



A STUDY ON MARKETING STRATEGY OF  
ENVIRONMENTAL PROTECTION EQUIPMENT IN CHINA

BY  
YUCHEN SHI

AN INDEPENDENT STUDY SUBMITTED IN PARTIAL FULFILLMENT  
OF THE REQUIREMENT FOR THE DEGREE OF MASTER OF  
BUSINESS ADMINISTRATION (INTERNATIONAL PROGRAM)

SOUTHEAST ASIA UNIVERSITY

ACADEMIC YEAR 2022

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**Independent Study Title** A Study on Marketing Strategy of  
Environmental Protection Equipment in China

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**Program** Master of Business Administration (International Program)

**Advisor(s)** Parkorn Chobhan, Ph.D.

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### **Abstract**

This study was qualitative methodology via in-depth interview, and content analysis. Vigorous development of environmental protection industry is one of the important measures to resolutely win the battle of pollution prevention and control. We analyzed the investment cost control, future revenue analysis, project financial forecast, financial statements, etc., predicted the possible risks in the future implementation of the project and formulated corresponding response plans. Since the project does not have many reference cases and data, there may be certain risks in the implementation, but the known risks can be avoided and prevented in advance through effective measures; and the financial forecast data shows that the project has a high return on investment, the technology is in the leading position in the industry within a certain period, and the moat is relatively high. Combined with the policy development trend, there is a certain certainty of incremental demand and relatively low profit volatility in the coming period, which has investment value. This paper, as a strategic study of environmental protection equipment, takes industrial boiler energy-saving equipment as the core product of the project, responds to the national economic development needs, and provides a certain degree of reference value for the future development of the industrial energy-saving market.

Keywords: industrial energy-saving auxiliary equipment; feasibility analysis; strategic research

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## Section 1

### Introduction

#### 1.1 Company Description

Ltd. was incorporated in DL city, which is a project of transformation of scientific and technological achievements of universities, with advanced technology level, in line with the strategic plan of national sustainable development, and with greater market prospect, but in the process of mass production on a large scale, the problem of land was delayed to be solved. Considering that the project address should be chosen in a location with convenient transportation, flat and open terrain, fresh air, sufficient sunlight, smooth drainage, suitable environment, relatively good public facilities and far away from pollution sources, the entrepreneurial team came to the comprehensive land in Northeast China and North China, and reached a cooperation agreement with NM city government, which has sufficient industrial land, to obtain certain tax benefits. From the perspective of the enterprise, this site is the best choice because of its geographical location, convenient transportation, the hinterland of the Northeast Revitalization Zone and the Bohai Sea Economic Zone, and the simplicity and reliability of the local people; from the perspective of the NM city government, this project can drive the transformation and upgrading of the regional economy, build an industrial system that is conducive to promoting employment and rich in characteristics, and facilitate the formation of agglomeration effect and resource sharing; therefore, the site of this project is the best. Therefore, the project site is the best choice. In recent years, governments at all levels have supported the transformation of scientific and technological achievements, but production projects require more funds, and government funds generally do not fund production projects, so there is a large funding gap. Through participating in several entrepreneurial competitions, the team came into contact with Shanghai SK Fund.

SK Fund is strong and started from the secondary market. In order to respond to the call for financial services to the real economy, in recent years it has gradually started

to involve in the primary market in the real economy. Green environmental protection industry is SK Fund's key investment area, plus boiler renovation is also a branch with strong realizing ability under the big topic of carbon neutrality. After several discussions, SK Fund decided to make a lead investment in sh Environmental Equipment Co. The project's problems in terms of site selection and funding have been solved. This business plan focuses on the specific construction content of the project as well as the planning and rational design of the project's production and operation process to ensure the project's continuous and efficient operation.

#### (1) Project Overview

This project aims to use the latest industrial boiler energy-saving compression and auxiliary combustion patented technology and the latest application standards, and put into construction plants for production in China. The main construction plan of the project is divided into three segments: plant construction, production and sales of equipment, and industrial boiler renovation. It mainly produces energy-saving equipment such as vacuum pumps and vacuum compressors, and is a modern company integrating production, scientific research, development, sales and service. Equipped with advanced processing equipment and testing methods, the products meet the standard of ISO9001 quality control system. The products are widely used in petrochemical, brewing, natural gas, hospital, food, paper, synthetic fiber, metallurgy, electric power and urban water supply and drainage industries. According to the analysis of the domestic market potential, coupled with the huge amount of energy saving and environmental protection industry projects, grasp the historical opportunity of carbon neutral in these years, in order to obtain a better business environment and more business volume, sh Environmental Protection Equipment Co., Ltd. set up its headquarters in Shanghai, set up an excellent sales team and engineering team to give priority to deepen the Yangtze River Delta market. The rest of the region in the initial stage to adopt the business agent model to reduce start-up costs, quickly establish a national network, by the Shanghai headquarters team for training, management and supervision. The company implements a scientific and flexible management mechanism, with a sound organizational structure and perfect

management system. In the field of industry technology, the company has been recruiting industry senior talents and business technology backbone, and intends to increase the investment in R&D so that the company's products have core competitiveness in the industry and are well prepared for the increasingly fierce market competition.

## (2) Project Positioning

In response to the government's call for carbon neutrality, we will implement the specific requirements of energy conservation and environmental protection, improve and alleviate the damage to the environment and ecology, and reduce the wasteful use of resources and energy. In order to comply with the international economic development trend, the company has fully introduced computer information management talents and established an electronic information system. Build from product development, design, production, sales, accounting, inventory management of data management library. And to achieve information interoperability in each sales region nationwide, which greatly improves the efficiency and timely feedback of real-time information in each link of the industry and provides effective support for the uploading and distribution of the company's strategic decisions. At the same time, the company has been cooperating in the research and development of relevant functional products that are meaningful to society and the environment, and has become a first-class comprehensive environmental protection technology enterprise that integrates "research and development, production and sales" in China.

## (3) Company Culture

The company adheres to the business philosophy of honest management, quality first, courageous development, and people-oriented. At the same time, we always take "quality is the life of the company" as the belief, practical and pragmatic, precise expansion of customers, won the high evaluation of users in various fields. The company continues to improve and enhance the value of the brand, to "refine, improve the protection, enhance the image" to further interpret the concept of the company's energy-saving equipment. Through the cooperation with large groups and

government state-owned enterprises, the company has established its brand image and enhanced its brand influence.

#### (4) Company size and preparation

Established in July 2017, with a registered capital of RMB 10 million, the current number of employees is about 30. Focusing on cooperative research and development for domestic substitution, it now has more than 20 proprietary technologies, covering principles and manufacturing processes, etc. At the same time, the company has reached a strategic framework agreement with NM city government to acquire industrial land to build a plant at a price significantly lower than the local market price with a tax commitment, and further details are now being discussed. Moreover, the core sales team has already taken shape and is approaching some of the leading companies in the industry in anticipation of reaching an intentional contract.

#### (5) Project competitive resources analysis

Product competitiveness: The main advantages of industrial boiler environmental protection and energy-saving vacuum compression equipment and industrial boiler energy-saving oxygen-enriched auxiliary combustion pump set are energy saving and environmental protection and convenient installation. The main difference of our products is that other companies are producing boilers with energy-saving and environmental performance as a whole, while our company is producing auxiliary equipment that can be modified and upgraded on the basis of existing boilers to improve the efficiency of resource use and reduce pollutant emissions.

## 1.2 Current Situation Analysis

### ① SWOT analysis

For the overall strategic study of this project, SWOT analysis is used to analyze the competitive advantages of the industry in the region where it is located. Where SWOT stands for, S (Strengths), W (Weaknesses), O (Opportunities), and T (Threats) [2]. The use of SWOT model enables a comprehensive assessment and analysis of the internal

and external environment of the company and the industry in which it is located, ultimately forming a strategy development matrix, which helps to form the basis for strategic decisions.

#### I.S (Strengths)

Compared with similar products in the market, the products of sh Environmental Equipment Co. have the following technical advantages.

(1) The equipment has professional technology, and the control of the combustion process can be realized simply through the fuel delivery control, which is simple and easy. It can be clearly seen in the industrialized fully automated production line that the equipment can effectively improve the combustion efficiency, greatly reduce energy consumption and pollutant emissions while achieving rapid fuel combustion and realize double energy saving [3].

