The Impact of Environmental Protection Tax on Corporate Green Innovation under the Double Carbon Target

-- Taking Jiangxi Copper Industry Group as an Example

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Abstract. The report of the 20th National Congress of the Communist Party of China proposed to promote the major transformation of the socialist economic model, implement the national comprehensive energy-saving plan, actively develop green and low-carbon industries, encourage green consumption, and promote the establishment of a green and low-carbon economic production mode and life mode in society. Since the implementation of the Environmental Protection Tax Law on January 1, 2018, the hearts of enterprises to " seek green " have gradually increased. Taking Jiangxi Copper Industry Group as an example, this paper describes and analyzes the development of the national mining industry under the dual carbon goals, explores the role of environmental protection tax on green innovation of enterprises, and puts forward corresponding measures and suggestions.

Keywords: Double Carbon; Environmental Protection Tax; Green Innovation; Jiangxi Copper Group.

1. Introduction

In recent years, people have gradually paid attention to the protection of the environment. How to reduce the current huge resource consumption and how to solve increasingly severe environmental problems, how to improve environmental protection and save scarce natural resources are problems that we urgently need to solve. " Innovation, coordination, greenness, openness, and sharing . " Five years ago , the Fifth Plenary Session of the Eighteenth Central Committee of the Communist Party of China clearly defined " green " as an important content of the new development concept. In the past few years, under the guidance of the concept of green development and the goal of double carbon, green tax laws such as resource tax and environmental protection tax have been introduced one after another. On January 1 , 2018 , China's first separate tax law that specifically embodies the green tax system and promotes the construction of ecological civilization - the Environmental Protection Tax Law was officially implemented. With the implementation of one measure after another, in terms of assisting pollution prevention and control, the implementation of tax incentives and the implementation of tax restrictions are " two-way force " , resource mining, production, circulation, emission, and consumption are " five-linked " , with resource tax, environment Protection tax and cultivated land occupation tax " multi-tax co-governance " , and a green tax system with systematic tax preferential policies " multi-policy combination " are gradually established. China is using tax levers to promote green economic development and green technology innovation.

China is a country with a vast territory , superior metallogenic geological conditions, a complete set of mineral types, and abundant resources in the world . It is a country with rich mineral resources with its own resource characteristics. However, the mining industry emits a large amount of harmful pollutants during its production process, which has caused serious damage to the atmosphere. The sewage charges adopted before have not played a very good effect, and the discharge of harmful pollutants has not been effectively reduced. The collection of environmental protection tax will encourage enterprises to carry out green technology innovation in equipment and methods to reduce the direct discharge of pollutants, so as to achieve the effect of protecting the environment to a certain extent. Under the implementation of the concept of green development, the collection of environmental protection tax has further promoted the realization of the new development concept. The environmental protection tax also provides a new development direction for the transformation and upgrading of mining companies and production innovation. Therefore, under the background of

widely advocating the concept of energy conservation, emission reduction and green development, it is imperative to reform the excessive consumption of resources and environmental pollution in the mining industry. Jiangxi is extremely rich in mineral resources and is one of the provinces with a relatively high degree of supporting mineral resources in China, among which copper accounts for 19.83% of the country's total reserves . As Jiangxi Copper Group is China's largest production base of copper products and an important source of vulcanized raw materials, gold, silver and scattered metals, it is of value and significance to take Jiangxi Copper Group as the research object. Based on this, this paper mainly studies the impact of environmental protection tax on the performance of Jiangxi Copper Group's green innovation under the double carbon target, and puts forward corresponding measures and suggestions.

2. Concept Definition

2.1 Double Carbon

Double carbon, the abbreviation of carbon peak and carbon neutrality . Carbon peaking means that at a certain point in time , carbon dioxide emissions no longer increase and reach a peak, and then gradually fall back. Carbon peaking is the turning point in the history of carbon dioxide emissions from increasing to decreasing, which marks the decoupling of carbon emissions from economic development . The total amount of carbon dioxide or greenhouse gas emissions directly or indirectly produced within a certain period of time, through afforestation, energy conservation and emission reduction, etc., to offset the carbon dioxide or greenhouse gas emissions produced by itself, to achieve positive and negative offsets, to achieve relative " zero emissions " .

On September 22 , 2020 , President Xi Jinping announced at the 75th session of the United Nations General Assembly that China will strive to peak carbon dioxide emissions by 2030 and strive to achieve carbon neutrality by 2060; on October 24 , 2021 , the Communist Party of China The " Opinions on Completely, Accurately, and Comprehensively Implementing the New Development Concept and Doing a Good Job of Carbon Peak Carbon Neutrality " issued by the Central Committee and the State Council was released; on January 4 , 2022 , it was selected as one of the top ten hottest brands in 2021 by "China Famous Brands" word.

The " Double Carbon " strategy advocates a green, environmentally friendly and low-carbon lifestyle. Accelerating the pace of reducing carbon emissions is conducive to guiding green technology innovation, improving the global competitiveness of industries and economies, and striving to balance economic development and green transformation at the same time.

