

Discussion on Promoting the Green Economic Transformation of Enterprises in Dalian Based on ESG Principles under the "Dual Carbon" Goals

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Abstract: In the context of global climate change, China has proposed the "dual carbon" goal, which aims to achieve carbon peak before 2030 and carbon neutrality before 2060. As an important economic center in Northeast China, Dalian's enterprise green economy transformation is the key to achieving the "dual carbon" goal. This article explores in depth the green economy transformation path of enterprises in Dalian based on the ESG (Environmental, Social, and Corporate Governance) concept. The ESG concept has played an important role in the green economy transformation of enterprises, helping them comprehensively evaluate their performance in environmental protection, society, and governance, and enhance the effectiveness of the transformation. Policy and regulatory support of government, capital investment and financial support, as well as talent cultivation and technological innovation, are important guarantees for promoting the green economy transformation of enterprises in Dalian.

1. Research Background and Significance

1.1 Research Background

In light of the severe challenges posed by global climate change, reducing carbon emissions and achieving carbon neutrality have become a consensus within the international community. As one of the largest greenhouse gas emitters globally, China proposed its "dual carbon" goals at the 75th United Nations General Assembly in September 2020, aiming to peak carbon emissions by 2030 and achieve carbon neutrality by 2060^[1]. However, the "Annual ESG Action Report" published in 2023 by various organizations, including the All-China Federation of Industry and Commerce and the Chinese Academy of Social Sciences' Economic Research Institute, revealed that none of the top 100 listed companies recognized as "Pioneers of Listed Companies" were from Dalian. This

indicates a lack of awareness among Dalian enterprises regarding the integration of ESG principles and an insufficient understanding of the synergy between ESG concepts and the development of a green economy.

As a significant port city and economic hub in Northeast China, Dalian bears a crucial responsibility in achieving the national "dual carbon" objectives. The city's economic development is closely linked to energy consumption and carbon emissions. To meet these goals, Dalian must accelerate the optimization and upgrading of its industrial structure, vigorously develop green and low-carbon industries, and promote the transformation of enterprises towards a green economy. This is not only an urgent necessity to address global climate change but also an inherent requirement for driving high-quality economic development in Dalian^[2].

1.2 Significance

The introduction of the "dual carbon" goals has provided a clear direction for Chinese enterprises in their transition to a green economy. It serves as a catalyst for accelerating the research, development, and application of green technologies. This initiative promotes the low-carbon transformation of industrial structures, enhances resource utilization efficiency through the innovation and application of green technologies, reduces production costs, and ultimately strengthens the market competitiveness of enterprises^[3]. The ESG concept emphasizes that companies should fully consider environmental factors in their operations and promote green production, which aligns closely with the requirements of the "dual carbon" goals.

In the process of transitioning to a green economy, enterprises should focus on social benefits while pursuing economic efficiency, achieving mutual development for both the company and society. This approach not only enhances the brand image and reputation of the enterprise but also strengthens its social recognition and cohesion, laying a solid foundation for long-term growth^{[4][5]}.

The ESG concept emphasizes that companies should establish a robust corporate governance framework, enhance the transparency and quality of information disclosure, safeguard the legitimate rights and interests of investors, strengthen the company's resilience to risks, and simultaneously improve financing efficiency and market competitiveness^{[6][7]}. By implementing the ESG evaluation framework, companies can more scientifically assess the effectiveness of their transition to a green economy, thereby providing robust support for their future development strategies.

1.3 ESG principles

The concept of ESG (Environmental, Social, and Governance) has gradually emerged as a significant focus for both corporations and investors globally since its introduction by the United Nations Global Compact in 2004. This framework emphasizes the integration of environmental, social, and governance factors into investment decisions and corporate management to achieve sustainable development for both businesses and society. Under the guidance of ESG principles, companies are required to not only prioritize traditional economic performance but also actively fulfill their obligations regarding environmental protection, social responsibility, and corporate governance, thereby promoting the harmonious development of economic, social, and environmental aspects.

Currently, various influential ESG evaluation standard systems have been established both domestically and internationally. Among these, the MSCI ESG Research and the Global Reporting Initiative (GRI) standards are two prominent evaluation frameworks. MSCI ESG Research provides critical decision-making insights for investors by rating and ranking the ESG performance of thousands of companies worldwide. Meanwhile, the GRI standards offer businesses a

comprehensive set of guidelines for sustainable development reporting, assisting them in effectively disclosing and communicating their ESG performance and improvement initiatives.

