



ZHONGSEN MEITIAN ENVIRONMENTAL PROTECTION

by

FUYUE DAI

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** Zhongsen Meitian Environmental Protection  
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**Program** Master of Business Administration (International  
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### **Abstract:**

Air pollution is a global problem and Chinese air pollution is serious. Under the goal of peaking emissions (2030) and carbon neutrality (2060), that air pollution control industry has entered a new stage of development with a new goal, new challenge and new opportunity acting together. In this context, this business plan aiming to analyze the development and problems of the company, so as to help the company clarify its thinking and guide the future direction.

The company's main business is to use the special materials developed and produced by the company, and achieve the purpose of controlling the VOCs (Volatile Organic Compounds) in the atmosphere through the special construction process. The industry is on the rise and the market is growing. This business plan is based on the characteristics of the industry, through the research and analysis of the market and the company's situation.

The company's financial condition is excellent that the company has a good solvency, profitability and operating ability. According to financial calculation, the NPV of the company is 96.36 million yuan, the IRR is 48.73%, the ROI is 57.68%, the payback period is 3.38 years, and the break-even point is 18.3 million yuan. These data show that the company has good financial profitability.

Keywords: Zhongsen Meitian, Environmental Protection,

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## Section 1

### Executive Summary

#### 1.1 Company Profile

ZhongSen MeiTian Environmental Protection Technology (Hereinafter referred to as the "Company") founded on December 18, 2018, who is a high-tech and environmental protection enterprise jointly founded by well-known investors, university professors, the State Intellectual Property Office, and Xiamen Intellectual Property Office. The company is registered in Beijing and the factory is located in Tangshan, Hebei Province.

The company is committed to solving the problem of Chinese air pollution control, providing systematic, scientific and technical solutions for the governance of VOCs.

The company mainly provides products and services for VOCs governance in the atmosphere. The company's product is a polymer nanomaterial that uses photooxidation technology to produce active substances in the presence of oxygen and water molecules to degrade organic matter. The technology of the company's products comes from the Chinese Academy of Social Sciences, which is quite advanced. The company provides matching design, consulting and construction services, which greatly guarantee the stable performance of the company's products and good governance effect. In the brutal competition with many domestic competitors, has achieved very good results, is the benchmark of domestic VOCs governance companies.

The company's mission is committed to solve problems and educate elites.

#### 1.2 Industry Analysis

Chinese environmental problems have always been very serious. Since 2012, Chinese government has provided legal basis and technical support for environmental protection through legislative and technological reform.

In nearly a decade, constant tightened air pollutants emission standards in China, the supervision strength increasing, incentives to push, all kinds of control technology rapid development, significantly higher technical level and quality of equipment, a large number of breakthroughs in core functional materials, from the number of increasing, growing industry scale, air pollution control industry flourished. According to incomplete statistics, in 2021, Chinese air pollution control scale is about 330-350 billion Yuan.

### **1.3 Market Analysis**

VOCS is the difficulty and pain point of air pollution control. Chinese VOCs emissions are huge, according to statistics, the total amount of VOCs emissions is about 28-30 million tons in 2021. VOCs emissions involved in a large number of industries, the key areas of the governance including Beijing, Tianjin and Hebei and its surrounding areas, the Yangtze River Delta, Fenwei Plain and other key areas, as well as the Jiangsu, Anhui, Shandong and Henan border area and other ozone pollution control task heavy regional cities (“2020 Press Conference Records of Ministry of Ecology and Environment, the People’s Republic of China”, 2022). Through legislation and industry regulations, Chinese government constantly strengthens VOCs prevention and control.

VOCs governance market is the biggest opportunity which is the national peak emissions in 2030 overall requirement, on the premise of this requirement, the national through legislation, industry norms, technical reform and other ways, provides opportunities for the future development of VOCs governance. It is expected that the annual output value of VOCs management project reached the scale of 80-100 billion Yuan in 2025.

The main challenges of the current VOCs governance industry include that industry concentration is low and scale is small, full service system has not yet formed and there is still vicious competition. VOCs governance companies are still in shortage of funds, lack of innovation ability.

#### **1.4 Management Team and Company Structure**

The company's management team is very high quality, who has a wealth of corporate management experience and air pollution control industry experience. Several of the managers had management degrees and had studied abroad in developed countries.

The company adopts the general manager responsibility system under the leadership of the board of directors that the company set up a general office and six departments, each performing its own duties.

#### **1.5 Production Operation and Development Plan**

The company is an industrial enterprise producing physical products, so the production and operation is a special issue that needs attention. Due to lack of experience and capital in the early stage, the company outsourced its products to other manufacturers, and paid more attention to research, development and marketing. With the development of the company, abundant funds and the promotion of management experience, the company began its own production and operation.

The company's factory is located in Tangshan, Hebei Province, where is close to the origin of raw materials, convenient transportation, rich labor resources. And his city has the support of preferential policies. The production equipment selected is mainly from Germany, and the supporting auxiliary equipment is mostly domestic. The company adopts reasonable production technology and technological process. The production management ability of the company is excellent, but the inventory management ability is insufficient and needs to be improved. The company has reasonable production plan, short production cycle and excellent quality control. The company has become an excellent environmental management enterprise with modern intelligent factory and high technology content. Through independent research and development and technology innovation, the company plans to fully realize the replacement and upgrading of the original products, give full play to the advantages of intelligent technology, and constantly create new market demand.

## 1.6 Financial Forecast and Analysis

Based on the financial situation and the analysis of the future market, the company forecasts the basic financial situation for the next five years.

By analyzing the financial ratio according to the measured financial situation, it can be clearly found that the company has strong solvency and excellent profitability. The operation of the company is still in the exploratory and development stage, and it will make great progress in the next five years.

## 1.7 Prospect

China would aim to peak emissions in 2030 and strive to become carbon neutrality in 2060 (*downloads.hindawi.com*). Looking at the next ten years, China will continue to promote the improvement of air quality that air pollution control industry still will be a broad market prospect, VOCs of green technology will continue to innovation breakthrough, improve development and be widely used.

The company should seize the opportunity, strive to improve the technical level, complete the company's development goals in the golden period of industry development, and create a lasting and safe environment for mankind and society.

## Section 2

### Company Description

#### 2.1 Company History

The company is an environmental protection and air pollution controlling technology company, headquartered in Beijing. The company was established on December 22, 2018 with a registered capital of 10 million Yuan. The company's main production site and business location in Tangshan, Hebei Province.

The company is a high-tech enterprise in Zhong Guancun, with a professor who has won the National Science and Technology Progress Award, a professor who has won the provincial science and technology progress Award, and six national invention patents.

As the main business of sales and operation of air pollution controlling, especially for VOCs, the company takes unorganized air pollution controlling as its core business and provides technology and special services. For heavily polluted areas, the company can also provide air emergency treatment services.

The company completed the construction work of the first air pollution control in Mars 2019, which achieved good results. In the same year, the company completed an Angel round of financing with an amount of 2 million Yuan. In 2020 and 2021, due to the impact of the COVID-19, the company's business development was relatively slow, but it still achieved an operating income of 14 million Yuan in 2020 and 20.3 million Yuan in 2021. With the continuous expansion of the company's scale and business, the company completed the pre-A round of financing in January 2022 with the amount of 17 million Yuan. After three years of development, the company has become a leader in the field of VOCs controlling.

#### 2.2 Mission Statement

The aim of the company is to solve the most practical problems in Chinese environment by relying on the best research.

The company is determined to become the best air pollution control technology company. Relying on strong scientific research ability, the company has a vision to solve the most practical problems in Chinese environment, especially VOCS problem.

The company is committed to solve problems and educate elites.

## **2.3 Products and Services**

### **2.3.1 Products**

The company's main products are based on photocatalytic oxidation technology, which research and development of special nano new materials. The company uses this material in conjunction with the company's special construction process, in the polluted areas of the city for VOCs treatment.

The company provides research and development of VOCs and odor treatment equipment and catalytic combustion waste gas treatment process, have greatly improved the level of air pollution control.

The company's existing products are based on the invention patents held by the company to obtain the competitive advantage of products. The company is also in accordance with the plan to pay attention to the research and launch of new products, as far as possible to meet the diverse and high requirements of customers.

### **2.3.2 Services**

According to different environmental conditions, the company provides effective large-scale regional air environment management services and comprehensive air pollution treatment services for the government, and provides domestic most advanced technical services and fine management services for the government customers.

The company's Service testing center was put into operation in May 2021, which mainly provides testing services and governance standards assessment for customers.

## **2.4 Current Status**

The company's main business is gradually rising. As of June 31, 2022, the company has completed the VOCs control of several urban customers and achieved certain results. The company strives to expand the business depth.

The company's intelligent production plant has been put into use in Tangshan, who can provide complete product support for the company.