2.2 Environmental Tax

2.2.1 Theoretical Concepts

The emergence of environmental taxes stems from the progress of the " green tax system " movement. The basic idea of " tax system greening " means that there is a basic idea of environmental protection in the tax system of a country . By increasing the tax types that can protect and reduce environmental pollution, the purpose of maintaining natural resources and the environment can be achieved while increasing tax revenue. . Environmental tax is usually also called ecological tax or green tax in the world. Viewing the concept of environmental tax from different angles and different ways, the concept of it is also different, and the meaning of the concept is always in the process of development and change. The well-known economist Arthur Pigou (pigou) proposed in his book "Welfare Economics" that " environmental protection tax " refers to the collection of specific behaviors or activities that hinder ecological balance or cause environmental damage in order to protect the environment A specific tax. However, some Chinese scholars believe that environmental protection tax refers to various tax means or various types of taxes that aim at environmental protection and pollution reduction.

As far as the current development of environmental protection tax is concerned, most scholars in the academic circles agree to define environmental protection tax from two aspects: narrow sense environmental protection tax and broad sense environmental protection tax. Environmental protection tax in a narrow sense refers to a special type of tax that is collected for specific behaviors that cause environmental pollution with the goal of protecting the environment and reducing pollutant emissions. In a broad sense, the content of environmental protection tax is relatively broad. It refers to various tax means or various types of taxes collected for the purpose of protecting the environment. This paper argues that the new " environmental protection tax " levied in China belongs to a narrow sense of environmental protection tax to a certain extent, because China's "Environmental Protection Tax Law" stipulates that its collection scope is a kind of pollution discharge tax. According to the relevant regulations of my country's "Environmental Protection Tax Law", we can understand the environmental protection tax from this perspective. A special environmental tax levied by groups or individuals that directly release taxable pollutants to the ecological environment in other fields. The predecessor of the environmental protection tax currently implemented in our country is the sewage charge. Comparing the relevant system elements of the "Environmental Protection Tax Law" with the "Management of the Collection and Use of Sewage Discharge Fee", we can find that the "environmental protection tax" is basically a replacement for the previous " pollution discharge fee " . The translation of the system, in other words, is a translation of the tax burden. From a legislative point of view, the "Environmental Protection Tax Law" was formulated to implement the " legal taxation " demand proposed by the Third Plenary Session of the Eighteenth Central Committee of the Party. It is a continuation and improvement of the original pollution discharge fee system.

Table 1. Basic Regulations on Environmental Protection Tax

tax elements	basic rules
taxpayer	Enterprises, public institutions and other production operators that directly release taxable pollutants to the environment
tax item	Air pollutants, water pollutants, solid waste and industrial noise
tax rate	Implement a fixed tax rate and adopt a specific and fixed tax collection method
tax range	Release taxable pollutants directly into the environment
Tax basis	Pollution Equivalent Numbers, Emissions, and Decibel Numbers
Collection method	Calculated on a monthly basis, reported and paid on a quarterly basis

2.2.2 Development History

Since the 1870s , China began to study the environmental protection tax system. The pollutant discharge fee system in 1979 formally clarified the relevant standards for pollutant discharge in China, and stipulated the fees that enterprises and institutions need to pay for pollutant discharge exceeding the standard, thus increasing the Enterprises' awareness of conservation has improved the resource utilization rate of enterprises, and also enhanced social environmental awareness and public environmental responsibility. In 1982 , the pollutant discharge fee system was implemented nationwide, and the charging standards were adjusted in 2003 and 2014 , gradually improving the scope of pollutant taxation, and appropriately increasing the charging rate on the original basis. In order to steadily promote the implementation of the pollution discharge fee system, the state has introduced derivatives such as the pollution discharge right trading system and the pollution discharge permit management system. Since 2014 , China has carried out the pilot project of emission rights trading. The emission rights trading system has controlled the total amount of pollutant emissions to remain unchanged, and the emission rights can be freely traded between enterprises. Since then , in 2015 , the state has stipulated that provinces and cities can control the pollution discharge rights of various industries within their jurisdictions, and increase or decrease them as appropriate. In 2016 ,

the state proposed the legalization of pollutant discharge permits to effectively supervise and manage pollutant discharge enterprises with fixed pollution sources.

The Third Plenary Session and the Fourth Plenary Session of the Eighteenth Central Committee of the Party repeatedly emphasized the need to insist on promoting the " fee-to-tax reform " of China's sewage charges

The process of speeding up the legalization of taxation in our country. In recent years, China has accelerated the formulation and promulgation of laws related to environmental protection, successively released the draft and draft of the "Environmental Protection Tax Law of the People's Republic of China", and officially implemented the Environmental Protection Tax Law on January 1 , 2018 .

The report of the 20th National Congress of the Communist Party of China made it clear that we should accelerate the green transformation of the development mode, implement a comprehensive conservation strategy, develop green and low-carbon industries, advocate green consumption, and promote the formation of green and low-carbon production methods and lifestyles. Further implement the concept of green development contained in green tax systems such as environmental protection tax and resource tax. Enterprises take the initiative to transform and upgrade, reduce pollutant emissions, and promote the construction of ecological civilization. General Secretary Xi Jinping has repeatedly emphasized: " Green waters and lush mountains are golden mountains and silver mountains " . We need to clarify that environmental protection tax is a basic national policy of our country, which can protect and improve the environment and has an irreplaceable role.

