The impact of the government policy on the Chinese electric vehicle industry and business strategy management: Case of FAW

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Master of Science in Business Administration
Strategy and Management in International Organisations
Abstract

Title: The impact of the government policy on the Chinese electric vehicle industry and business strategy management: Case of FAW

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Background: The electric vehicle industry is an emerging industry worldwide. In China the development of the electric vehicle industry is rapid. The government policy is of great influence on the economy in the Chinese context. The Chinese electric vehicle company has to design the right business strategy to maintain and enhance its competitive advantages in order to respond to challenges.

Aim: This study analyzes the five competitive forces of the Chinese electric vehicle industry and the effect of the government policies on the Chinese electric vehicle industry. The research uses Porter’s Five Forces model and Porter's Generic Strategies theory to give the strategic guidance to the company.

Definition: In this thesis, “Electric Vehicle” referred to the electric drive vehicle used for transporting passengers, which is designed to typically have four wheels, and to have seating for one or more people.

Method: The authors use FAW Electric Vehicle Company as the case company in order to achieve the purpose of this research. The qualitative method is used in this study. The authors collect primary data through three interviews with the company managers.

Results: This research reveals how the government policies affect the profitability of the industry and the company through changing the five competitive forces. FAW Electric Vehicle Company should maintain and enhance its relationship with the government. It should also maintain and enhance its competitive advantages through implementing cost leadership and differentiation strategies in different stages.

Five appropriate search terms: Electric Vehicle Industry; China; Government Policy; Porter’s Five Forces model; Porter's Generic Strategies
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1. Introduction

1.1 Background

China market is one of the world’s largest automobile markets (Ouyang, 2010). According to the forecast in Ouyang’s (2010) research, by the year 2020, the total number of cars in China will reach to approximately 200,000,000, and the fuel consumption of vehicles will reach to about 350,000,000 tons. In the context of global oil crisis, world’s environmental problems and global warming, new energy vehicles should be developed to replace the traditional gasoline vehicles. Many countries including China have already started to develop the low-pollution or even pollution-free new energy vehicles to cope with the crisis. The electric vehicle is an important type of new energy vehicles. Compared with traditional vehicle, electric vehicle is more environment-friendly and more energy-efficient (ec.europa.eu). The Chinese government began to encourage the development of the electric vehicle industry in the National Eighth Five-Year Plan in the early 1990s (Lv, 2010). The government policies have significant influence on the development of the electric vehicles. After the 20 years’ development, the Chinese electric vehicle industry has made tremendous progress. Many Chinese automobile companies have developed their own electric vehicles technologies, and have launched various models of electric vehicles. FAW Group Corporation (FAW) is one of the earliest Chinese automobile companies to develop the electric vehicles. It is one of the “Big Four” Chinese automobile companies (Li, 2011). FAW started to develop electric vehicle since 1990s. In the 20 years, FAW made great achievements in electric vehicle development. However, because the Chinese electric vehicle is in the introduction stage (Ren, 2011), there still leaves great potential for FAW Electric Vehicle Company to develop. Moreover, government policy plays a crucial role on FAW’s development. As our focal company in this thesis, FAW brings us motivation to investigate its strategy and operation.
1.1.1 Electric vehicle

Electric vehicle (EV) is also called electric drive vehicle, such as electric cars, electric buses and electric lorries. It refers to the means of transportation which use one or more electric motors or traction motors as propulsion (Chan, 2007). In this thesis, Electric Vehicle referred to the electric drive vehicle used for transporting passengers, which is designed to typically have four wheels, and to have seating for one or more people. Electric vehicle normally consists of battery driven electric vehicle (BEV), hybrid electric vehicle (HEV), and fuel cell electric vehicle (FCEV). The battery driven electric vehicle is also called pure electric vehicle. It uses battery to deliver power for the electric motor (Chan, 2007). The hybrid electric vehicle has both internal combustion engine and electric motor. There is connection between the both power sources to supply power to the vehicle (Chan, 2007). The fuel cell electric vehicle uses fuel cell to deliver power for the electric motor (Chan, 2007). The concept of electric vehicle firstly came out in the mid-19th century (Chan, 2007). In recent decades, many governments provide incentives to promote the development of the electric vehicle industry. For example, in the year 2009, President Barack Obama has announced $2,400,000,000 for the development of electric vehicles in U.S (energy.gov). European Union has a total budget of €50,000,000 to invest on the infrastructure construction of Green Car Initiative (europa.eu). The Japanese government implemented a subsidy program. In Japan, consumers who purchase an electric vehicle can get the subsidies of 30% original price from the Japanese government (detnews.com). After more than a hundred years’ development and with the support of government policy, the electric vehicles companies have achieved the tremendous development. In the year 2003, Toyota launched the first mass-produced hybrid electric car named Prius worldwide (Toyota.com). In the year 2010, Nissan introduced the first mass-produced battery electric car (Nissan.com). So far, almost all the world major automakers such as Ford, Daimler, General Motors, Toyota, Honda, Mitsubishi, VW, Renault and Peugeot-Citroen have joined in the
competition of electric vehicles.

The Chinese government proposed to develop electric vehicles from the year 1991 to 1995, in the period of the National Eighth Five-Year Plan. This is the first time that the Chinese government began to support to the companies financially. Later, when it came to the period of the National Tenth Five-Year Plan and the National Eleventh Five-Year Plan, the development of the electric vehicle industry had been involved in the National 863 Plan. The electric vehicle industry developed fast in this period. Now the Chinese electric vehicle industry is in the stage of exploitation and tentative (Lv, 2010). In order to promote the development of electric vehicles, the national electric vehicle industry alliance called “T10” was established on 28th September, 2008. It includes the top 10 Chinese electric vehicle companies. All the members cooperate together. Additionally, In order to develop the local electric vehicle companies, a lot of small local alliances also have been built in different cities and provinces in China. From the year 2006 to 2010, the period of the National Eleventh Five-Year Plan, government invested around 1,160,000,000 RMB (Approximately $ 1=7 RMB, sic passim) on the electric vehicles R&D projects to support Chinese electric vehicle companies. Both central government and local government have proposed subsidies policy to promote the electric vehicle market. Now in the Chinese electric vehicle industry, the main players are Shanghai Automotive Industry Corporation (SAIC), Dongfeng Motor Corporation (DFM), FAW Group Corporation (FAW), China Changan Automobile Group (CCAG), Beijing Automobile Works Company (BAW), Geely Automobile Corporation (Geely), Chery Automobile Company (Chery), BYD Company (BYD), Zhengzhou Yutong Group Company (Yutong), Xiamen Golden Dragon Bus Company (Golden Dragon) etc.

FAW was founded in the year 1953, which is the first automaker in China and has the longest history among all the Chinese automobile companies (Faw.com). It is a Chinese state-owned enterprise. Now FAW is one of the “Big Four” Chinese automobile
companies. FAW developed electric vehicles since 1990s. After 20 years’ development, now FAW has the ability of mass production of electric vehicles, electric vehicles R&D sectors, and the electric vehicle distribution channels. FAW has its own brand of hybrid electric cars, battery driven electric cars, hybrid electric buses, hybrid electric trucks and so on (Faw.com). Developing the electric vehicles is one of FAW’s strategy directions. In the year 2010, FAW became a member of the “National New Energy Automotive Industry T10 Alliance”. In the Chinese electric vehicle market, in order to win the competition among domestic and foreign electric vehicle companies, FAW Electric Vehicle Company should make right strategies based on the analysis of the industry environment, government policy and company internal resources.

1.1.2 Theory framework

Porter’s five forces model provides a tool for us to analyze a company’s external industry environment. It describes how the industry’s profitability is determined by five sources of competitive pressure (Porter, 1979). These five competitive forces include three “horizontal” competitive forces which are from entrants, substitutes, and established rivals; two “vertical” competitive forces which are from the power of suppliers and the power of buyers (Porter, 1979). Besides, product life cycle theory provides a useful tool for us to predict the change of market in different stages. The product life cycle is divided into introduction, growth, maturity, decline stages. In each stage the company faces different challenges, opportunities, and problems, so the company needs to implement different marketing, financing, manufacturing, purchasing, and human resource management strategies in different stages (Nadeau and Casselman, 2008). The product life cycle theory can help companies to predict the changes in the market in different stages, and provide strategic guidance. After the analysis of the external industry environment and the market trend, the company needs to choose a strategy to maintain and enhance its competitive advantage. According to Porter (1980),
there are three directions of generic strategy: cost leadership, differentiation, and focus. Cost leadership means that the company win market share through controlling its cost to attract price-sensitive customers. A company can achieve cost leadership normally by three main ways: achieving a high asset turnover, achieving low direct and indirect operating costs, and controlling over the supply chain. Differentiation strategy is implemented through providing differentiated product or service to get the premium price. Focus is not a separate strategy but it illustrates on which scope the company should perform based on cost leadership or differentiation. In this thesis we are going to use these theories to analyze our focal company.

### 1.2 Research problem

#### 1.2.1 Research gap

There exist two research gaps. The first one is the Porter’s Five Forces framework and its application in the strategic processes in the real cases, especially when the industry is in the introduction stage. The second one is the effects of the government policies on the industry and enterprise in Chinese context. The existing researches focus on the companies’ operation and competitive strategy in the Chinese market. Many researchers studied how the five forces determine the intensity of the competition and the profitability of the industry, as in Nadeau and Casselman (2008), Cantner, Kruger, and Rhein (2009), Johnson and Scholes (2002). However, it lacks of research on how government policy changes the five forces and influence the competitive intensity of the industry. Furthermore, electric vehicle studies neglect the specific nature of the Chinese electric vehicle industry and the strategy formulation and implementation of the players.
1.2.2 Purpose of study

In order to fill these gaps, the purpose of this paper mainly includes two ideas. Firstly, we apply the five forces model to analyze the electric vehicle industry in the Chinese context. The Five Forces model was proposed and validated in the western context. However, the Chinese market is regarded as not as free as the western markets and the Chinese economy was greatly influenced by the government. We will use the Five Forces framework to identify the competition status of the Chinese electric vehicle industry. We will also find out the differences between the application of the model in western context and the application of the model in Chinese context. Secondly, we will research in which way the government policies influence the industry and affect the five forces through analyzing the case on FAW Electric Vehicle Company. Besides, we will study how should the company design and implement its strategy in such context.

1.2.3 Contribution to the academic field

The contribution of our research consists of three respects. Firstly, FAW Electric Vehicle Company can benefit from the analysis of the Chinese electric vehicle industry and our recommendations to FAW.

Secondly, the practitioners, established companies, and the potential entrants of the Chinese electric vehicle industry can benefit from our study since we point out how the industry profitability and the competitive intensity is determined by the five competitive forces, and is influenced by the government policies. They can find a position in the Chinese electric vehicle industry where they can best defend themselves.

Lastly, the general contribution to the academic field is the challenging, and our feedback of the application of the existing Five Forces Framework. We will try to
explain how the government policies influence the current status and the development tendencies of the industry through changing the five forces. We will also propose our hypothesis at the end of the analysis chapter, which the force of government policy is introduced into the Five-Forces Framework. However, our hypothesis has not been tested in other context, so we hope that the hypothesis can be validated and developed in the future research.

1.3 research outline

This paper is structured in the following way. First is the introduction chapter which consists of the background and the research problems of our research. After the introduction chapter is the specific literature review. In this section, we will focus on the Porter’s five forces framework which is the main analysis tool we are going to use in this paper. Five forces model is used to analyze the industry situation in term of rivalry between established competitors, threats of new entrants and substitutes, the bargaining power of buyers and suppliers to find a position in a specific industry where the company can best defend itself. And we will also review the existing research on the extending of five forces model. The product life cycle theory and the characteristics of the Chinese emerging market and the application of the five forces model in Chinese automobile industry will also be reviewed in this chapter. In the last part of the literature review chapter, the generic strategy theory which consists of cost and differentiation advantage will be discussed.

The methodology chapter is related to the issues which are brought up in the introduction and literature review chapters in order to answer the research questions. In this section, case selection, data gathering, qualitative research, and interview will be applied. The data consists of both primary data and secondary data. The primary data comes from our three interviews with FAW Electric Vehicle Company’s managers. The
secondary data comes from the interview which is already done by the Chinese media. This chapter also contains the limitations of our research.

The following Chapter is the empirical study. The useful information from our interviews will be restructured and translated in this section. It includes the current situation of the Chinese electric vehicle industry and the information of the FAW Electric Vehicle Company’s operation and strategy. In the final of this chapter, the Chinese government policies related to the electric vehicle industry are going to be presented in details.