## **2.5 Legal Status and Ownership**

### **2.5.1 Legal status**

The company is classified as a private enterprise by economic type. According to the organizational form and legal liability division of enterprises, the company is a limited liability company, who is a joint investment of shareholders in the amount of their contribution to the company's liability and the company with all its assets to assume the liability for the company's debts of the enterprise legal person.

### **2.5.2 Ownership**

The company is jointly invested by renowned professors, professional investors, the State Intellectual Property Office and Xiamen Intellectual Property Office.

## **2.6 Key partnerships**

Key partners include suppliers, buyers, and other partners.

### **2.6.1 Supplier**

The company's suppliers are mainly raw materials and UAV equipment suppliers. There are three main suppliers of raw materials and only one supplier of drones (DJI). The company has a certain dependence on its suppliers.

### **2.6.2 Buyer**

The company's buyers are currently all government customers.

### 2.6.3 Other Partners

#### (1) Strategic alliance between non-competitors

The company and universities, national institutions and other subjects without competition to determine the long-term cooperation intention, to achieve the company in the field of VOCs publicity and promotion. The company's such partners include Beijing Forestry University, Northeast Forestry University, Chinese Science Institute of Physics and Chemistry and other leading institutes in the field of materials in China.

#### (2) Complementary partner

The company is a product research and development, production enterprises, for site construction and monitoring work, need to rely on complementary partners to achieve and complete. This way can make the company more convenient to find the lack of resources, not only can reduce the cost, but also can make up for their own deficiencies, so that the company can focus more on business development.

#### (3) Partial cooperation between competitors

In some specific projects, the company needs to cooperate with its competitors and share certain resources to achieve the purpose of win-win cooperation. For example, some projects are focused on the governance of VOCs and PM10, at this time the company needs to cooperate with Shouchuang atmosphere (a state-owned company), because this company is the best enterprise in the field of PM10 governance.

## Section 3

### Industry Analysis

#### 3.1 PEST analysis

##### 3.1.1 Politics Analysis

(1) The 13<sup>th</sup> Five-Year Plan period (2016-2020) for the Development of Air Pollution Control Industry issued by the central government clearly requires that the air pollution control industry will increase by 30% by 2021 (Ministry of Ecology and Environment, 2019), and local governments have introduced local policies to improve the industry penetration rate.

(2) In terms of the external macro environment, new policies and regulations affecting the development of the industry will be introduced one after another (Ministry of Ecology and Environment, 2020). The transformation of economic growth mode, strict energy conservation and emission reduction have a profound impact on the development of air pollution control industry.

(3) According to the outline of the 14<sup>th</sup> Five-Year Plan period (2021-2025), Chinese government will fight a tough battle against pollution and establish a sound environmental governance system (Ministry of Ecology and Environment, 2020).

##### 3.1.2 Economy Analysis

(1) In the early stage of reform and opening up, our country mainly adopts extensive economic development mode to sacrifice ecological environment as the cost to ensure the economic development. Today, China's economic development has achieved fruitful results, with its GDP reaching 114 trillion yuan in 2021 (The Report on the Work of the Government, 2022). China has enough economic strength to take environmental protection and economic development into consideration.

(2) From the perspective of the government's fiscal expenditure on environmental protection and control, the government's fiscal expenditure on environmental protection in 2021 will reach 821 billion yuan, accounting for about 3.3% of the total government expenditure, with a year-on-year growth rate of 30%

(The Report on the Work of the Government, 2022). It can be seen that our country attaches considerable importance to environmental protection work.

### **3.1.3 Society Analysis**

(1) Traditional air pollution control industry market threshold is low, lack of the same industry standards, service process without professional supervision and other problems, affect the development of the industry (Development of air pollution control industry in 2021-2030, 2021).

(2) The combination of the Internet and air pollution control have reduced intermediate links and provided users with cost-effective services.

(3) The post-90s, post-00s and other groups have gradually become the main participant force of the air pollution control industry.

### **3.1.4 Technology Analysis**

(1) The rapid development of technology makes realizing the popularization of scientific and technological experience in the air pollution control industry.

(2) Air pollution control industry to introduce new technology, improve the efficiency of the industry.

(3) Technological innovation and production process innovation have brought efficiency improvements and cost reductions to the industry.

### **3.1.5 Environment Analysis**

(1) People's economic income increases that the demand for environmental protection is higher and higher. So, air pollution control industry continues to be in hot demand. Capital is good for air pollution control field and the development of the industry is in a good long-term direction.

(2) In the context of the 14<sup>th</sup> Five-Year Plan period (2021-2025), the industry needs to seek technological breakthrough, industrial innovation and economic development, so as to lay a solid foundation for the next round of development (Ministry of Ecology and Environment, 2020).

### 3.1.6 Legal Analysis

The Chinese government has promulgated the Environmental Protection Law and several laws to ensure the healthy and orderly development of the environmental protection industry ("Beautiful China: 70 Years Since 1949 and 70 People's Views on Eco-civilization Construction", 2021).

## 3.2 SWOT Analysis

### 3.2.1 Strengths

#### (1) Industrial and technological advantages

The company attaches great importance to technological progress and process innovation. The company introduced Germany's advanced equipment, constantly increase the independent technology research and development, formed a strong technical advantage and product technology level. The company has developed special products and services according to the requirements of different local government customers, and has accumulated rich experience. After three years of technical transformation and process research and development, the company has established a rich and complete product line.

#### (2) Energy saving and cleaner production advantages

Relying on scientific and technological innovation, the company pays attention to the introduction of product structure and process optimization, to achieve "three wastes" emission, pollution sources and process control. Through the introduction of intelligent equipment and automated management system, the company ensures a clean factory, improve the management level of the production end, and ensure product performance. After continuously increasing investment in environmental protection research and development, the company has formed a relatively obvious competitive advantage in energy conservation and emission reduction and cleaner production.

#### (3) Intelligent production advantages

The company has built a complete modern production platform. In order to better meet the needs of customers, the company strives to improve production

efficiency, improve the competitiveness of the company, enhance the ability to serve customers.

(4) Operation and management advantages

The company has an efficient management team. Major senior managers have been focusing on the air pollution control industry for a long time, and have a profound insight and understanding of the industry, a relatively accurate grasp of product trends, and good market foresight ability.

### 3.2.2 Weaknesses

(1) Insufficient of capital strength

With the rapid growth of the market and the rapid increase of customers, the company's demand for working capital also increases. The company has constantly changed the previous model of slow development relying on free funds, and turned to the combination model of various financing methods to enhance financial strength, further expand products, so as to achieve rapid development and seize the market.

(2) Not obvious of economies scale

The company has occupied a relatively advantageous market position in the same industry enterprises. But compared with the industry's leading enterprises, especially compared with a number of listed large environmental companies, there is still room for improvement in the company's scale efficiency. Therefore, the company intends to increase investment in advantageous projects, expand the scale of production capacity, and promote the company to further develop in the direction of scale economy.

(3) Customer acquisition cost increases, customer acquisition cycle and accounts receivable time increases

The company takes a long time to acquire customers. The receivable is slow. The customer's financial situation is getting worse and worse, resulting in a longer and longer payment cycle for the company. The previous account period was about 4-5 months, but now the account period has been extended to 8-10 months, which

has caused a great impact on the company's operation.

### 3.2.3 Opportunities

#### (1) National government support

The environmental protection index is used to assess the performance of local governments which environmental protection requirements are becoming higher and higher. The national policy support and the actual needs of the local government will be of great help to the company's future business development. The state provides greater financial support for environmental protection projects, which is of great help to the company to quickly obtain profits.

#### (2) Position of the industry to continuously enhance and the strength of technology research and development

The company has accumulated rich research and development results for more than three years. The company increases investment in research and development, speeds up product development, meets the needs of industry development and market competition, and consolidates and enhances the company's competitive position in the industry.

#### (3) Prominent position in the industry

Since its establishment, the company has been focusing on the industry, and has formed a series of core competitive advantages including independent research and development, brand, quality, management, etc., and has a prominent position in the industry, which provides good conditions for the implementation of the project. In terms of production, the company has a good production management basis, and has international advanced production, testing equipment; In terms of technology research and development, the company is a high-tech enterprise with a technology center, and maintains long-term cooperative relations with scientific research institutes and universities. It has formed a perfect research and development system and innovation mechanism, which are ready for further upgrading and transformation. In terms of marketing network construction, the company has established a good marketing service system through more than three

years of development, marketing network expansion with replicability.

### 3.2.4 Threats

#### (1) Technical risk

##### A. The risk of technology update

This industry belongs to high-tech industry, new entrants face high technical barriers. The company continues to develop free products to ensure product stability and customer satisfaction. However, the speed of technological innovation is very fast. If we cannot keep up with the pace of technological innovation, the company's products may be overtaken by other competitors, thus affecting the development prospects of the company.

