



Research on Enterprise Carbon Accounting Risk Management Strategies in the Context of Low-carbon Economy

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Abstract: This paper aims to explore enterprise carbon accounting risk management strategies in the context of a low-carbon economy. Firstly, it analyzes the development trends of a low-carbon economy and the carbon accounting risks faced by enterprises, and then puts forward effective risk management strategies. By formulating carbon management strategies, establishing organizational support systems, and applying technological means, enterprises can better manage carbon accounting risks and promote sustainable development. This paper aims to provide a reference basis for enterprises to effectively avoid risks and achieve sustainable development in a low-carbon economy environment.

Keywords: low-carbon economy, enterprise, carbon accounting, risk management, strategies

1. Introduction

In the current context of a low-carbon economy, enterprises are facing increasing challenges of carbon accounting risks. Effectively managing these risks is crucial for enterprises to achieve sustainable development. This paper examines how enterprises can address carbon accounting risks and proposes corresponding risk management strategies. By conducting an in-depth analysis of the background of a low-carbon economy and the carbon accounting risks faced by enterprises, this paper will propose effective management strategies from strategic, organizational, and technological aspects to help enterprises better adapt to the development trends of a low-carbon economy and promote sustainable development[1].

2. Carbon Accounting Risks Faced by Enterprises

2.1 Risks Caused by Inadequate Carbon Emission Control

In the context of a low-carbon economy, if enterprises fail to control carbon emissions effectively, they will face various risks. Firstly, inadequate carbon emission control may lead to enterprises violating relevant laws and regulations, risking fines or even production shutdowns. This legal risk not only damages the corporate image and reputation but also results in direct economic losses. Inadequate carbon emission control can also bring about market risks. With the development of carbon trading markets, carbon emissions allowances have become economically valuable commodities. If enterprises fail to control emissions effectively, they will need to purchase more emission allowances, increasing operational costs and impacting competitiveness. Inadequate carbon emission control can also pose a threat to the sustainable development of enterprises. With increasing societal focus on environmental responsibilities, stakeholders such as consumers and investors pay more attention to the environmental performance of enterprises[2].

2.2 Market Risks Arising from Carbon Market Fluctuations

In a low-carbon economy environment, fluctuations in the carbon market pose certain market risks to enterprise operations. Price fluctuations in the carbon market may directly impact the cost structure and profitability of enterprises. Significant carbon price fluctuations can make the costs of purchasing and selling carbon emission quotas unstable, increasing operational costs and reducing profitability. This market risk has a negative impact on the financial position and competitiveness of enterprises. If there are carbon-intensive elements in the supply chain, carbon price fluctuations may affect suppliers' costs and supply stability, thereby affecting the production and operation of enterprises. Problems in one part of the supply chain can trigger chain reactions throughout the value chain, exposing enterprises to risks such as production interruptions and delivery delays[3]. Additionally, carbon market fluctuations can also lead to image and reputation risks for enterprises. As bearers of social responsibility, enterprises' performance in the carbon market directly affects public recognition and trust in the enterprise. Failure to manage carbon market risks effectively, resulting in damage to environmental images or accusations of improper behavior in the carbon emission market, can harm the reputation of enterprises, affecting consumer and investor evaluations.

2.3 Financial Risks Arising from Inaccurate Carbon Accounting Information

In the context of a low-carbon economy, enterprises face financial risks due to inaccurate carbon accounting information. Firstly, inaccurate carbon accounting information may prevent enterprises from accurately assessing their carbon emissions and related costs. In this case, enterprises may fail to control carbon emissions effectively, leading to increased future carbon tax payments or the need to purchase more emission allowances, increasing the burden on enterprise costs. Secondly, inaccurate carbon accounting information may also affect the accuracy and transparency of enterprise financial reports, thereby influencing investor and other stakeholder trust and evaluations of the enterprise. If enterprises fail to fully disclose carbon emission information in financial reports or engage in false claims, they may face legal risks of non-disclosure and reputation risks, potentially being penalized by regulatory authorities, affecting the image and market position of the enterprise. Furthermore, inaccurate carbon accounting information may also impact the balance sheets and income statements of enterprises, affecting their financial position and operational performance evaluation. Incorrect recording and reporting of carbon emission-related data may lead to inaccurate balance sheet and income statement information, misleading investors and decision-makers in assessing the financial position of the enterprise, increasing operational risks for the enterprise.

