initial allocation of Tradable Carbon Permits

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**Abstract:** China resources that can be used in the construction industry accounts for 40% ~ 50% of the national resource used, energy accounted for about 30% of the total energy consumption of the whole society<sup>[1]</sup>. Only according to the terminal energy consumption to calculate the greenhouse gas emissions, At present, greenhouse gas in our country emissions by existing buildings from each year, accounting for about 28% of the emissions in the whole society<sup>[2]</sup>. Reducing building carbon emissions is of great significance. Reasonable carbon emissions initial allocation method is the key to the carbon market running smoothly, This article based on the construction enterprise, focuses on analyzing grandfathering, General Performance Standard, Auction, the fixed price method. four carbon emissions initial allocation in the construction enterprise application, through the comparison to find the most suitable carbon emissions initial allocation for construction enterprise and put forward suggestions for development building carbon emissions trading system in our country.

## Introduction

According to the data published by international energy agency in 2010<sup>[3]</sup>, China has become the world's largest energy consumption and CO<sub>2</sub> emissions country in 2009, and energy demand still increases rapidly, facing enormous pressure of energy conservation and emissions reduction<sup>[4]</sup>. Building energy consumption accounts for almost 30% of China's social total energy consumption<sup>[5]</sup>, and energy consumption related to the construction field is as high as 50%~60%<sup>[6]</sup>. how to carry out building energy conservation effectively is an important<sup>[7]</sup>, carbon emissions trading system is a kind of method which make full use of economic means to control the greenhouse gas emissions in All regions and countries, is considered to be the lowest cost, the utility of the highest carbon reduction measures<sup>[8]</sup>. Carbon emissions as the Warrants assets which is in the nature of property assets, its initial allocation determines the carbon emission rights system not only fair and just, and affected the enterprise's cost structure, product price and supply, the carbon market prices and supply, and the enthusiasm of participating in the carbon market, and ultimately determines the efficiency of the whole society of carbon emissions trading system, as well as greenhouse gas emissions control results.

## 2 carbon emissions initial allocation methods

### 2.1 Free distribution

Free distribution refers to the management organization will distribute the Carbon emissions quota for free to enterprise according to certain standards. According to the different distribution basis, it can be divided into grandfathering (free distribution based on historical emissions or output) and General Performance Standard (free distribution based on the current output).

### 2.2 The auction allocation

Auction allocation is that carbon is managed by the related government agencies unifitly, using the appropriate way of auction, the company that need to reduce emissions can bidding for next year's carbon dioxide emissions, to meet the production demand. Auction is the most consistent with the purpose of the emissions trading distribution, so a lot of theoretical analysis took auction as the license initial distribution, then trades on the market<sup>[9]</sup>

### 2.3 buy at fixed price

The government determined the distribution of the enterprise quota and the sale price of emissions, the participation enterprise again according to the fixed price to buy from government agencies. China's current several regional emissions trading system implement this distribution, the most key of the method is how to determine suitable initial sale price. The price is not just about cost reduction and reduction of enterprise enthusiasm, In fact ,it also formed a minimum price of emissions trading market, so it has a direct impact on the emissions trading market liquidity and the price of emission rights in the future.

## 3 Construction enterprise carbon emissions initial allocation method comparative analysis

Due to the emissions of carbon dioxide is concentrative in the Construction process .Having greater impact on the environment,so there is great potential and space for carbon reduction in the construction phase , so this article research object mainly is for construction enterprise, through the comparative analysis of different carbon emissions initial allocation within the building enterprise use of the advantage and disadvantage, preliminary explore the allocation suitable for construction enterprise development in our country

### 3.1 comparison between auction allocation and free allocation

The advantage of auction allocation (1)the auction allocation has the function of discovering price

Compared to the free allocation, Auction allocate initial carbon emissions can let different construction enterprises bid or game , so as to give an equilibrium price of initial carbon emissions, it embodies the auction allocation has good price discovery function.

(2)the auction allocation played a good role in promoting the optimal allocation of resources

Auction distribute Carbon emissions mainly follow the principle of the price higher obtaining , enterprise bidding successful has higher productivity , it will be generated carbon emissions using the biggest use of value, let the maximization of the value of unit of carbon emissions produced, so the winner will minimize the unit of output carbon emissions in the process of construction.

(3)The auction can promote enterprise developing carbon reduction technology

Building will consume materials and machiner constantly in the process of construction. at the same time,it accompanied with a lot of building energy consumption and carbon emissions, foundation engineering, construction engineering, decoration engineering, installation, field transportation, as well as the construction and dismantling of temporary facilities and use will bring a lot of carbon emissions, under the auction, construction companies need to pay a certain amount of money to buy the initial carbon emissions, it will encourage Corporate research carbon emissions reduction technology to reduce the purchase cost of carbon emissions, due to the use of advanced technology,it may reduce the carbon emission significantly , the enterprise also can be sold the rest of the carbon emissions to get certain benefits, the income can be used for other carbon reduction technology researching.

(4) Auction can ease the burden for carbon emissions in the field of architecture

Auction can promote the progress of the carbon reduction technology, which can lower the cost of per unit carbon emission, thus to minimize the burden of the carbon emissions to construction industry.

(5)No cost of rent-seeking in auction process

Compared with the general performance standard, the auction process following the principle of price aircrafts to fair competition, and thus have no incentive to spend a lot of cost to rent, so it will not produced rent cost in the process of auction.

(6)Has no "whip call cow" effect emissions index, construction enterprises are not increase carbon emissions in a specific period, on the one hand it can improve the production efficiency of enterprises , on the other hand it can contributions to China's reducing construction carbon emissions.