2.3 Green Innovation

Ernest Braun and other researchers (1994) defined the definition of green technology for the first time, thinking that green technology

Technology refers to the skills or crafts that improve the quality of the environment and reduce the loss of energy and resources. Later, James (1997) defined green innovation on the basis of Ernest Braun, " a new skill or process that aims to reduce the impact on the environment and at the same time increase the value of the enterprise " . Liu Wei (2012) concluded by referring to related articles on green innovation at home and abroad that green innovation should include three aspects: green skill innovation, green normative innovation and green cultural innovation, among which green innovation content is a key component It is the innovation of green technology. To sum up, the concept of green innovation has the characteristics of multi-angle and multi-subject complexity. At present, the academic circle has not yet formed a connotation generally recognized by the public for green innovation. However, according to the classification of green innovation concepts by Jia Yingying and other scholars, The four viewpoints of green innovation, sustainable innovation, ecological innovation and environmental innovation mainly differ in three aspects: the definition and measurement of environmental benefits, the autonomy of environmental benefits, and the " double externalities " of green innovation. Based on this, green innovations are divided into three categories, as shown in Table 2 . The first category is to seek environmental credit and performance without awareness, that is, energy-saving green innovation. General innovation activities reduce energy consumption and indirectly bring about environmental friendliness by promoting the improvement of efficiency and profitability. The second category is to actively seek environmental credit and performance, that is , environmental-benefit green innovation. The innovation process has a double external effect, in addition to its own skill overflow effect, it also has the external effect of focusing on environmental costs. This innovation is specifically designed to reduce negative impact on the environment. The third type of innovation is hybrid innovation, that is, economizing and benefit-oriented green innovation. In the process of innovation, the conscious and unconscious are combined to reduce energy consumption and improve environmental benefits through reasonable environmental regulation.

Table 2. Classification of Green Innovation Concepts

innovation type	innovation motivation	innovation process	Innovation effect
energy saving	unconscious	spillover externalities	Energy saving
Environmental benefit type	consciously	Spillover externalities and environmental externalities	environmental benefits
cost-effective	unconscious + conscious	Spillover externalities / Spillover and environmental externalities	Energy Conservation / Environmental Benefits

From the above definition and classification of green innovation, it can be found that in addition to emphasizing innovation benefits and economic benefits, green innovation is the biggest difference from ordinary innovation in that it emphasizes resource conservation, environmental protection, and promotion of resource reuse. It has the double externality of technology spillover and environmental improvement. The basic characteristics of nature, content and process are diverse and complex, and at the same time, it can achieve the triple benefit goals of environmental, economic and social benefits.

2.4 Mining Industry

2.4.1 Definition of Mining Industry

Mining refers to the extraction of naturally occurring minerals such as solids (such as coal and minerals), liquids (such as crude oil) or gases (such as natural gas). Includes underground or above-ground extraction , operation of mine shafts , and all ancillary work generally performed on or near a mine site to process raw materials, as well as the preparation of raw materials required to facilitate sales. However, activities such as water purification and distribution, and geological surveys are not included .

2.4.2 Development Status of China's Mining Industry

In recent years, underground mining technology at home and abroad has developed rapidly, and many mining new technologies, new processes, new materials and new equipment have been applied in underground mines . Some domestic mines and a batch of advanced mining technology and equipment have entered the ranks of the world's advanced level. The development of mining technology and equipment in underground metal mines at home and abroad is mainly reflected in the great changes in the proportion of various mining methods and mining technology , technical equipment, and development along the direction of high efficiency, high recovery rate and mechanization , The stope production capacity and labor productivity have been greatly improved, and the loss and dilution indicators have been greatly reduced.

The "Statistical Bulletin of the People's Republic of China on National Economic and Social Development in 2021 " shows that in 2021 , the profit of the mining industry will be 1,039.1 billion yuan, an increase of 190.7% over the previous year . From January to February 2022 , the mining industry realized a total profit of 233.57 billion yuan, a year-on-year increase of 1.32 times . In the whole year of 2022 , the profit of China's mining industry will be 1,557.4 billion yuan, an increase of 48.6% over the previous year .

2.4.3 Impact of Environmental Protection Tax on Mining Industry

The Environmental Protection Tax Law has been implemented for three years, and the pollution equivalent per 10,000 yuan of GDP output value has dropped from 1.16 in 2018 to 0.86 in 2020 , a drop of 25.8% . The green tax system, through strict prevention at the source, strict management of the process, severe punishment of the consequences, and a multi-pronged approach, allows the former large polluters to take the initiative to transform and gain " rebirth " , effectively promoting energy conservation and emission reduction. The 2020 Bulletin on the State of the Ecological Environment in China shows that in 2020 , the overall quality of China's ecological environment will improve, and

the total discharge of major pollutants will be greatly reduced. Judging from the monitoring results of the National Ecological Environment Quality Monitoring Network, during the " 13th Five-Year Plan " period, China's ecological environment has improved significantly, which is the 5 years with the greatest improvement in ecological environment quality and the best development of ecological environment protection so far.

