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The Impact of Green Investment on The Sustainable Development of Industrial Enterprises

-- Case study of green investment in Geely Automobile Group Co. LTD

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Abstract: With the increasing attention to environmental protection and sustainable development in the world, green investment has gradually become an important means for enterprises to achieve sustainable development. Taking Geely Automobile Group Co. LTD as an example, this paper deeply discusses its green investment strategy, practice and its impact on the sustainable development of the enterprise, aiming to provide reference and reference for other enterprises.

Keywords: Green investment, Sustainable development, New energy vehicles, The Green Factory.

1. Introduction

Under the background of globalization, industry is an important pillar of China's national economy, and its development mode of high emission and high pollution has been difficult to adapt to the development of The Times. According to the World Meteorological Organization report, the level of carbon dioxide in the earth's atmosphere in 2023 is 50% higher than that in the pre-industrial era, thus making the global near-surface average temperature 1.45 degrees plus or minus 0.12 degrees higher than the average level from 1850 to 1900 [1]. And because carbon dioxide has a long life, temperatures are expected to continue to rise for many years [2]. The green transformation and sustainable development of industrial enterprises have become an urgent problem to be solved. Industrial enterprises in the new era should abandon the previous wrong concept of "pollution first, treatment later", start from the fundamental, change the operation mode of enterprises, and realize the green transformation and sustainable development of industrial enterprises. Green investment is an important way to promote green and high-quality development [3], which can encourage enterprises to carry out green innovation, bring good reputation for enterprises to achieve a win-win situation of economic growth and environmental protection, and bring many favorable conditions for the sustainable development of enterprises. Many industrial enterprises, such as China Building Materials Group, CATL and Haier Group, have achieved sustainable development through green investment. Based on the case study of green investment made by Geely Automobile Group Co. LTD (hereinafter referred to as Geely), this paper explores the impact of green investment on the sustainable development of industrial enterprises. The following is arranged as follows: the second part mainly introduces the concept of green investment; The third part carries on the case analysis through the green factory construction, the technology and the material green innovation two aspects; The fourth part expounds the relationship between green investment and enterprise sustainable development; The fifth part concludes.

2. The Concept of Green Investment

Although there are a variety of theoretical explanations for green investment, the mainstream view is that green investment is environmental protection investment, and funds are invested in green industries such as environmental protection, energy conservation, and clean energy to support business behaviors that have a favorable impact on the natural environment. Green investment will affect the mode of economic development in the form of environmental protection investment [4]. At the same time, by enhancing the availability of capital for environmentally friendly enterprises, green investment not only directly supports their development, but also indirectly encourages polluting enterprises to turn to green production, thus promoting the sustainable development of the entire industry [5]. Generally speaking, green investment is all monetary funds used to increase green GDP.

3. Geely Auto Group Co. LTD's Green Investment Strategy and Practice

3.1. Green Factory Construction

The factory is the most basic unit of green transformation and sustainable development in the industrial field, so the carbon emissions of each factory directly affect the carbon emissions of the entire industrial field. In order to fundamentally reduce carbon emissions in the industrial sector, the concept of green factory has been put forward. Green factory construction is to achieve zero-carbon operation of the factory by introducing advanced energy-saving technology and equipment to improve energy efficiency [6]. In September 2022, Geely built a 52 MW super photovoltaic power station in its Xi 'an plant, obtained the first five-star certificate of titanium and certification of the Type I zero-carbon factory, and became the first zero-carbon factory of a domestic vehicle enterprise, achieving 100% use of renewable energy electricity. The plant's self-built photovoltaic power station generates 47.5 million KWH of electricity annually, saves about 5,800 tons of standard coal and reduces carbon dioxide emissions by about 27,000 tons

annually. Through a water recycling system, the plant has reduced water consumption for bicycle manufacturing to 1.6 cubic meters, significantly lower than the industry average. Not only that, the Xi 'an plant also fully uses low-volatile raw and auxiliary materials, the water utilization rate reaches 44%, and the comprehensive purification efficiency of the waste gas treatment system exceeds 98%, which has fully realized the full cycle of manufacturing zero waste water discharge, zero waste landfill, and zero harmful emissions, greatly reducing the environmental burden. A circular economy has been formed to achieve a balance between economic growth and resource consumption, and to achieve sustainable development of economy, society and environment [7].

