

# The Status, Potentials and Countermeasures of China's Carbon Audit

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## Abstract

As an important supervision mechanism of the development of low-carbon economy, carbon audit arises at the historic moment. This paper analyzes the differences of the carbon audit and traditional financial audit, with SWOT method on the basis of analyzing its potential in our country, and puts forward the future development direction of carbon audit. Based on current situations, it is suggested that China should complete the upper construction, establish carbon audit system, reserve the talents and actively encourage carbon audit, in order to push the advancement of carbon audit.

## Keywords

Carbon Audit, Traditional Audit, Current Situation, SWOT Analysis

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## 1. Introduction

With the rapid development of society, energy is used extensively, producing heavy emissions, which cause global climate warming [1]. With extremely weather becoming increasingly frequent, it has aroused widespread public concern. In order to alleviate this situation, it is imperative to develop low carbon economy. As a responsible developing country, China sincerely raised his targets of emission reduction and never will he follow the old path of developed countries of pollution first and treatment second. China submitted to UNFCCC, the Secretariat of the national independent contribution plan and set emission reduction targets: carbon dioxide emissions reach the peak in 2030 and strive to reach the peak as early as possible; carbon emission intensity decreased by 60% - 65% compared with that in 2005, meaning that he will intensify his efforts to reduce carbon emissions. Undoubtedly, it's worth noting that a verification

system with a set of strict standards and credible emissions reports are desperately needed. Consequently, carbon audit arises at the historic moment. As an important means of developing low-carbon economy, carbon audit plays an indispensable role [2].

## 2. Basic Understanding of Carbon Audit

As an important part of environmental audit, carbon audit involves climate change, and that's why it must be developed. Specifically, carbon audit is a kind of economic supervision and economic control behavior, referred to a means of measuring and recording the GHG emissions of an organization or building within a defined system boundary. Certificated objectively and impartially by independent third parties, they are required to issue an audit report according to the national laws, regulations and policies [3]. Intended to strengthen their determination of carbon disclosure and promote the transition from "high carbon" to "low carbon", an independent third party inspection agency counts [4]. From the current situation, carbon audit, a non-financial audit cannot compare with traditional financial audit on generating short-term profits. However, from a macroscopic and long-term view of development, carbon audit provide sufficient support for the realization of sustainable development, presenting corporate social responsibility and enterprise's comprehensive strength.

### 2.1. Carbon Audit

Carbon audit and traditional audit are component parts of audit system (the contrast is shown in **Table 1**). The concept of carbon audit is proposed under the background of global climate warming and the countries around the world reach a consensus on achieving energy conservation and emissions reduction. Therefore, the same as other environmental audit programs, carbon audit enriched the connotation and extension dramatically, expanding the field of academic research.

### 2.2. The Differences between Carbon Audit and Traditional Financial Audit

From what has been presented, carbon audit is much more complex and demanding when comparing with traditional audit. Finding out different aspects and identical ones is conducive to our understanding.

## 3. Analysis of the Status of Promoting Carbon Audit in China

Firstly, carbon audit organization and system has not been really established. Theoretically, the principal parts of carbon audit should include national audit, civil audit and internal audit, working closely to establish collaborative network audit system. Among them, the national audit should play a dominant role with joint effort such as fiscal department, taxation, finance, environmental protection agency. Folk audit mainly are certified public accountants, environmental technology companies, environmental exchange, playing a supplementary role in carbon audit. Internal audit are mainly relatively independent internal institution in enterprises who are responsible for the super-

**Table 1.** The contrast of the carbon audit and traditional audit.

|                             | <b>Traditional audit</b>  | <b>Carbon audit</b>  |
|-----------------------------|---|--|
| Audit subject               | Mainly CPA audit  | Preliminarily mainly the national audit, then turns national audit to folk audit   |
| The general target of audit | An examination and verification of a company's financial and accounting records and supporting documents by a professional, such as a Certified Public Accountant | Carbon policy implementation, low carbon technology, the application of carbon emissions, responsibility fulfillment situation, etc.   |
| Audit coverage              | correspondence audit, office audits and field audits  | Low carbon policy formulation and implementation, the use of fiscal funds, low carbon behavior and products  |
| Audit procedure and method  | Inspection, inquiry, confirmation, recalculation, re performance, analytical procedure  | On the basis of the traditional audit procedures, with the aid of engineering, medicine, environment, physics chemical and other professional knowledge, carbon audit includes carbon footprint (direct and indirect carbon emissions), and carbon offsets (such as afforestation and other measures to absorb carbon dioxide) |
| Audit report                | unqualified opinion, qualified opinion, adverse opinion, disclaimer of opinion  | Two alternative ways: 1. merge in the traditional audit report; 2. separate carbon audit report. In the pilot period, this paper tends to separate carbon audit reporting and disclosure, and wait until the time is ripe to merge in the traditional audit report   |