##### B. The risk of brain drain

The industry is a technology-intensive industry with high technical content. The technical level and quality control of products are very important for the development of enterprises. Excellent talents are the foundation for the survival and development of the company. With the change of the competition pattern in the industry, the talent competition among domestic and foreign enterprises in the same industry is becoming increasingly fierce. If the company fails to continuously provide effective and fierce mechanisms in terms of remuneration, promotion system and working environment in the future, it may not be attractive to talents and the existing management team members and core personnel may also be lost, which will have a significant adverse impact on the production and operation of the company.

#### (2) Market competition risk

The competitive advantage of the industry is further concentrated in the leading enterprises. The company needs to constantly optimize management and marketing, give full play to the company's technical and service advantages, and constantly ensure the company's leading position in the market, otherwise the company will inevitably face the risk of cruel market competition.

### (3) Internal control risk

With the rapid growth of the company's scale of operation, the company needs better optimization and iteration in internal management. If the company's management ability cannot keep up with the company's business development level, the company's operation will inevitably be adversely affected.

### (4) Financial risk

#### A. Gross profit margin fluctuation

The company's gross profit margin changes are mainly affected by product sales price changes, raw material procurement price changes, product structure changes, market competition, technology upgrade iteration and other factors. If the industry competition intensifies in the future, the selling price of products decreases; Rising raw material prices, the company failed to effectively control product costs; If the company fails to launch new technology leading products in time to effectively participate in the market competition, the company's gross profit margin will have the risk of increasing volatility, and the company's gross profit margin will have a negative impact on the company's profitability.

#### B. Receivables recovery risk

With the rapid development of the company's business, the amount of the company's receivables may continue to rise. If the customer's operation is difficult due to policies or macroeconomic factors, the company's receivables may be recovered for a long time, which will adversely affect the company's income quality and cash flow.

## 3.3 Five Forces Model

### 3.3.1 Potential of New Entrants into The Industry

New entrants are bound to bring large amounts of resources and additional production capacity, mainly in order to gain new market shares.

The barriers to entry in this industry are relatively high and considerable technical reserves are required. But there are plenty of companies with research capabilities that have entered or are preparing to enter the market. The company

has also noted that there are many large companies doing preliminary research and planning to enter the market quickly. The company needs pay a lot of attention to their post-production.

### **3.3.2 Power of Suppliers**

Since company's products require special raw materials, the products provided by suppliers are very important to the production process of the company, so its suppliers have strong bargaining power. This is bound to affect the company's profits.

### **3.3.3 Power of Customers**

Since the company's main customers are local governments, the company's demand and price are subject to the government's demand. Buyers have stronger bargaining power, which will affect the pricing of the company's products.

### **3.3.4 Threat of Substitute Products**

A substitute is generally a product that performs the same function and meets the same needs as an existing product. If substitutes are cheaper or more efficient, entire industries may be destroyed by the emergence of substitutes. The competitive pressure from substitutes mainly comes from the following three aspects:

(1) Substitute products' price attractively

If the price of substitute products is lower than the price of products in the industry, competitors in the industry will experience competitive pressure to lower their prices.

(2) Satisfaction with quality and performance

The emergence of substitute products will stimulate customers to compare the quality, performance and price of two products. This pressure requires competitors in the industry to intensify their offensive and try to convince consumers that their products have better quality and performance.

### (3) Consumer switching difficulty and cost

The company should pay more attention to the fact that in this industry, if the substitute products have lower price, better quality and performance and lower switching cost, the competitive pressure brought by the substitutes to the whole industry will be very great.

#### **3.3.5 Competition in the industry**

The intensity of competition among existing players has to do with many factors, such as price, advertising and service.

The occurrence of the following conditions will mean the intensification of competition among existing enterprises in the industry, that is, the industry has low entry barriers, more equal competitors, and a wide range of competitive participants (Deng, 2015). The market tends to mature, product demand growth is slow. Competitors attempt to promote sales by lowering prices and other means. Competitors offer almost the same product or service, with low switching costs. Companies with strong external strength in the industry launch offensive actions after receiving weak enterprises in the industry, resulting in the newly received enterprises becoming the main competitors in the market. The exit barrier is higher, that is, the exit from the competition is more costly than continuing to participate in the competition (Deng, 2015).

### **3.4 Industry Size, Growth Rate, and Sales Projections**

#### **3.4.1 Industry Size**

In 2021, the scale of the air pollution control industry was about 355.8 billion Yuan. Air pollution control is still the key direction of Chinese environmental protection in the next five years. It is estimated that the total scale of air pollution control will reach 1.6 to 1.8 trillion Yuan in 2027.

It is expected that by 2030, when the Chinese government reaches the peak emissions, the scale of the industry can reach the maximum, which is estimated to be 2.5 trillion Yuan.

### **3.4.2 Growth Rate**

The compound annual growth rate of the industry is about 18.39%.

### **3.4.3 Sales Projections**

The company's sales are expected to reach 29 million Yuan in 2022.

## **3.5 Industry Structure**

### **3.5.1 Raw Material and Service Manufacturers**

They are responsible for upstream products and services, mainly including the original manufacturers of products and services, including various raw material manufacturers.

### **3.5.2 Product and Service Integrator**

They are responsible for the integration of intermediate services, mainly for the reprocessing of upstream services, and the inheritance of services.

### **3.5.3 Design Planner**

They are responsible for the design of products and services, mainly providing design and planning for the whole business.

### **3.5.4 Industry Product and Service Agents**

They are responsible for industry agency, mainly including the upstream industry to provide services and products.

### **3.5.5 Industry Product and Service Dealers and Consumers**

They are mainly industry distributors and consumers of products and services.

## **3.6 Nature of Participants**

There are many participants in the air pollution control industry (Lang, 2020), including small and medium-sized enterprises, public companies and state-owned enterprises.

### **3.6.1 Small and Medium-Sized Enterprises**

Small and medium-sized enterprises are the main participants and forces in the air pollution control industry. Because of the characteristics of the industry, the projects are generally small and widely dispersed, and the characteristics of small and medium with flexibility and low cost are easy to play.

### **3.6.2 Public Company**

In recent years, the public companies have entered the environmental protection industry in a large scale, especially the air management industry has also seen many favorable competitors. But they need to go through the process of listing announcements and often miss the window for projects. At present, such companies have achieved good performance in the air governance industry and are integrating upstream and downstream resources, which is a very big challenge for small and medium-sized enterprises.

### **3.6.3 State-Owned Enterprises**

State-owned enterprises have also entered the air pollution control industry, but their focus is different from that of private enterprises. They generally focus on the prevention and treatment of PM<sub>2.5</sub> and PM<sub>10</sub> in the atmosphere, which has certain limitations.

## **3.7 Key Success Factors**

The key factors in the industry refer to those factors that can influence whether the industry players can succeed in the market, such as product attributes, company resources, competitive ability and other factors directly related to the profitability of the company. The key success factors mainly address three questions: First, what are the key factors for consumers to choose between competing brands. Second, competitive manufacturers to determine the success of the competition needs to obtain what kind of resources and competitiveness. Third, what measures should competitors take to obtain sustainable competitive advantages? Key success

factors in the industry include the following:

### **3.7.1 Factors Related to Technology**

It includes technology innovation ability, product innovation ability, proprietary skills in established technology, the ability to use the network to publish information, take orders, deliver goods and provide services.

### **3.7.2 Factors Related to Manufacturing**

It includes production efficiency, utilization of fixed assets, production plant positioning, adequate skilled labor force, product design and product engineering, and the ability to customize a range of specifications of products.

### **3.7.3 Factors Related to Marketing**

It includes fast and accurate technical support, courteous customer service, accurate satisfaction of customer orders, wide product line and selection, marketing skills, attractive packaging, accurate advertising, etc.

### **3.7.4 Factors Related to Distribution**

It includes strong wholesale distributors, electronic distribution capabilities built up through the Internet, access to sufficient space on retail shelves, and the ownership of the company's own distribution channels and outlets.

### **3.7.5 Factors Related to Skills**

It includes labor technical level, quality control, design talent, has technically in a proprietary skills, able to develop creative products, can make recently conceived through research and development stage to market quickly, organization ability, excellent information system, able to quickly respond to changing market environment light, able to skillfully use the Internet and electronic commerce Business, etc.

### **3.7.6 Other Factors**

Key success factors in the industry also include a high corporate image and reputation among buyers, low total costs, friendly attitude of company staff in dealing with all customers, patent protection, etc.

## **3.8 Industry Trends**

### **3.8.1 Better Market Environment**

In response to local conservation practices, the central government is gradually clearing up and abolishing local governments' self-imposed restrictive regulations that affect the formation of a unified market, and severely investigating and punishing acts such as setting unreasonable bidding conditions. In response to the problem of malicious low price competition, the government is also exploring the reform of the bidding mechanism for environmental infrastructure construction, establishing the principle of quality first in bidding evaluation, and substantially increasing the weight of technical bids (Zhu & Zhang, 2020). Meanwhile, the government will strengthen the construction of the credit system, establish credit records for market entities that seriously break laws and trust, and implement inter-departmental joint punishments (Zhu & Zhang, 2020). The market environment for the environmental protection industry is being optimized (Zhu & Zhang, 2020).