(2) Using membrane oxygen production method, the start-up time is much smaller than that of the variable pressure adsorption method, which is easy to manage and control and does not require complicated operation processes, reducing the probability of equipment failure. At the same time the equipment oxygen production method without any chemically added components, emissions are more scientific and environmentally friendly, and the association between air pollution is lifted from the root [4].

(3) Cooperation with universities in production and research, supporting the world's most advanced technology and process products, owning more than 20 patented technologies, covering the principle and manufacturing process, etc., coupled with the enterprise's "integrity management, quality first" concept, has won good praise in the market, in line with the national policy of high market acceptance, and then won a (4) The corresponding combustion device does not need to be used in the market.

(4) Corresponding combustion device does not need to buy a new boiler, do not need to carry out furnace transformation, and do not need to make substantial modifications, adjustments and re-testing of the existing production process, only need to install this equipment outside the furnace to achieve the goal of energy

saving and emission reduction. And the oxygen-enriched combustion equipment replaces the current domestic and foreign mainstream oxygen-enriched combustion auxiliary devices, to achieve a small footprint, less supporting, installation and construction safety and fast and simple. On the premise of no high transformation costs, it reduces the changes in the production process links, improves the acceptance of the employees of the enterprise to the small part of the original operation process iterative optimization links, and avoids the generation of large training costs [6].

## 2.W (disadvantages)

(1) The company is in the growth stage, has not yet established a complete publicity system, and has not received feedback from relevant customers on the situation of the product, brand awareness and market share is not enough.

(2) startups will face the difficulties of insufficient funds, the existing investment funds are only invested in product development are nervous, there will be no extra funds to invest in brand promotion.

(3) for the product on the market, the market has what kind of experience, what direction needs to be improved, market acceptance and other issues are still unknown, so the current state of the enterprise how to carry out product updates and iterations is more than a head, but also need to conduct a certain degree of market research to understand how customers view the Division's products. In addition, although the operation of this product is not very complicated, it still takes a certain time interval for workers to accept this product and become skilled in using it [7]. First, the company needs to test and explain the technical support and operation of the new technology, and in addition, it is not clear whether the workers' acceptance and mastery of the new technology can reach the expectation.

(4) Since the market share is huge and the profit is relatively substantial, the company needs to focus on the product being copied and counter-research. In addition to the prevention of competing companies, the monitoring of the commissioned manufacturer is also a challenge, because there is a certain possibility that the commissioned manufacturer will independently develop the exact same equipment as the company and seize the market [8].

### 3.O (Opportunity)

The PEST analysis model, also known as broad environmental analysis, is an effective tool for analyzing the macro environment, not only to analyze the external environment, but also to identify all forces that have an impact on the organization [9]. It is a method for investigating the external influences on the organization, and each of its letters represents a factor that can be divided into six major factors: political (Political), economic (Economic), sociocultural (Sociocultural), and technological (Technological) [10].

(1) Political factors (Political): refers to the political forces and related policies, laws and regulations that have actual and potential influence on the organization's business activities [11].

(2) Economic factors (Economic): refers to the external economic structure, industrial layout, resources, economic development level and future economic trends of the organization [12].

(3) Sociocultural factors (Sociocultural): refers to the historical development, cultural traditions, values, education level, and customs of the members of the society in which the organization is located [13].

(4) Technological factors (Technological): technological elements include not only those inventions that have caused revolutionary changes, but also the emergence and development trends of new technologies, processes, and materials related to the production of the enterprise and the prospects of their application [14].

When analyzing the context in which an enterprise group is located, the analysis of the situation faced by the enterprise group is usually carried out through these four factors. The following will be a PEST analysis of the sh environmental protection equipment project.

#### I. Political factors

Faced with the growing shortage of natural resources and environmental pollution in China, since the 18th Party Congress, the national level has attached great importance to ecological construction, taking the construction of ecological civilization as an important element of the "five-in-one" overall layout and the "four comprehensive"

strategic layout. Green development has been incorporated into the new development concept, and is committed to promoting the harmonious development of man and nature and the construction of ecological civilization and ecological environmental protection. The Fifth Plenary Session of the 19th CPC Central Committee also proposed to continuously improve environmental quality, focus on the goal of building a beautiful China, and meet the growing needs of the people for a better life [15].

"During the 14th Five-Year Plan period, the construction of ecological civilization in China will enter a critical period in which carbon reduction is the key strategic direction, promoting the synergy of pollution and carbon reduction, promoting the overall green transformation of economic and social development, and realizing the improvement of ecological and environmental quality from quantitative to qualitative changes, and the production and life style of the whole society will produce important changes. The establishment of the carbon neutrality target provides a huge impetus to accelerate the green and low-carbon transformation of China's economy, and at the same time brings great opportunities for the development of the financial industry, thus having an extremely far-reaching impact on China's economic growth model [16].

1. Opinions of the Central Committee of the Communist Party of China (CPC) and the State Council on the key work of comprehensively promoting rural revitalization in 2022

Published: February 22, 2022

Summary: Promote green development in agriculture and rural areas, build a national agricultural green development pioneer area, implement major projects for ecological protection and restoration, revive the ecological environment of rivers and lakes, and strengthen natural forest protection and restoration and grassland recuperation [17].

2. The General Office of the CPC Central Committee and the General Office of the State Council issued a pilot program for the mechanism of entrusting the ownership of natural resources assets to all people

Published: March 17, 2022

Summary: To coordinate and promote the reform of the property rights system of natural resources assets, implement the unified exercise of the responsibilities of the owner of all natural resources assets, explore the establishment of a mechanism of entrusting the ownership of all natural resources assets to the agent, and carry out pilot work [18].

3. General Office of the Central Committee of the Communist Party of China General Office of the State Council issued the Opinions on Promoting the Construction and High-Quality Development of Social Credit System to Promote the Formation of a New Development Pattern

Published: March 29, 2022

Summary: Improve the ecological and environmental protection credit system. Comprehensive implementation of environmental protection, soil and water conservation and other areas of credit evaluation, strengthen the sharing and use of credit evaluation results. Focus on achieving the carbon peak carbon neutral requirements and improve the national carbon emission trading market system [19].

4. Opinions of the Central Committee of the Communist Party of China State Council on accelerating the construction of a large national unified market

Published: April 10, 2022

Summary: Build a national unified energy market, combine it with the task of achieving the goal of carbon peaking and carbon neutrality, and promote the construction of a national energy market in an orderly manner. Foster the development of a national unified ecological and environmental market, and build a national unified carbon emission rights and water rights trading market [20].

5. General Office of the Central Committee of the Communist Party of China General Office of the State Council issued the "Opinions on Promoting the Construction of Urbanization with County Cities as an Important Carrier

Published: May 6, 2022

Summary: Strengthen historical, cultural and ecological protection, improve the quality of the county's habitat, and create blue and green ecological space. Improve the ecological green space system and build ecological green corridors by relying on the natural substrate of mountains, water, forests, fields, lakes and grasses [21].

6. General Office of the Central Committee of the Communist Party of China  
General Office of the State Council issued the "Rural Construction Action  
Implementation Plan

Published: May 23, 2022

Summary: Rural construction should follow the working principles of resource conservation and green construction, establish the concept of green and low-carbon, promote intensive and economical recycling of resources, implement green planning, green design and green construction, and realize the organic integration of rural construction and natural ecological environment [22].

In the background of the policy force, China's energy conservation and environmental protection will enter a new era, and 2022 will be the first year of the whole industry of energy conservation and environmental protection based on the clear setting of the central carbon neutral. The industry segments involved are desulfurization and denitrification in industrial machinery, energy saving and emission reduction transformation, and traditional petrochemical energy replacement [23]. The "14th Five-Year Plan" period will be highly valued by the Party Central Committee, the central government is increasing environmental protection supervision to promote the effective management of air pollution, environmental protection equipment companies will usher in historical opportunities, but also a major challenge to make key technological breakthroughs, to fully enjoy the benefits of these policies, and vigorously drive the corresponding enterprises development. The most common industry of industrial equipment, boiler renovation and optimization, is the direct target of benefits under this carbon neutral policy [24].