vision of the behavior and result in implementing country's low carbon policies. With plenty of enterprises, if they rely solely on national audit, neither can they fully covered nor can they guarantee the reliability and validity, failing to achieve low-carbon economy, all-round supervision and control mechanism. As for enterprises, if they remain dependent on national supervision and ignore or even discard internal audit, it means that they abandon self-supervision mechanism, which is affirmatively weaken the overall effect of carbon audit. However, from the current situation in China, enterprises that has carried out preliminary environmental auditing basically rely on national audit, while a handful of firms adopt the way of the folk audit, with only more than 30 of them take the internal audit activity. To maximize the effect of carbon audit, nation audit, folk audit and internal audit should linked closely and form collaborative network audit system. It is shown that the main body of carbon audit system should strive to be further improved and work cooperatively; otherwise it is difficult to ensure all-round expansion of carbon audit.

Secondly, carbon audit is hindered by its lack of standards.

Domestic emission reductions have already been written on strength "Twelve-Five" planning, but execution and evaluation standards are not published, which severely inhibited the development of strength reduction in China [5]. The standing of carbon audit focuses on measuring the authenticity, legitimacy and profitability, whose provisions include: low carbon environmental laws and regulations, environmental protection policies, environmental accounting rules, low carbon environmental auditing standards, etc. Obviously, the basis of carbon audit is much more complex than the general audit. However, China has yet to provide sufficient carbon auditing standards. Due to its lack of carbon basis, the implementation is reluctant to follow the rules of auditing standards, procedures, and audit evaluation. Regarded as a means of adminis-

trative management, in order to guarantee the reliability and validity, it is highly recommended to formulate a clearly unified standards and procedures, and the coordination of different departments is essential to implement. Consequently, the lack of standards makes it difficult to establish the distinct, systematic and integrated system in performing carbon audit when comparing with traditional audit.

Thirdly, qualified auditor is inadequate in carbon audit.

As a totally new concept and category, many accounting firms are psychologically battle-shy and reluctant to embrace the larger picture. Carbon audit involves policy, technology, management, requiring auditors to be equipped with a wider range of knowledge. Some scholars advocated that special account concerning the uncertainty and risk of carbon emissions need to be set up [6]. Furthermore, authentication from independent third parties is required before trading in the carbon market [7]. However, limited by professional skills and specialized knowledge, our financial talented auditors rely principally on the experience and technique absorbed in the traditional financial audit, which can lead to low reliability of audit evidence.

#### **4. SWOT Analysis of the Development of Carbon Audit in China**

Carbon audit is the escort for achieving low-carbon economy. The development of Carbon audit is of great significance in our country, and there are advantages, weaknesses, opportunities and threats. Combined with China's national conditions, below is the SWOT analysis on the development of carbon audit.

**S:** As the supervision mechanism of the low carbon economy, carbon audit arises at the historic moment. China has preliminarily established carbon trading market, and Bebblightou argued that enterprises should provide third-party verification before carbon trading [3]. Therefore, carbon audit emerged. By the law of market supply and demand, carbon audit mechanism is in continuous improvement, with constant improvement in carbon trading market. In addition, according to signaling theory, the action of carbon audit implementation and disclosure delivers enterprises' strong competitiveness and social responsibility, which is conducive to improve the investors' recognition.

**W:** As a totally new category of audit, China starts late in both theory and practice. Worse still, relevant theoretical support is relatively insufficient. Specifically, China lacks unified carbon audit standards at present, and a complete set of system has not yet been established. In addition, the absence of carbon audit talents has been a barrier to conduct carbon audit.