Then, it is the chapter of analysis. We will discuss the results and the data gathered by the empirical study. The theories and models presented in the literature review chapter will guide the analysis. The analysis includes following sections: Firstly, we will use the five forces model to analyze the industry environment to FAW Electric Vehicle Company. Then, we will identify on which stage of the life cycle the Chinese electric vehicles is in. After that, we will use Porter’s generic strategy to analyze FAW Electric Vehicle Company’s strategy formulation and implementation. Then, we will discuss how the government policies affect the Chinese electric vehicle industry and the electric vehicle companies. Finally, we will present our contribution to the theories.

In the conclusion and recommendations chapter, we summarized the result of the analysis and discussion. We also gave our recommendations to FAW Electric Vehicle Company.
2. Literature Review

2.1 Product Life Cycle Theory

The product life cycle theory had been discussed as a topic in journals during the 1970s to 1980s. Although it seems as an old theory, it is still highly relevant to current managers, when the product life cycle is viewed as a representation of time-base competition (Nadeau and Casselman, 2008). It is clear that the concept of life cycle stages has a significant impact on business strategy and performance. The product life cycle consists of four main life stages of the product passes through from born to death. They are introduction stage, growth stage, maturity stage, and decline stage. Each of these four stages are distinct because the product in this stage share more market characteristics with other products in the same stage than with itself at a former or later stage (Nadeau and Casselman, 2008).

Firstly, in the introduction stage, the product is introduced to the market through a focused and intense marketing effort designed to establish a clear identify and promote maximum awareness. Plant of trial or impulse purchases will occur at this stage (Nadeau and Casselman, 2008). Both the product branding and quality level are established in this stage, and intellectual property protection such as patents and trademarks are obtained. Pricing may be low penetration on pricing to build market share quickly, or high skim pricing to recover development costs. The distribution is selected carefully when consumers show their acceptance of the product. Promotion is related to the innovator and early adopters. And the communications of Marketing seeks to establish product awareness and to cultivate potential consumers about the product (Gorchels, 2000).

Secondly, the growth stage can be distinguished by increasing sales and the emergence
of competitors. On the supplier side, this stage can also be characterized by sustaining marketing activities. At the same times, consumers would make the repeat purchasing behaviors (Nadeau and Casselman, 2008). Product quality is maintained and additional characters and support services may be fulfilled in this stage. Pricing is maintained because the company faces increasing demand and little competition. Distribution channels of the product are established for demand increasing and customers’ acceptance to the product. Promotion in the growth stage is extended to broader consumers (Gorchels, 2000).

Thirdly, the maturity stage can be recognized that the competitors begin to leave the market, the speed of sales is visible decreased, and sales volume becomes to a steady state. In this stage, the main purchasers of the product are the loyal consumers (Nadeau and Casselman, 2008). The importance of the differentiation of product would be increased in the competition with other rivals. Pricing may be lower than the former stage because of the new competition. Distribution becomes more intensive and incentives maybe provided to encourage preference purchasing over all competing products. And in this stage, the promotion of marketing is emphasizing on the product differentiation (Gorchels, 2000).

Finally, in the decline stage, the staying effects of competition, unfavorable economic conditions, new trends, etc. often explain the decline in sales (Nadeau and Casselman, 2008). The firms has several options, such as rejuvenating the product by adding new features, harvest the product, or discontinue the product (Gorchels, 2000). Several variations of the life cycle model have been developed to handle the development of the product, market, and industry, although they differ as to the number and names of the stages, the models are similar.
2.2 Porter’s Five Forces Model

In order to make decision of whether entering in an industry, and where to position the firm in an industry, it is important for a firm to identify the intensity of the competition and the profitability of the industry (Roger Bennett, 2002). Porter five forces model is a widely used framework to make a qualitative evaluation of a firm’s strategic position (Sven Rosenhauer, 2008). The five forces framework was formed and developed by Michael E. Porter of Harvard Business School from the year 1979 (Porter, 1979). It describes how the profitability of an industry is determined by five sources of competitive pressure. These five competitive forces consist of three “horizontal” competitive forces which are from entrants, substitutes, and established rivals; two “vertical” competitive forces which are from the power of suppliers and the power of buyers (Porter, 1979). Although industries are quite different from each other, the five structural variables which influence the competition and profitability of an industry are fundamentally the same (Porter, 1979). In the follow part we will review the five sources of competitive pressure one by one.
2.2.1 Threats of new entrants

If one industry’s return on capital is in excess of the cost of capital, this industry will attract the outside firms to go inside of the industry (Porter, 2004). If the entry of new firms is unrestricted, the threat of entry rather than actual entry will decrease the profitability of the industry, and make the established firms constraining their price to the competitive level (David Harris, 2006). The reason why the new entrants may constitute a threat is that they bring new capacity and substantial resources to an industry with the desire of gaining market share (Porter, 1979). However, in most industries the new entrants cannot enter on the industry equally with the established firms. According to Porter’s (1998) theory, there are mainly six barriers for new entrants, and the height of these barriers determine the profitability of the established firm above the competitive level in the long-term. The barriers include capital requirements,
economies of scale, absolute cost advantages, product differentiation, access to channels of distribution, and governmental and legal barriers.

**Capital Requirements**

If the newcomers want to enter into an industry, it requires a financial investment to compete with the established firms. The capital is normally used for unrecoverable expenditures like R&D and up-front advertising; and other expenditures such as fixed facilities, inventories, absorbing start-up losses, customer credit, and so on (Porter, 1998). The amount of capital required varies from industry to industry, and it depends on the technology and scale of the industry (Johnson & Scholes, 2002). The cost of developing rockets and launch facilities make new entry in the business of launching commercial satellites highly unlikely. The capital costs of becoming established in this kind of industries can be so large as to discourage all the new entrants (Grant, 2010). In other industries, entry costs can be modest. In e-commerce business, initial setup cost is typically low. It is one of the reasons to explain the boom of e-commerce which started in the late 1990s ended in the financial disaster (Grant, 2010).

**Economies of Scale**

Economies of scale mean the decrease in unit cost of a product or service resulting from large-scale operations such as mass production (answer.com). If in an industry where most established firms have large scale economies in production, marketing, distribution, service, financing, R&D, and other sectors, the new entrants will face the choice of either entering on a large scale and bearing the cost of underutilized capacity, or on a small scale and accepting high unit cost (Robert, 2007). In this kind of industries, economies of scale are the huge barrier for new entrants. In automobile industry, “cost efficiency means producing at least 3,000,000 vehicles a year, and the main source of scale economies is new product development cost”; “developing and launching a new model of car typically cost over $1,500,000,000” (Grant, 2010, P72). In addition, for
global companies, economies of scale are also an important prerequisite to realize the internationalization (Johnson & Scholes, 2002).

Absolute Cost Advantages
According to Porter (1998), usually the new entrants face cost disadvantage since the established firms have a unit cost advantage over them. Cost advantages are irrespective of scale. They normally come from the acquisition of low-cost sources of raw materials, economies of learning, proprietary technology, the firm’s experience, favorable locations, or government subsidies. For example, because the Saudi Aramco’s oil firms have access to the world’s biggest and most accessible oil reserves, their cost of oil per barrel is at the most one fourth of Shell, ExxonMobil, and BP’s cost. This gives Saudi Aramco’s oil firms an unassailable cost advantage over Shell, ExxonMobil, and BP (Grant, 2010). However, the new firms can accumulate company’s experience to reduce their cost disadvantage in the market (Porter, 1998). For example, Sharp gets its cost advantage in LCD flat screen TVs by its speed in moving down the learning curve (Grant, 2010).

Product Differentiation
Porter (1998) states that advertising, customer service and product differences are the first three factors which foster the brand recognition and customer loyalty. It creates the high barrier for new entrants to overcome exactingly. The customers’ loyalty to single brand varies from industry to industry. For example, the percentage of U.S. consumers loyal to single brand varies from 23% in garbage bags, 25% in canned vegetables, and 27% in athletic shoes up to 51% in ketchup, 58% in coffee, 65% in mayonnaise and 71% in cigarettes. The percentage in automobile is 47% (Alsop, 1989). In order to gain the similar levels of brand awareness and brand goodwill with the established firms, the newcomers have to spend disproportionately heavily on advertising and promotion in such markets (Porter, 1998). In Buzzell and Farris’ (1977) study, compared to early
entrants, the late entrants are incurred additional advertising and promotional costs amounting to 2.12% of sales revenue in the consumer goods markets. Contrarily, another point of view about the product differentiation barrier is that the product differentiation barrier can be easily battered because of the imitation of offer from competitors, or customers’ willing to exercise different choices (Johnson & Scholes, 2002).

Access to Distribution Channels
Distribution channels mean the path through which goods and services flow from vendor or intermediaries to the end consumer, it determines how fast and how wide the product can diffuse (Porter, 1998). The distribution channels normally include wholesalers, retailers, distributors, even the internet, and so on. Porter (1998) point out that because the limitation of the distribution channels, and the existing competitors have tied the distribution channels up, the new entrants are difficult to enter in the industry, sometimes they have to establish their own distribution channels. Taking manufacturing industry as an example, the reason why retailers reluctant to carry a new manufacturer’s product could be the limited capacity within distribution channels (such as shelf space), risk aversion by retailers, and the fixed cost associated with carrying an additional product (Grant, 2010). So the access to distribution channels is of great importance to newcomers.

Governmental and Legal Barriers
Competition between firms is restrained by the local government policies and laws, and government plays an indirect role to affect entry barriers. As the Economists of Chicago School claimed, “the only effective barriers to entry are those created by government” (Grant, 2010, P72). The forms of restraints are many and varied, such as national standards, license requirements, safety regulations, and limitation on access to raw material (Porter, 1998). In different industries the major governmental and legal barriers
are different. For instance, in banking, telecommunications and taxi cabs, the main form of the barrier is the license from public authority while in the knowledge-intensive industries, the main form of the barrier is the law of intellectual property (Grant, 2010).

Beyond the six barriers, Johnson and Kevan (2002) introduce one more barrier - retaliation - into the principle sources of barriers. The form of the retaliation could be aggressive price cutting, sales promotion, increased advertising, or litigation. The effectiveness of retaliation barriers depends on the entrants’ expectation as to possible retaliation by established firms. For example, in North America airline industry, “Southwest and other budget airline have alleged that selective price cuts by American and other major airlines amounted to predatory pricing designed to prevent its entry into new routes” (Grant, 2010, P73). If the new entrants evaluate that the possible retaliations from the established firms are going to be very strong, they need to reconsider their entry decision. Another option for the newcomers would be to seek initial small-scale entry in to less visible market segment, in order to avoid retaliation by exiting rivals (José & John, 1994). However, Porter (1998) argues that the cruel retaliation will bring the extra entry cost to the established firms; if the new entrants possess substantial resources and capabilities to fight back, then they have the ability to face the retaliation storm and win.

To sum up, the effectiveness of the barriers depends on the new entrants’ resources and capabilities. Industries which are protected by high entry barriers have the greater above average profitability, and “The capital requirement and advertising appear to be particularly effective impediments to entry” (Grant, 2011, P73).

### 2.2.2 Threats of substitutes

Porter (1979) states that substitute product is a source of threat because it limits the
price that company can charge and limits an industry’s earnings and growth, unless the industry differentiate its product or upgrade the product quality. The price that customers are willing to pay for a product depends partly on the availability of substitute products. Consumers are comparatively insensitive to price if the close substitutes for a product is absence (demand is inelastic with respect to price). On the contrary, consumers may switch to substitutes and become comparatively sensitive to price if the close substitutes is existing (demand is elastic with respect to price) (Porter, 1979). It is difficult for company to push up its price if the price-performance trade-off offered by substitute products or services is attractive (Porter, 1998). “The more complex the product and the more difficult it is to discern performance differences, the lower the extent of substitution by customers on the basis of price differences” (Grant, 2010, P71). Because of the substitutes, the industry tends to be more cost effective and the price-performance ratio tends to be improved. According to Gerry Johnson and Kevan Scholes (2002), substitutes can be categorized into three forms: Product-for-Product substitution, substitution of need by a new product or service, and generic substitution. Generally speaking, the intensity of the threat from substitutes is determined by the following three factors: buyer propensity to substitute, relative prices and performance of substitute, and the costs of switching to substitutes.

**2.2.3 Rivalry between established competitors**

The Rivalry between established competitors defines how the competition between the players is in the industry. For most industries, the intensity of the rivalry and on which basis the industry participants compete determines the overall state of competition and the general level of profitability (Porter, 2004). In some industries, firms compete aggressively, even to the extent that prices are pushed below the level of costs. In such circumstances, the industry-wide losses happen (Porter, 2004). However, in other industries, the competition is in the form of focusing in advertising, innovation, and
other non-price dimensions. In such circumstances, the price competition is muted (Porter, 2004). The intensity of competition between rivals is determined by the interactions between the following five factors.