According to the "2023 Sustainability Report" released by Geely, the lifecycle carbon emissions of Geely's single vehicle have been reduced by 12% compared with 2020 (Table 1); Manufacturing carbon emissions fell by 53.7%. As of July 2024, 17 of Geely's manufacturing bases have been rated as "national green factories", three manufacturing bases have been rated as "zero carbon factories", and Volvo's Taizhou plant has become Volvo Cars' first climate zero load plant in China. Green factory construction has significantly reduced the environmental pollution caused by production vehicles. Table 2 shows that three major air pollutants: nitrogen oxides, sulfur dioxide, and NMHC have significantly decreased compared with 2021, respectively from 0.08kg/ vehicle; 0.02kg/ vehicle; 0.06kg/ vehicle reduced to 0.07kg/ vehicle; 0.01kg/ vehicle; 0.05kg/ vehicle. The average water requirement per vehicle is also reduced from 3.4 tonnes per vehicle in 2021 to 2.7 tonnes per vehicle in 2023 (Table 3). The construction of the green factory will help Geely take the lead in achieving the goal of "reducing the carbon emissions of a single vehicle's full life cycle by more than 25% by 2025 and achieving carbon neutrality by 2045", making it a benchmark for low-carbon development in the automotive industry. Geely has achieved sustainable development step by step while investing in building green factories and carrying out green transformation.