**O:** As a responsible developing country, China made emission-cut promises and strongly to push the whole world to reach a spiritual consensus on reducing emissions. He lay emphasis on environmental protection and ecological civilization construction at the national meeting. In his five-year plan for 2011 to 2015, China strives for establishing a carbon trading market gradually, proposing that related enterprises are mandatory to disclose carbon emission report and some are encouraged to disclose information voluntarily, which provides opportunities for the development of carbon audit.

T: Different from traditional financial audit, carbon audit is reluctant to offer short-term benefits. For those who pursue maximizing shareholders' wealth, they fail to identify its long-term economic interests. In addition, abysmally low public awareness about carbon audit also brings difficulty to the implementation of carbon audit.

Confronted with both opportunities and challenges, the prospect of carbon audit is bright and it should strive to turn seemingly disadvantage aspects to advantages ones.

## **5. Several Suggestions on Carbon Audit**

With the development of low-carbon economy, in order to adapt to the transformation of growth mode of economy and attain sustainable development, it is imperative to construct carbon audit system and establish regulations. Nevertheless, China still lacks standardization for the implementation system and assessment system. Bebbington and other scholars pointed out that the lack of low carbon audit standard can increase the credit risk of enterprise audit [6]. Yanyan Chen and Lanxiang Peng argued that the unsound mechanism, the lack of carbon auditing standards and the insufficient carbon audit talents, are becoming bottlenecks to progress [8]. In order to implement carbon audit successfully, facilitate low-carbon economy and realize the sustainable development, effective and feasible recommendations are as shown below.

### **5.1. Complete the Upper Construction and Establish Carbon Audit System**

From the analyses made above, research about carbon audit is still in a fledging period, with theory and methodology needed to be further developed. Therefore, it needs to strengthen the carbon audit research, and establish a running system as soon as possible to provide theoretical and methodological support. In addition, although some related policies about carbon audit were devised, most of them are not binding and compulsory in general. They are too far to meet people's expectations; a deep reason is that related laws about low-carbon economy have not been fully incorporated into national legislation. Therefore, it needs to perfect the National Auditing Standards, the Independent Auditing Standards, and Internal Auditing Standards as soon as possible. This article suggests that it is necessary to speed up making related laws, and draw lessons of legislation in foreign countries to form the legal system of carbon audit, forming a distinct, complete and mature carbon audit system to guide the carbon audit and improve social acknowledgment of carbon audit report.

### **5.2. Train and Reserve the Carbon Audit Talents**

From the above analysis, it's imperative to cultivate more talents to solve inadequate carbon audit specialist. In addition to all the basic capabilities of traditional financial audit, carbon auditors are also required to have engineering, physics, environment and other professional knowledge, and master various standards and methods of monitoring and statistics analysis. Undoubtedly, they should be able to calculate the energy consumption of various indicators according to the enterprise of energy input and

output data, find out conservation potential and put forward reasonable suggestions according to the index analysis existing in the enterprise.

On the one hand, consisting of auditors with financial and non-financial backgrounds, it needs to speed up building the carbon audit team and widely absorb external experts to participate in, improving the efficiency and effect of carbon audit. On the other hand, it should promote the carbon audit education and training, with experts in the field of carbon audit sharing their expertise to the good potential auditors. Strengthening carbon audit knowledge and improving technology competence are conducive to provide a solid basis for the implementation of the carbon audit.

### 5.3. Actively Encourage Carbon Audit

On the premise of carbon audit legal system and sufficient carbon audit talents, it needs to intensify carbon audit pilot work and gradually expand the scope of carbon audit pilot. In addition, we should draw lessons from international experience to gradually establish and improve the carbon trading market, stimulate the enterprises to reduce carbon emissions [9], and actively promote the development of low-carbon economy.

In short, as an important safeguard mechanism of low-carbon economy, carbon audit arises at the historic moment. Compared with the traditional audit, carbon audit is much more complex and demanding. From the current situation in China, carbon audit system is not sound and is lack of the basis and the talents, bringing a lot of resistance to the development of carbon audit. Therefore, it is strongly recommended that China should complete the upper construction, establish carbon audit system, reserve the talents and actively encourage carbon audit to provide adequate preparations for further development of carbon.

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