### **3.8.2 Environmental Technology Innovation**

Since our environmental protection industry started relatively late, most of the key technologies come from abroad. With the progress of science and technology and the further development of environmental protection industry, our country gradually takes scientific and technological innovation as an important way to develop environmental protection industry (Zhu & Zhang, 2020). In recent years, the science and technology of environmental protection industry developed rapidly. The progress of environmental protection technology will be beneficial to the overall development of ecological environment restoration and pollution source control industry (Zhu & Zhang, 2020).

### 3.8.3 Social Attention of The Industry

China is in the period of rapid development of industrialization and urbanization, Chinese public environmental awareness is gradually rising, the level of public environmental knowledge, environmental protection participation and public satisfaction with national environmental protection policies, regulations, publicity and education have been improved (Zhu & Zhang, 2020). Because public opinion has the supervision function of openness, strong tendency, wide representative and non-mandatory, that it plays an important role in environmental protection work(Zhu & Zhang, 2020). The public's awareness of environmental protection has gradually increased, and public opinion has paid more attention to environmental problems, which have prompted governments at all levels and enterprises to invest more money and energy to solve the problem of environmental pollution (Zhu & Zhang, 2020).

### 3.9 Long-Term Prospects

China would aim to peak emissions in 2030 and strive to become carbon neutrality in 2060. Chinese "14<sup>th</sup> Five-Year Plan" and 2035 targets have made a series of top-level design and deployment arrangements, coordinated control of VOCs. Looking at the next 10 years, Chinese government will continue to promote the improvement of air quality. Air pollution control industry still has a broad market prospect.

## Section 4

### Marketing Plan

#### 4.1 Market Analysis

##### 4.1.1 Market Capacity

VOCs governance industry has developed rapidly during the 13<sup>th</sup> Five-Year Plan period (2016-2020), the future VOCs governance industry is expected to maintain 3-5 years of rapid development period, to the end of the 14<sup>th</sup> Five-Year Plan period (2021-2025), key industries and main emission procedures governance technology will gradually improve, the VOCs governance market in China will tend to mature.

In 2020, the governance market size of VOCs is about 80 billion - 90 billion Yuan. According to the growth rate of 10% during the 14<sup>th</sup> Five-Year Plan period, the annual output value of the industry scale will reach 130 billion - 150 billion Yuan in 2025. VOCs has been included in the 14<sup>th</sup> Five-Year Plan period air quality improvement control indicators, VOCs detection/monitoring equipment and service market will still maintain a certain scale of growth, industrial park and industrial cluster VOCs green island project, equipment operation and maintenance, environmental stewardship and other third-party service market will get rapid growth.

##### 4.1.2 Key Characteristics of The Market

VOCs control industry is characterized by pollution emissions involved in many industries, pollution sources scattered, messy, small, exhaust emission characteristics vary, the management technology system is also very complex. The governance market of key industries has been initially formed and is now developing towards the direction of refinement and standardization. With the deepening of the governance process, VOCs governance market will also focus on the end of the governance to the source of emission reduction, programmed control, end governance, maintenance operation and other whole process expansion. Due to the

particularity of VOCs pollutants, the detection method standards need to be improved, and the detection level of detection/monitoring institutions also needs to be improved. With the increase of national requirements for monitoring data and the increasing supervision of testing/monitoring institutions, the testing/monitoring market will become more and more standardized. Chinese VOCs governance work is still in the early stage of large-scale pollution source governance, governance task is still heavy.

#### **4.1.3 Market Segmentation, Target and Positioning**

##### (1) Market segmentation

Market segmentation can not only promote the company's understanding of the market, but also provide the analysis basis for the company's products and services.

The industry of the company is environmental controlling, and the subdivided industry belongs to the air pollution control industry. The market segmentation is geographic segments.

Chinese industrial development is geographically limited. VOCs governance market has been the Beijing-Tianjin-Hebei and surrounding areas, the Yangtze River Delta region, Fen-Wei plain and other key areas, gradually expand to other polluted areas.

##### (2) Market target

The determination of the target market is the premise and foundation of the company's marketing plan. On the basis of market segmentation, the company should clearly enter the cities in northern China and take the municipal government in northern China as the primary target consumer group. This has two advantages: on the one hand, the VOCs governance market in northern China is large enough to facilitate the growth of the company; on the other hand, the status quo of northern cities so that they have to pay full attention to the VOCs governance market that the company should see the goal which is to have a good prospect for development.

### (3) Market positioning

The biggest advantage of the company is that its products have good technological content and higher quality service system. In the past market competition, the company's market positioning has shaped a strong and distinct personality for the company's products and services, and has been recognized by customers. The company should continue to maintain this unique and distinctive market image.

#### **4.1.4 Buyer Behavior**

The buyer in this business, the government, is heavily involved. They often conduct in-depth research before making a purchase. So their behavior is complex buying behavior.

#### **4.1.5 Competitor Analysis**

##### (1) Direct competitors

The company has more direct competitors in the industry, which leads to the fierce competition. Compared with other direct competitors, the company has the following advantages:

##### A. Qualification advantage

The company is a demonstration unit of environmental core technology transformation achievements, has passed ISO9001 certification, ISO14001 certification, ISO45001 certification.

##### B. Research and development advantage

The company's R&D investment is larger, generally reached the company's annual sales of more than half. These include the development of new products, the use of new technologies, the expansion of research and development teams and the renewal of research and development equipment.

##### C. Production advantage

The company's main production equipment is imported from Germany. The company's production team is professional. The company's production cost control

is better, has a great advantage.

#### D. Sale advantage

The company has 5 sales staff and labor cost control is very good. The individual sales contribution rate is high, that is to say, about each sales person contributes profit about 2.8 million Yuan. Compared with other direct competitors, it has a larger advantage.

#### E. Financial advantage

The company's financial situation is sound, performance and profitability are very outstanding, compared with other direct competitors, has a very clear advantage.

#### (2) Indirect competitors

The company has many indirect competitors, which are mainly the same type enterprises with certain differences from the company and enterprises that can produce alternative products. These indirect competitors generally have the same or similar target markets and customer groups as the company, but they sell different products. In the process of development, the company has noticed the existence of many competitors, including many state-owned enterprises, which are competitors of this type. Although there is no direct threat to the company in the short term, there are threats and challenges in the long-term development.

#### (3) Potential competitors

The potential competitors of the company cannot pose a threat to the project of the company in a certain period of time, but the degree of threat to the company in the future is corresponding to the degree of reaction of the company. At present, the company has noticed that many public companies may intend to enter the segmented industry in which the company is located. The company has made preparations in advance in terms of economic scale, distribution channels, government policies, brand value and other aspects.

#### (4) Industry competition or cooperation and other diversified pattern

In the future, the industry competition will be diversified with state-owned enterprises and leading enterprises in private enterprises. State-owned enterprises

have entered the market, the integration of environmental protection industry accelerated. In recent years, the market competition of environmental protection industry will become more and more fierce, the trend of industry shuffle is more obvious, with strong financial strength, capital operation ability and innovation.

The new type of enterprises will show great development potential and become the main force of industry development, while the enterprises with serious homogeneous competition and lack of core technology and innovation ability will be phased out gradually.

#### **4.1.6 Marketing Mix Analysis**

##### (1) Product strategy

###### A. Product and service portfolio

The company's star product nano digestion membrane and its supporting construction technology belong to the company's high net worth products. The company should increase the investment of human, financial and material resources, expand the scale of operation and improve the market share.

###### B. Brand management

The company should establish brand awareness, clear brand positioning tree. Through team building activities, publicity activities, training courses and other forms of brand penetration to employees, in order to achieve the effect of popular support. Based on the existing brand advantages, technology advantages and talent advantages, the company's products and services will be built into a new brand of professional technology according to the particularity of government customers.

##### (2) Pricing strategy

The change of price strategy will bring great influence and challenge to company management. In order to adapt to the changes in customer demand, the company should consider the situation to establish a reasonable and perfect service marketing price strategy.

###### A. List price strategy

Price adjustment mechanism dynamic. The price set shall match the local

government's fiscal budget level, economic level, price level, cost and related policies. According to the different circumstances of local governments, timely responses and adjustments should be made every year to ensure reasonable and stable prices.

#### B. Price management and supervision

Set up a special price management committee, clarify the division of responsibilities, establish a full-time institution of price management office, introduce advanced price management methods and models, strive to improve the management level and professional quality of price management personnel, and encourage the whole people to participate in learning.

#### (3) Place strategy

##### A. Type of place

The company adopts the short channel type of sales, that is, the company does not pass through the intermediate link, directly to the product and deliver to the consumer marketing channel. This way has the advantages of short channels, few links and low cost, which is conducive to reducing the price of products.