Concentration

According to Porter, the intensity of competition is characterized the number of competitors in the industry and the competence level of them (Porter, 1998). The competition will become extremely intense if a large number of competitors have approximately equal size and power (Porter, 1998). Seller concentration means the number and size of firms competing within a market (Kenneth & Caroline, 1992). It can affect the intensity of price competition seriously (Porter, 1998). For example, if a large number of competitors with equal size, the competition is going to be rather intense. The most common measurement of the concentration ratio is the combined market share of leading producers (Kenneth & Caroline, 1992). In the market which is dominate by a single firm, the intensity of competition is low, and the dominant firm can price its products at discretion. In the market which is dominated by a small group of leading companies (an oligopoly), the price competition is restrained through “parallelism” of pricing decision or outright collusion (Walter & James, 2004). In the market which is dominated by two companies, the prices tend to be similar, and the forms of competition are mainly advertising, promotion and product development. Therefore, it will become more and more difficult to coordinate the price since the number of supplier increases. One firm will try to start the price cutting (Grant, 2010). However, Richard Schmalensee’s (1988) research shows that the actual effect of seller concentration to the price is not evident. Although by common observation, the exit of competitor reduces the intensity of price competition while the entry of new entrants stimulates it. “The relation, if any, between seller concentration and profitability is weak statistically and the estimated effect is usually small” (Richard Schmalensee, 1988).
Diversity of Competitors
The competitive rivalry is varied because of the diversification of the origins, objectives, costs and strategies (Porter, 1998). The intensity of price competition depends on the different strategies (Porter, 1998). For example, the rivalry will become more intense if the competitors are implementing the aggressive growth strategies. In case of the automobile industry, before the foreign automobile firms enter into the U.S. automobile market, the atmosphere of the competition among the U.S. automobile firms is cozy, since they have similar cost structures, strategies, and top management mindsets (Grant, 2010). Then the entry of newcomers such as Japanese automobile firms deeply affect the appearance of the competition because of the different national origins, costs, strategies, and management styles (Grant, 2010).

Product Differentiation
According to Porter (1998), the product differentiation and the switching costs are of great importance to the intensity of the competition. The more similar are the products offered by rivals, the more willing are the customers to switch among these products and the greater the firms tend to cut prices to promote sales. In the industry where the products offered by rivals are indistinguishable, the price competition is the sole form competition. In contrast, in the industry where products offered by rivals are highly differentiated, the price competition is weak, even though there are a large number of firms competing. (Porter, 1998)

Excess Capacity and Exit Barriers
The balance between demand and capacity influence the industry profitability dramatically (Bob, 2010). Normally the capacity of an industry increases with a high speed (Porter, 1998). The increase of capacity may cause surplus in the supply (Porter, 1998). The surplus may lead to the increase of competition intensity (Porter, 1998). On the other hand, the increase of competition intensity may also a structural problem
which is caused by overinvestment and declining demands (Charles & Gareth, 2009). In this case, the key issue is whether the excess capacity could leave the industry (Grant, 2010). The barriers could be dedicated assets, job protection, management loyalty, and so on. If the exit barrier is high, the company may choose to keep a presence in an industry in spite of the loss. For example, in the European and North America automobile industry, “excess capacities together with high exit barriers have devastated industry profitability” (Grant, 2010, P74).

*Cost Conditions: Scales of economies and the ratio of fixed to variable costs*

When excess capacity causes price competition, the key factor to determine to price trend is the cost structure (Philip & James, 2003). In the industry where fixed costs are high relative to variable costs, “the firms will take on marginal business at any price that covers variable costs”, and “the consequences for profitability can be disastrous” (Grant, 2010, P75). The scale economy is another factor to encourage firms to take an aggressive price competition in order to gain the cost benefits of greater volume (Grant, 2010).

Porter (2008) point out that the basis of competition affects industry profitability whatever the competition is on the same dimension. If all the rivals strive to satisfy the same needs, the ultimately result will be the “zero-sum competition” which means one firm’s profit is another one's loss. The price competition is destructive to the profitability and it causes the decrease of the level of quality and services. The competition based on differentiation makes firms to focus on different customer segments and to satisfy the different customers’ needs. It can increase the profitability and customer value. It also raises barriers to entry. (Porter, 2008)
2.2.4 The bargaining power of buyers

There are two types of markets the firms compete in: one is the market for inputs, where firms purchase raw materials, components and financial and labor services; the other one is the market for outputs, where firms sell their products to customers (Grant, 2010). The transactions create value for both buyers and sellers in both markets (Grant, 2010). How the value is distributed is determined by the relative economic power (Grant, 2010). In the outputs market firms face to the bargaining power of buyers while in the inputs market firms face the bargaining power of suppliers. The bargaining power of buyers describes how strong the customers’ attitude is (Porter, 1979). The stronger the buyers are the greater influence they have to an industry (Porter, 2008). If buyers bargaining power is high enough, they can force the price down, or negotiate for higher quality of product (Porter, 2008). The strength of the buyer group depends on two sets of factors: buyers’ price sensitivity and relative bargaining power (Porter, 2008).

*Buyers’ Price Sensitivity*

Buyers tend to be more price sensitive if the products offered by suppliers have large impact on the buyers cost structure; if the products of supplying industry are less differentiated; if the competition intensity among buyers is high; or the industry’s products to the quality of the buyer’s product or service are critical (Porter, 2004).

*Relative Bargaining Power*

There are mainly three factors influences the bargaining power of buyers relative to that of sellers.

Firstly, size and concentration of buyers relative to suppliers would influence the barging power. The buyer can get bigger bargaining power if the he number of buyers is small and its purchase is big. Second factor to influence the barging power is buyer’s
information. The buyer can get bigger bargaining power if suppliers’ prices and costs are better informed to buyers. So normally the firm constrains the customers’ bargaining power by keeping customers ignorant of relative prices. However, knowing prices is of little value if the customers do not know the quality of the product. Thirdly, the ability to integrate vertically could also impact the bargaining power. Buyers may threaten to produce product by themselves if their suppliers earn too much profit. If the firm wants to refuse to deal with one party, it needs to find another supplier or buyer to do it by itself. The vertical integration of firm can increase the firm’s bargaining power, which means decrease the supplier or buyer’s bargaining power. In real, the firm does not need to make the real backwards integration since a credible threat may suffice (Porter, 2004).

2.2.5 The bargaining power of suppliers

Supplier can exercise bargaining power by raising prices or reducing the quality of products (Porter, 1979). The materials such as labor and raw materials are necessities to all industries (Porter, 2008). Hence, firms are of dependent relationship to the suppliers (Porter, 2008). The suppliers can take more industry’s potential value if they are more powerful. This will make the firms’ profitability decrease if the affected firms cannot transfer the higher costs incurred to their customers (Porter, 1998).

The supplier group tends to be powerful if the supplier group consists of few companies, and they are more concentrated; the supplier group’s offering is unique or differentiated; the switching costs are high, or the supplier group can build up high switching costs; there is no substitute product from other suppliers in the industry; the supplier group has the ability to integrate, or has the ability to build a credible threat of integration; the supplier has good brand reputation among the buyers in an industry; or the firm is not the critical customers to the suppliers (Porter, 1998).
2.2.6 Criticism and the extending of the five forces model

Porter’s five forces model brings a broad view to identify how an industry is structured and how competition interaction is shaped within the industry. However, has been subject to two main attacks. First, some criticizes that its theoretical foundations is lack rigor since the framework use the structure-conduct-performance approach to industry organization (Grant, 2010). Porter’s assumes that that the buyers, competitors, and suppliers are unrelated and do not interact and collude. The assumption is dubious (Coyne & Subramaniam, 1996). Second, some notes its empirical weakness. They argue that industry environment is a relatively minor determinant of a firm’s profitability (Grant, 2010). The different Studies of the sources of interfirm profitability produce very different results (Grant, 2010). However, according to Grant’s defense, the industry analysis in general, and the Porter framework in particular, is a very useful tool to understand competition, predict profitability changes and guide strategy formulation.

The Porter framework identifies that the substitute product as a source of competition reduces the profitability of the firms within an industry. However, according to economic theory there are two types of relationship between different products: substitutes and complements (Mark, 2008). Complements, in terms of business strategy, are the goods or services which increase the demand of the particular product (isaca.org). Rather than substitutes which reduce the value of an industry’s product, the complements increase value (Burton, 1995). For example, “the value of the car depends on the availability of gasoline, insurance, and repair service (Grant, 2010, P97)”. Customers value the whole system instead of value product individually in the industry where products are close complements (Grant, 2010). Additionally, bargaining power is the key factor to determine how the value is shared between the producers of the different complementary products (Grant, 2010).
We perceive both strength and weaknesses of Porter five forces model. As we have clarified, our aim of using this framework is not to take a long-term focus on the industry’s evolution. We intend to describe the current appearance of the electric vehicle industry in China, and analyze the completion structure of the industry. We consider that Porter’s five forces model is the best one to fulfill the aim to us so far.

2.3 Five competitive forces in the Chinese automobile industry

2.3.1 Summary of the Chinese market characteristics

According to Luo (2002), there are five characteristics of Chinese market: Firstly, Legal
infrastructure is weak in emerging market generally compared with developed market. People and interpersonal networking usually play an important role in business activities rather than laws. Bribery and corruption are evidently pervasive. Secondly, Factor market is weak in emerging market. Factor market, such as labor, materials, capital, and information market are usually intervened by government. Thirdly, Emerging market normally has fast economic growth, but with uncertainty and volatilities. The growth is mainly driven by the strong market demand, industry deregulation, decentralization and privation of state-owned enterprises and foreign investment. Meanwhile the frequent government policy changes raise the risk of emerging market. Fourthly, the emerging market has strong market demand, especially from emerging middle-class consumers. The market is highly segmented and differentiated by consumption behaviors, income levels, social norms, and cultural traits. Increased individual incomes, previous stifled demand by government control, and large population are the driving forces of the strong market demand. Fifthly, MNCs can easily get first-mover advantages and opportunities in emerging markets, but MNCs always need to face competitions from other foreign companies, and local companies with high imitation ability.

Overall, the government plays an important role in shaping country competitiveness in emerging market. It intervene the micro and macro-economic environment. In the emerging market, such as China, building relationship with government is more important for MNCs compared with the developed market (Tim, 2000). The MNCs should cultivate a partner relationship with host government when they enter the emerging market.

2.3.2 Five competitive forces in the Chinese automobile industry

In the past twenty years, China automobile industry has a high speed development. Its
average annual growth rate is about 15%, which is ten times bigger than the world growth rate (Zhao, 2005). In the year 2006, the production of Chinese automobile is 7,280,000 unit and the sales is 7,220,000 unit. China has become the world third-largest car manufacturer, follows United States, Japan (Kwan Yu Him, 2007). With the increasing of Chinese consumers’ purchasing power, China is becoming the world’s largest potential market for automotive. China’s big automobile markets attracted many foreign automobile players, not only all of the world’s top automakers, but also almost all of the world’s top auto assembly and suppliers have invested in China.

Rivalry between established competitors
The automobile industry is seen as oligopoly, so that it can avoid price competition. There are both domestic and foreign automobile companies perform in Chinese automobile industry. It includes more than 130 car factories and more than 3,000 components suppliers (Zhao, 2005). The main form of cooperation between domestic and foreign automobile companies is alliances and joint ventures. The government encourages the big local automobile companies such as FAW, SAIC and DFM to pursue alliances with foreign automakers (Zhao, 2005). FDI plays an important role to accelerate the expansion of joint venture from the year 1992. Now all the world top ten automobile manufacturers have been set in China. The intensity of competition is increasing day by day (Zhao, 2005).

Threat of new entrants
The entry of automobile industry is difficult because it requires heavy investment. It has lots of barriers and it is normally concentrated. Brand and distribution network are the two most important barriers of automobile industry. It takes a long period and costs a lot to make customers accept a new brand. All the established car companies have built their own distribution channels. It’s very difficult for new entrants to use other’s distribution channels. Building own distribution channels will also take a long period
and need huge investment (Eszter, 2009).

**Threat of substitute**
Motorbike, bicycle, and public transport such as bus, train, and airplane could be seen as the substitutes. However, compared with automobile, these substitutes are less comfortable, less convenient, and lack of freedom. The increasing of oil price influences automobile industry. Some potential customer may give up buying car because of considering the oil price (Eszter, 2009).

**Bargaining power of suppliers**
In order to focus on vehicle service and reduce the cost of the increasing new modules, automakers are reducing their activities on the manufacturing and assembly. OEM is becoming a way that automakers cooperate with. Suppliers are more and more taking the response of design, engineering, manufacturing and assembly. So suppliers are becoming more and more important to automobile industry (Francisco, 2002). In China, as the official government statistic shows, more than 60% of the automobile suppliers are centralized in these 5 provinces or cities: Hubei, Zhejiang, Hebei, Shanghai and Tianjin. Almost all the world top automobile suppliers have established in Chinese market (Zhao, 2005). Besides, the steel industry as a relative industry of automobile is concentrated in Shanghai, Anhui, Hubei, Sichuan and Yunnan, so almost half of the motor is produced and supplied in these areas. To sum up, the bargaining power of suppliers in the automobile industry is relatively big as they are high technical dependent.