Auction allocation disadvantage:

(1)under the auction enterprise resist strongly. Compared to free allocation public auction will increase the cost of construction enterprises, enterprises not only have to pay for carbon emission rights and costs about obtaining information , also undertake operation risks due to the increased cost

of production , Especially for some small construction enterprises face the pressure will be bigger, the resistance to auction will be more intense, and not conducive to the operation of the carbon emissions trading system.

(2) auction will damage the interests of small and medium-sized enterprises in a certain degree, and squeeze the living space. To a certain extent, Large-scale construction enterprise undertake more projects than small companies , and it has richer construction experience , the distribution of construction machinery to high-grade, strong financial strength, if again for public auction bid for carbon emissions, small businesses get less opportunity, long-term it could lead to small and medium-sized enterprises unemployment.

Free distribution of advantage:

(1) under free distribution, enterprise against smaller, more easy to implement under free distribution, the enterprise do not need to spend extra costs for carbon emissions quotas, although it requires construction enterprises to reduce emissions, but compared with the auction , enterprise burden is greatly reduced, the acceptance of carbon trading system can increase, and it can have a good role in promoting the carbon emissions trading system in the construction field .

(2) reduce the financial burden on consumers, avoid to suppress economic growth.

Under free distribution, the profitability and competitiveness of enterprises will not suffer, so construction company won't raise the construction cost of the whole construction process, but under the auction firms is likely to add costs to consumers, which further increases the burden of consumers; If construction enterprises has larger carbon emissions in the process of building and has higher cost of buying the carbon emissions, then it will increase cost to developers, so it can lead to developers compensate by raising house prices , aggravate the burden of buyers. The free allocation can avoid these problems.

### 3.2 fixed price method comparative with the auction and free allocation

Fixed price method is that the government set carbon emission rights selling price , if the government set the initial price of carbon emissions is low, the enterprise requirements is bound to greater than the total carbon emissions issued by the government . So the government must be set the initial carbon emissions quota to enterprise purchasing , and the quota need base the general performance standard or grandfathering to determine . This fixed price method will focus on two modes shortcomings. In addition , if the price set too low , it will lost the meaning of price signals. On the other hand, if the government set up the initial emission rights price on the high side, the production cost of enterprise can increase greatly , it will influence the enterprise's production plan. Therefore, compared with the former several model , fixed price method does more harm than good.

Fixed price method advantage: enterprise must also spend money on obtaining more carbon emissions quota, so the rent can be grabbed reduced greatly , thus weakening the rent-seeking incentives, it greatly reduced the cost of rent-seeking activities that the enterprise and the government take in .

### 3.3 our country construction enterprise choice of carbon emissions initial allocation

Based on the several methods of allocation comparative analysis, under the condition of the same carbon reduction effect, auction can better play the price discovery function, promote the optimal allocation of resources, promote technological progress, but there are also some negative effects. To both can play its positive role, and control its negative impact at a minimum, suggested that construction enterprises adopt the following strategies in the carbon emissions initial allocation : first; All adopt the free allocation in 2016-2020, 2014, China promulgated the "measures for the pilot's carbon emissions trading ", completed the registration system. 2015 will launch a national carbon emissions trading, determine the area of high energy consumption, high emission enterprises. So this stage as the carbon trading has to adopt the free allocation to reduce the impact of the construction enterprise. The second; in 2021-2030, 5-10% adopt auction, the remaining adopt free allocation. carbon trading market in China will gradually mature in this phase, building carbon emissions trading is in a transitional period, we can try to auction a small portion of the quota, it is beneficial to promote the development of construction of carbon market, promote the development of technology to reduce

emissions. The third; in 2031-2050, Suggested 40 ~ 60% adopt auction allocation, the remaining adopt free allocation. As the carbon trading market is becoming more and more mature, our country can draw lessons from the experience of the European Union's carbon emissions trading system that gradually enlarge the proportion of the auction.

#### 4 Countermeasures and Suggestions

Through comparative study and variance analysis on carbon emissions initial allocation in the construction field, using the experience of the developed countries and regions, and connecting with the actual construction field in China, in order to promote China's construction carbon emissions initial allocation rationalization, I put forward the following Suggestions:

(1) attaches great importance to construct the building energy conservation information system. At present, our country's public building energy consumption monitoring system have laid a solid technical condition for building carbon emissions tradings, should continue to be extended to all mandatory targets, and implementation of building energy consumption information network engineering, improve the scientific and reliability of data<sup>[10]</sup>.

(2) the government set up a special fund. In organize carbon emission initial quota on sale, at the same time, for the enterprise to participate in the trading system, suggested that the government departments set up a special fund, the fund amount is roughly equivalent to the initial carbon emission rights auction revenues, with the fund subsidizing enterprise labor costs or technology research and development costs, so as to encourage its expanding employment or developing new technology. subsidies work shall be carried out in a synchronization with the auction and this can reduce the impact that the auction to the construction enterprise.

(3) independent design building carbon emissions trading system. At present, seven carbon trading pilot in our country cover the industry mainly industry, manufacturing industry, electric power industry. Carbon market in Beijing, Shanghai and shenzhen included large public buildings, tianjin also opens a civil transaction in the building energy efficiency, but the main body of construction carbon emissions trading is scattered, and the building emissions reduction and energy saving effects of statistics, certified cycle is long. Suggestions that design carbon emissions trading system combining with the particularity of architecture.

(4) the government set up the corresponding punishment mechanism. For enterprise without complete the regulation of carbon emissions in a certain phase implemented punishment, Overfulfilled regulation of carbon emissions implemented reward. so that you can drive the enthusiasm of construction enterprises to participate in the carbon emissions trading, and encourage enterprises to actively develop carbon reduction technology.

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