For the mining industry, excessive emissions will undoubtedly increase the cost of environmental protection taxes. On the contrary, fewer emissions or lower target emissions will be able to enjoy tax incentives and supervise enterprises to pay taxes honestly. More serious legal consequences reflect the rigidity of tax collection and law enforcement. From the perspective of laws and policies, companies are forced and encouraged to organize production and operation in compliance with laws and regulations, consciously attach importance to environmental protection, continue to carry out clean production, increase investment in upgrading environmental protection facilities and processes, strengthen self-monitoring and supervision, and continuously improve the level of environmental protection governance. Promote the fine management and quality improvement of mining enterprises, maximize the management benefits in the cost of mine development and tax compliance, and promote the high-quality development of mining enterprises.

3. Company Introduction

3.1 Introduction of Jiangxi Copper Industry Group

3.1.1 Company Profile

Jiangxi Copper Industry Group (hereinafter referred to as Jiangxi Copper) Co., Ltd. was established in 1979 , and the company is headquartered in Nanchang City, Jiangxi Province. It shoulders the glorious mission of " getting rid of the backwardness of China's copper industry and revitalizing China's copper industry " entrusted by the state . Over the past 43 years, benefiting from the continuous growth of the national economy and relying on its own professionalism and focus, it has become a large-scale copper cathode producer and a supplier of copper processing products with a complete range in China.

Jiangxi Copper is committed to continuously exploring the value of resources, abides by the commitment of sustainable development, and is full of gratitude and awe Discover the value of mineral resources and pursue the harmonious coexistence between man and nature. Diversified businesses include copper, gold, rare earth, silver, lead, zinc, tungsten, rhenium, tellurium and other types of mining development, as well as value-added service systems such as finance, investment, trade, logistics, and technical support to support mining development. In China , Peru, Kazakhstan, Afghanistan and other countries have established mining bases. Through creation, more than ten kinds of mineral resources are transformed into commodities and finally enter people's daily life.

3.1.2 Development History

In 1979, Jiangxi Copper Base General Headquarters and Jiangxi Copper Industry Company were established, which belonged to Jiangxi Province and the Ministry of Metallurgy;

In 1987 , the first batch of qualified electrolytic copper was 171.48 tons;

In 1991 , it was approved as an economic entity with legal person status;

In 2002 , Jiangxi Copper was successfully listed on the Shanghai Stock Exchange and issued A shares;

In 2008 , Jiangxi Copper issued 6.8 billion convertible bonds for separate transactions and completed the overall listing;

In 2013 , Jiangxi Copper ranked among the Fortune Global 500 for the first time, ending the history of Jiangxi Province without a Fortune Global 500 local enterprise;

In 2017 , Jiangxi Copper completed the reform of the corporate system and became a wholly state-owned company;

In 2019 , Jiangxi Copper ranked 28th among the top 500 Chinese manufacturing enterprises in 2019 ;

In 2022 , Jiangxi Copper was awarded the " Special Award for Excellent and Strong Enterprises " by the Jiangxi Provincial People's Government .

3.1.3 Corporate Culture

Company mission: Integrate global resources to create quality life

Company Vision: To become a world-class enterprise that is widely respected and has global core competitiveness. Core Idea: Think about today with the future

Core values: responsibility, focus, innovation, inclusiveness and pragmatism

3.2 Double Carbon Contribution of Jiangxi Copper Group

The report of the 20th National Congress of the Communist Party of China pointed out that Chinese-style modernization is a modernization in which man and nature coexist harmoniously. Jiangxi Copper Group has always kept in mind General Secretary Xi Jinping 's ardent expectation of building a beautiful China " Jiangxi Model " when he inspected Jiangxi, and has refined green development to all fields, processes and links of production and operation. Jiangxi Copper Group responded positively.

The " Double Carbon " policy officially released the first " Double Carbon " strategic plan for an enterprise in Jiangxi Province in September 2022 - "Jiangxi Copper Group Carbon Dafeng Carbon Neutral Strategic Plan", solemnly promising that by 2025 , the company's million The comprehensive energy consumption and carbon emission per output value will be reduced by 18% and 20% respectively compared with 2020 ; by 2030 , the energy efficiency level and carbon emission intensity of smelting will reach the international advanced level; Low-carbon circular development, energy utilization efficiency and carbon emission intensity have reached the international leading level.

Jiangxi Copper Group abides by the principle of " green development, environmental protection first " , and takes practical actions to promote low-carbon development, Stimulate green kinetic energy and make every effort to protect the ecological environment. In order to accelerate the realization of the green and low-carbon transformation of the industrial chain, Jiangxi Copper led more than 40 enterprises to form the Jiangxi Provincial Enterprise Voluntary Pollution Reduction and Carbon Reduction Alliance, and took the lead in issuing a " chorus " for enterprises to promote carbon peak carbon neutrality in the country . Jiangxi Copper Group will continue to uphold the concept of " lucid waters and lush mountains are golden mountains and silver mountains " , make overall plans to promote ecological protection and restoration, continue to improve the efficiency of energy resource utilization, and promote the comprehensive green transformation and upgrading of the non-ferrous metal industry chain, supply chain, innovation chain and value chain .