**Bargaining power of customers**
In China the individual consumer’s bargaining power is relatively low while the big leasing firms or car-rental firms have bigger bargaining power (Eszter, 2009). Customers are becoming more and more price sensitive and in some cases they prefer to
buy secondhand car rather than new car (Eszter, 2009). In order to fulfill customer’s expectation car company needs to be more efficient on distribution channels and service (Eszter, 2009).

2.4 Porter’s generic strategy

According to Porter (1998), a company can reach a higher rate of profit (or potential profit) than a competitor in one or two ways: firstly it can provide an identical product or service at a lower cost, secondly it could provide a product or service which is differentiated in such a way that the customer is wish to pay an extra price that exceeds the additional cost of the differentiation. So that, two types of competitive advantages were coming out: cost advantage, which the company supplies similar product at the low cost; and differentiation advantage, which gained the price premium form unique product (Porter, 1980).

Then, there are two fundamentally different ways to business strategy coming out from the two sources of competitive advantages. A company which is competing on differentiation is distinguished from a company which is competing on the low cost in terms of marketing position, resources and capabilities, and organizational characteristics (Vadim, 2011). According to Michael Porter (1980), three generic strategies had been defined through these two types of competitive advantages: cost leadership, differentiation, and focus. And Porter also pointed out; cost leadership and differentiation are the mutually exclusive strategies. If a firm want to purser both will be “stuck in the middle” and the company which stuck in the middle would almost guarantee low profit.
2.4.1 Cost advantage

In the past, strategic management emphasized cost advantage as the primary basis for competitive advantage in an industry. This phenomenon reflected that the traditional companies competitive through price as a principle method, and price competitiveness require cost efficiency. Then, in the resent years, firms have been forced to consider more broadly and radically about cost efficiency. The most changes in cost advantage have happened through the result of global differenced in labor costs, exchange rate shift, and new technologies. The new methods to response these changes to reduce the cost is consist of outsourcing, process re-engineering and organizational delayering. (Michael & James, 1994)

There are seven significant determinants of a company’s unit costs relative to its competitors, and these factors also can be seen as cost drivers (Porter, 1998) Through analyzing each of these different cost drivers in relation to a particular company, we can analyzing a company’s cost position relative to its rivals and diagnose the sources of inefficiency, and give out the recommendations to the company on how to improve its cost efficiency (Porter, 1998).

Firstly, the economics of scale is the advantage of big companies in most manufacturing and service industries. The scale economic result in lower unit costs, whatever balance increased in the amount of input employed in a production process (Grant, 2010). And the scale economics arise from technical input-output relationship, indivisibilities, and specialization.

The second driver is the economics of learning. The experience curve is based generally on the learning-by-doing on the part of individuals and organizations. If the product or process is more complex, the potential of learning is greater. And learning occurs on
two levels; one is the individual level through improvement in dexterity and problem solving, another is group level through the development and refinement of organizational routines. (Porter, 1998)

Thirdly, the new process technology may radically increase costs. The business process re-engineering is a new management tool which redesign of operational processes could achieve great efficiency gains stimulated a surge of interest. Michael Hammer and James Champy (1994) argues ”re-engineering gurus the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical contemporary measures of performance, such as cost, quality, service, and speed. ”

Fourthly, the design of manufacture which means designing products for ease of production rather than simply for functionality and esthetics can offer significant cost saving, especially when link to the introduction of new process technology (Grant, 2010).

Fifthly, equipment capacity is more or less fixed and changed in output because of capacity utilization to rise or fall. Whatever the underutilization or overutilization would create inefficiencies (Grant, 2010). Operating under normal capacity raises unit cost as a result of fixed costs must be spread over fewer units of production; and the overutilization increased unit cost because of overtime pay, premiums for night and weekend shifts, increased weakness and higher maintenance.

Sixthly, the companies in one industry do not need to invest the same price for identical input, because of the differences of location in input prices, ownership of low-cost sources of supply, and nonunion labor and bargaining power (Gerry, Kevan & Richard, 2008). The prices of input may be different from each area, especially different in wage rates from one country to another. The company could reach the significant cost
advantage through the ownership or access to low-cost sources especially in the raw material-intensive industries. Normally, companies face a lower productivity because of the labor unions asking for higher lever salary and benefit and work restrictions. And different bargaining power between companies in one industry would be important sources of cost advantages, especially in the industry which brought-in products are major cost item.

Lastly, residual efficiencies relate to the extent to which the firm reaches its efficiency frontier of best operation. It depends on the company’s ability of remove “organizational slack” or “X-inefficiency” surplus costs that keeps the firm from maximum-efficiency operation (Grant, 2010). But normally, reducing extra cost is difficult; it may take a shock to a firm’s very survival to supply the promotion for seeking institutionalized inefficiencies.

### 2.4.2 Differentiation advantage

According to porter (1998), the differentiation of a product or service is partly depends on its physical features. For the product, these features are technically simple, that satisfy foundational needs, or must meet strict technical standards, differentiation opportunities are restricted by technical and market factors. Except these restrictions, the potential of product for differentiation is limited by the boundaries of human imagination. It was to say, the differentiations involves every aspect of the way in which a firm relates to its consumers, and it includes all activities that a company related to its consumers and also establishes the identity and culture in a company, such as the high quality from the raw materials, convenient deliver system, and the superior product design (Porter, 1998).

According to Grant (2010), the differentiation opportunities could be distinguished in to
tangible and intangible respects. The tangible differentiation is regarding to the visible features of a product or a service that are relevant to consumers’ preferences and choice processes, including size, shape, color, weight, design, material, technology, and also the performance of the product, such as taste, speed, durability, and safety. Because that consumer perceived value in a product or service does not depend exclusively on the tangible aspects of offering, the opportunities of intangible differentiation was raised. The expectation for status, exclusivity, individuality, and security are powerful motivational forces in choices regarding to most consumer goods.

There two aspects to analyzing differentiation, they are matching consumers’ demand and the company’s capability to supply side. In the demand side, the key to successful differentiation is to understanding consumers, and what is consumers’ need (Grant, 2010). And understanding consumers’ needs requires the analysis of multiple attributes. There are several techniques of analysis consumer preferences in relation to product attributes. These include multidimensional scaling, conjoint analysis, hedonic price analysis and value curve analysis, could guide decision about the positioning of new products, repositioning of existing product, and prices.

Creating differentiation advantage not only need to analysis the customer’s needs, but also depend on a company’s ability to provide the differentiation. To analysis the potential of a company to offer the differentiation, the activities that company performs and the resources which company has to access to should be examined. It includes the uniqueness of the product, the integrity of product, the signaling and reputation of the product, and the strong brand.

Creating uniqueness in company’s offerings to customers can arise in virtually everything that it does. According to Michael Porter, the uniqueness could be driving by complementary services, technology embodied, the quality, the skill and experience, etc.
(Porter, 1985). The product integrity includes internal integrity, which concerning consistency between the function and structure of the product, the parts fit well, components match and work well together, layout achieves maximum space efficiency; And the external integrity, which could measure who well a product’s function, structure, and semantics fit the customer’s objective, values, production system, lifestyle, use pattern, an self-identity (Clark, 1991). The signal of product quality consists of brand names, warranties, money-back guarantees, sponsorship of sports and cultural events and a carefully designed retail environment. As the brand is valuable asset and could distinguish with the poor quality, supporting by brand names is significant to companies as a signals of quality and consistency. The brand provides a guarantee for legally, quality, customer satisfaction, lifestyle, etc. in the recent years, the new method the develop brand is transferred from product feature to more brand experience, tribal identity, shared values, and emotional dialogue.

3. Methodology

3.1 Case selection

We chose FAW Electric Vehicle Company as our case to study its strategy, and the status quo and development tendencies of the Chinese electric vehicle industry. As we mentioned before, our research purpose is to study the electric vehicle company’s strategic performance in the Chinese electric vehicle market, analyze its strategic plan and implementation according to the theory, analyze the government policy and its impact on the industry and company, and give recommendations to the company about the strategy plan and implementation. The reason why we chose FAW as our case as follows: firstly, FAW is the earliest automobile manufacturers in China and therefore has a long history in the Chinese market. During the long period, FAW has established a
good relationship with the Chinese government. The relationship is of the specific meaning in Chinese context. Besides, FAW is a state-owned enterprise. The government policies have a significant influence on FAW. So investigating FAW Electric Vehicle Company’s strategy and development can help us to analyze the government policies’ effect. Secondly, the current development of the electric vehicle is one of the directions of the national industrial strategy. Almost all the major Chinese automobile companies have entered into the electric vehicle industry. At present, FAW is one of the “Big Four” Chinese automobile companies. It is also one of the first movers started to plan its strategy about developing electric vehicle in the 1990s. It currently has commercial production of electric cars and buses, and it has the ability to mass produce electric vehicles. It also has an R&D sectors and the complete distribution channels for electric vehicles. According to (Li, 2011), the Chinese electric vehicle industry is mainly dominated by large companies. FAW as one of the “Big Four” has many common characteristics with other large companies, so the study of FAW Electric Vehicle Company could help us to research the Chinese electric vehicle industry. We obtained the permission to interview the general manager, the marketing manager, and the purchasing manager of FAW Electric Vehicle Company. For the above reasons we think that we can achieve the research purpose through choosing FAW as our case.

Our purpose is to study both the external environment and internal resources of FAW, and analyze the influence of the five-forces and the government policy on FAW and the Chinese electric vehicle industry. We will also study FAW’s existing resources and capabilities to find out how it should design its strategy in the emerging electric vehicle industry with a focus on the Chinese context. Nowadays, almost all of the automotive companies are trying to seek the benefit from the new energy vehicles market, and FAW also wants to acquire the profit through capturing the new market. These are the main questions we want to study in the follow paper.
3.2 Data Gathering

The Data for this research involved use of both primary data and secondary data.

Primary data is the data that forms new data for a specific purpose (Hussey & Hussey, 1997). The primary data used in this research was collected through three interviews that were carried out with managers in FAW. The three managers are Chen, the general manager of FAW Electric Vehicle Company; Leng, the marketing manager of FAW Electric Vehicle Company; and Xu, the purchasing manager of FAW Electric Vehicle Company. The interviews were carried out via telephone by the authors of this study.

Since the interviewees who are going to answer our questions are Chinese, we will translate and summarize our interview questions and answers into Chinese. For convenience, the communication with our interviewee is also performed in Chinese. Later, we will translate the interview from Chinese to English in the analysis empirical study part, and will also add the questions in the appendix. Because of the linguistic diversity, we will strictly take care of the word’s usage in our translation, and make sure it is possible to minimize the potential ambiguities and generate a qualified final English version of interview questions.

The secondary data is data previously written by researchers and which already exists (Hussey, 1997). The secondary data is often of good quality and the source of secondary data is varied. For this study, the secondary data will be collected through various means, such as, books, research reports, scientific articles, journals, and web sites, which are relevant to the emerging electric car market, the FAW Company, and the government policies of electric vehicle. Books have the basic and detailed study information while the research reports and scientific articles can give us new ideas, and the journals and web sites can offer us the latest information. We used books from the library of
Linkoping University and searched for scientific articles through Linkoping University’s database, Swedish database “uppsatser.se”, and Google Scholar. Data and information from the FAW homepage, is also consider as a minor source in our work. And we also took the policy from the government website to analyze the chapter of the influence of the Chinese policy part. Moreover, there are also some existing interviews, about the electric vehicle industry and the policies in Chinese, already done by some persons and organizations, we will use this as secondary data to analyze and support our opinion. And we also used the useful survey information which comes from the standard Chinese journals to support our analysis.

3.3 A Qualitative approach

According to Denzin and Lincoln (2005), qualitative research is a situated activity that finds out the observer in the world. “The qualitative approach includes a series of interpretive, material practices that make the world visible. These practices transform the world, and turn the world into a series of representations, consist of field notes, interviews, conversations, photographs, recordings, and memos to the self, at this level, qualitative research involves an interpretive, naturalistic approach to the world.”(Denzin & Lincoln, 2005) In other words, qualitative researchers study things in their natural setting, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them. (Denzin & Lincoln, 2005)

We wish to create a theoretical model of possible barriers and opportunities perceived by the electric car of FAW, specifically a newly product that, in the future, help the FAW Company, other local electric vehicle entrepreneurs and may be some foreign electric vehicle companies who wish to enter and establish themselves in the Chinese emerging market.
3.4 Interviews

Interviews can be distinguished as unstructured interview and the semi-structured interviews. In an unstructured interview, there is no question prepared. Instead of that, the interviewer should have a clear understanding of the subject to conduct a fruitful discussion with the interviewee. The purpose of the unstructured interview is to allow the interviewee to speak freely about events, behavior and beliefs. (Saunders, 2003) The strength of the unstructured interviews is the most complete freedom they provide in terms of content and structure (Kumar, 2005).