2 Analysis of the Current Status of Green Economic Transformation in Dalian City Enterprises

The "National Sustainable Development Plan for Resource-Based Cities (2013-2020)" indicates that the three northeastern provinces are the primary concentration areas for resource-based cities in China, accounting for 14.1% of the national total. Among these, half are classified as declining cities. This includes prefecture-level administrative regions, county-level cities, counties (autonomous counties, forest areas), and urban districts (development zones, management areas). Specifically, Heilongjiang Province has 11 such cities, Jilin Province has 11, and Liaoning Province has 15. Resource-based cities represent a unique urban type characterized by a clear resource orientation, strong dependency, and a singular industrial structure^[8]. Although Dalian ranks among the top three cities in terms of economic development in the three northeastern provinces, it still struggles to avoid the aforementioned industrial drawbacks.

(1) Technical Bottlenecks and Limitations

Although Dalian has made certain technological breakthroughs in clean energy and energy conservation, there remains a gap when compared to global advanced levels. Companies need to increase their investment in research and development, as well as attract and cultivate high-end talent, to accelerate technological innovation and the conversion of results.

(2) Funding Shortages

Funding shortages represent a significant challenge for enterprises in Dalian as they transition to a green economy. The research and application of green technologies require substantial financial investment, yet many companies in Dalian possess relatively limited financial resources. Additionally, most small and medium-sized enterprises struggle to secure loans from banks, facing high debt ratios with the majority of their financing sourced from banking institutions.

(3) Low Market Acceptance

The relatively high cost of green products may lead to consumer hesitation during the purchasing process. The general consumer market tends to favor products that are low in price, highly practical, and offer strong value for money; however, there are currently few green products available in the market that meet these criteria.

Weak regulation and enforcement of policies and regulations

Although a series of policies and regulations supporting green development strategies have been introduced for the "dual carbon" goals, weak enforcement and regulation have led to low levels of corporate attention and insufficient compliance. In a business operating model that prioritizes profits, there are few companies that simultaneously value environmental protection, mainly due to inadequate relevant laws and regulations, insufficient punishment, unclear reward and punishment systems, and difficulties in promoting enterprises to complete transformation and upgrading.

3 Discussion on the Concept of ESG Green Transformation and Countermeasure Analysis

3.1. Optimization of ESG Management

In promoting the green economic transformation of enterprises in Dalian, by establishing a sound ESG management system, enterprises can better clarify their goals and responsibilities in terms of environment, society, and corporate governance, thereby targetedly carrying out related work. This helps enterprises improve their ESG performance levels, win recognition and trust from all sectors of society, and enhance their brand image and market competitiveness.

To strengthen ESG management, clear ESG management strategies should be formulated, including environmental protection, fulfillment of social responsibilities, and improvement of corporate governance structures. These strategies should be coordinated with the enterprise's overall development strategy to ensure that while pursuing economic benefits, the enterprise can also actively fulfill its social responsibilities and protect the ecological environment.

Enterprises are encouraged to regularly publish ESG reports to showcase their achievements and progress in ESG to stakeholders such as the public, investors, and government agencies. To strengthen their implementation results in ESG management, it is recommended that enterprises actively communicate with stakeholders, listen to opinions and suggestions, and continuously improve their management and operations.

3.2. Energy Structure Adjustment

For enterprises in Dalian, this not only means responding to the global environmental protection trend and China's "dual-carbon" goals but is also a crucial step in enhancing their competitiveness and sustainable development capabilities.

In terms of clean energy, renewable energy enterprises such as those specializing in solar, wind, and ocean energy are encouraged to develop, with the announcement of investment and construction projects for photovoltaic power stations, wind farms, and other initiatives, to promote an increase in the proportion of clean energy in their energy consumption structures.

Reduce energy consumption and strengthen energy management. By establishing a comprehensive energy management system, enterprises can reduce energy consumption during production processes through real-time monitoring, data analysis, and energy-saving technological transformations. During this process, enterprises should increase their R&D investments and actively explore frontier areas of new energy technologies and energy-saving technologies.