Economic factors

As China's economy continues to grow rapidly and the number of urban and industrial processes continues to increase, environmental pollution is becoming more and more serious and the country is paying more and more attention to environmental protection efforts. Entering the 21st century, along with a series of policies and the accentuation of immediate needs, the global energy conservation and environmental protection industry began to enter a phase of rapid development,

gradually becoming an important force to support the growth of economic interests in this industry, and also becoming an important opportunity and windfall for industrial innovation and adjustment of the overall structure of the industrial chain in many countries. Currently, the overall scale of the environmental protection industry is expanding rapidly, and the industrial sector is booming as investment in environmental protection infrastructure construction continues to increase, thereby stimulating market demand for related industries [25].

The structure has been gradually adjusted, and the overall level of the industry has improved significantly. In accordance with the requirements of the development of the internal circular economy, environmental protection expenditures have been officially included in the national budget since 2007. The government has proposed new ideas and measures for environmental protection. With this opportunity, China's environmental protection industry will also continue to develop at a high speed in the future. Meanwhile, the country is taking various means to reduce pollution emissions, and the proportion of coal-fired power plants equipped with desulfurization and denitrification equipment has increased from 12% to 48% of all coal-fired power plants nationwide in 2005, and the urban wastewater treatment rate has increased from 52% to 60% [26]. Oxygen demand emissions were 13.833 million tons, down 3.14% from 2006, and sulfur dioxide emissions were 24.680 million tons, down 4.66% from 2006. Emissions of both major pollutants have been reduced, and for the first time, a "turning point" has been reached.

Pollution prevention and control efforts have begun to shift from reactive to proactive prevention and control, and energy conservation and environmental protection have taken a solid step toward a historic transformation [27]. The energy conservation and environmental protection industry is an auxiliary industry, but it is highly related to multiple links of multiple industries, has a wide impact, and has a very considerable carryover to the industrial chain, and the promotion of development also helps to fight the battle against poverty. According to domestic and international statistics, the development of energy-saving equipment has played a vital role in promoting the development of the national economy by influencing industries such as raw materials, energy, construction and transportation. In the 21st

century, with the continuous development of China's national economy, economic construction has put forward the goal of taking the new road of industrialization. At present, industrialization and urbanization are accelerating, and the pressure on population, resources and environment is increasing. The limitations of the existing economic structure situation make the contradiction between resources and environment increasingly prominent [28]. In the face of the enormous pressure on resources and environment, the 14th Five-Year Plan proposes to advocate green and low-carbon development, reduce carbon emission intensity, continuously improve environmental quality, and suggest to comprehensively improve resource utilization efficiency.

Third, social and environmental factors

From 2008 to 2009, the state required the closure of 13 million kilowatts of small thermal power plants, and phased out some relatively backward production capacity, including 6 million tons of steelmaking, 50 million tons of cement, and 14 million tons of ironmaking. 600,000 tons of sulfur dioxide emissions and 400,000 tons of chemical oxygen demand emissions were cut. The demand for environmental protection products and services is further increasing. In the first half of 2008, the country's total chemical oxygen demand emissions were 67.42 million tons, about 2.48% less than the previous year; total sulfur dioxide emissions were 1.233 billion tons, about 3.96% less than the previous year, and new urban wastewater treatment capacity was 6.78 million tons per day [29].

In the second half of 2008, under the influence of the U.S. financial crisis, China massively expanded its infrastructure construction and further increased its investment in energy conservation and environmental protection industries. In recent years, natural disasters such as unusual weather, tsunamis, earthquakes, and the greenhouse effect have been frequent, and considering the impact of climate change on economic and social poverty, environmental protection has become a hot topic, and the term "environmental protection" has become popular. From the current world situation, this policy driver will become stronger and stronger, as the effective development of energy saving and environmental protection industry ultimately

depends on strong policy support, so the energy saving and environmental protection industry will enter a promising new era.

In the wake of the global financial crisis, the topic of energy conservation and environmental protection has been pushed to the forefront. The Copenhagen Climate Conference has urged developed and developing countries to overcome this divide and has reached a legally binding agreement to reduce greenhouse gas emissions. Behind the Copenhagen climate conference, on the one hand, global environmental problems have become more serious in recent years, and in the wake of the financial crisis, developed countries want to use environmental issues to put pressure on developing countries to strengthen their relative competitiveness [30].

As a major developing country, China has recently made some commitments to the world. For example, Hu Jintao said at the G20 summit that China will further integrate climate change into its economic and social development plans and will continue to take strong measures. The first is to strengthen energy conservation and improve energy efficiency so that by 2020, CO<sub>2</sub> emissions per unit of GDP will be significantly reduced compared to 2005. The second is to vigorously develop clean energy such as renewable energy and hydrogen energy, and strive to achieve a non-fossil energy share of about 15% of primary energy consumption by 2020. The third is to actively increase forest carbon sinks, increase forest area by 40 million hectares compared with 2005, and increase forest accumulation by 1.3 billion cubic meters compared with 2005 [31].

In 2021, the central government proposed carbon neutral requirements, starting with the major traditional industries to begin optimizing their own production capacity. In terms of sub-sectors, iron and steel, cement, petrochemicals, and electrolytic aluminum are the industries with high domestic carbon emissions, accounting for 18%, 16%, 6%, and 5% of China's total social carbon emissions, respectively. Therefore, the energy conservation and environmental protection industry will open up a whole new space of demand [32]. The whole industry undertakes the mission of energy saving and emission reduction transformation, traditional energy replacement, and green design and production. The promotion of policies focusing on the design, planning, consulting, integration, maintenance, management, operation, carbon trading, green

financing, and energy conservation and environmental protection services of industrial technologies and equipment for energy conservation, consumption reduction, and resource recycling will be these potential energy conservation and environmental protection needs to attract the integration of state-owned and social capital. The industry is turning into a huge market space to stimulate new employment demand, and the social and economic benefits will be a win-win situation. A new scientific and technological revolution is underway for the country to increase its economy, gain new advantages, increase investment, accelerate the transformation of major scientific and technological achievements, and carry out a new round of scientific and economic competition in advance [33].

#### 4. Technical factors

Energy saving and environmental protection include the transformation of industrial equipment energy saving and emission reduction, energy-saving renovation and fuel oil replacement, energy-saving lighting and sewage treatment. Among them, the segment of industrial boilers has a strong demand for energy-saving optimization. At present, because of the carbon neutral emission reduction requirements, related enterprises are required to upgrade their boilers. From the perspective of energy saving, the field is still in its infancy, but the rapid development of the industry still lacks a strong driving force. The energy conservation and environmental protection industry is an emerging industry born in response to the needs of the times, and its purpose is to improve the ecological environment in which residents live as well as to promote the development and upgrading of industrial structure and economic development [34].

In 2021, the energy conservation and environmental protection industry has become a pillar industry of China's national economy and plays an important role in driving economic and social development and reform. Especially, the photovoltaic industry, which will make a big splash in 2021, the leading companies, such as Longi, Tongwei, and Sunshine Power, are known worldwide for both their products and company popularity and have received a large number of orders from international customers.

### Porter's Five Forces Analysis

The Five Forces Analysis model was proposed by Michael Porter in the early 1980s and has had a global and far-reaching impact on the formulation of corporate strategies. It is used in the analysis of competitive strategies and can effectively analyze the competitive environment of customers. The five forces are: the bargaining power of suppliers, the bargaining power of buyers, the ability of potential competitors to enter, the substitution power of substitutes, and the present competitive power of competitors in the industry. Changes in different combinations of the five forces ultimately affect changes in the profit potential of the industry [35]. Porter argues that the potential profitability of an industry can be represented by a function of the five forces, so that we can determine the potential of a company to succeed in this industry accordingly. Porter's five forces model is used to assess the external environmental component of a strategic bridge and to determine the attractiveness of an activity at a given time. This model can be used for companies of any size in any industry, in any geographic area, and can be used periodically to continuously observe the market, its movements, and competitors entering and leaving the market [36].

#### 1. Industry competitor analysis

In the whole industrial boiler industry, this project faces two main groups of competitors, domestic and foreign, and the main competitors in the domestic market are JS Shuangliang Boiler Co. and ZJ Tefu Boile.