In the first beginning, we contacted to the managers of FAW Company through e-mail. After we got the permission, both of the interviewees and us decided to perform the interview through the telephone and the internet video equipment such as Skype and MSN. Considering the long distance from Sweden to China, telephone interview would be the most cost-effective way for us. And telephone interview is also time-effective, normally about 3 hours to 4 hours. It was also preferred by our interviewees who had very busy schedule. Through telephone interview we can avoid the misunderstanding as the questions and answers could be further explained. Same times we interviewed one person twice or more, because we got some new questions to ask. And we also preferred to use the internet video equipment to interview the interviewees if they agree, because that we could see each other’s face to gauge the response, and of course, the free price was another attractive factor.

The formal interviews in this study consist of two stages. In the first stage, we interviewed two interviewees; one is the general manager of FAW Company, the other is the marketing manager of FAW Company in April 2011. At this stage, we used the unstructured interviews with the general manager of FAW; we did not ask specific and detailed questions, but the clear subject about the situation of electric vehicles in FAW
Company. This aims to have a basic picture about the new energy vehicle in FAW.

And next, semi-structured interviews were used with the managers i.e. the general manager and the marketing manager. This was because by then we had a clearer view about how we wanted to conduct the study and what information was needed. And in this process, we were able to gather more information on the subject and build up an idea of what we wish them to clarify for us. The semi-structured interviews depend on an interview guide that includes questions, possible prompts, and notes to the interviewer about how to solve some responses. (Sankar & Jones, 2008)

In the second stage, we finally got the permission to interview the purchasing manager of FAW Company in May 2011. The form of interview with purchasing manager is general the same with what we did with the marketing manager, but we discussed different questions in the purchasing area.

When making the interview guide, we formulated the study research questions carefully and detailed, and also made the review of the literature about our topic in order to see how the others did similar interviews. Working carefully between the previous research that was been done before, and the draft of interview guide which we were doing helped us to find a clear aim and brings out the possible questions to fulfill our interview guide. In the semi-structured interview part, our discussion is directed by a theme of the electric vehicle in FAW, and all of the questions were covered in the interview. The pre-prepared questions which we already have were used as a guide, and some of them would be changed, added or removed during the interview processes.

In most Chinese companies, especially in the large Chinese state-owned companies, the form of decision making is top-down (Xu, 2006). In other words, the strategies of the FAW Company, which is a Chinese state-owned company, are decided by the top
managers and implement by the middle managers, normally the employees have no opportunities to participate in the decision making process. Because of this, when we choose the interviewees, we focused on the top managers and the middle-level managers of FAW Company. And try to analyze the problems through their views.

We will analyze the FAW Electric Vehicle Company’s external and internal environment, especially the relationship with the competitors, government, consumers and suppliers. So in order to collect the useful information and get the useful answers for our research questions, we interviewed three managers who are in charge of these areas. They are the general manager, the marketing manager, and the purchasing manager of FAW Electric Vehicle Company, which we mentioned above. And we also wanted interview the managers who responsible in the financial department and R&D department of FAW. But, unfortunately, because of these two managers’ tough schedule, we did not have the permission to interview them until now. In these fields, we can only using the information which comes from other department managers and the general manager, so that might be the limitation of our study.

4. Empirical study

We have interviewed FAW Electric Vehicle Company’s general manager, Mr. Chen, FAW Electric Vehicle Company’s marketing manager, Mr. Leng, and FAW Electric Vehicle Company’s purchasing manager, Mr. Xu. In this section we will present the relevant information which is collected from the three interviews, and the useful information that is offered by our interviewees.
4.1 Empirical data of FAW electric vehicles

4.1.1 Company background

FAW Group Corporation is a Chinese state-owned enterprise which was founded in the year 1953. It is the first automobile factory in China and its first product, the 4-ton Jie Fang CA10 medium duty truck, is Chinese first vehicle which was regarded as a symbol of industrial pride to China. In the year 1958 FAW produced the Hong Qi luxury sedan which is the first Chinese passenger car. Now FAW has 28 wholly owned subsidiaries and controls interest in 18 partially owned subsidiaries, which employs 133,000 people in the world and sells its products in over 70 countries. FAW's products include light, medium, and heavy-duty trucks, automobiles, municipal buses and luxury tourist coaches, custom bus chassis, and mini-vehicles, with total sales of more than 7,000,000 vehicles worldwide. FAW is the Chinese oldest and largest vehicle manufacturer (one of the “Big Four” Chinese automakers) and the lead pioneer in the Chinese automobile industry. (Faw.com)

4.1.2 The development of FAW electric vehicles

Compared with other “Big Four” Chinese automakers, FAW Electric Vehicle Company are not the earliest player in the Chinese electric vehicle industry, but it develops fast. FAW began to develop the electric car based on its “Hongqi” model in the year 1998. In recent years, since FAW invest heavily on the electric vehicle projects, FAW electric vehicle has become the pioneer of the Chinese electric vehicle industry with fast development speed.

“In the year 2010 we had a 1,900,000,000 RMB R&D budget on electric
vehicle while in the year 2011 the budget increases to 2,400,000,000 RMB. In the year 2011, FAW sets up Electric Vehicles Company as one of FAW’s subsidiaries.” (Quotation from interview with FAW Electric Vehicle Company’s general manager April 2011, translated from Chinese)

FAW is a member of the ‘National Electric Automotive Industry T10 Alliance’. The FAW Electric Vehicles Company has completed R&D, manufacturing, sales, maintenance and technical service sectors at present. Now FAW has developed various electric vehicle products.

“Our electric vehicle products include municipal bus such as Jiefang 6110 HEV hybrid electric municipal bus, which is the fruit of the ‘National 863 Key Projects’; Hongqi CA7180AE electric car; Xiali electric car; Besturn B70 hybrid electric car; Besturn B50 hybrid electric car; Besturn B50 pure electric car; Weizhi pure electric car; Senya pure electric car; and pure electric tourist coach.” (Quotation from interview with FAW Electric Vehicle Company’s marketing manager April 2011, translated from Chinese)

FAW has the ability of mass production of these products, and FAW Electric Vehicle Company has the ability to research, develop and produce the key components of the electric vehicles.

“We own the technology of DEUTZ electric EUR03 engine, automatic mechanical transmission, AC asynchronous induction motor, and Nickel-hydrogen battery for the electric municipal bus. They are all FAW Company’s intelligent property.” (Quotation from interview with FAW Electric Vehicle Company’s general manager April 2011, translated from Chinese)
Moreover, FAW Electric Vehicle Company’s products have good performance, and they are accepted by a large amount of consumers in the market.

“Besturn B50 pure electric car has the leading position in the commercial mass production pure electric car market, its maximum speed is 147 km/h, and the maximum driving distance with one single charge is 136 km. Its battery power is 42/90 (Rated / Peak) (KW), the battery capacity is 60 Ah and it can be recharged more than 2,000 times.” (Quotation from interview with FAW Electric Vehicle Company’s marketing manager April 2011, translated from Chinese)

In the future plan, FAW will continue investing on the R&D of electric vehicle in order to keep its leading position in the Chinese electric vehicle market.

“In the next five-year plan, FAW will build 6 electric vehicle technology platforms and production platforms. We will develop more than 10 models of commercial mass production pure electric cars, and will achieve 60 breakthroughs of the core electric vehicle technology.” (Quotation from interview with FAW Electric Vehicle Company’s general manager April 2011, translated from Chinese)

### 4.1.3 FAW’s strategy in the electric vehicle industry

In the following part we will summarize the information about FAW’s strategy in the electric vehicle industry based on our interviews.
Corporation’s management concept

FAW attaches great importance to understand consumers’ needs. It also focuses on the ability of quickly bringing new and innovative products to market.

“We try to deliver the highest quality products and services which reflect customer’s expectations, in order to develop our brands. We also engage in mutually beneficial long-term joint venture cooperation with solid and respected global industry leaders. We strive to reduce and simplify our management processes in order to achieve optimized efficiency.” (Quotation from interview with FAW Electric Vehicle Company’s general manager April 2011, translated from Chinese)

Cost advantage and differentiation strategy

In the current stage, it is difficult for FAW Electric Vehicle Company to run a cost advantage strategy since compared with the demand of traditional vehicle, the demand of electric vehicle is small. It is difficult for the electric vehicle company to achieve large-scale production. This means that it is hard to reduce the cost to achieve cost advantages. However, FAW Electric Vehicle Company can share the distribution channels and some platforms of the spare parts with FAW traditional vehicle, so FAW still can get cost advantage in marketing and service sectors now and in the future.

“In the next 10 years after FAW electric vehicle achieves large-scale production, and based on FAW’s existing strong vendor platforms and marketing platform, FAW electric vehicle can implement the overall cost advantage strategy.” (Quotation from interview with FAW Electric Vehicle Company’s general manager April 2011, translated from Chinese)

According to our respondent, FAW Electric Vehicle Company’s general manager’s
description, currently FAW electric vehicle runs a differentiation strategy. FAW has big
capital scale and it almost owns all the advanced electric vehicle technology. FAW
invests heavily on the electric vehicle projects, which offers FAW Electric Vehicle
Company strong capability on R&D. Besides, FAW wins the national electric vehicle
projects, this makes FAW get financial and policy support from the government.
Moreover, compared with other Chinese automakers, FAW has a long history of vehicle
design and product engineering, so FAW has a lot of experiences in this area. Lastly,
nearly 60 years’ experience of automotive manufacturing enables FAW to establish
powerful relationship with suppliers, collaborations and vendors.

“Based on our advantages, FAW has built the competitive advantage
through differentiation strategy.” (Quotation from interview with FAW
Electric Vehicle Company’s general manager April 2011, translated from
Chinese)

Marketing strategy
Our respondent, FAW Electric Vehicle Company’s marketing manager mentioned that,
the target customer group in this stage is mainly government procurement of urban
public transport. In the near future, the second family car will become one of the target
segment markets.

“FAW has signed a contract with Changchun government to supply 1000
FAW electric vehicles as public transport vehicles.” (Quotation from
interview with FAW Electric Vehicle Company’s marketing manager April
2011, translated from Chinese)

FAW uses the cost-plus pricing, and the company also considers about competitors’
price when it makes the price. Government subsidies are also of great importance to the
pricing. Besides, customer engagement is an essential part of FAW’s marketing.

“FAW held the Electric Vehicle Test Drive Activity in all Chinese big cities. FAW provided model electric vehicles to the 2008 Beijing Olympic Games and Shanghai 2010 World Expo. By these activities FAW enhances the users’ experience of FAW electric vehicles, deepening customers’ understanding of the brand.” (Quotation from interview with FAW Electric Vehicle Company’s marketing manager April 2011, translated from Chinese)

A good relationship with government
FAW has a good relationship with government. The relationship is of specific meaning in Chinese context. FAW can get financial and policy support from government easier than other automakers.

“FAW is the state-owned enterprise and it is the first automaker in China. In the past 60 years FAW undertook a large number of tasks given by the government, and successfully achieved a big amount of breakthrough in the Chinese vehicle industry. FAW and the government have built strong trust in the cooperation. This can explain why in China FAW is also famous for its special nickname ‘the Republic’s eldest son’.” (Quotation from interview with FAW Electric Vehicle Company’s general manager April 2011, translated from Chinese)

However, “every coin has two sides”. FAW faces the problem of company system and structure.

“While the rest three of the “Big Four” Chinese automakers has clear ownership, our ownership is not so clear and this causes a series of
problems such as incentives mechanism problem and internal control problem. These problems may restrict the FAW’s development.” (Quotation from interview with FAW Electric Vehicle Company’s general manager April 2011, translated from Chinese)

4.2 Empirical Data of Five forces framework from interview

We interviewed with FAW Electric Vehicle Company’s general manager, Mr. Chen, FAW Electric Vehicle Company’s marketing manager, Mr. Leng, and FAW Electric Vehicle Company’s purchasing manager, Mr. Xu. In the following part we are going to summarize the most relevant and useful information about the Five forces from the interviews.

4.2.1 Established competitors

According to FAW Electric Vehicle Company’s general manager’s understanding, the competitive intensity of the Chinese industry is low, but FAW Electric Vehicle Company faces the challenge from the other three big Chinese companies.