##### B. Model of place

The company uses zero-level channels, or direct sales. This is a distribution channel where companies sell goods directly to consumers.

#### (4) Promotion strategy

##### A. Traditional promotion strategy

The company adopts the way of all-staff marketing, increase the efforts of all staff marketing, so that employees are aware of the company's products and services and carry out promotion. Carry out professional knowledge training program for marketing personnel to improve the professional knowledge of sales personnel. It should increase the publicity of the conference, invite local government officials in charge of environmental protection to attend and share their local environmental protection governance experience, so as to enhance the company's visibility and influence on the surrounding cities.

#### B. New media promotion strategy

New media promotion is a very effective way. Such as Douyin, Kuaishou, Toutiao, wechat and other We-media, the main characteristics of new media are strong interaction performance, timely arrival and wide audience. The use of new media for promotion can maximize the audience, spread the speed of the most rapid, and then make the ultimate promotion effect.

#### (5) Participant/people

##### A. Personnel strategy

Personnel strategy is a strategy in which all people are directly or indirectly involved in the consumption process of a service, which is crucial. Operation and management team, technical development personnel and construction technical team are the core talent team of the company, which is specialized, cooperative, diligent and pragmatic and built according to the principle of demand. Talent planning, talent map, talent introduction, cadre management, training and development, and salary performance are the work plans of human resources management of the company. In this way, three systems of talent mining and cultivation are established, namely, the development and training system of potential employees, the improvement of technical personnel training system and the deepening of cadre "1+1" training system.

##### B. Build a strong talent resource platform

The company makes full use of the platform and R&D advantages of its university partners, constantly improves the medium and long-term incentive mechanism, and builds a strong talent resource platform, so as to enhance employees' sense of gain, improve employees' incentive effect and further improve their work enthusiasm.

#### (6) Physical evidence strategy

Physical evidence strategy specifically includes convenient tools, environment and effective cases. The focus of physical evidence is to get palpable clues from customers to experience the quality of products and services provided by recognized companies. The company mainly presents to consumers from the

following aspects:

A. Comprehensively enhance the overall image strength of the company

The company set up a new intelligent production factory and research and development center in Tangshan, is a collection of scientific research, production and teaching as one of the highly intelligent, information center, is a domestic leading level.

B. Effective case and physical evidence of market service marketing

The market service marketing team should have standardized service marketing terms and service specifications to introduce the company's products and services, and unify data and effect analysis in the enterprise case publicity, cannot be random, should be based on facts and effects.

C. Physical evidence of service equipment

In order to give customers a more intuitive impression, the Company shall make a tangible display of the construction equipment. Such a tangible display will be a great increase in customer recognition and improvement.

(7) Process management strategy

Process management, namely consumer management process, is the key element of service marketing strategy (Deng, 2015). Service can be realized through certain procedures, mechanisms and activities(Deng, 2015). The company has developed a unified service standard. In construction management, the company's core concept is to finalize the operation and service in place. The company has developed a strict service process and node supervision to ensure that the service for each customer can be recognized by customers.

## 4.2 Marketing Plan

### 4.2.1 Overall Marketing Strategy

(1) Stick to the strategy of efficiency first and price moderate

The company's main marketing strategy is efficacy first strategy and moderate price strategy. The particularity of basic VOCs pollution controlling, the user pays attention to the effect after use, which is a kind of simple realistic motivation.

Product quality and efficiency optimization must be a priority if a company's products are to be successful.

Company also need to consider the price of their products and services. In particular, the users are all governments, who pay more attention to whether the price is appropriate to achieve air pollution control and effectively control the fiscal expenditure of local governments.

(2) Strategies to enhance a company's ability to innovate

The company should pay attention to the improvement and enhancement of its own innovation ability. Only in this way can it achieve better results in the formulation of marketing strategies, so as to make the company continuously grow and develop. Therefore, the company should focus on increasing devotion of science innovation, more scientific research funds, improve the company in the construction of scientific and technological innovation, train more for their own scientific and technological personnel, build competitive talent team of science and technology, make the company's innovation ability of science and technology can effectively promote the focus in the field of continuous innovation, promote the formation of the knowledge, Continuously develop new technologies and high-tech new products to promote the sustainable development and growth of the company.

(3) Increase the training of marketing talents

If the company wants to achieve the continuous expansion of marketing and continuously improve the company's share in the market, it must increase the cultivation of its own marketing talents. The company should carry out regular training and skill upgrading exercise, constantly enhance the marketing staff's sales skills, constantly improve the service level, so that the marketing staff can constantly lead the consumption in communication with customers, to achieve effective sales results. At the same time, the company can also continue to explore and find excellent marketing talents, so that the company's marketing performance is effectively improved. In this way, the company's marketing performance can be continuously improved, so as to expand the company's visibility in the market.

#### (4) Marketing with the help of Internet platforms

The company shall also be fully the advantage of the Internet, the strengthening of marketing, with the constant development of information society background, the company shall on the maximum reduce the firm's marketing costs at the same time, also can effectively improve the company's economic benefit.

### 4.2.2 Price Strategy

Through more than three years of exploration, the company has realized that price is still a very sensitive, which directly relates to the amount of demand and profit, affects other factors in the marketing mix, and has strategic significance to a certain extent, determining the success or failure of the enterprise's marketing.

#### (1) Choosing a Pricing Target

The company has carefully selected its target market and positioned itself so that the price of its products and services is very clear. A company realizes that it can use pricing to pursue different goals, and the clearer the goal, the easier who can set prices.

When the company encounters excess productivity or intense competition or needs to change from government customers, its main goal is to stay afloat. To keep the factory open and the project on track, the company has to set a low price. When the company wants to set a price that maximizes its current profit, it needs to consider the needs and costs of its government customers and select a price accordingly that will generate the maximum current profit, cash flow or return on investment.

When the company wants to achieve a controlling market share position, the company need to set prices as low as possible to pursue market share leadership. When the company's products could establish a leading position in the market for product quality, the company requires a high price to compensate for the high quality of the product and the high cost of development.

#### (2) Determine the level of demand

The price at which a company offers its products and services will lead to a

different level of demand that will have a different effect on its marketing objectives (Issuu.com). Under normal circumstances, demand and price have an inverse relationship, that is, the higher the price of a firm's goods and services, the lower the demand from the government. Therefore, before the price is determined, the company will determine the social level of government demand and the order quantity that has been determined.

(3) Estimated costs

The cost of the company fluctuates with the fluctuation of raw materials, and changes directly with the change of production level.

(4) Analysis of price competition

The company need to know the price and quality of the products and services offered by each competitor. If a company offers a product or service similar to that offered by a major competitor, it must price it more closely or lose sales. If a company offers a product or service that is secondary, it cannot set prices as its competitors do, it has to lower them. If the company's products and services are superior, then the company needs to set a higher price than its competitors.

(5) Fix the final price

Through the above series of analyses and comparisons, the company determines the price of its products and services. In the end, the price is judged to be reasonable based on the feelings of the sales staff, the feelings of the competitors and the feelings of the government customers.

#### **4.2.3 Sales Process and Promotions Mix**

(1) Sales process

In view of the problem of atmospheric environment governance, the needs of government customers are increasingly complicated and diversified, and there is a serious information gap between the company as producers and sellers of atmospheric governance products and services and the consumers represented by government. On the one hand, the company needs to constantly investigate and study in the sales process to predict the changes in the market and demand, so as

to better meet the needs of the government, and at the same time pursue the company's profit maximization; on the other hand, government customers must also get the goods and services from companies to meet their purchase needs. Therefore, as a means of connecting the company and the government, promotion has become necessary, and the promotion strategy has become an important part of the marketing decisions of enterprises.

#### (2) Promotions mix

The company through business promotion, conference marketing and relationship marketing and other ways of selection, use and combination of the strategy, to achieve the sales process of the promotion mix.

The factors that influence a company's decision of promotion mix include promotion target, market characteristics, the importance of different promotion methods to different products, product life cycle and company's sales strategy.

#### **4.2.4 Distribution and Sales**

The transfer of the company's goods and services from the production field to the final consumption process of government customers requires a series of buying and selling activities in the circulation basin. The products and services of the company only have the initial form of the product, but also must use the sales function, in order to transfer the company's products to the target market, so that the product will eventually be converted into consumption.

According to the characteristics of the customer, the characteristics of the product and the characteristics of the company, the company determines its own sales channels. The company's current distribution channel is relatively single, using direct sales model. The Company is solely responsible for planning and facilitating the exchange and collection of relevant information; Responsible for identifying and communicating with potential customers; Responsible for adjusting the products and services supplied according to customer's requirements; In the process of selling products and providing services to bear the relevant risks.

#### 4.2.5 Sales Tactics

The sales tactic is marketing conference and relationship marketing.