The basic information of these companies is as follows: (1) JS Shuangliang Boiler

JS Shuangliang Boiler has been established for more than 20 years. With advanced management concept, world-class processing equipment and highly qualified staff, the company has become one of the leading modern high-tech companies in China. Shuangliang Boiler Company currently holds Class A boiler manufacturing license, A2 pressure vessel manufacturing license, ASME manufacturing

license, ISO9001 quality management system certificate, ISO14001 environmental management system certificate and OshSAS18001 occupational health management certificate. From the perspective of environmental protection, the company has made brilliant achievements in the field of environmental protection boilers and pressure vessels with the core of energy-saving and environmental protection equipment manufacturing industry and the social mission of improving the living environment of human beings, and has developed more than 300 oil-fired and gas-fired environmental protection boilers, mainly including: condensing vacuum hot water units, WNS horizontal oil (gas) boilers and SZS oil (gas) boilers three kinds of equipment, and successively in various fields It has used many non-standard pressure vessel products in various fields. It has more than 5,000 users and products worldwide and exports to countries in Southeast Asia, Africa and South America, where it has the first market share [37].

## (2) ZJ Teflon Boiler Co.

The special boiler plant of ZJ Teflon Boiler Co. Ltd. was established in 1982 with a registered capital of 100 million yuan and more than 600 skilled workers. It is located in the external comprehensive development zone of HN city, ZJ province, covering an area of more than 200 mu. Designated by the State Bureau of Quality and Technical Supervision as a professional manufacturer of Class A boilers and Class D2 pressure vessels with design and manufacturing qualifications, a domestic manufacturing partner of Hamada of Japan and an OEM manufacturer of Buders of Germany, the boiler series products are more advanced than their domestic counterparts' competitors. The company is one of the largest manufacturers of coal, oil, gas and unconventional fuel boilers in China. Relying on continuous technological innovation and with the entrepreneurial spirit of the past twenty-two years, the company has grown from an unknown small company to a well-known state-owned enterprise. In terms of environmental protection, Tefal was one of the first manufacturers to develop and promote thermal oil boilers in China, with over ten years of advanced experience in designing and manufacturing thermal oil boilers, representing the current high-end manufacturer of intelligent thermal equipment in China, with a

leading edge in maintaining a high thermal efficiency and maintaining a high market share. Facing the upgrading of the consumer market, Tefu has gradually formed a three-dimensional industrial matrix of environmental boilers represented by oil (gas) and electric boilers, leaning ever closer to the environmental protection market, and has passed ISO9001 international quality system certification and ISO14001 international environmental system certification, China Famous Trademark, AAA grade credit enterprise, etc.

From the industrial boiler energy-saving equipment, domestic competitors are equipped with the hardware and financial conditions to produce such products, whether from the company's scale, scientific and technological innovation or market share, all of which have a certain degree of influence on the enterprise. Most of the competitors are aware of the need to follow the development trend of the times, especially the domestic enterprises, with the slogan of "green water and green mountains are the silver mountain of gold" and the policy requirement of carbon neutrality in recent years, are more committed to producing industrial boilers and auxiliary equipment with energy-saving and environmental protection features; and this slogan may not be a good idea for foreign companies that have established factories in China. The reason is that China's existing resources and environment are different from the past and cannot be destroyed at will but have to be protected by all means, which leads to foreign companies losing their choice to develop and grow in China. sense of innovation, and it is quite possible to develop the corresponding technology in a short time [38].

From the technical point of view, the company cooperates with universities in industry-university research, constantly strengthens technological innovation and constantly adopts new technologies, the company currently has industry-leading industrial R&D technology, engineering technology and excellent team is the part that cannot be surpassed by competitors in a short time, and the vacuum pumps and compressors that the company currently has are not developed by other companies in a short time.

In view of the above analysis and in line with the development strategy of the enterprise, there are two ideas: First, to strengthen technological innovation and

independent research and development, to determine the differentiated product strategy, through new products, new technologies for their own creation of differentiated living space and industry barriers, to ensure that the company's products can become a part of the boiler market consumers just need, and at the same time to ensure that the quality of the product can get a good response in the market, to win more. Second, increase publicity to enhance the market share of enterprises, adhere to the development strategy of regionalized layout leader, to achieve a combination of self-publicity and customer publicity, self-publicity is through certain online and offline publicity channels, public relations companies to achieve good results, customer publicity is through the high quality of their own products in the boiler circle to get a good reputation, customer trust and word of mouth. Can have a share in this market with greater potential.

## 2. the threat of potential entrants

Some listed companies such as Zhejiang Fidelity, Hang Boilers, Xuedilong, Longma Sanitation, Anhui Shengyun, Chengdu Tianxiang and Degut etc., have certain technical research and development strength, so it is relatively difficult to establish technical barriers. If this project has good benefits in use, they may imitate and produce similar equipment to enter this industry, using their listed company's customer resources and brand influence to further divide the market, which may affect our market share, product profitability and sales conversion rate, and affect the development process of the enterprise. However, we need to note that our company is still in the leading position of technology in this industry, and the equipment needs a certain time cycle from research and development to sales, so this project should be implemented faster, increase the investment in research and development, and make good use of the time gap to pave the marketing of the enterprise, especially to go into the supply chain of several leading local steel enterprises [39].

Therefore, in the early stage, we can give up part of our profits to be deeply bound with customers, even causing customers to rely on the stickiness of using the product and workers' operating habits to avoid dividing our market share when other companies enter the market. At the same time, we can't be immersed in the existing

technological leadership, the rapid development of the industry does not allow the company to rest on its laurels, we must increase technological innovation as soon as possible, further increase investment in research and development, use the amount of financing plus sales to generate revenue and profits to further feed technological research and development, use capital investment to maintain and consolidate the technological advantage of this segment, use the leading edge to reduce the subsequent entry of industry competitors to seize By increasing the difficulty of entry, it reduces the possibility of potential entrants entering the industry and makes its market share expand continuously.

### 3, the threat of substitutes

This track area will have similar equipment, technical principles are not exactly the same, there are indeed similar to achieve the function, for example, wind and solar energy application equipment can be in a large number of industrial equipment manufacturing industry to reduce the use of natural resources at the same time to achieve production, but for the time being this type of equipment will not be replaced. The reason is that a large number of industrial enterprises in China still use traditional energy sources, and from the perspective of product replacement, wind and solar energy based on innovative technologies are still random, cyclical and non-permanent, and disruptive technological innovations are overwhelming for most industrial enterprises in terms of cost control, so energy-saving compression and combustion equipment for permanent industrial boilers are still indispensable in the cycle, and in this carbon neutral realistic application clearly named the traditional boiler industry is imminent to upgrade and optimize [40].

### 4. Bargaining power of customers

As far as this equipment is concerned, the bargaining power of the market customers is strong because it is not necessary, but more of an aid to energy saving and emission reduction to increase the conversion rate and reduce the long term energy costs. If the customer's equipment energy consumption is not very large and only focus on the short term, the savings will not be particularly significant, but if the year as a unit,

then the reduction in energy costs is extremely significant. The year-over-year increase in profitability resulting from cost reductions will allow industrial companies to run and develop more healthily, and will also bring benefits to the local community. However, environmental standards have become increasingly stringent. Customer demand is also becoming more rigid, so the relative bargaining power will also be weakened. The improvement of environmental assessment standards has given many industrial enterprises a headache, because once the original equipment all start if the emissions exceed the standard, it is likely that the local government will require the relocation of the plant, this situation will make many industrial enterprises can not continue, can only shut down the transfer. According to the emission index, if the energy-saving equipment can make the industrial enterprises that meet the EIA standards open a few more boiler equipment, the overall production capacity can bring a significant increase, driving revenue growth; and for industrial enterprises that do not meet the risk of relocation, they can be retained and continue to start production in the local area, reducing the risk of relocation. Therefore, the bargaining power of customers is relatively weak.

#### 5. Bargaining power of suppliers

The bargaining power of suppliers depends on whether they have differentiated products, product pricing and the geographical location of the company. In terms of product differentiation, since the original parts purchased by our company are standardized parts, which are very common in the market, there are not many manufacturers in the market that can provide the same standardized parts, so there is no binding effect on us, and we will only purchase a large number of orders if we can provide high quality products to promote the rapid production of equipment. In terms of product pricing, as the products are not heterogeneous, we are trying our best to select products with high cost performance, and in this regard, we mainly seek to match the price with the quality, and the suppliers can only price according to their product quality. In the geographical location of the enterprise, in order to reduce the cost, we choose to develop and produce in NM city, involving the current industrial integration plant construction has not yet started, so we still collect from

NM city suppliers, because of the long distance, so the logistics and freight costs are relatively high plus the area may sell the parts of the company is less, increasing the bargaining power of suppliers. Overall, the bargaining power of suppliers for this product is relatively weak, and the overall cost of the company remains manageable.