“There are totally 54 electric vehicle companies with 190 models in the electric vehicle market. The main players in the Chinese electric vehicle industry are Shanghai Automotive Industry Corporation (SAIC), Dongfeng Motor Corporation (DFM), China Changan Automobile Group (CCAG), Beijing Automobile Works Company (BAW), Geely Automobile Corporation (Geely), Chery Automobile Company (Chery), BYD Company (BYD) etc. The former three are seen as the main competitors of FAW.” (Quotation from
SAIC is one of the “Big Four” Chinese automakers. By the end of the year 2009, SAIC had 6,550,000,000 shares capital stock totally, had value of 138,160,000,000 RMB total assets with over 65,000 employees. In the year 2009 SAIC sold over 2,725,000 vehicles, this makes its leading position among the major auto groups in China. SAIC owns two subsidiaries, Shanghai Fuel Cell Vehicle Powertrain Company and Shanghai Shenwo Electric Bus Company. SAIC has 100% ownership of these two companies; include the intellectual property rights of the technology. SAIC has three independent brands of electric vehicles which represent three technical development directions; “Shanghai” pure electric cars, “Shanghai” fuel cell car, and “Rongwei” 750 Hybrid electric cars.

DFM is also one of the “Big Four” Chinese automakers. In 2010, it sells 2,720,000 units includes 1,720,000 passenger vehicles, which makes it as the second most-productive Chinese vehicle manufactory. DFM is one of the earliest companies entering in the electric vehicle industry in China. In the year 1996, DFM launched a prototype electric car. In the year 2001, DFM established its one subsidiary, the DFM Electric Vehicle Company. DFM has the only one national level experimental base for the industrialization of electric vehicles. It has following products: Fukang pure electric car which is the first of government ordered commercial electric car, Chutian Yihao fuel cell electric vehicle, EQ7200HEV hybrid electric car, EQ61100HEV hybrid electric bus.

CCAG is the last one of the “Big Four” Chinese automakers. In the year 2008, it established its one subsidiary, CCAG Electric Motor Company. It owns more than 300 patents of electric car, and one self-developed hybrid vehicle production line. It develops and produces Lingyang hybrid electric car.
4.2.2 New entrants

“We think that the threat of new entrants in the electric vehicle industry is on the medium level.” (Quotation from interview with FAW Electric Vehicle Company’s general manager April 2011, translated from Chinese)

The barriers of economies of scale and access to distribution channels are high while the governmental and legal barrier is low.

“On one hand, the economies of scale in the automobile industry play an important role. The existing players obviously have advantages of scale. Besides, the established companies have their own distribution channels. In addition, the electric vehicle industry has a high capital requirement of up-front construction and R&D investment. On the other hand, the government support such as financial subsidies and tax incentives encourage new entrants to enter in the industry. Additionally, the core technologies are similar and are easy to buy from foreign companies.” (Quotation from interview with FAW Electric Vehicle Company’s general manager April 2011, translated from Chinese)

4.2.3 Substitutes

The traditional vehicle is the main substitute to the electric vehicle. Compared with electric vehicle, traditional vehicle has mature technology and low price.

“In China, the demand to traditional vehicle is still in a period of rapid growth, consumers' attention to electric cars is low.” (Quotation from interview with FAW Electric Vehicle Company’s marketing manager April
Compared with the traditional vehicle, electric vehicle has mainly three problems. Firstly, it is lack of facilities such as charging station. Secondly, its driving habits and driving experience are different from traditional vehicles.

“The general electric vehicle driving distance with single charge is about 100km to 300km. considering about the driving habits of long-distance drive, most consumers prefer to buy traditional car rather than buy electric car.” (Quotation from interview with FAW Electric Vehicle Company’s marketing manager April 2011, translated from Chinese)

Thirdly, the cost of the electric vehicle is much higher than traditional vehicle.

“The proportion of battery cost of FAW electric car is about 33% to 50%, which is about 15,000,000 RMB. This makes the electric vehicle has price disadvantage comparing with the similar model of traditional vehicle.” (Quotation from interview with FAW Electric Vehicle Company’s marketing manager April 2011, translated from Chinese)

### 4.2.4 Buyers

According to our respondent, FAW Electric Vehicle Company’s marketing manager, the bargaining power of buyers is quite strong in the electric vehicle industry. There are mainly two reasons.

“Firstly, individual customer’s consumption takes a big share of enterprise total sales, so the loss of a single customer will cause significant drop of
sales and profits. Secondly, price is one of the most important factors when customer choose electric vehicle from different brands. If we make a high price of our electric car, customers will easily choose another brand. So in the electric vehicle industry, customers have a dominant position in the game.” (Quotation from interview with FAW Electric Vehicle Company’s marketing manager April 2011, translated from Chinese)

4.2.5 Suppliers

“We think that the bargaining power of suppliers is on the medium and low level in the Chinese electric vehicle industry.” (Quotation from interview with FAW Electric Vehicle Company’s purchasing manager May 2011, translated from Chinese)

Our interviewee talked about the changing role of FAW and its suppliers.

“In order to focus more on the services and to deal with the enormous costs of new modules and systems, we are becoming less participated in manufacturing and assembly. Our suppliers are more and more responsible for the developing, manufacturing, and assembling.” (Quotation from interview with FAW Electric Vehicle Company’s purchasing manager May 2011, translated from Chinese)

However, the suppliers can be divided into two categories. Different supplier has different bargaining power.

“To the component suppliers of electric vehicle which are same as the component suppliers of traditional vehicle, such as automotive window
glass supplier, we have a stable and long-term relationship with them. To the component suppliers of electric vehicle which are different from the component suppliers of traditional vehicle, such as the electric engine suppliers and electric vehicle technology suppliers, because the number of suppliers is big, and we have strong ability of integration, their bargaining power is relatively weak.” (Quotation from interview with FAW Electric Vehicle Company’s purchasing manager May 2011, translated from Chinese)

4.2.6 Complements

The charging facilities are the main and most important complements to the electric vehicle industry in current stage. At present stage, the lack of charging facilities has a negative effect on the development of electric vehicles.

“Our there are only 76 charging stations in 41 big cities, which is significantly less than the demand. The largest charging station only allows 18 electric vehicles to enter. Besides, building charging facilities in the housing estate and residential district will definitely bring inconvenience to the residents, such as noise and occupied areas. So residents may not support the construction of charging facilities.” (Quotation from interview with FAW Electric Vehicle Company’s general manager April 2011, translated from Chinese)

However, the situation in the near future is optimistic. Government has a positive plan of charging station construction.

“According to the report, government will invest 32,300,000,000 RMB to
build 10,075 charging stations and invest 12,700,000,000 RMB to build 506,209 charging piles. This is good news to us.” (Quotation from interview with FAW Electric Vehicle Company’s general manager April 2011, translated from Chinese)

4.3 Description of the Chinese electric vehicle industry

In this section we are going to describe the Chinese electric vehicle industry according to the information which is from our interviews and second hand interviews and surveys.

4.3.1 The development of the Chinese electric vehicle industry

The electric vehicle development just began in the past twenty years and it is still in the primary stage, said by our respondent Mr. Chen. From the year 1991 to 1995, the period of the National Eighth Five-Year Plan, government firstly proposed to develop electric vehicles. Then, when it comes to the period of the National Tenth Five-Year Plan and the National Eleventh Five-Year Plan, from the year 2001 to 2010, the development of electric vehicles had been involved in the National 863 Plan. The electric vehicle industry developed fast. During this period, the development of the electric vehicle industry was supported by the government’s financial investment. Government focused on three categories of electric vehicles, which are hybrid vehicles, pure eclectic vehicles and fuel cell vehicles. The core technology is concentrated on the vehicle control system, motor drive system, fuel cells and power battery. Until the year 2010, there are totally 1,731 patents had been acquired in the area of electric vehicles, and it consists of 840 invention patents (Zhang, 2010). Ni-MH battery Lithium ion battery technology developed quickly and independently in this period. It was the first time that the electric vehicle technology was used in the urban transport buses. Moreover, the Chinese
electric vehicle companies started to export the pure electric vehicles to European countries and U.S. (Lv, 2010)

4.3.2 Review of the promotion and practice of electric vehicles in China

From the year 2003, the Electric Vehicles Demonstration Plan runs in 7 cities in China, these cities involved Beijing, Tianjin, Wuhan, Shenzhen etc. There are more than 500 categories of electric vehicles had been tested, the operating distance is over 1,500 km in total (auto.sina.com). During the Beijing 2008 Olympic Games, there are 595 electric vehicles used in the first-tier cities in China. The total operating distance is over 3,700,000, transporting more than 4,400,000 passengers (auto.sina.com). The National Energy-saving and Electric Vehicle Demonstration and Promotion Project started in the beginning of the year 2009. In this project, the special financial subsidies about the electric vehicle were published. The main aim of the subsidies is to support the demonstration and to extend the using of electric vehicle in public service transportation such as taxi, bus, medical transport and postal transportation. This project involved about 10 cities, such as Beijing, Shanghai, Chongqing, and so on. Now government is planning to extend this project to 60,000 unit electric vehicles in the following three years. If this plan is implemented, the input of sale will be increased to about 30,000,000,000.

4.3.3 The Chinese electric vehicle industry alliance

At the national level

The national electric vehicle industry alliance which is called “T10” was built on 28th September, 2008. T10 is composed by the top 10 Chinese vehicle companies. It includes SAIC, DFM, CCAG, GAC, BAW, FAW, Brilliance, Chery, Heavy Duty Truck, and JAC. In order to promote the development of electric vehicles, T10 hold an important meeting
on 11th July, 2009. In this meeting, all the ten companies declared that they will do the research and development of the electric vehicle technology together, and will share the resources. Mr. Dong, the Executive Vice President and Secretary-General of China Automobile Association, said that “the T10 companies will not only do the joint R&D, but will also establish the standard working group to formulate both the electric vehicle standard and components standard” (Yang, 2009).

At the local level
In order to develop the local electric vehicles, a lot of small local alliances have been built in different cities and provinces in China. Some of the alliance even appeared earlier than T10 alliance. For example, the electric vehicle industry alliance in Jilin province (where FAW is located) was built in May 2010. This local alliance consists of more than 20 electric vehicle and high-technology companies. FAW plays an important role in this alliance. The aim of the Jilin alliance is to integrate the recourses of the electric vehicle industry in Jilin province. Jilin government also invests 15,000,000,000 RMB to support the development of electric vehicle in Jilin province. For example, in addition to state subsidies, customer who purchases one electric car can get more than 20,000 RMB as the local subsidy from Jilin local government. Besides, local government also plans to invest on building more than 160 charging stations and more than 300 charging piles in Jilin province. Since the development of the local industry alliance in Jilin province, Jilin became one of the most developed areas of producing electric vehicle in China.

4.3.4 Government future plan of the infrastructure construction

“During the Twelfth Five-Year Plan, the number of the cities of the Electric Vehicles Demonstration Plan will increase to 25. By the year 2015, government will build around 2000 charging stations and 400,000 charge
“piles in these 25 cities.” said by Mr. Ouyang, the director of the national automotive safety and energy laboratory, Tsinghua University (Economic information daily, 2010).

According to the National Grid Company’s plan, from the year 2011 to 2015, National Grid Company will invest 32,000,000,000 RMB to build 4000 charge stations. By the year 2020, the number of charge station will increase to 10,000 (Xing, 2010).

4.4. Description of the national electric vehicle industry policies

“Developing the electric vehicles represents the direction of the world automobile industry development, and also conforms to China’s environment”, said by Hu Jintao, the general secretary of China, in the CPPCC session in 2009.

In the year 2001, Chinese government implements the National 863 Plan which invests 880,000,000 RMB on the electric vehicle area (Lv, 2010). In November 2007, Chinese government published the Regulations of accessing to electric vehicles production. Through these regulations, automobile manufacturers’ production of electric vehicle is allowed by the government. In the year 2008, China’s Ministry of Industry issued the statement which allowed the mass production and the sales of electric vehicle in Chinese market. On 30th May, 2009, Liu Yandong, the State Councilor released the Development Status and Countermeasures of the Electric Vehicle Industry in China. In this statement, she said that the development of electric vehicles, especially the electric vehicle represents the global trend. In China, the capability of R&D for the electric vehicle has reached the advanced level, and the development of the electric vehicle
industry is also on a certain level. So government should put out a complete and perfect policy to support the development, and there will be a good prospect (auto.sina.com). In order to respond these national strategies, the government published a series of polices, such as the Policy of the Electric Automotive Industry Development, the National Eleventh Five-Year Plan about electric vehicle, and the Long-term Scientific and Technological Development Plan. All these policies encouraged the development of electric vehicle in the macro respect. On 14th January, 2010, the Electric Vehicle Industry Promotion Plan was published by central government. It introduced the national strategy of electric vehicles, and published the policy of government fiscal subsidies for the electric vehicles. Until March of the year 2010, there are 42 companies are involved in the list of fiscal subsidies (Lv, 2010).