3.3 Tax-related Changes in Jiangxi Copper Group's Environmental Protection Tax

3.3.1 Internal Improvement: Jiangxi Copper Group

The main taxes involved in Jiangxi Copper Group are: value-added tax, corporate income tax, urban construction tax, environmental protection tax, Mineral resource compensation fee, resource tax, personal income tax, business tax, etc. Promote enterprise transformation and upgrading. Whether it is an environmental tax or a resource tax, each reform prompts enterprises to calculate both economic and environmental accounts, take the initiative to change the original extensive production methods, and embark on the road of accelerating technological innovation and industrial transformation and upgrading. Between tax payment and preferential treatment, enterprises choose the latter. Enterprises improve resource utilization, carry out ultra-low emission technological transformation, and enjoy preferential tax policies such as resource tax and environmental protection tax, effectively reducing the production cost of enterprises, realizing technological innovation and industrial transformation, entering a virtuous circle, and green development. The concept is also more deeply rooted in the hearts of the people.

Since the implementation of environmental protection tax, Dexing Copper Mine of Jiangxi Copper Group has taken the initiative to change its working thinking to " treat waste with waste, Oriented to turn waste into treasure , use calcium carbide slag instead of lime to treat acidic wastewater and realize waste reuse; implement "acid-base neutralization" and reuse of recycled water to turn wastewater into " new water " . Behind this series of practices What has brought about is a sharp drop in the amount of environmental protection tax. " Compared with 2019 , the amount of tax paid in 2020 has dropped by 27.52% " .

Environmental protection tax boosts the green transformation and upgrading of enterprises, which has brought us real benefits. " Xie Jianhui, deputy to the National People's Congress and deputy director of the fine tailing plant of Dexing Copper Mine of Jiangxi Copper Group, said that last year, tax cadres helped Dexing Copper Mine Enjoying a reduction of 19.86 million yuan in environmental protection tax , which effectively alleviated the impact of the drop in international copper prices during the epidemic and ensured the normal operation of the company.

In 2020 , Jiangxi Copper Group established a holding mixed ownership enterprise - Jiangxi Copper Hongyuan Copper Co., Ltd. As international copper prices continue to rise and manufacturing costs remain high, the company's operating pressure continues to increase. Since last year, in response to the sharp increase in copper prices and the impact of the new crown pneumonia epidemic, Jiangxi Copper Hongyuan Copper has reserved 13,000 tons of anode copper raw materials, and the pressure on capital turnover has suddenly increased. The taxation department promptly guided the company to enjoy 120 million yuan of value-added tax credit and refund , which greatly eased the financial pressure of the group. Since the company was put into operation, it has reached the standard and production capacity, and has not hindered Jiangxi Copper 's " 3- year innovation doubling " action.

3.3.2 External Support: Jiangxi Taxation Department

The " national attitude " of green taxation has formed a clear policy orientation for local taxation bureaus. In order to promote local leading enterprises to become bigger and stronger, the Jiangxi taxation department implemented the " customized service for key enterprises " action. Cooperate with Jiangxi Copper Industry Association to help Jiangxi Copper Group strengthen the construction of tax internal control system and put forward suggestions for improving tax internal control. It is reported that in order to better serve the enterprise's innovation-driven development strategy, the local taxation department mobilized business backbones to set up a " Qingxin Service " volunteer team to station in the group and its subordinate factories and mines to start regular mutual visits, precise risk management, and one-on-one consultations. Tax consulting 3 personalized customized services. Further improve " green taxation " , increase efforts to encourage green production of enterprises, and weave more and more dense " protective nets " for green water and green mountains , so as to protect the ecological environment.

China, which encourages innovation, has gradually formed a green tax system with environmental protection tax as the main body, including resource tax, vehicle purchase tax, etc., covering multiple links such as resource exploitation, production, circulation, consumption, and emissions. According to data released by the Ministry of Finance, in 2021 , the national resource tax revenue will be 228.8 billion yuan, and the environmental protection tax revenue will be 20.3 billion yuan. Among them, resource tax revenue increased by 30.4% year-on-year . During the past annual National Energy Conservation Publicity Week, two sets of data on environmental protection tax released by the State Administration of Taxation received special attention. First, the current number of taxpayers of environmental protection tax in China has reached 462,000, an increase of nearly double compared with the 267,000 households at the beginning of the implementation of the Environmental Protection Tax Law on January 1 , 2018 ; the second is the amount of environmental protection tax. In 2020 and 2020 , the revenue will be 20.56 billion yuan, 21.32 billion yuan and 19.99 billion yuan respectively . This shows that corporate pollution emissions continue to decrease, energy-saving and environmental protection industries continue to develop, and the positive incentive effect of the green tax system has emerged.

3.4 Green Innovation Achievements of Jiangxi Copper Group

In recent years, Jiangxi Copper Group has adhered to the green innovation-driven strategy. On the one hand, it has continued to increase investment in technological innovation.