### **1.3 Feasibility Analysis**

Companies should use their advanced technological advantages to seize the head market first, and make customers produce continuous procurement and use stickiness through concessions and equipment convenience. Through sales profits to make key technological breakthroughs and further increase technological advantages. In the carbon medium and long-term development plan, fully enjoy the benefits brought by these policies, and vigorously promote the enterprise.

Rapid development. The niche industry of boiler renovation and optimization is a direct benefit target in the landing of this carbon neutral policy.

This strategic study plans and sorts out the business operation, product marketing and financial management, analyzes the problems that will be encountered in the actual operation of this project, and carries out advance layout and strategic planning. Conduct product market positioning, determine products, prices, channels, and promotion strategies; conduct financial forecasting and evaluation, and calculate production costs and sales revenue. After the relevant theoretical analysis, it can be concluded that the project is feasible, and the investment is worthwhile.

### **1.4 Research Objectives**

The promotion of energy-saving auxiliary equipment for industrial boilers, which is leading in the field of existing technology, caters to the immediate needs of the moment. Compared with the production of energy-saving boilers or a separate transformation, industrial boiler energy-saving auxiliary equipment has more advantages, not only in a certain degree to save the corresponding transformation costs and do not affect the original capacity, but also to achieve the dual purpose of improving resource utilization efficiency and reducing pollutant emissions. That is, it can effectively improve the fuel utilization rate by 30%-40%, reduce pollutant

emissions, and improve the finished product rate and high quality product rate by about 10%. In this paper, we firstly review the policy and industry background, and analyze with PEST theory, Porter's five forces model, SWOT and other related tools to get the results of external environment and market analysis for project investment, determine market positioning, and develop marketing strategy with 4P marketing theory. We analyzed the investment cost control, future revenue analysis, project financial forecast, financial statements, etc., predicted the possible risks in the future implementation of the project and formulated corresponding response plans. Since the project does not have many reference cases and data, there may be certain risks in the implementation, but the known risks can be avoided and prevented in advance through effective measures; and the financial forecast data shows that the project has a high return on investment, the technology is in the leading position in the industry within a certain period of time, and the moat is relatively high. Combined with the policy development trend, there is a certain certain certainty of demand increment and relatively low profit volatility in the future period, which has investment value.

## Section 2

### Marketing Plan

#### 2.1 Segmentation, Target and Positioning

##### 1. Market segmentation

The main component of the market is the customer, we need to diversify customer segmentation, to develop targeted marketing programs, which is more conducive to enterprises to occupy a larger market share, the following we will be from the product characteristics, industry types and city characteristics of three aspects of customer segmentation: according to product characteristics, we market segmentation of products, energy saving and environmental protection equipment has a variety of uses mainly include the use of boilers industry and vacuum compression equipment application industry.

Among them, according to the different uses of boilers, can be divided into the following categories: First, heating use boilers - industrial heating boilers mostly use coal as combustion materials, combustion efficiency there is more room for improvement, there are toxic and harmful gases in emissions; Second, industrial production use solid fuel furnace - effectively improve the fuel utilization rate, reduce emissions, while improving the rate of finished products and high quality products 8-15%; third, industrial production use of liquid fuel furnace - effectively improve the fuel utilization rate, reduce emissions, while improving the rate of finished products and high quality products 3-11%; fourth, industrial production use Gas fuel furnace - effectively improve fuel utilization, reduce emissions, while improving the finished product rate and high quality rate of 10-18%; In addition, the boiler is facing not only industrial enterprises, there are power station boilers for power plants, life boilers for enterprises and institutions, hotels, service industry, special boilers for dual-use two-steam cycle boilers, nuclear fuel, propagation, locomotive, fertilizer, preheating, DC boilers, etc.

Market segmentation according to the type of industry, China's industry is divided into primary, secondary and tertiary industries, where the primary industry

includes: plantation, forestry, animal husbandry and fishery, the secondary industry includes extractive industry, manufacturing, production and supply of water, electricity and coal, and construction, and the tertiary industry mainly includes transportation, catering, finance, education, etc. According to the China Statistical Yearbook 2020, it can be seen that among all industries in China, the industrial industry is the industry with the highest energy consumption in China, so the demand for boilers is relatively strong, while the second and third are the service industries represented by transportation, accommodation and catering, as shown in Figure 2.1 below.

In addition, the proportion of China's industry is currently in a downward trend, from 40.1% in 2010 to 32% in 2019, see Figure 2.2 below, according to the "14th Five-Year Plan" outline proposed in the "in-depth implementation of the manufacturing power strategy". Avoid falling into the middle-income trap, after analysis can be seen that China's industrial sector in the coming period should be in a growth trend. According to the characteristics of the city into the subdivision, we divided the domestic cities, the results are: mega-cities, megacities, large cities, medium-sized cities and small cities.

Among them, the mega-cities are represented by North, Guangzhou and Shenzhen, which have high economic development speed, good quality, and more industries, and these cities have higher and higher requirements for environmental quality, thus more demand for industrial boiler energy-saving auxiliary equipment; mega-cities, which are mainly represented by economically developed Wuhan, Chengdu, Hangzhou and Nanjing, have high potential for economic development, and the degree of management of environmental pollution is The demand for energy-saving equipment is also higher in large cities, which are mainly second- and third-tier cities with relatively slow economic development, such as Harbin, Changchun, Shijiazhuang, Xiamen, etc. In the north, especially in the northeast, due to past development planning and urban climate, boilers for heating and industrial use are more widely used, so the use of boiler auxiliary equipment is higher than in the Medium-sized cities and below are represented by third-tier cities and county cities, where the overall market industry is in a sluggish state, the market potential is small,

and the supervision of environmental protection is not strong enough, so the demand for industrial boiler auxiliary equipment in this part of the market is at a low level.

## 2. Market target selection

After market segmentation, we can find that the enterprise will have different sales in the face of different products, different industries and different cities, which can help the enterprise to precisely position itself, make the selection of sales target and determine the target market. According to different products, the products produced by the project will be used for different production purposes, which lies in the fact that both products can be used in the boiler applicable industry, and the industrial boiler environmental protection and energy saving vacuum compression equipment can also be used in the vacuum compression equipment applicable industry.

According to different industries, it can be analyzed that industrial enterprises have the largest demand for boilers and have a broad market prospect, so industrial enterprises as the main customer choice is the key point that the company must recognize in the sales process, as a start-up, whether it is a large industrial enterprises or small and medium-sized industrial enterprises, we try to use the advantages of the company's products to determine the relationship with them in order to promote the long-term business development.

In addition, we can also choose service industry enterprises represented by transportation, catering and accommodation as the target group to provide services for living boilers. According to the development status and climate characteristics of different cities, first-tier cities (mega-cities and megacities) and second- and third-tier cities in the north (big cities) will be the areas with the highest boiler usage rate and are the key customers for this project. In summary, the main customer groups facing the enterprise should be: first-tier cities and second-tier cities in the north, choose to focus on industry, supplemented by the service industry for strategic planning, in addition, in the product marketing process need to pay attention to the local environmental protection policy and the size of environmental protection supervision, in order to occupy a larger market share.

### 3. Market positioning

Facing the big proposition of environmental protection, sh Environmental Protection Equipment Co., Ltd. can be said to be an enterprise growing under the east wind of the policy, so the company is committed to scientific and technological research and development through unremitting efforts, with a certain degree of visibility and brand reputation in the market. For customers, the three aspects of product quality, price and after-sales service are the most important, so the company should ensure product quality, pay attention to product prices, and provide customers with quality service. First of all, in terms of product quality, the company adheres to the "quality first" business philosophy, has advanced processing equipment and testing methods, products follow the ISO9001 quality management system standards, has a complete, scientific, quality management system, product quality control and management of all layers, will The idea of "zero-defect" quality management is carried out in every link of the production process to achieve industry leadership.

Secondly, in terms of price, according to the demand-based pricing method, the perceived value pricing method and the market segmentation pricing method, the corresponding product strategy is formulated from the perspective of consumer demand. Therefore, it is inevitable to provide high price and high quality products.