3.3 Technological Innovation and Application

Enterprises in Dalian should deeply recognize the crucial role of technological innovation in the transition to a green economy. By introducing advanced production technologies and management models, they can reduce energy consumption and carbon emissions, improve resource utilization efficiency, and thereby gain a first-mover advantage in the fiercely competitive market. Strengthening industry-university-research cooperation with universities and research institutions, enterprises can leverage these resources fully to accelerate the research and development of green and low-carbon technologies and promote the transformation and application of scientific and technological achievements. By participating in market competition, enterprises can grasp market demands and trends more accurately, providing robust support for the research and application of green and low-carbon technologies.

Integrate industrial chains, innovation chains, and capital chains deeply into technological innovation and application. The industrial chain is the foundation of enterprises' production and operation activities, the innovation chain is the key to driving technological innovation, and the capital chain is the crucial support for ensuring enterprise operations. By facilitating the deep integration of these three elements, enterprises in Dalian can form a more complete and efficient innovation system, providing continuous impetus for the transition to a green economy.

3.4 Policy and Regulation Support

At the national level, the Chinese government attaches great importance to green development and addressing climate change, formulating and implementing a series of policies and regulations.

For example, the Environmental Protection Law of the People's Republic of China sets strict environmental protection standards for enterprises and strengthens their environmental protection responsibilities; the Energy Conservation Law of the People's Republic of China aims to promote energy conservation across society and improve energy utilization efficiency.

At the local level in Dalian, the city has actively responded to national policies by formulating a series of local regulations and policies to support the transition to a green economy. Documents such as the Dalian Green Building Design Standards provide clear design and construction guidance for the development of green buildings. It is recommended to enhance policy sensitivity, implement policies in response to national directives, and introduce a series of "convenient and beneficial" policies that take into account the local conditions and needs of the people in Dalian.

4 Conclusion

Through an in-depth exploration of the green economic transformation of enterprises in Dalian, combined with the ESG concept, this study draws the following main research conclusions:

Firstly, enterprises in Dalian have made significant progress in the process of green economic transformation. They have actively responded to the national "dual-carbon" goals and continuously promoted green and low-carbon development through industrial restructuring, energy structure optimization, technological innovation and application, and other means. In this process, the environmental awareness and social responsibility of enterprises in Dalian have been significantly enhanced, laying a solid foundation for the sustainable development of the regional economy.

Secondly, the ESG concept has played an important role in promoting the green economic transformation of enterprises. The environmental protection, social responsibility, and corporate governance factors emphasized by ESG are highly consistent with the goals of green economic transformation of enterprises. By introducing the ESG evaluation model, enterprises in Dalian can more comprehensively identify their strengths and weaknesses in green development, thereby formulating more targeted transformation strategies.

Thirdly, this study also finds that although enterprises in Dalian have achieved many accomplishments in green economic transformation, they still face some problems and challenges. For example, some enterprises still face difficulties such as insufficient understanding, funding shortages, and technological bottlenecks during the transformation process. In response to these issues, this study proposes specific path suggestions such as strengthening ESG management optimization, deepening energy structure adjustment, promoting technological innovation and application, and promoting green collaborative development of the industrial chain, in order to provide more practical transformation guidance for enterprises.

Fourthly, policy and regulation support, capital investment and financial support, as well as talent cultivation and technological innovation are important guarantees for promoting the green economic transformation of enterprises in Dalian. The government should continue to increase policy support, improve the green financial system, strengthen talent cultivation and technological innovation platform construction, and provide comprehensive support and guarantees for the green economic transformation of enterprises.

This study not only enriches the theoretical connotation of the ESG concept and green economic transformation of enterprises but also provides useful references for the green economic transformation of enterprises in Dalian and even broader regions.

Future research can be deepened and expanded in the following aspects: conducting in-depth research on the relationship between green economic transformation and economic and social development, revealing the influence mechanisms and effects of green economic transformation on economic growth, employment, environmental protection, and other aspects; strengthening research

on green technological innovation and application, promoting the research, promotion, and application of green and low-carbon technologies to provide strong technical support for green economic transformation; drawing on the practical experience of other cities with similar economic and political backgrounds at the same level, integrating the current situation of Dalian, and introducing more efficient and long-term policies.

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