Improve the scientific and technological innovation system, stimulate the innovation vitality of talents, strengthen the deep integration of production, learning, research and application, and actively carry out key technological breakthroughs. A large number of scientific and technological achievements such as carbon nanomaterials and 4-micron lithium battery copper foil have been transformed and applied . On the other hand, seize the current strategic opportunity for the development of environmental protection and energy-saving industries, and vigorously develop green and environmental protection industries. For example, Jiangxi Wantong Environmental Protection Materials Co., Ltd. was established as a joint venture with Jiangxi Building Materials Group and Jiangxi Building Materials Design Institute to comprehensively develop and utilize tailings and explore the "zero emission " mode of mines to achieve green development and upgrading. At the same time, the utilization rate of green materials has been improved. The annual use of recycled copper raw materials in Jiangxi Copper is as high as nearly 300,000 tons, and the packaging materials are recycled to reduce the consumption of primary resources.

3.4.1 Technological Innovation and Improvement

Guixi Smelter of Jiangxi Copper Group has significantly reduced production energy consumption by using clean energy natural gas instead of liquefied petroleum gas, coal and some diesel oil; it has jointly carried out collaborative research on steam, and adopted a new type of MVR evaporator to replace the traditional single-effect evaporator to increase the use of steam Efficiency, reduce steam consumption; the first " one-step method " slag direct discharge slow cooling independent transformation, cancel the dilution electric furnace, realize technical carbon reduction; build a dual-system " three-year long-cycle production " model, anode furnace " four changes to two " , Realize " management innovation to reduce carbon consumption " .

Jiangxi Copper Group Jinde Lead Industry has strengthened energy management, optimized production technology, implemented energy-saving technical transformation, etc.

Measures and means, the efficiency of energy utilization has been further improved, and the energy consumption indicators of major products have been further optimized. The comprehensive energy consumption of lead smelting will drop from 362.36kgce/t in 2019 to 261.19kgce /t in 2021 (a decrease of 27.92%). The comprehensive energy consumption index of lead smelting is better than the "Energy Efficiency Benchmark Level and Baseline Level in Key Fields of High Energy Consumption Industries (2021 Edition)", and the established benchmark value of comprehensive energy consumption for lead smelting and lead smelting (≤ 330 kgce /t) has reached the advanced level in the industry . At the same time, Jinde Lead Industry actively carried out the transformation of major process equipment such as steam waste heat utilization and parking lot photovoltaic power generation, and continuously improved the recovery and utilization rate of waste energy and the proportion of green electricity usage.

3.4.2 Green Circular Economy

Jiangxi Copper Group adheres to the green value orientation, and has formed a number of sustainable development industrial chains for the recycling of " three wastes " such as copper separation from waste residue, copper extraction from waste water, acid production from flue gas, waste heat power generation, and wet heap leaching. In terms of copper separation from waste slag, the resources in smelting waste slag are fully utilized to recover valuable elements. More than 9,000 tons of copper metal are recovered from smelting slag every year, which is equivalent to the annual metal output of a medium-sized copper mine in China; Recover more than 1,000 tons of copper metal, and purify and treat more than 20,000 tons of waste water every day; In terms of flue gas acid production, China's largest smelting flue gas acid production plant has been built, with a total sulfur utilization rate of over 97% , reaching the current world's top level; waste heat power generation On the one hand, flue gas waste heat resources are comprehensively recycled and utilized, and the waste

heat generates more than 200 million degrees of electricity every year, and the power generation can supply the annual living electricity of a town with a population of more than 500,000 ; in terms of wet heap leaching, the first waste rock pile in China has been built The leaching - extraction - electrowinning factory recycles more than 1,000 tons of copper metal every year; at the same time, the recycling rate of industrial water reaches more than 92% , and the weekly water saving is equivalent to a West Lake.

4. The Effect of Environmental Protection Tax on JCC's Green Innovation

4.1 Reverse Inhibition

4.1.1 The Capital Cost of Green Transformation is Huge

The collection of environmental protection tax has increased the requirements for the pollution discharge of enterprises, which has prompted enterprises to invest a lot of money in research and development, in accordance with the requirements of " speed up, quality, and standard " , with the direction of reduction, recycling, and harmlessness , promote green technology innovation; reduce the output of by-products, and increase resource utilization. On the other hand, the original production equipment and pollution treatment equipment cannot meet the requirements of pollution reduction, and a large amount of money must be spent on upgrading these equipment; at the same time, the automation control requirements and management standards of new equipment are higher, and more funds.

4.1.2 Low Short-Term Economic Benefits

The financial support for green technology innovation is relatively high, which naturally squeezes out the resources originally used by the industry to expand production, and although green technology innovation improves the environment and promotes sustainable development, from the perspective of economic benefits, green Technological innovation results are often low-return or no-return, so the profit of the enterprise will decrease in the short term, and even cause a shortage of funds.

From a short-term perspective, the relationship between environmental protection tax and green technology innovation is negatively correlated. An increase in environmental protection tax will increase business operating costs, squeeze R&D investment, and reduce green technology innovation.

4.2 Positive Incentive Effect

Judging from the relevant data of the environmental protection tax and the case of Jiangxi Copper, the positive incentive mechanism of the environmental protection tax " more pollution discharge, more taxation, less pollution discharge, less taxation, no pollution discharge and no taxation " has initially played a positive role, encouraging energy conservation and emission reduction, and guiding green environmental protection. Production, the reform benefits of promoting high-quality development have been revealed. The positive effect of environmental protection tax can be summed up as " one reduction, two increases and three promotions " . " One drop " refers to reducing the discharge of pollutants. Judging from the taxpayer's declaration data, the discharge of major taxable air pollutants and water pollutants in the country has shown a downward trend compared with the same period last year. The " two increases " mainly refer to the increase in tax incentives and the increase in investment in environmental protection. " Three promotions " refers to promoting centralized treatment of pollutants, promoting cleaner production, and promoting comprehensive utilization of recycling.