3. Enterprise Carbon Accounting Risk Management Strategies

3.1 Formulating Carbon Management Strategies

Formulating carbon management strategies is crucial for enterprises to achieve sustainable development in the context of a low-carbon economy. Firstly, carbon management strategies should align with the overall strategic objectives of the enterprise to ensure that carbon management work is integrated into the enterprise's development plans and operational management. By setting clear carbon reduction targets and timetables, enterprises can lead organizational change, promote the participation of all employees in carbon management, and improve the implementation effectiveness of carbon management work. Secondly, carbon management strategies should fully consider the core business and value chain of the enterprise, identifying key areas and critical elements for carbon management. Enterprises need to comprehensively identify and assess sources of carbon emissions, identify key factors influencing emissions, and develop targeted emission reduction measures and management strategies. Through optimizing production processes, promoting clean technologies, and enhancing energy management, enterprises can effectively reduce carbon emissions and achieve the strategic goals of carbon management. Additionally, carbon management strategies should emphasize the participation and communication of stakeholders. Enterprises should actively collaborate with government, industry associations, customers, suppliers, and other stakeholders to jointly promote the implementation of carbon management work. Establishing an information transparency mechanism to promptly disclose the results and progress of carbon management to stakeholders enhances social responsibility and corporate image, establishing the enterprise's leadership position in low-carbon development. Lastly, the formulation of carbon management strategies requires continuous monitoring and evaluation.

3.2 Building Organizational Support Systems

In the process of implementing carbon management strategies, building an effective organizational support system is crucial for enterprises to enhance carbon management performance. Firstly, enterprises should clarify the organizational structure and division of responsibilities for carbon management, ensuring that carbon management work is assigned to dedicated teams and integrated into the daily work of each department. By establishing a carbon management committee, hiring professional carbon management personnel, providing training for employees, etc., enterprises can establish a team with professional knowledge and skills in carbon management, driving the implementation of carbon management work. Secondly, building an organizational support system also includes establishing effective incentive mechanisms and performance evaluation systems to motivate employees to actively participate in carbon management. Enterprises can incentivize employee participation in carbon management work through initiatives such as carbon reduction target rewards, conducting carbon management knowledge training, and incorporating carbon management performance into employee performance assessments, fostering a culture of full participation and collaborative promotion of carbon management. Enterprises can utilize information technology to establish a carbon management information system, enabling the collection, monitoring, analysis, and reporting of carbon emission data, enhancing the data-driven level of carbon management and decision-making efficiency.

3.3 Applying Technological Means to Support Management

In the implementation of carbon management strategies, applying technological means can effectively support the carbon management work of enterprises, enhancing management efficiency and emission reduction effects. Firstly, enterprises can

conduct real-time monitoring and management of energy consumption and carbon emissions by introducing advanced Energy Management Systems (EMS) and Environmental Information Management Systems (EIMS). These systems can assist enterprises in accurately obtaining energy data, analyzing energy utilization, identifying energy waste and carbon emission sources, providing data support for the formulation of scientific carbon management strategies. Secondly, the application of technological means includes adopting clean production technologies and equipment, optimizing production processes, reducing energy consumption, and waste emissions. For example, actions like using energy-efficient equipment, promoting waste heat utilization technologies during production, and introducing clean energy to replace traditional energy sources can effectively reduce carbon emissions, enhance production efficiency, and lower production costs. Moreover, enterprises can leverage big data analysis, artificial intelligence, and other technological means to conduct in-depth exploration and analysis of carbon management data, identifying potential opportunities for carbon emission reduction and optimization.

4. Conclusion

This paper discusses the carbon accounting risks faced by enterprises in the context of a low-carbon economy and proposes effective management strategies. By formulating carbon management strategies, building organizational support systems, and applying technological means, enterprises can better manage carbon accounting risks and promote sustainable development. In a low-carbon economy environment, enterprises need to pay attention to risks arising from inadequate carbon emission control, market fluctuations, and inaccurate accounting information, and actively respond to mitigate the impacts of market and financial risks. Therefore, the management strategies proposed in this paper provide a useful reference basis for enterprises to avoid risks and achieve sustainable development in a low-carbon economy environment.

References

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