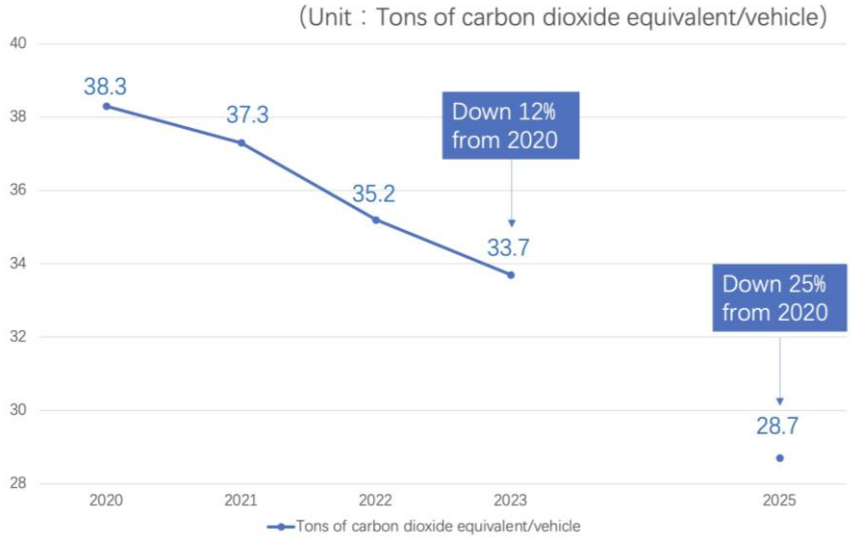

Figure 1. Tons of carbon dioxide equivalent/vehicle

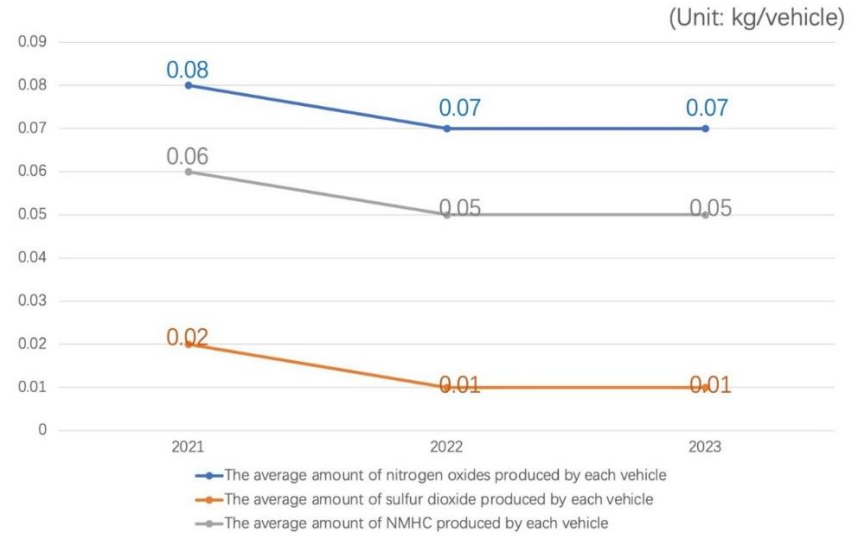

Figure 2. Nitrogen oxide, sulfur dioxide and NMHC emissions per vehicle on average

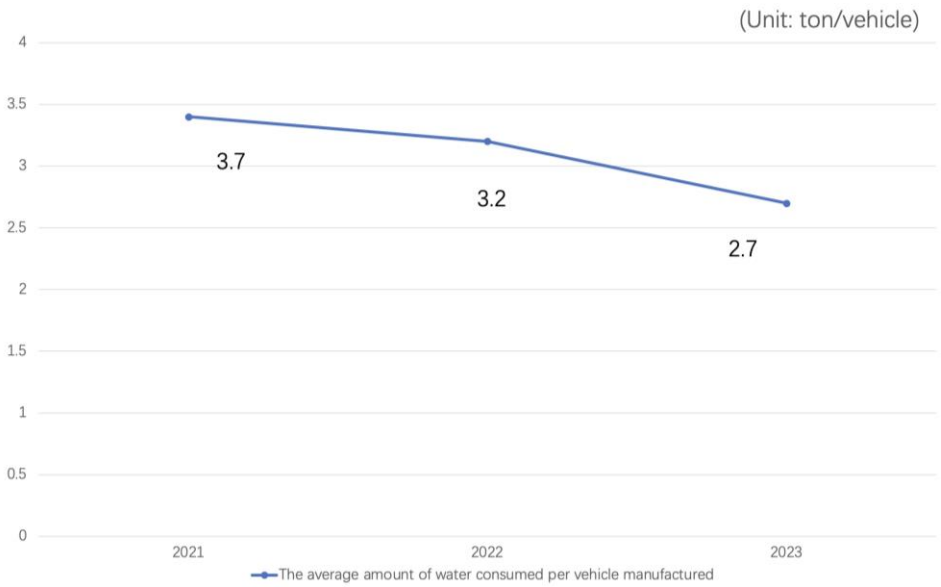

Figure 3. Average amount of water consumption per vehicle

3.2. Green innovation of Technology and Materials

In order to achieve the sustainable development of the enterprise, in the past decade, Geely has invested more than 100 billion yuan in the research and development and innovation of new energy vehicle technology, and launched advanced new energy technologies such as Raytheon electric hybrid technology and Galaxy 11 and 1 intelligent electric drive, so that its new energy vehicles have longer endurance, stronger performance and lower energy consumption. Geely maintains its continued competitiveness in the automotive sector through continuous innovation. In order to achieve the stated goal of "carbon neutrality", Geely has set low-carbon and recycling as the research and development direction of new products, promoted green innovation through green investment, and developed many green technologies and materials. For example, models such as the Geely Galaxy E8 and Lynk & Co 08 use more than 30 lightweight technologies such as thermoformed integrated door rings and aviation-grade aluminum alloys; The polyester used in the Volvo EX30 interior can be recycled up to 100%; The Volvo C40 Recharge does away with animal leather altogether in favour of bio-based and recyclable materials; Krypton 009 is made of environmentally friendly materials, and the proportion of plant-based raw materials is 30%. Such investment in green innovation has enabled Geely to successfully integrate the concept of sustainable development into the full value chain of the vehicle life cycle, forming its own green core competitiveness.