##### (1) Marketing conference

Marketing conference is the enterprise through various ways to collect the government's information, after the analysis, the establishment of a database, and then delete from the selection of the target customers, the use of the form of the organization of meetings, and combined with different promotional means, targeted sales of a marketing model. The core of this marketing is to build trust in the brand among government customers and maintain that trust over the long term. In an increasingly competitive, highly homogenized in the market today, only on the product itself is often difficult to achieve this goal, but also with targeted consumers propaganda, provide sincere service, effective marketing strategies are highly personalized, only accurate target customers, and with the one-to-one communication, to meet the needs of customer differentiation, to improve satisfaction, enhance brand loyalty, so that enterprises get long-term development (Deng, 2015).

##### (2) Relationship marketing

Relationship marketing, mainly is the government for goods or services of the satisfaction and loyalty as the standard, determines this kind of goods or services in the market share and status, relationship marketing is mainly occupied government about the quality of the product or service consciousness, replaced the traditional market relationship marketing to profits and quantity of the product or service as the main concept of reference factors (Deng, 2015). On the one hand, the company needs to establish a customer-centered management idea. Only the enterprises that win the trust and goodwill of customers can better obtain their own profits. Therefore, from the basic orientation of enterprise policy and behavior, customers should be put first. On the other hand, the enterprise strategy plan, need to develop a full range of customer needs, to help customers to understand the needs of the self-value orientation, to grasp the real needs of the enterprise development, understanding of the essentials and standard development of enterprises occupy

the market in the future(Deng, 2015), enterprises to grasp the reality of consumer needs, mastering customer satisfaction factors in the process of enterprise development(Deng, 2015), some basic information Grasp the customer for guidance on the development of ideas as well as the environment, relationship marketing must help customers set up a kind of its inner enterprise products and services consumption consciousness and concept, the safety of the enterprise to improve the satisfaction of consumers, relationship marketing to establish a kind of brand-new consumption idea, satisfy the customer value service and enjoyment.

## Section 5

### Management Team and Company Structure

#### 5.1 Management team

The company's management team is composed of experienced investors, technical personnel and university researchers, with considerable professional and management ability. The company's management team is mainly composed four people.

##### 5.1.1 CEO

The company's founder, Wei Shangjie, who is vice president of China Forestry Industry Association Green Home. He graduated from China Agricultural University and Loughborough University in the UK. He holds several degrees in management, finance and information technology. He initiated and set up Xiamen Co-Creation Capital and Beijing Meitianmei Technology Co., LTD. He has worked in Jiuding Investment, Cheetah Mobile and Ernst & Young Consulting, and has rich channel resources and investment and financing experience. He is the CEO.

##### 5.1.2 General Manager

The company's founder, Professor Huang Anmin, the research Institute of Chinese Academy of Forestry Sciences, director of the National Quality Supervision and Inspection Center of Wood-based Panel and Wood and Bamboo Products, and the winner of the 2019 National Science and Technology Progress Award. He has good production and research experience, rich academic achievements and good industrialization ability. He is the general manager.

##### 5.1.3 CTO

The company's founder, Professor Zhang Shifeng, is a professor and doctoral supervisor of the School of Materials Science and Technology, Beijing Forestry University. He is an expert in materials science in China, with rich academic

achievements and many invention patents. His main research projects are all national key special subjects. He currently serves as the company's Chief Scientist and Head of Technology.

#### **5.1.4 COO**

The company's founder, Dai Fuyue, graduated from the School of Management of BeiHang University. She has worked in Waterco (China), Hengyou Electromechanical (Beijing) Equipment Engineering Co., LTD and Beijing Zhaojun Education Technology Co., LTD. She has experience in market development, research and negotiation of large-scale engineering projects, and has good interpersonal relationship and marketing experience. She is currently the COO.

## **5.2 Board of Directors**

The Board of Directors of the Company is composed of 4 members, which are composed of core management personnel and management personnel appointed by investors respectively. Each director has the corresponding decision-making ability.

Li Yanchuan, Director, graduated from the University of Liverpool and Boston Business School. He has rich experience in business management.

Zhang Dongchao, director, graduated from Beijing Forestry University and University of Edinburgh, UK. He has excellent strategic thinking and information analysis skills.

Wang Chen, director, graduated from Peking University, is the person in charge of Baidu brand strategy planning. He has good brand promotion experience and enterprise management ability.

Du Xin, director, graduated from Beijing Jiaotong University, former Deputy General Manager of Honeywell China, has good management and decision-making skills.

## **5.3 Company Structure**

### **5.3.1 Functional Structure**

The corporate governance structure is the general manager responsibility system under the leadership of the board of directors.

The normal operation of the company requires the general office to exercise the intelligence of personnel management and ensure the adequacy of the company's personnel and their remuneration. It needs financial management only to calculate the costs and benefits of the project and the normal expenses of other kinds of expenses of the enterprise. It needs the market development department to carry out the development tasks of the company's board of directors and meet the development targets. It needs the operation department to calculate the cost of the company's projects and fulfill the contract. It needs project management department to manage and supervise all projects. It needs the Department of Security to be responsible for the safety and environmental issues during the implementation of the project. It needs innovation business department to constantly explore the innovative market in new projects and new areas. In conclusion, the organizational structure of the company is relatively simple, who consists of six departments and one office.

### **5.3.2 Department Structure and Responsibilities**

#### (1) Finance Department

It is responsible for project financial management and accounting work guidance and inspection, responsible for the comprehensive statements, tax management and capital management affairs, responsible for project accounting work, according to requirements of the financial internal control execution management issued by the company's accounting and reporting requirements, the project is responsible for the content of the accounting statements and determine, internal to the relevant personnel to provide all kinds of report and the required data.

(2) Market development department

It is responsible for market analysis and judgment, customer development and tracking, project bidding and planning, general contract review and signing, and internal business docking with group development

(3) Operation Department

It is responsible for project bidding, procurement supervision, grasp the market information of materials in the location of the project, responsible for statistical management, management of subcontracting, materials and equipment contracts, Completed the risk analysis of project operation management and control, took charge of the analysis of business activities, management of business indicators, project settlement, implemented various notification requirements of the company, connected with the group project cost management system and recruitment and platform related process work.

(4) Project Management Department

It is responsible for the implementation of project management system, responsible for organizing the project related to the project evaluation, responsible for the performance management, planning management, service management, technology management, inspection and shall be responsible for the organization of project management and is responsible for managing the resources needed for the purpose of quality records, responsible for project construction coordination and distribution, responsible for the organization and coordination of new projects of construction preparation, assist external audit work .

(5) Safety and Environmental Protection Department

It is responsible for safety construction management and environmental protection supervision, responsible for daily safety inspection, organization of safety inspection, responsible for the identification of environmental factors, identification of hazard sources, risk assessment, according to the identified important environmental factors and major hazard sources to develop goals, indicators, management plans and emergency plans and other master measures. And supervise the implementation, responsible for the supervision and inspection of safety

technical measures disclosure and implementation.

(6) Innovation Business Department

It is responsible for industry research, new industry responsible for the coordination and docking industry related business, is responsible for the implementation of relevant national laws and regulations, responsible for the system of internal control and comprehensive risk management work, responsible for project risk prevention and control work, responsible for the system of the rule of law publicity and education, in charge of overseas market development and management.

(7) General Office

It is responsible for human resources, enterprise planning, information and confidentiality related work, responsible for the control of the department's budget, responsible for publicity and performance management.

## **5.4 Shares of Stock Authorized and Share Options**

### **5.4.1 Shares of Stock Authorized**

The number of shares of stock authorized is 12.2809 million. In order to attract high-tech talents, the company reserved 20% of the shares as equity incentives. Options are available to the company's chief scientist and technical representative for a period of five years after entry.

### **5.4.2 Share Options**

The company set up internal staff in system, mainly for the company's management and technical personnel, to encourage them to funds or their human capital investment, through appropriate shares to make talent and enterprise benefit sharing, the talented person own interests in relation to the enterprise development, this is an incentive for talent, and a constraint, conducive to the stability of talent and potential play. This kind of equity incentive can give full play to the potential of personnel.

## Section 6

### Operations and Production Plan

#### 6.1 Operation Plan

##### 6.1.1 General Approach to Operations

The company needs to make the manufacturing plan as detailed and reliable as possible. Production operation is a process of how to locate, buy raw materials, organize production and sell products and services on behalf of others. In general, the production operation part shall include the following content: the company manufacturing plant site selection, process flow and equipment purchase, production cycle criteria specified as well as the production plan, material requirements planning and its safeguards, labor demand, inventory management and the method of quality control, etc.

##### 6.1.2 Business location

The location of the company has a profound impact on the operation of the company (Deng, 2015), especially for manufacturing enterprises, location is the key factor of cost control. The company's current location in Tangshan, Hebei Province, is very wise and correct.