4.2.1 Force Enterprises to Carry out Green Innovation

At the same time as the implementation of the environmental protection tax, higher emission standards have also begun to be implemented, requiring a corresponding increase in pollution control standards. The environmental protection tax has increased the cost of pollution control, and there are also high requirements for the automation and sealing of enterprise production. In the production

process Carrying out clean production has become a " compulsory course " for enterprises , which will lead to the improvement of production technology and promote the development of new materials, new energy, new environmental protection, and new material trade industries. After the development of green innovation activities, the productivity of enterprises increases, and enterprises as the main body of innovation get higher profits. While carrying out industrial upgrading, their business performance is improved, which in turn provides compensation for enterprises' pollution control costs.

4.2.2 Enhancing Enthusiasm for Green Innovation

The environmental protection tax follows the principle of " more discharges, more collections, less discharges, less collections, no discharges, no collections ". If the discharge of pollutants by enterprises increases, the environmental protection tax paid will also increase; if the discharge of pollutants by enterprises decreases, the amount paid The environmental protection tax will be reduced accordingly; therefore, emission reduction can reduce the pollution control cost of enterprises, reduce the amount of environmental protection tax payment, and enhance the enthusiasm of enterprises to carry out green innovation.

In addition, the implementation of environmental protection tax and a series of environmental protection policies has restrained the excessive expansion of industrial production capacity, removed some " scattered and low-pollution " chemical production capacity, and adopted measures such as phased suspension and restriction of production in ecologically sensitive chemical areas that are poor in green innovation, resulting in The supply of some chemical products has shrunk, the industry's supply and demand pattern and competition pattern continue to tend to improve, and the industry concentration tends to increase. Affected by this, coupled with Jiangxi Copper Group's continuous promotion of corporate secondary innovation, Jiangxi Copper Group has achieved a substantial increase in operating performance. In the long run, the collection of environmental protection tax has obviously promoted the green innovation of Jiangxi Copper Group. The green innovation of enterprises has gradually increased, and the emission of pollutants has been continuously reduced, thereby reducing the cost of environmental protection tax and forming a virtuous circle.

5. Suggestions on Measures to Deal with Environmental Protection Tax

5.1 Policy Level

5.1.1 Differentiated Customization of Environmental Protection Tax Policies

Formulate policies according to the distribution of environmental polluting enterprises. From the perspective of geographical distribution, the distribution of environmental polluting enterprises in various provinces in my country is not uniform, and even varies greatly. my country's environmental protection tax system should be based on the actual situation of different provinces, formulate more targeted and reasonable collection standards, and add certain local characteristics to the system. For provinces with a high concentration of environmentally polluting enterprises, a more stringent environmental protection tax system should be formulated, the collection standard of environmental protection tax should be raised, and the role of forcing environmental pollution enterprises in the province should be increased. From an industry perspective, the environmental protection tax system should be tilted towards key governance industries. The environmental protection system should focus on the green transformation and development of environmentally polluting industries with a large number of enterprises.

Formulate policies according to the characteristics of environmental polluting enterprises. my country's current environmental protection tax has an obvious effect on promoting green technology innovation of state-owned environmental polluting enterprises and large-scale environmental polluting enterprises, but has no obvious incentive effect on private environmental polluting enterprises and small-scale environmental polluting enterprises. . Therefore, the environmental protection tax system should be slightly adjusted according to the nature and scale of environmental polluting enterprises. Policies should give more policy preference to private environmental polluting

enterprises and small-scale environmental polluting enterprises, increase the strength of environmental protection incentives and green innovation tax rebates, relax financing restrictions, encourage such enterprises to introduce more talents and give certain Talent subsidies to enhance their sense of security. For state-owned environmental polluting enterprises and large-scale environmental polluting enterprises, guiding policies should be given priority to, further incentives should be given to these enterprises, and an example of green technology innovation should be set for other enterprises.

5.1.2 Establish a Long-Term Mechanism for Environmental Protection Tax

In the early stage of environmental protection tax reform, because enterprises are in the stage of environmental protection equipment investment and R & D investment, the operating conditions of enterprises often show that costs increase, profit margins are insufficient, and profit flow is limited. At this time, environmental protection tax policies have a limited role in promoting enterprise upgrading. However, with the passage of time, enterprises continue to adjust their production strategies, and investment in technological innovation gradually realizes the transformation and application of results. At this time, the promotion effect of environmental protection tax reform on enterprise upgrading will become more significant. Therefore, it is necessary for our country to establish a long-term mechanism for the implementation of environmental protection tax, and give full play to the regulatory role of taxation in promoting enterprises to reduce emissions and forcing enterprises to upgrade. The first is to raise public awareness of environmental protection and create a good social atmosphere for environmental protection for all. The second is to improve the tax collection and management coordination mechanism. The "Tax Collection and Administration Law", as the basic legal norms of tax management procedures, should make more detailed regulations on the tax cooperation system between tax departments and relevant departments, and standardize the specific procedures and links of various relevant departments and units to assist tax authorities in performing their duties To realize the effective linkage of the coordination mechanism in the "Tax Collection and Administration Law" and the "Environmental Protection Tax Law", and promote the standardized and efficient implementation of environmental protection tax policies. The third is to strengthen the tracking and evaluation analysis of the implementation effect of the environmental protection tax, provide reference for scientific decision-making, and further adjust and improve the tax system design according to the evaluation effect, so that the environmental protection tax can maximize the economic leverage of promoting the green upgrading of industries and the construction of ecological civilization effect.