Finally, in terms of after-sales service, the project products as a new product, such as equipment damage or equipment failure, consumers can only find the enterprise to repair, so to provide consumers with quality after-sales service is a strategic choice for the long-term development of enterprises, in addition to the process of repairing equipment to get enough customer feedback, but also conducive to the further transformation and upgrading of equipment. To sum up, "high quality, high price and high quality after-sales service" becomes the optimal market positioning choice for this project.

## 2.2 Marketing strategies

The 4P marketing theory is boiled down to a combination of four basic strategies, namely Product, Price, Promotion and Place. The 4Ps marketing theory (The Marketing Theory of 4Ps), the 4Ps theory arose in the 1960s in the United States, with the

proposed marketing mix theory and emerged.

In 1953, Neil Borden coined the term "marketing mix" (Marketingmix) in his inaugural speech at the American Marketing Association, which means that market demand is more or less influenced by the so-called "marketing variables" or "marketing mix". The term "marketingmix" was coined in the inaugural address of the Michigan State University in 1960.

In 1960, Professor Jerome McCarthy of Michigan State University in his book "Basic Marketing" summarized these elements in general into four categories, namely Product, Price, Place and Promotion.

In 1967, Philip Kotler in the first edition of his best-selling book "Marketing Management: Analysis, Planning and Control" further confirmed the marketing mix approach with the 4Ps as the core, namely.

1. Product (Product): focus on the function of the development, requiring the product to have a unique selling point, putting the product's functional claims first.

2.Price: according to different market positioning, develop different price strategies, product pricing based on the company's brand strategy, focusing on the gold content of the brand.

3. Place: Companies do not directly face consumers but focus on the cultivation of distributors and the establishment of sales network, the contact between companies and consumers is carried out through distributors.

4.Promotion: Many people narrowly understand promotion as "promotion", which is actually very one-sided. promotion should include a series of marketing behaviors such as brand promotion (advertising), public relations and promotion.

#### 1. Product Strategy

The products produced by the enterprise should be closely related to the needs of customers, and different products should be provided for different customer groups. The company's environmental protection equipment has strong patented technology, which is not easily replaced by other companies, so combined with this product's advantages in technology, every effort should be made to create a differentiated product strategy, and do a good job of upgrading the transformation of old products

as well as the promotion of new products, mainly in the following two areas.

Strengthen technical research and development and transformation, improve product quality With the proposed resource-saving, environment-friendly policy, the market has also seen a large number of energy-saving and environmental protection companies, constantly enhancing scientific and technological research and development and independent innovation, the competitive pressure in the industry is gradually increasing. sh Environmental Protection Equipment Co., Ltd. can take full advantage of its own industry-university-research cooperation to strengthen technological innovation, improve product quality, and can be based on customer demand Customized differentiated products to enhance user satisfaction.

Grasp the policy guidance, improve product portfolio with the implementation of environmental protection policies, strengthen the supervision of enterprise production, strict environmental assessment standards trend is obvious, for sh environmental protection equipment limited company, should make full use of this development opportunity. In the process of selecting the target market, start-ups still mainly serve industrial enterprises, with larger product specifications and higher prices; for service enterprises boiler equipment and household boiler equipment this part of the market still needs to continue to improve, so companies can go through technical research and development to provide simple and convenient living boiler energy-saving auxiliary equipment to reduce enterprise and household heating expenses while reducing pollutant emissions.

#### Pricing strategy

Generally speaking, companies choose to use the traditional cost-plus pricing method to set product prices. The advantage of this method is that it is simple and easy to implement, and companies can quickly arrive at product prices according to cost expenditures and expected profit levels; however, this method is not applicable to the energy-saving products produced by our company, mainly because the production of energy-saving products requires a large amount of investment and faces an uncontrollable market environment with unpredictable sales volume. The main reason is that the production of energy-saving products requires a large amount of

investment and faces an uncontrollable market environment, and the sales volume is unpredictable, resulting in a high manufacturing cost per unit of product.

Therefore, this paper uses the following three methods to set the corresponding product prices from the perspective of consumer demand, including: demand-based pricing, perceived value pricing and market segmentation pricing.

As the name implies, this method determines the demand for a product by combining the price with the level of consumer demand and the elasticity of demand. According to economic theory, consumption and product prices move in opposite directions, and the degree of change in consumption is closely related to the elasticity of demand. Differentiated product strategy and high quality after-sales service make environmental protection equipment market evaluation is high, the price has a certain rigidity, coupled with energy saving and environmental protection policy support, enterprises can choose to set a higher price than traditional products, in order to recover costs while obtaining higher profits, and then expand the scale of enterprises, and promote the development and growth of enterprises.

2. Perceived value pricing method enterprises according to the value of consumer perception of the price of the product to set the corresponding price. Environmental protection equipment as a new product launched in line with the national green development trend, is conducive to ecological protection, resource conservation, to meet the people's aspirations for a better life, and therefore will gain a high market reputation, coupled with a differentiated product strategy to form a good perception in the minds of consumers, to obtain energy-saving certification to increase the credibility of the product, the use of non-price competition means that consumers can have a preference for the product In addition, weaken their sensitivity to price, gain consumer recognition and increase product consumption.

The market segmentation pricing method is a three-level price discrimination method, which means that when setting prices, enterprises determine the price of the same product under different sales conditions based on demand differences, i.e., they charge different prices for the same product according to different demand elasticities. At present, the market acceptance of energy-saving products is more

general, although enterprises are committed to energy saving and emission reduction, but the higher cost dissuaded some of the weaker enterprises, so the promotion of such products need to be divided into high and low level of manufacturing enterprises in the market.

### 3. Channel strategy

(1) priority deep plowing the Yangtze River Delta market, occupy market position enterprises first deep plowing the Yangtze River Delta market, strive to occupy a leading position in the industry in the region, the formation of a set of production, research and development, sales as one enterprise, mainly for the local use of boilers for processing and production of industrial enterprises. Yangtze River Delta region, first to large manufacturing enterprises for marketing, such as Shanghai Baosteel, Shanghai Yiqi, Shanghai Electric, Panda Electronics Group, Jiangsu Shagang Group, etc., this part of the enterprise has strong financial strength, to reach cooperation can bring considerable income for the enterprise to join the R & D investment efforts; secondly, to small and medium-sized enterprises for marketing, this part of the enterprise is facing the pressure of increasingly stringent environmental assessment standards, the production equipment The market potential is large.

(2) the establishment of the agent system, and actively expand the market using the form of agents to establish a nationwide sales network, for the selection of agents companies should give priority to boiler manufacturers, industrial manufacturing enterprises have cooperation with the sales team to promote the product with a professional strategy to improve product awareness nationwide. For the development of high-quality agents, the main conditions are good reputation, stable customers, strong liquidity, the hope that through the agent's professional ability to reach cooperation with manufacturing enterprises in other provinces and cities, such as: FAW-Volkswagen, Shougang Group, Anshan Iron and Steel Group, etc., these companies have better qualifications, with standardized production management methods, but also with the social responsibility to protect the environment, for industrial boilers The demand for energy-saving auxiliary equipment is very large.

Fourth, the promotion strategy

For energy-saving products startups, good product promotion is a key step to make the company bigger and stronger, and the formation of good social relations with the government, media and financial institutions is also an important step in the development of enterprises.

Form a sales team to form a three-dimensional sales model industrial boiler energy-saving auxiliary equipment as an environmental protection equipment, personnel sales is the most effective a sales model, and enterprises, the government to meet to explain the product features and product advantages. In the formation of the sales team, should include: company leaders, technical staff, after-sales service and sales staff, the formation of a multi-level, three-dimensional marketing and promotion model, first of all, the company's leaders have a wide range of social contacts, a large circle of contacts, can bring more customer resources, technical staff can enhance customer understanding of the product through a professional introduction of product details, after-sales staff can provide customers with relevant Training, sales staff with professional negotiation skills and marketing knowledge.