4.4.1. The automobile industry restructuring and revitalization plan

In March of 2009, the Automobile Industry Restructuring and Revitalization Plan was published by the state government, which proposes the strategy of electric vehicle in the national level. It focuses on supporting manufacturing and the demonstration operation of electric vehicles. In this policy, state government requires that all of the local governments should make the supporting plan to promote the development of electric vehicle. The plan should firstly promote the electric vehicles in the public area, such as bus, taxi, medical transport, postal transportation and airport transportation. The local government was also required to build the infrastructure such as charging net for the electric vehicles and the public charging facilities in the parking area. In order to promote the development of the local electric vehicle companies and give supporting to them, this policy requires that when the local governments purchase the electric vehicles, they should firstly buy the electric vehicles which are produced by the local Chinese company. According to this policy, the manufacture and the sales of electric vehicle is planning to achieve the ability of economies of scale in the future 3 years. The
production capacity of electric vehicles will increase to 500,000 which include the pure electric vehicles, plug-in hybrid electric vehicles and the normal hybrid vehicles through transforming and elevating the existing production capacity. The sales of the electric vehicle will reach 5% in the total sales of the passenger cars.

4.4.2 Financial assistance fund for purchasing electric vehicles

On 31st May, 2010, the Financial Assistance Fund for Purchasing Electric Vehicles was published by the ministry of finance, ministry of industry and information technology ministry of national development and reform commission. This policy mainly covers the plug-in hybrid cars and the pure electric vehicles. State government will provide subsidies to the companies who produce electric vehicles or the electric vehicle battery, so that these companies can sale vehicles or lend batteries to customers on a cheaper price. The local government should also provide financial subsidies to the infrastructure construction such as the charging station in their own cities.

This policy also proposes the criterion for the electric vehicle company as follows.

Firstly, the electric vehicle companies should promote the sale and production of the electric vehicle model which is involved in the list of the Recommended Models of the Project of Energy-saving and Electric Vehicle Demonstration. Secondly, the energy power batteries capacity of the pure electric vehicle should be above 15 KWH. The energy power batteries capacity of the plug-in hybrid vehicle should be above 10 KWH. The Lead-acid batteries were not recommended. Thirdly, both the electric vehicle companies and the electric vehicle battery companies should achieve the ability of production scale and build service system. They should provide the warranty of the core components for at least 5 years or 100,000 km. Company should also commit to recycle the electric vehicle batteries. Fourthly, the electric vehicle company should provide the
performance parameters of its product to customers. The performance parameters should follow the national standard. The indicators of national standard consist of the maximum speed, the highest speed, the acceleration time from 0 km/h to 50 km/h, the power consumption per hundred kilometers, driving distance of one charge, type and power of motor, type of battery, battery capacity, charging time and so on. The criterion of subsidy depends on different categories of the batteries. The highest subsidy to the plug-in hybrid vehicles is 50,000 RMB per vehicle. The highest subsidy to pure electric vehicles is 60,000 RMB per vehicle.

4.5 The secondary interview of Mr. Chen and Mr. Ren

On 23rd October, 2009, several newspaper media such as Science Times, Science and Technology Daily, China Auto News interviewed Chen Qingquan, who is the professor of Hong Kong University and the president of the world electric vehicle association; and Ren Xiaochang, who is the president of China Automotive Engineering Institute. In this interview, Mr. Chen and Mr. Ren described in which area the government and institute can help the electric vehicle companies to develop. He also described the government’s proposed model of the electric vehicle industry development.

“*The China Automotive Engineering Institute is a public technical service platform for all the electric vehicle companies. Our position is to provide the technical service for all the industry.*” (Quotation from the secondary interview with the president of China Automotive Engineering Institute October 2009, translated from Chinese)

There are three important roles of China Automotive Engineering Institute. Firstly, China Automotive Engineering Institute provides a platform for technical cooperation of the electric vehicle companies. Secondly, the institute supplies a testing platform for
all the electric vehicle companies to run a technical test. Thirdly, the institute is also a national authorized organization to establish the industry standard.

“Everybody knows that, China is a big automobile market and maybe the biggest market in the world, but the Chinese automotive industry is not powerful. R&D, branding ability, and technology development are weak and slow. China’s automotive industry cannot make significant progress if we follow the old development mode. This is why government promotes the innovation in the electric vehicle industry in recent years. We should develop our own brand and the core technology in the electric vehicle industry.” (Quotation from the secondary interview with the president of China Automotive Engineering Institute October 2009, translated from Chinese)

Mr. Chen also suggests that the meaning of the electric vehicle industry alliance is to prevent low-level redundant construction and investment. Each firm should position itself clearly. The institute also encourages both the whole vehicle producers and components producers to establish the electric vehicle industry alliance.

“Our institute pays more attention to the development of battery and electric motor. Besides, our main problem now is to increase the safety of electric vehicle, to decrease the cost of the electric vehicle, and to control the temperature of battery and electric motor.” (Quotation from the secondary interview with the professor of Hong Kong University and the president of the world electric vehicle association October 2009, translated from Chinese)

The institute tries to make a balance between maintaining companies’ competitive
advantages and sharing the advanced technology. The relationship between the members in the alliance is not only the competition but also the cooperation, such as the relationship between vehicle producer and the component supplier. The institute provides a platform for the companies to share the latest information and government policy about electric vehicles.

5. Analysis

5.1 Product life cycle of the Chinese electric vehicles

“The Chinese electric vehicle is staying in the introduction stage, and the same situation with electric vehicle of FAW Company.” (Quotation from interview with FAW Electric Vehicle Company’s general manager April 2011, translated from Chinese)

At present, the Chinese electric vehicles are at the introduction stage. The introduction stage normally features a wide range of products which reflect the diversity of technology and designs – and a lack of standard.

5.1.1 Market demand

In the whole Chinese market, the sales of electric vehicle are sluggish, and the rate of market penetration is low. The number of customer is extremely limited. Moreover, most of the electric vehicles were purchased by the government sectors. Therefore, only a limited number of electric vehicles were purchased by the customers who are innovation-oriented, risk-tolerant, or of environmentalism. According to the survey by
China New Times (2010), only 22% of the customers show the willing to buy an electric vehicle. On the other hand, more than 70% of the customers show a wait-and-see attitude. In the year 2010, 4,884 new energy vehicles were sold in China, including entire hybrid vehicles, pure electric vehicles, and the fuel cell vehicles (Ren, 2011). This number accounts for 96% of that the new energy commercial vehicles. The sales of large size new energy vehicles, which were normally purchased by the government sectors, accounted for nearly two-thirds in the number (Ren, 2011). Although FAW Company has already developed many models of electric vehicles, for example, Besturn B70 hybrid electric car, Besturn B50 hybrid electric car, Besturn B50 pure electric car, Weizhi pure electric car, etc., it has not begun the mass production. In the recent years, FAW only sold around 400 new energy vehicles. It began producing the pure electric vehicle in May, 2011.

5.1.2 Technology and quality

The technology of electric vehicles develops rapidly. Until the year 2010, 1,731 patents were developed in the electric vehicle area, among which 840 patents are the innovative (Zhang, 2010). By August 2010, FAW Group Corporation has developed 65 patents of the new energy vehicles. Specifically, those patents extend from the exterior appearance design to the core engine system (Chen, 2010). However, due to the limitation of the novel technology, small-scale production, and lack of experience, the production of electric vehicles results in high cost and low quality. Although FAW puts a lot of effort in research and development, the electric vehicles developed suffer from the short continuous driving distance without charging. As the survey by China New Times (2010) shows, 80% of the customers question the capacity, price, universal, and lifetime of the battery. About 70% of the customers are worried about the convenience of the charging station, and nearly 40% of the customers are not satisfied with the speed, vehicle price, component, and component replacement and maintenance.
5.1.3 Manufacturing

“Until now, there is no one company, who can maintain production of electric vehicles without the government economic subsidies in China, including FAW. The market grows so slowly, because most of the customers are still waiting and seeing.” (Quotation from interview with FAW Electric Vehicle Company’s marketing manager April 2011, translated from Chinese)

During the year 2010, there were only 7,181 electric vehicles produced by all of the Chinese companies. Compared with the traditional cars whose output is more than 18,000,000 in the year 2010 (Liu & Chen, 2011). It can be seen that, the output of electric vehicle products is extremely low. The same situation happened in FAW Company. In the year 2010, only 400 new energy buses and 100 new energy cars were produced (Li, 2011). Meanwhile, the traditional vehicles produced by FAW were more than 1,400,000 from January until July 2010 (Aikai data research center, 2011).

The distribution channels are also specialized, since a majority of the sales of electric vehicles depended on the government purchasing as it is mentioned above. The same situation goes with FAW.

“Electric vehicles are difficult to enter the normal families nowadays.”
(Quotation from interview with FAW Electric Vehicle Company’s marketing manager April 2011, translated from Chinese)

Based on such situation, FAW also seeks for the government purchasing in the special distribution channels at the introduction stage. FAW has already signed a contract with the Changchun government, which around 1000 models of electric vehicle will be supplied to the government sectors in the year 2012.
5.1.4 Competitions

By the end of the year 2010, 190 electric vehicle models from 54 electric vehicle producers have been selected in the National Recommended Models Directory of Energy-saving and New Energy Vehicle Demonstration Project. In addition, 86 new electric vehicle models were displayed in the 14th international auto show in Shanghai from 19th April, 2011 to 29th April, 2011 (evtimes.cn). It can be observed that the number of the competitors is large, and the difference of development among those companies is large too. In fact, Because of the established of T10 and in order to develop the technology of electric vehicles together, most of the local electric vehicle companies keep in cooperation.

“Compared with other electric vehicles, we do not have too many differences in the technology. The biggest difference from the other competitors is our brand and the service which is established through the traditional cars. There are not any cost advantages until now, because of the small scale production.” (Quotation from interview with FAW Electric Vehicle Company’s general manager April 2011, translated from Chinese)

Besides, the general manager also forecasted that there would not be any profit from electric vehicle production in the following five years, whereas there might be 1-2.5% profit in the next 10 years. If no new technology is innovated in this field, the profit would not exceed 4% in the future. So, we recommend that FAW in the introduction stage, develop innovative product, establish credible image of firm and product, promote to the potential private customers and cooperate with the other industrial companies through the alliance platform to achieve the profit.
5.2 Five forces framework

In this section, Porter’s five forces theory is used to analyze FAW Electric Vehicle Company’s external industry environment. The industry will be analyzed through looking at the different forces separately.

5.2.1 Rivalry between established competitors

In Chinese electric vehicle market, the number of established competitors is more than 50 including both local and foreign companies. However, because different company’s product ranges, product positioning and target customer groups are quite different, and because the number of launched models is limited, compared with traditional automobile industry, the competitive intensity of electric vehicle companies in Chinese market is in the low level. The established competitors can be divided into four groups according to their capital scale, product ranges, production capacity, and operation pattern.

The first group is the Chinese large-scale corporations. It consists of Dongfeng Motor Corporation (DFM), Shanghai Automotive Industry Corporation (SAIC), FAW Group Corporation (FAW), and China Changan Automobile Group (CCAG). In China they are well known as “Big Four” Chinese automakers. Moreover, they are the only four “Fortune Global 500” Chinese automobile corporations in the year 2010 according to the U.S. Fortune magazine list, which are ranked 182\textsuperscript{nd}, 223\textsuperscript{rd}, 258\textsuperscript{th}, and 275\textsuperscript{th} respectively (Global 500, 2010). These four corporations have many common characteristics. Firstly, all of them were state-owned corporations. Secondly, they have a history of more than thirty years in Chinese automobile industry, which are 42 years, 33 years, 58 years and 31 years respectively. After a long-time development, now they have a wide product range, which varies from light trucks, medium trucks and heavy-duty

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trucks to buses and family cars. Thus, they have a lot of experiences in the automobile industry, and these experiences can help them when they develop electric vehicles. Thirdly, they all have large capital scale, revenues and profits in the car manufacture (Table 5-1), including both traditional vehicles and electric vehicles.Fourthly, all of them take the development of electric vehicles as one of their strategic direction. Thereby, they have invested significantly and will continue investing more in the development of electric vehicles (FAW Annual Reports 2010). Since they have developed electric vehicles for many years, they have their own brands of electric vehicles. Each of them has the projects of electric vehicles trial operation and test marketing. Furthermore, they have mass production capacity to produce electric vehicles, and have strong innovation ability on electric vehicles. Fifthly, all of them are the members of “T10” national electric vehicle industry alliance, which is supported by both central and local government. Finally, their competitive strategies of electric vehicles are quite similar.