(1) Proximity to raw materials. The company chose Tangshan, Hebei province, to build its factory, mainly because the market for its products and services is near Tangshan. At present, the company's main business markets are Tangshan City and Baoding City of Hebei Province. The company chooses Tangshan to build a factory, which is conducive to the rapid entry of products into the market.

(2) Convenience of transportation. The transportation of Tangshan City is very convenient and the transportation is developed, which helps to reduce the production and operation cycle.

(3) Access to labor resources. Tangshan's labor market is mature and skilled labor can be recruited at a lower cost.

(4) local preferential policy treatment and law support. Tangshan City has

many preferential treatment policies, especially for the settlement of science and technology enterprises, Tangshan City has given a lot of tax relief and financial support.

### **6.1.3 Facilities and Equipment**

The company's factory is the representative of intelligent factory, using automatic, mechanized production line, the use of visual management center for comprehensive monitoring and production management. (See Annex 1 for details).

The company's main production line is imported from Germany liquid processing equipment and domestic supporting auxiliary equipment, with the industry's leading equipment technology.

The company's Tangshan factory adopts the process principle layout, which is suitable for the current intermittent processing needs. In this way, the equipment system can meet the needs of multiple products processing or providing a variety of services. When the company processes or provides more products, the output of each product is not very large, and the production of various products is interrupted, the use of technological principles is the most effective arrangement.

This method has many advantages, such as the system to meet the diversity of process requirements, the system is not affected by individual equipment failure, general equipment purchase and maintenance costs are low, maintenance is more convenient, etc. And the shortcoming of this approach is more outstanding, is a company needs to focus on in the production, such as the need to often select the process route and schedule arrangement, need to adopt intermittent processing, low utilization rate of equipment, material handling speed is slow, the unit transportation cost is high, the complications leading to higher cost of supervision work, for each product and service needs to be treated separately.

### **6.1.4 Technological Process**

The company's technological process is more reasonable. Including manufacturing process design and service process design two, both reflect the

advanced nature of technology and economic rationality.

#### **6.1.5 Production and operation capacity**

The production and operation capacity of the company is general. Including the amount of input and output in production and operation; The ability to design and the ability to be effective did not perform very well.

The production and operation capacity of the company is difficult to maintain a reasonable state. Since the company is still in its early stages, there may be a need to maintain a low level of production due to brand, marketing and funding issues, which can be very difficult for the company to properly plan its production and operation capacity. Therefore, the company also chose to outsource the production of products in the initial stage and put more resources into marketing. With the increase of the company's sales, the company now set up its own factory production.

#### **6.1.6 Inventory Management**

The company's inventory management ability is poor, there are many problems.

The company needs to be aware of the importance of inventory management, especially should note that the biggest role of inventory is to alleviate the short-term supply and demand contradiction. At the same time, the company should be aware that the lack of inventory management will lead to the increase of production and operation costs and may cover up the existing problems in production and operation.

#### **6.1.7 Production Operation Plan and Production Cycle**

According to the progress of the project, the company prepared the production plan. However, with the increase of projects, the company needs to revise and compile the production operation plan, which needs to consider many factors, including contracts, machinery and equipment, raw materials, production

capacity and so on.

The production cycle of the company's products is about two months. In order to better provide products and services to customers, the company plans to improve its R&D and production capacity and shorten the production cycle of products to about one month.

#### **6.1.8 Demand for Labor**

The company combines labor and raw materials to produce products and services. The company has completed a certain amount of personnel reserve according to the organizational structure, but it still cannot meet the actual demand at present. How to reasonably employ the personnel in the location of the project is a problem that the company needs to focus on and solve.

#### **6.1.9 Quality Control**

The company need to pay attention to the quality of the enterprise's products and construction services.

##### (1) Quality management in the design process

The design process of quality management in order to meet the requirements of both customers and manufacturers. On the one hand, through customer knowledge acquisition and identification, confirm customers' clear demand for new products, accurately define the quality characteristics of new products, reduce market risks. On the other hand, the basic requirements of production and manufacturing should be met, such as reasonable technology and standardization level of products. These not only affect the quality of products, but also affect the future production order and economic benefits.

##### (2) Quality management in manufacturing process

The manufacturing process is the process of product quality formation. The company should ensure the quality management of the manufacturing process. In order to ensure the realization of the quality control intention in the design stage, the goal is to establish a controlled production system, that is to say, the production

process can stably and continuously produce products that meet the design requirements.

### (3) Quality management during construction

The construction process is the process that the product finally realizes the effect. The company should ensure the quality of the construction process, so as to make the product better presented to consumers. This is the key and difficult point of all quality management.

## **6.2 Production Design and Development Plan**

### **6.2.1 Development Status and Tasks**

#### (1) Analysis of enterprise technology research and development

Through its own R&D advantages, the company provides customers with more quality products and services. Through independent research and development and technology introduction, the company plans to fully realize the replacement and upgrade of original products, give full play to the advantages of intelligent technology, and constantly create new market demand.

The company has constructed Tangshan's intelligent factories. The construction of its own factory is completely in accordance with the standards of intelligent manufacturing demonstration workshop, and strive to become a leading industrial manufacturing base in China. Products to achieve a variety of different specifications of the standard production, and strive to become the industry smart factory new benchmark.

Through continuous product innovation and technology research and development, continuous digestion and absorption of advanced technical information at home and abroad, and extensive technical exchanges with customers, the company has a number of core technologies, applied to all kinds of products, to serve the diverse needs of customers.

#### (2) Technical process analysis

##### A. Technology source and advanced

The company's technology source is the technology jointly developed by

the company and the Chinese Academy of Sciences, which has reached the advanced level in China.

#### B. Analysis of technical superiority

The technical content of the company's products is high, which is in the leading level in China, and has certain superiority over other products in the level of product quality. In the process level, the technology can ensure the high stability of product quality, improve the utilization of resources and reduce energy consumption.

#### (3) Task

The short-term task of the company is to complete the landing of no less than 30 construction projects in northern cities of China. And according to such task indicators, the company should deploy of personnel, products and equipment in advance.

### **6.2.2 Opportunity and Challenge**

#### (1) Opportunity

With the continued progress of the Belt and Road Initiative and the Regional Comprehensive Economic Partnership (RCEP), Chinese cooperation with other developing countries will be even closer. Domestic large and medium-sized environmental protection companies are expected to further explore the international market by means of key equipment supply, project localization operation, technical cooperation, technology transfer and other ways, so that Chinese air pollution control industry towards the governance needs, but relatively backward technology in Southeast Asia and South Asia and other developing countries provide favorable conditions.

#### (2) Problems and challenge

Chinese extensive economic model and environmental governance damage the atmospheric environment particularly serious. Although through nearly a decade of efforts, our country presents downtrend main atmospheric pollutants emissions, the air pollution situation is still very serious.

A. The common problems of the industry are the difficulty of financing, the difficulty of collecting money and the lack of profitability. Air environmental protection enterprises generally have difficulties in receivables recovery, long collection cycle and high proportion of advanced funds, especially private enterprises, which have greater pressure on capital turnover.

B. Vicious market low price competition and low level of duplication and other phenomena still exist, resulting in low profits and insufficient profitability of the entire industry.

C. Chinese flue gas enterprises belong to the engineering application research, who are the lack of basic theory research. The original technical innovation ability is weak, especially for the electric field, industry process. Meanwhile, the discharge of pollutants is different, each project of flue gas composition and nature of big differences. VOCs and other governance technologies also need to continuously improve and develop in core materials, process equipment and technology integration.

D. VOCs pollution source point multi-faceted wide, governance and supervision is more difficult.

### **6.2.3 Projected Development Costs**

The development cost of individual projects of the company accounts for about 10%-30% of the total amount of the project, which is still controllable.

### **6.2.4 Intellectual Property**

The company has a number of patent for invention and utility models including products, equipment and processes. With the company's unique trademark, copyright and local construction permits. (See Annex 2 for details).

## Section 7

### Financial Analysis

#### 7.1 Assumptions

The estimated service life of the production equipment is 5 years. Depreciation is calculated and withdrawn according to the straight-line depreciation method, with no salvage value at the end of the period. Intangible assets are amortized over 10 years and have no salvage value at the end of the period.

The company shall not pay dividends for the first five years of operation.

The Accounting Standards for Business Enterprises issued by the Ministry of Finance of the People's Republic of China in 2006 and the Accounting Standards for Business Enterprises -- Basic Standards revised by the Ministry of Finance in July 2014.

#### 7.2 Financial Position and Forecast

The company is currently in good financial condition, with operating revenue of 20.3 million Yuan and profit of 7.8 million Yuan as of December 31, 2021, up 50% from the previous year.

The company's projected sales revenue in 2022 is 29 million Yuan. Combined with the company's past revenue, orders, market space and other factors, the annual growth rate of sales revenue in the next five years is expected to be no less than 30%. The company's sales revenue will soon enter the fast lane and will exceed 107 million Yuan in 2027.