The products of this project have the dual energy-saving advantages of improving resource utilization and reducing pollutant emissions. Therefore, enterprises should make full use of their own product advantages and conduct product marketing based on the concept of health to form a differentiated product competition strategy and establish a good corporate image in front of the public, government and media. In addition, with the country's vigorous advocacy of energy conservation and emission reduction and well-known enterprises such as Haier, Nine Dragons Paper vigorously promote the market today has gradually formed energy conservation and environmental protection consumer awareness, manufacturing enterprises received the country's environmental protection requirements put forward to them. Therefore, through advertising vigorously promote the product's energy-saving and environmental protection efficacy, it is easy to get the understanding of consumers, into the hearts of consumers and establish the image of energy-saving enterprises. Raise awareness of energy conservation and improve the visibility of product energy conservation. While carrying out energy-saving advertising,

use budget funds wisely in making media selection, choose media with high coverage of energy-saving target customers and lower costs to deliver energy-saving messages.

## Section 3

### Management & Operation Plan

#### 3.1 Management Plan

In order to ensure the normal operation of this project, the achievement of profit targets and the safety of operators, the following measures need to be taken in terms of operation, operation and maintenance.

(1) establish a well-thought-out production mechanism and production management rules and regulations, the company has signed a strategic framework agreement with sh city JS district government to build a plant for the headquarters production base, the production to packaging, transportation, storage and other grid tandem to establish a solid foundation for future sales; at the same time, in the product production process, equipped with responsible and high quality management and operation personnel, the necessary qualifications for employees entering the plant Review. The responsibilities are clearly defined, and the equipment in the company can operate normally and safely every day.

(2) Strictly formulate each processing process, the technical operation and maintenance procedures of the main equipment need to be trained by professional and technical personnel, and the operators must operate strictly according to the requirements.

(3) In the operation link, the initial implementation of a two-person system for each post, mutual supervision of the implementation of the operating process.

(4) Train each employee's information technology data entry ability, and write daily work performance and finished product data into the database to facilitate the company's grid-based management.

(5) Make good records of product use, regularly analyze product yield data and error reporting data, establish sound product data files, do a good job of customer data tracking, collect customer optimization needs during product use, and pave the way for the next generation of product updates and iterations.

### 3.2 Production Plan

The energy-saving oxygen-enriched auxiliary combustion pump set is composed of our independently developed, energy-saving and environmentally friendly vacuum pump with independent intellectual property rights. This product replaces the old "oxygen-enriched combustion" auxiliary device, which occupies a small area, has less support, and is quick and easy to install and construct. It has a strong market competitiveness, as low-carbon environmental protection, energy saving and emission reduction in the country has been raised to an unprecedented height, the old boiler transformation has been imperative, energy-saving oxygen-enriched auxiliary combustion pump set of market prospects and its considerable. The production process of energy-saving oxygen-enriched auxiliary combustion pump set is based on the size of the boiler, the structure of the furnace, the composition of the fuel, the site inspection and other comprehensive factors to determine how much energy-saving oxygen-enriched auxiliary combustion pump set. The general boiler can achieve energy saving of about 12%, the minimum energy saving of 8% and the maximum energy saving of 18%. The size and appearance of its main components are basically kept the same, the internal connectors, equipment arrangement position, site selection are to the site after the survey is completed by the design department to issue a plan. The plan has been formed, the production workshop began to production, energy-saving oxygen-enriched auxiliary combustion pump set production is completed to the development of the testing center for comprehensive product testing, testing passed the energy-saving oxygen-enriched auxiliary combustion pump set sent to the user and send the corresponding installation and commissioning personnel to install, energy-saving oxygen-enriched auxiliary combustion pump set tracking maintenance for one year. The project is mainly based on intelligent mechanized production and assembly lines, universities, research institutes of Chinese Academy of Sciences, large comprehensive testing centers for production, research and development, testing and various supporting enterprises around the park echo, giving full play to our own production capacity and enterprise potential of our company and the park enterprises, creating a good situation of mutual help, common development and mutual benefit. Oxyfuel technology is a comprehensive energy-

saving technology applicable to various industrial boilers and furnaces. Oxygen-enriched technology uses a polymer membrane method to produce 27-30% oxygen-enriched air. That is, when passing through the polymer polymer membrane, oxygen in the air is given priority to pass through with pressure because of the different permeability of the components during passage, thus obtaining oxygen-enriched air with high oxygen concentration and stable flow rate. Membrane oxygen technology is an innovative technology, the third generation of gas separation technology, with extremely broad application prospects. The main advantages of membrane oxygen technology are relatively simple production process, easy and safe operation, small size, no phase change, low energy consumption, high flexibility, long service life of membrane modules and no subsequent maintenance. When the oxygen concentration is about 30% and the flow rate is less than 50,000 NM<sup>3</sup>/H, the operation and maintenance costs are much lower than those of the cryogenic deep cooling and PSA methods. The combustion assist technology adopts the original nozzle injection technology, and the oxygen-enriched air can enter the fuel combustion zone at high speed without mixing with normal air, which can obtain the same effect as the whole oxygen enrichment with almost no side effects. In operation, oxygen enrichment is added to the area where oxygen is most needed, allowing the fuel to be burned thoroughly and promptly with the least amount of oxygen. Special oxygen-enriched nozzles are used in various oil-fired boilers, and technologies such as quadrangular combustion, symmetrical combustion, graded combustion,  $\alpha$ -combustion, gradient combustion, S-combustion and unique injection technology are used to achieve energy saving by localized oxygen enrichment and assisted combustion.

### 3.3 Operation Plan

#### 1. Implementation principles

(1) The implementation of the project is in line with the approval procedures of domestic project construction. (2) Implementation of management in strict accordance with relevant national laws and regulations, strict implementation of construction procedures, improvement of the project legal officer system, the formation of a project team responsible for the coordination and management of the

project implementation process. (3) Execute the procedures of filing, bidding, quality control and project management in accordance with regulations. (4) In the process of project implementation, the project management department is responsible for decision making, command, execution, negotiation and communication of equipment order contracts. (5) Project design, supply, construction and installation and other construction units shall sign contracts with the Project Management Department, and shall be liable for contractual breaches in accordance with relevant state laws. (6) The project management department needs to agree with the construction unit on each specific completion node and clarify the responsibility for breach of contract and penalty mechanism to ensure early completion of the project.

## 2. Project implementation plan

The construction of the project includes pre-project approval, civil engineering design and construction, equipment installation and test operation (including system test operation), etc. The total construction period from pre-approval to completion of the project is estimated to be 23 months. Based on the workload and time required for each phase of project implementation, the specific implementation schedule nodes are as follows: project approval work will be completed by the end of March 2022. Project construction design and project bidding work to be completed by the end of September 2022. Civil construction work starts in November 2022. The main construction will be completed by the end of June 2023. Installation of building decoration and auxiliary equipment will be completed and accepted for completion in December 2023.

## Section 4

### Financial Projections

#### 4.1 Financial statement

	第一年	第二年	第三年	第四年	第五年
销售收入	0	84,000.00	112,000.00	156,800.00	224,000.00
销售税金及附加	0	4,620.00	6,160.00	8,624.00	12,320.00
总成本费用	3371.5	27,437.50	35,459.50	48,294.70	67,547.50
利润总额	-3371.5	51,942.50	70,380.50	99,881.30	144,132.50
弥补以前年度亏损					
应纳所得税额	0	51,942.50	70,380.50	99,881.30	144,132.50
所得税	0	7,791.38	10,557.08	14,982.20	21,619.88
税后利润	-	44,151.13	59,823.43	84,899.11	122,512.63
可供分配利润	-	44,151.13	59,823.43	84,899.11	122,512.63
盈余公积金	0	6,622.67	8,973.51	12,734.87	18,376.89
应付利润	0	-	-	-	-
未分配利润	-	37,528.46	50,849.91	72,164.24	104,135.73
累计未分配利润	-	37,528.46	88,378.37	160,542.61	264,678.34

#### 4.2 Cash Flow

	第一年	第二年	第三年	第四年	第五年
现金流入	-	84,000.00	112,000.00	156,800.00	224,000.00
产品销售收入					
回收固定资产余值					
回收流动资金	-	84,000.00	112,000.00	156,800.00	224,000.00
现金流出					
固定资产投资					
流动资金	27,700.00	36,477.38	48,805.08	68,529.40	98,115.88
经营成本	27,700.00	-			
销售税金及附加					
所得税	-	24,066.00	32,088.00	44,923.20	64,176.00
所得税后净现金流量	-	4,620.00	6,160.00	8,624.00	12,320.00
所得税后总计净现金流量	-	7,791.38	10,557.08	14,982.20	21,619.88
所得税前净现金流量	-27,700.0	47,522.63	63,194.93	88,270.61	125,884.13
	0				
所得税前总计净现金流量	-27,700.0	19,822.63	83,017.55	171,288.16	297,172.28
	0				

### 4.3 NPV, IRR, ROI

Internal Rate of Return (IRR) is the discount rate at which the present value of future cash inflows is equal to present cash inflows and is used to reflect the internal rate of return of a project investment. This is the payoff rate that the investment aspires to achieve, and the larger this indicator is, the better. In general, the project is feasible when the internal rate of return is greater than or equal to the benchmark rate of return. According to the internal rate of return (IRR) measurement based on the cash flow statement of this project, the project has a positive IRR in the third year, and from the third to the fifth year, the IRR growth rate is particularly fast, and the IRR is as high as 114% in the fifth year, which has a high investment value.