4. Green Investment and Sustainable Development of Enterprises

Compared with the environmental benefits brought by green investment, it brings more economic benefits to enterprises. According to the financial report released by Geely (Table 4), Geely's pre-tax profit in 2023 has significantly improved compared with 2021 and 2022. As mentioned above, the first zero-carbon plant built by Geely Green investment was completed and put into use in September 2022, which greatly reduced the consumption of energy costs in the manufacturing process of Geely cars. It can be seen that green investment has a direct impact on corporate profit growth. The growth of profits is an indispensable factor for enterprises to achieve their own sustainable development.

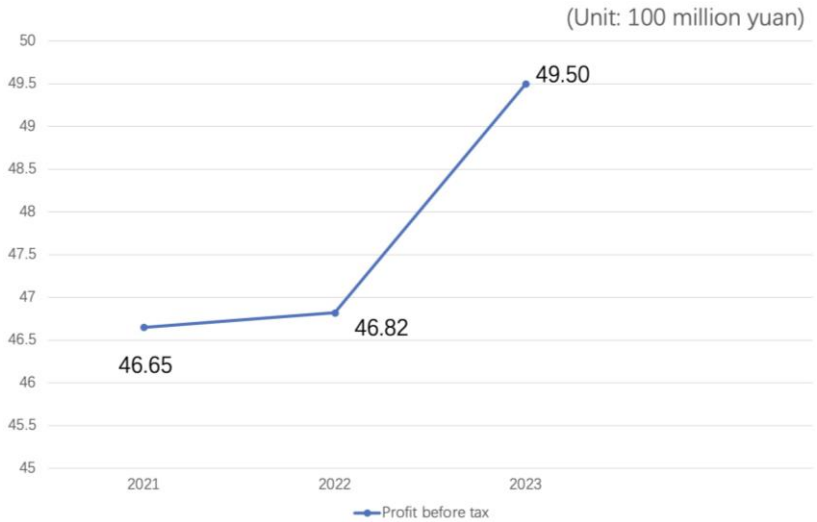

Figure 4. Profit before tax

Investment (green investment) and innovation are the prerequisite for enterprises to increase profits. Then through

operation, the cost end, research and development end, sales end produce competitive advantages; Thus, the growth of operating income and the decline of operating costs will bring about the growth of profits. The premise of sustainable development of enterprises is the steady growth of profits. This requires the above process to be realized: investment - operation - profit - reinvestment - continuous operation - steady growth of profit - continuous investment - continuous operation - continuous growth of profit - continuous investment - continuous growth of profit - continuous investment -.... Such a virtuous cycle, thus achieving sustainable development.

Geely is achieving its own sustainable development in these ways. In 2023, Geely's product structure optimization, cost reduction and scale effect improved the gross profit situation, the total gross profit increased by 31% year-on-year to 27.4 billion yuan, and the gross profit margin increased from 14.1% in 2022 to 15.3%/ in 2023. Green investments have brought stronger profitability to Geely and become an important step in the virtuous cycle of Geely's sustainable development.

5. Conclusion

Geely's green investment is mainly focused on the construction of green factories and green innovation in technology and materials. This strategy has a profound impact on the sustainable development of enterprises, mainly reflected in the following three aspects:

In terms of energy conservation and emission reduction, Geely has achieved significant energy conservation and emission reduction effects through green investment and technological innovation. This not only helps to slow down the pace of global climate change and reduce the adverse impact on the environment, but also brings considerable energy cost savings for enterprises [8]. This double benefit makes Geely's green strategy have extremely high social and economic value, achieving a win-win situation for environmental protection and economy.

In terms of enhancing the corporate image, green investment not only improves the product quality and technical level of Geely Automobile, but also enhances the corporate social responsibility and brand image. With the increasing attention of consumers to environmental issues, the environmental behavior of enterprises and the environmental performance of products have become an important consideration for consumers to choose products. Through green investment, Geely has successfully won the recognition and trust of more consumers and further consolidated its leading position in the market [9].

In terms of promoting the development of the industry, as a leader in the automotive industry, Geely's green investment case provides a valuable demonstration and reference for the green transformation of the entire industry. Other enterprises can learn from Geely's experience and practices, combined with their own actual conditions, and jointly promote the green development and sustainable development of the entire industry. This positive interaction within the industry will help improve the environmental protection level of the entire automotive industry and contribute to the construction of a green and low-carbon society.

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