5.2 Enterprise Level

5.2.1 Using Big Data to Dynamically Control the Environmental

costs of enterprises For some enterprises that cause high pollution to the environment in the production process, the collection of environmental protection tax has brought huge challenges to them. As for the protection of the environment, not only the environmental protection department is required to supervise and urge, but also the enterprises themselves are required to supervise and improve. Enterprises should combine their own characteristics and use mature big data analysis technology to combine tax payment with big data, especially the combination of environmental protection tax and big data analysis. Use dynamic data to grasp the proportion of environmental protection tax to enterprise costs in real time. Summarize and analyze in a timely manner, find out the key points of the problem, and finally solve the actual problem in a targeted manner. In the era of big data, the cost control of enterprises is an inevitable trend of the development of the times. In order to better improve the level of enterprise management, managers should make full use of the working mode of dynamic control in the era of big data.

5.2.2 Use Relevant Policies to do a Good Job in Environmental Protection Tax Tax Planning

The definition of taxpayers of environmental protection tax refers to those enterprises that " directly " discharge taxable pollutants into the environment. According to the tax incentives in the

"Environmental Protection Tax Law", pollutant discharge enterprises can discharge relevant waste water, waste gas, waste residue and other pollutants to centralized sewage treatment and domestic waste centralized treatment sites established according to law, and the discharge volume does not exceed the national and local discharge standards. Solid waste is stored or disposed of in facilities and places that meet national and local environmental protection standards. Illegal dumping is prohibited. Indirect discharges can enjoy tax reductions and exemptions to reduce part of the tax burden. For the solid wastes comprehensively utilized by taxpayers, if the discharge meets the national and local environmental protection standards, the environmental protection tax shall be exempted according to law. Therefore, environmental polluting enterprises should strengthen the recycling of solid waste generated in the production process, instead of just using it once and discharging it, which can not only save resource consumption for the enterprise, but also reduce cost consumption.

5.2.3 Optimize the Industrial Chain of Enterprises and Promote the Formation of a New Domestic and International Dual Cycle Development Pattern

The collection of environmental protection tax reflects the role of taxation in macro-control. Chinese enterprises need to change the old industry thinking in the past and establish new thinking that meets the needs of both international and domestic markets. They must be guided by the needs of the country and improve the industrial chain. The products are clean and low-carbon, so as to keep pace with the times. At the same time, this will prompt enterprises to attach importance to pollution control and emission reduction and environmental protection, instead of blindly exchanging the long-term benefits of human development for short-term benefits . One of the important ways is that although the new changes brought about by the environmental protection tax to Chinese enterprises have brought about a certain increase in environmental protection costs and caused enterprises to invest more manpower, material resources, and financial resources in reducing pollution and emissions, they have also updated the environmental protection tax to a certain extent. China's enterprise production model and green technology innovation.

5.2.4 Create a Green Marketing Strategy based on Win-Win Interests

Businesses can promote green marketing strategies. In the environment where the state imposes environmental protection taxes and advocates energy conservation and emission reduction, green marketing strategies are particularly important, especially for high-polluting enterprises. The green marketing strategy can organically combine the interests of enterprises, consumers, and environmental protection to achieve a win-win situation for all three. The promotion of green marketing can promote the idea of green production to the internal production personnel of the enterprise, which is helpful to the improvement and innovation of the enterprise's clean technology, thus forming a unique " green culture " within the enterprise . Enterprises disseminate the value of "green consumption" to consumers, which is conducive to the production of green products and caters to the interests of consumers. The green production of enterprises and the green consumption of consumers will naturally promote the reduction of pollutant emissions , thereby achieving The purpose of enterprises to protect the natural ecological environment while reducing the amount of environmental protection tax payable.

6. Conclusion

Looking to the future, as our country enters a critical period towards carbon peaking and carbon neutrality, " firmly establish green water Qingshan is the concept of Jinshan Yinshan, keep the two bottom lines of development and ecology, and strive to find a new path of ecological priority and green development " , as always, thoroughly implement Xi Jinping's ecological civilization thought, resolutely implement the Party Central Committee and the State Council's carbon peak, A major strategic deployment of carbon neutrality. At the same time, all enterprises in our country, especially those that pollute the environment, urgently need to carry out green innovation to activate the vitality

of enterprises. Inject more " tax power " into the high-quality development path of green and low carbon. Fully implement the green tax system, use green tax to promote green innovation and development, guide enterprises to adhere to the concept of green and low carbon, accelerate the green transformation of development methods, and help build green mountains and green A beautiful China with long flowing water and fresh air.

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