The payback period, mainly used for the time required for the total amount of revenue to reach the project investment after the project investment, this project uses the static payback period as the project payback period measurement. According to the project investment return statement can be seen, the return of investment occurs in the third year after the start of the project, the specific return period is:  $Pt = 3-1 + 1046900/3368700 = 2.31$  years

Net Present Value (NPV) is an important indicator to determine whether a project will generate a return on investment and obtain cash flows in excess of input costs. Calculating NPV requires discounting the projected cash flows for each phase before they can be combined with the current input costs. When the NPV is greater than or equal to zero, it indicates that the project is worth investing in. NPV = \$34.702 million, indicating that the project is worth investing in.

### 4.4 Breakeven point

Assuming that the operating profit of the company in the first year is zero, that is, the operating revenue is equal to the operating cost and expense, considering the fixed assets depreciation, rent and other inputs, the sales revenue in the first year has to reach 284,383.56 yuan for the company to break even, based on the sales revenue in Table 8-3 forecast five-year income statement (annual report), the sales revenue of the company in the first year is 935,200 yuan, which obviously reaches break even. From that perspective, the project is feasible.

## Section 5

### Conclusion and Suggestion

#### 5.1 Conclusion

Nowadays, although China's industrial and agricultural construction has achieved great success, environmental pollution is very serious and the ecological environment has been damaged, which has a certain impact on the sustainable and stable development of our economy. China is a large country with a large population, and strengthening environmental protection is an important step to implement scientific development. The environment is one of the most basic prerequisites for the survival and development of human beings. It can be said that the environment provides some necessary resources for people's life, whether from the point of view of their survival or from the point of view of their future development. With the continuous development of China's economy as well as various undertakings, the issue of environmental protection has been incorporated into a key task. sh Environmental Protection Equipment Co., Ltd. follows the contemporary development trend, devotes itself to differentiated product strategies, strengthens technological innovation and independent research and development, creates an industrial modern enterprise integrating production, research and development, and consumption, and strives to be on par with the industry's leading A-share listed company, Hang Bo. By reading a lot of literature and collecting relevant data, this paper fully applies the theoretical knowledge learned in MBA courses and combines it with practice to provide a detailed theoretical basis for the implementation of the project by conducting an in-depth analysis of the core products, plant construction, operation mode and financial status of sh Environmental Protection Equipment Co. Through a comprehensive and thorough analysis of the project, the following main conclusions were obtained.

(1) The project plan defines the development strategy of the enterprise and determines the target market by analyzing the internal and external environment. The enterprise should take advantage of its advanced technology to seize the head market

first, and make customers produce continuous purchase and use stickiness through concessions and equipment convenience. Through sales profits to make key technology breakthroughs and further increase technological advantages. In the carbon medium and long-term development plan, fully enjoy the benefits brought by these policies, and vigorously promote the rapid development of enterprises. The niche industry of boiler renovation and optimization is the direct benefit object in this carbon neutral policy landing.

(2) This project plans to plan and sort out the enterprise operation, product marketing and financial management, analyze the problems that the project will encounter in the actual operation process, and carry out advance layout and strategic planning. Conduct product market positioning, determine product, price, channel and promotion strategy; conduct financial forecast and evaluation, calculate production cost and sales revenue. After the relevant theoretical analysis, it can be concluded that the project is feasible, and the investment is worthwhile.

Through this project plan, a comprehensive analysis of the internal and external environment, marketing strategy, financial budget and risk projects of Environmental Protection Equipment Co., Ltd. is conducted to judge the feasibility of the project and the value of the investment in the project to ensure reasonable operation of the enterprise, and this project strategic plan is also hoped to provide reference for other investors in investment analysis.

## **5.2 Suggestion**

The development prospects of environmental protection equipment is very broad, for the development strategy of the Environmental Protection Equipment Co., Ltd. can refer to the results of this project, the following are some suggestions for the development of environmental protection industry.

(a) seize the favorable opportunity of industrial transfer, based on the characteristics of the machinery industry, integrated planning, optimize the layout, according to local conditions, to create an energy-saving and environmental protection industry base with regional characteristics.

(b) seize the favorable opportunity to increase national investment and expand

domestic demand, increase market development efforts, expand marketing networks, innovative product marketing mechanisms, guide enterprises to consolidate traditional markets and develop new markets. Through the certification of energy-saving and environmental protection products, and strive for more products included in the government's energy-saving and environmental protection products procurement list, expand the scope of procurement, and broaden sales channels

(c) increase investment, the full implementation of key projects. The inclusion of national, provincial and municipal key energy saving and emission reduction new product development projects and technological transformation projects, multi-channel financing, increase investment, accelerate the project construction, as soon as possible to form a scale. Vigorously support the independent innovation of enterprises and strive to improve the level of enterprises.

(d) rely on science and technology, accelerate technology development and promotion. Core competitiveness, accelerate the industrialization of energy conservation and emission reduction technology demonstration and promotion, accelerate the establishment of energy conservation and emission reduction technology service system, and promote the healthy development of energy conservation and environmental protection industry.

(e) conscientiously implement preferential financial and tax policies.

First, improve the policy, the formation of incentives and constraints, improve the financial policies conducive to energy conservation and emission reduction, the implementation of tax policies conducive to energy conservation and emission reduction, and actively guide enterprises to effectively use the full, good and active preferential policies.

Second, the financial and taxation departments at all levels to give full play to their functions, research and development of local supporting policies, the effective implementation of the new national tax law provides for the transformation of value-added tax and other preferential tax policies.

Third, financial institutions at all levels to actively integrate financial special funds to support the technological progress of enterprises and focus on promoting the production of energy-saving and emission reduction equipment enterprises to

optimize and upgrade the product structure. The key support projects identified by the state, to innovative ways to raise funds, adjust the structure of capital expenditure, to give key support.

## Appendix

1. Your position [Single-choice] \*
  - Basic level
  - Mid-level
  - High level
2. Your department [multiple choice] \*
  - Production department
  - Sales department
  - Finance department
  - Human resource department
  - Other departments
3. Historical profitability of the company [Single-choice] \*
  - Excellent
  - Good
  - Fair
  - Poor
  - Very poor
4. Technical ability [Single-choice] \*
  - Excellent
  - Good
  - Fair
  - Poor
  - Very poor
5. Equipment capability [Single-choice] \*
  - Excellent
  - Good
  - Fair
  - Poor

- Very poor
6. Ability to develop new products [Single-choice] \*
- Excellent
  - Good
  - Fair
  - Poor
  - Very poor
7. Ability to change capacity [Single-choice] \*
- Excellent
  - Good
  - Fair
  - Poor
  - Very poor
8. Cost reduction capability [Single-choice] \*
- Excellent
  - Good
  - Fair
  - Poor
  - Very poor
9. Reasonableness of high and low product prices [Single-choice] \*
- Excellent
  - Good
  - Fair
  - Poor
  - Very poor
10. Price elasticity of products (Price elasticity refers to the degree of change in market demand caused by price changes) [Single-choice] \*
- Excellent
  - Good

- Fair
- Poor
- Very poor

11. Product quality [Single-choice] \*

- Excellent
- Good
- Fair
- Poor
- Very poor

12. Evaluation of your company by your partners [Single-choice] \*

- Excellent
- Good
- Fair
- Poor
- Very poor

13. Method of product pricing [Fill in the blank]

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14. Procedure of product pricing [Fill in the blanks]

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# CERTIFICATE

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THIS IS TO CERTIFY THAT

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