## 7.3 Pro Forma Financial Statements

### 7.3.1 Pro Forma Income Statements

Unit: ten thousand Yuan

Item	Y	2023	2024	2025	2026	2027
1. Operating income		3770	4901	6371	8282	10767
Minus: Operating cost		651	710	1190	1766	2134
Cost of sales		1130	1400	1700	2000	2400
Management fees		130	160	220	280	350
Finance charges		96	96	96	96	0
Investment income		0	0	0	0	500
2. Operating profit		1763	2455	3114	4061	5286
Plus: non-operating income		0	145	214	363	413
Less: non-operating expenses		0	65	143	284	316
3. Total Income		1763	2535	3185	4140	5383
4. Net Income		1763	2535	3185	4140	5383

The company's operating profit maintained a stable growth, indicating that the company's core competitiveness is strong. The company's cost control has been very excellent, reflecting the company's good operating results and excellent management team. It's important to note that the company's funds have no immediate use and are not being invested. The company can make good use of this idle capital.

### 7.3.2 Pro Forma Balance Sheet

Unit: ten thousand Yuan

Item	Y	2023	2024	2025	2026	2027
Current assets:						
Cash		930	1209	1571	2042	2655
Accounts receivable		1800	2340	3042	2600	1700
Other Accounts Receivable		655	851	1106	1438	1800
Inventory		27	35	45	400	800
Total current assets		3445	4516	5764	6480	6955
Long-term equity investment		0	0	500	1000	2000
Fixed assets		25	20	15	10	5
Intangible assets		0	0	150	550	1150
Non-current assets:		25	20	165	560	1155
Total assets		3470	4536	6429	8040	10110
Liabilities and equity						
Current liabilities:						
Accounts payable		433	562	730	949	1234
Employee payable		12	16	20	20	20
Payable taxes		-6	33	43	56	73
Total current liabilities		495	644	838	1088	1414
Total liabilities		500	983	2118	2744	3534
Shareholders' equity:						
Paid-in capital		1028	1028	1028	1028	1028
Surplus reserves		0	0	0	0	0
Undistributed profit		1942	2525	3283	4268	5548

Total shareholders' equity	2970	3553	4311	5296	6576
Total liabilities and Stockholders' equity	3470	4536	6429	8040	10110

The company's business is high and the risk is low. But the company needs to take note: the proportion of the company's operating assets is low, while the proportion of non-operating assets is high, especially the accounts receivable are large, which should be paid more attention to. Although these are the assets of the enterprise, they have not helped the operation of the enterprise. If the proportion of non-operating assets is too large, the operating ability of the enterprise will be far less than that of the total assets of the enterprise. When the scale of assets of a company increases, it seems that the operating ability of the company increases. However, if the proportion of non-operating assets increases, the proportion of operating assets decreases, which cannot improve the operating ability of the company.

### 7.3.3 Pro Forma Cash Flow

Unit: ten thousand Yuan

Item	Y	2023	2024	2025	2026	2027
1. Cash flow generated by operating activities:						
Cash received from sales of finished products, commodities and services		1462	2190	2847	4270	6405
Cash inflows from operating activities		116	150	180	210	250
Cash paid for goods and services		617	800	1040	1352	1758
Salary paid to the employee		176	208	242	298	342
Taxes and fees paid		2	32	46	52	66
Other cash payments related to operating activities		36	46	60	78	101
Net cash flow from operating activities		747	1254	1639	2700	4388
2. Cash flow generated by investing activities :						
Cash received for investment income		0	0	200	400	800
Subtotal of cash inflow from investing activities		0	0	200	400	800
Cash paid for the purchase and construction of fixed assets, intangible assets and long-term assets		5	5	1000	1000	1000
Cash paid for investment		0	0	0	0	0
Subtotal of cash outflow from investing activities		5	5	1000	1000	1000
Net cash flow from investing activities		5	5	800	600	200
3. Cash flow generated by financing activities :						
Absorb cash received from investors		0	0	5000	0	0
Obtain the cash received from the loan		200	0	0	0	0
Cash inflow from financing activities		200	0	5000	0	0
Cash paid to repay debts		96	96	96	96	96

Subtotal of cash outflows from financing activities	96	96	96	96	96
Net cash flow from financing activities	104	96	4904	96	96
4. Net increase in cash	648	1163	7343	3396	4684

The cash inflow generated by the company's operating activities accounts for a large proportion of the total cash inflow, indicating that the company's operating condition is good, the financial risk is low, and the cash inflow structure is reasonable. However, it should be noted that the company's use of cash expenditures for the purchase and construction of fixed assets, intangible assets and other non-current assets is very unscientific and needs continuous attention.

## 7.4 Ratio Analysis

### 7.4.1 Solvency

Item	Y	2023	2024	2025	2026	2027
Current ratio		7.01	7.04	7.67	7.38	7.14
Quick ratio		6.03	6.08	5.95	1.86	1.39
Asset liability ratio		0.14	0.22	0.32	0.34	0.35
Equity ratio		0.86	0.78	0.67	0.66	0.65

Current ratio and quick ratio are indicators reflecting the short-term solvency of the company. Generally speaking, the higher these two ratios are, the stronger the liquidity of the enterprise's assets and the stronger its short-term solvency are.

The company's quick ratio over the next three years remains high, meaning that its quick assets are too high relative to its current liabilities, indicating that the company is holding too much cash. This shows that the company is not good at financial management, inefficient use of funds. However, from the fourth year, the quick ratio decreased rapidly and approached 1, indicating that the company paid attention to the utilization efficiency of funds. Meanwhile, the current ratio did not fluctuate greatly, indicating that the short-term solvency of the company did not weaken while increasing the utilization efficiency of funds.

The company's asset-liability ratio is relatively low, indicating that the company has a good repayment ability and the ability to continue borrowing in the future. It is worth noting that after the company completed financing in the third year, the asset-liability ratio increased slightly, but still kept at a low level. This also better

shows that the company's assets provide a high level of protection for creditor's rights, the company has a large potential for borrowing, and it is capable of overcoming the difficulties in capital turnover.

The equity ratio shows that the financial structure of the company is stable, and the rights and interests of creditors can be well protected.

These figures show that the company has a very good solvency.

#### 7.4.2 Profitability

Item \ Y	2023	2024	2025	2026	2027
Profit margin of operation	0.47	0.50	0.48	0.49	0.49
Cost expense margin	0.88	1.07	0.99	1.00	1.01
Return on total assets	0.54	0.59	0.51	0.53	0.55
Return on equity	0.59	0.71	0.74	0.78	0.82

The company expects that in the next five years, with the continuous development of the industry and the improvement of the company's profitability and capital utilization level year by year, the company's operating profit margin will continue to maintain a high level.

The company's profit margin of cost and expense is also kept at a relatively high level on the whole, which indicates that the company pays less to obtain income. The better the company's cost and expense control, the stronger the company's profitability will be.

The overall return on total assets is very stable, indicating that the company has good economic benefits and strong profitability.

The return on equity keeps increasing, indicating that the income brought by the capital invested by the investors of the company increases, and the total profit increases.

These figures all point to the company who has strong profitability.

#### 7.4.3 Operation

Item \ Y	2023	2024	2025	2026	2027
Cash income ratio	0.39	0.45	0.45	0.52	0.60
Cash flow net interest ratio	0.42	0.49	0.51	0.65	0.81

The company's cash income ratio and cash flow net interest rate are high and increasing year by year. These two statistics both show that the increased assets converted to cash after the realization of sales revenue are fast and of high quality, but also show that the actual cash support for every 1 Yuan of book profit achieved by an enterprise is higher. The higher the cash flow net interest ratio, the higher the profit quality.

## **7.5 Feasibility Analysis**

### **7.5.1 NPV, IRR and ROI**

Assuming a 8% discount rate, calculate the sum of the present value of cash flows over 5 years, the NPV is 96.36 million yuan. The result indicates that the company has very strong profitability.

Calculate the discount rate when the present value of net cash flows accumulates to zero for each year in five years, the IRR is 48.73%, much higher than the average rate of return of the industry. This data indicates that the recovery capacity of funds occupied by the current project is greater than the average level of funds occupied by the same industry, and also indicates that the investment use efficiency is higher.

The ROI is 57.68%, much higher than the industry average ROI. This shows that the profitability of the company is strong.

### **7.5.2 Payback Period**

The payback period is 3.38 years, which is smaller than the average payback period of the industry. This also indicates that the investment of the project can be recovered in time, the profitability is strong, and the investment risk is relatively small.

### **7.5.3 Breakeven Point**

The break-even point is 18.3 million yuan, significantly lower than the average level of the industry. This indicates that the project has a high possibility of profit and a small possibility of loss, and the project has a greater ability to resist business risks.

# Appendices

## Annex (1)

### Factory Visual Management Center



## Annex (2)

### Intellectual Property Certificate



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