<table>
<thead>
<tr>
<th></th>
<th>Total assets ($ millions)</th>
<th>Revenues ($ millions)</th>
<th>Profits ($ millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFM</td>
<td>9,520</td>
<td>39,402</td>
<td>720</td>
</tr>
<tr>
<td>SAIC</td>
<td>26,400</td>
<td>33,629</td>
<td>1,070</td>
</tr>
<tr>
<td>FAW</td>
<td>14,270</td>
<td>30,237</td>
<td>1,382</td>
</tr>
<tr>
<td>CCAG</td>
<td>9,760</td>
<td>28,757</td>
<td>274</td>
</tr>
</tbody>
</table>

**Table 5-1 Financial data of the “Big Four”**

The second group is the Chinese medium-sized local automobile enterprises, such as Beijing Automobile Works Company (BAW), Guangzhou Automobile Group Company (GAC), Zhengzhou Yutong Group Company (Yutong), Xiamen Golden Dragon Bus Company (Golden Dragon) and so on. Compared with the “Big Four” Chinese automakers, these companies have smaller capital scale, revenues and profits. Therefore,
the productivity is lower and the product range is relatively narrow. However, their management system is more efficient, and some of them have specialization advantages. For example, Yutong and Golden Dragon are large scale industrial groups specializing mainly in bus business. They focus completely on bus manufacture. Both BAW and GAC established their new energy vehicle companies in the year 2009, and have the plan that in the year 2011 they will achieve the mass production of electric vehicles. As a result, Yutong and Golden Dragon Company focus solely on the electric bus segment market. Yutong started to develop electric buses in the year 1999 and now it has a variety of pure electric buses, including the first aluminum body electric coach and the first 13.7 meter length electric bus. It has strong innovation ability and owns the complete core technologies of electric buses. Consequently, its electric buses are operating in ten cities in China as model electric buses.

The third group is the Chinese small and medium private automobile Enterprises. They are Geely, Chery, BYD, Tianjin Qingyuan Electric Vehicle Company, Shenzhen Wuzhoulong Automobile Company, Shenzhen Sainty electric vehicle technology Company, Shenzhen Minghua Group Company, WanXiang Group, Beijing Shiguang Company, and Lifan Industry Group Company etc. The number of companies in this group is large. According to Shengshihuayan institution’s survey (2009), by the end of the year 2008, there had been more than 20 small and medium size private electric vehicle companies in China. They have the following common features. Firstly, they are small and medium sized private electric vehicle companies. They have limited capital scale, thus their investment on the innovation is limited. In addition, the government project is of great importance to them. Secondly, most of them don’t have the complete core technologies of electric vehicles. However, they have several very advanced technologies in some area of electric vehicles. Finally, their efficiency of management, operation and the fund utilization are very high. Due to their company structures, they normally have strong dynamic capabilities.
The last group is the foreign companies which perform in Chinese electric vehicle market. Most of them perform in Chinese electric vehicle market in the form of joint ventures, which are almost as same as the form of the traditional automobile market. This group consists of American electric vehicle companies, such as GM, Ford; Japanese electric vehicle companies, such as TOYOTA, NISSAN and HONDA; and European companies, such as Volkswagen. These companies have following common features. Firstly, they have long history and rich experience in automobile industry. Secondly, they have strong financial strength and R&D capabilities. They also have very advanced design and production technologies. Lastly, they have stable cooperation relationship with Chinese automobile companies in the Chinese market.

It is obvious that the main and direct competitors to FAW Electric Vehicle Company are the other three “Big Four” Chinese automakers, which are DFM, SAIC and CCAG. These three have similar capital scale, production capacity, capacity of distribution channels, development mode, and the development strategy in the electric vehicles area. Besides, because all these four companies cooperate with different foreign automobile companies in the form of joint venture, when foreign companies launch electric vehicles and compete in Chinese market, it is also the competition between these four Chinese companies. So FAW Electric Vehicle Company faces the challenges from the other three big Chinese automobile companies.

To sum up, the electric vehicle market in China is mainly controlled by large companies. Since big companies normally have capital advantage and the government policy support. FAW Electric Vehicle Company’s main competitors are the three big Chinese companies (DFM, SAIC and CCAG). There are also many small companies in this industry which seek for the niche markets. The competitive intensity of the whole industry is low.
5.2.2 Threats of new entrants

The electric vehicle industry in China is at the introduction stage, so there is lack of complete industry standard and national standard. Because the technology is not mature, there leaves a potential space for entrants. However, the barrier of entry is high because the market is concentrated. Besides, establishing a new electric vehicle company requires a huge scale of capital. New electric vehicle company also needs to build its own distribution channels. Moreover, all the established electric vehicle companies have built their own distribution channels. All the distribution channels are exclusive. Building own distribution channels will also cost a long time and huge investment for the new entrants. Thus, most of the potential entrants are the established traditional automobile companies due to the fact that they could develop their electric vehicle business based on their existing supplier networks, production line, distribution channels, existing technologies and experiences. Additionally, brand is a key factor to affect sales in this industry. Most of the existing manufacturers have a long history of manufacturing vehicles. They put a lot of money on building and maintaining their brands. It will cost a long time and a lot of money for a totally new company to convince customers. Moreover, because the core technologies of electric vehicles are similar among different companies, product differentiation is regarded as an important barrier to potential entrants. Besides, economies of scales are very important to automotive industry. There exist several large-scale companies which have obvious advantages of economies of scale, such as “Big Four”. This is also a barrier to new entrants. Although at present, the demand of electric vehicle is limited, the economies of scales in the electric vehicle industry are not so obvious in this period; in the future with the increase of the demand economy of scales will be a significant factor for the potential entrants. Additionally, because the government encourages automobile company to develop electric vehicles and offer financial and policy support, and because the core technology is similar and is easy to buy, the barriers to the entry are
lower, the threats of new entrants are increasing. To sum up, the threat of new entrants in the electric vehicle industry is on the medium level.

5.2.3 Threats of substitutes

The threat of substitutes to the electric vehicle industry comes mainly from the traditional automobile because they have the similar functional value, which are both as the mode of transport. According to Mr. Ma’s research (2010), consumers are insensitive to the price when they are deciding to buy a traditional car or an electric car. The price includes both the price of the car and the price of energies (oil price and electricity price). Compared with the traditional automobile, the electric automobile has price disadvantage. Table 5-2 (Guotai Junan, 2009) shows the comparison of the price between same model of a traditional automobile and an electric automobile. It can be observed readily that there are big gap between the price of traditional automobile and the price of electric automobile. So the government subsidy policies play a very important role in the electric vehicle company’s pricing strategy and the development of electric vehicle. On the other hand, Guotai Junan’s survey points out that the cost of energy of electric automobile is 10% to 42.8% lower than that of traditional automobile. This is a positive factor to encourage customer to buy electric cars.
<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Model</th>
<th>Battery</th>
<th>Engine</th>
<th>Price (RMB)</th>
<th>Price Gap (RMB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAW-TOYOTA Prius</td>
<td>MH-Ni</td>
<td>1.5 L</td>
<td>259,800</td>
<td>110,000</td>
<td></td>
</tr>
<tr>
<td>BYD F3dm</td>
<td>Lithium</td>
<td>1.0 L</td>
<td>149,800</td>
<td>80,000</td>
<td></td>
</tr>
<tr>
<td>FAW B70HEV</td>
<td>MH-Ni</td>
<td>1.3 L</td>
<td>&gt;250,000</td>
<td>100,000</td>
<td></td>
</tr>
<tr>
<td>DFM-HONDA Civic</td>
<td>MH-Ni</td>
<td>1.3 L</td>
<td>239,800</td>
<td>80,000</td>
<td></td>
</tr>
<tr>
<td>CCAG Jixun</td>
<td>MH-Ni</td>
<td>1.5 L</td>
<td>170,000</td>
<td>30,000</td>
<td></td>
</tr>
<tr>
<td>SAIC-GM LaCROSS</td>
<td>MH-Ni</td>
<td>2.4 L</td>
<td>269,900</td>
<td>20,000</td>
<td></td>
</tr>
<tr>
<td>Chery A5-BSG</td>
<td>MH-Ni</td>
<td>1.3 L</td>
<td>74,800</td>
<td>10,000</td>
<td></td>
</tr>
</tbody>
</table>

Table 5-2 Price comparison between electric vehicles and traditional vehicles

Furthermore, the performance and the availability of supporting facilities are also the factors which influence customers’ preference. The performance of electric cars is not as good as the traditional cars in some areas, such as continuous driving distance, maximum speed, and acceleration. However, its advantages are smaller or none emissions, low noise and environment-friendly. Since the development of the complement facilities of the electric vehicle industry, such as recharge stations and battery swap, is relatively lagging behind, it is less convenient to drive an electric car than drive a traditional car. Therefore, the development of electric vehicle infrastructure has an important impact on the customers’ choice between the electric car and its substitutes. Moreover, the government policies also influence customers’ choice between an electric car and a traditional car. For the time being, government encourages people to buy an electric vehicle rather than a traditional car. For example, Beijing-government unveils the license restrictions on the purchase of traditional cars, but, on the contrary, no license restrictions on the purchase of electric cars. Government subsidies to the purchase of electric car also play a significant role on the customers’ choice. Thus the policy factors decrease the threats of substitutes.
In addition, public transport such as train, airplane could not be regarded as the main substitutes to electric vehicles because they have specified routes and timetables, not as convenient as electric cars. Motorbike and bicycle could not either be viewed as the main substitutes to electric vehicles, because they are slower and less comfortable.

In conclusion, the threats of substitutes to the electric vehicles are on the high level.

### 5.2.4 The bargaining power of buyers

The bargaining power of buyers is quite strong in the Chinese electric vehicle industry. In this stage, compared with traditional cars, electric cars have cost and price disadvantages and they are less differentiated. The buyers are sensitive to the price. Besides, both demand and supply of electric cars are limited, so every single customer is important to the enterprise’s total sales. The loss of a single customer will cause significant drop of sales and profits. Moreover, because of the existence of traditional cars as the substitute, customers have a bigger bargaining power and possess a dominant position in the game.

### 5.2.5 The bargaining power of suppliers

The suppliers in the Chinese electric vehicle industry could be categorized into two groups: one is the same suppliers with traditional vehicles, such as suppliers of window glass, car seats and vehicle frames. The other one is the suppliers which are different from traditional vehicles, such as suppliers of battery and electric automobile engine. For the former group, FAW has a stable relationship with these suppliers, therefore has a relatively large bargaining power. In the following paragraph we will focus on the latter group.
The latter group basically includes battery suppliers, fuel cell suppliers, electric vehicle motor suppliers, electric vehicle charger suppliers, electric vehicles super capacitor suppliers and so on. All of these suppliers have some common characteristics. Firstly, the capital requirement of building a supply company is relatively low and the barriers of supplier group is low too, so the number of suppliers is big, and they are mainly small and medium enterprises. Secondly, these suppliers need high-tech as the basis, so the main form of the suppliers is the small and medium companies cooperating with universities and institutes. R&D and technology play a vital role for those suppliers. Thirdly, the suppliers’ offering is highly differentiated. The unique technologies and intellectual properties are the sources of the companies’ competitive advantage. Finally, the suppliers can get investment from the national projects. So if they have good relationship with government, they can get benefit from government policies.

In summary, the bargaining power of suppliers in the Chinese electric vehicle industry is on the medium to low level.

5.2.6 Complements

In the current stage, the infrastructure such as charging station, charging pile, battery swap stations are the main complement to the electric vehicle industry. It increases the value of the electric vehicles. The development of the infrastructure is relatively lagging behind. For example, the demand of charging stations is huge, but at the end of the year 2010 there are only 76 charging stations in 41 big cities in China. The supply is far less than demand. Customers will give up buying electric cars because of the lack of charging facilities. However, government already has planned to develop the infrastructure. For example, government will invest 45,000,000,000 RMB to build 10,075 charging stations and 506,209 charging piles from the year 2011 to the year 2020.
The development of electric vehicle infrastructure will increase the value of electric vehicles, and will attract more people to buy electric cars.

5.3 Porter’s generic strategies

According to Porter’s theory, when FAW Electric Vehicle Company performs in the Chinese electric vehicle industry, it has three possible directions of generic strategies to obtain competitive advantages: cost leadership, differentiation and focus. In different phases, FAW Electric Vehicle Company should analyze the external environment and internal resource to choose the right strategy direction.

5.3.1 Cost leadership

Currently, it is difficult for FAW Electric Vehicle Company to use the cost leadership as the overall strategy, although it can lower the cost in some parts. Nevertheless, in the future, because the external sources such as customer demand and supporting infrastructure are changing, it is possible for FAW Electric Vehicle Company to use cost leadership to achieve competitive advantages based on FAW Electric Vehicle Company’s established production lines and distribution channels.

At the moment, government procurement is the main source of FAW Electric Vehicle Company’s electric vehicle sales. Individual consumers’ demand is low. For example, in the year 2010, the sales of FAW hybrid electric vehicle to individual consumers were less than 300, and the accumulated sales were less than 3,000. It was obviously difficult for FAW Electric Vehicle Company to achieve the economies of scale. Therefore, it was impossible to reduce the unit cost.

Moreover, it is difficult for FAW Electric Vehicle Company to reduce the cost of input.
Currently, the Chinese electric vehicle industry is in the introduction stage, it is difficult for FAW Electric Vehicle Company’s suppliers to reduce the cost because they cannot achieve economies of scale either. As we mentioned before, the beggaring power of supplier in this stage is relatively big, so FAW Electric Vehicle Company’s cost of input is high, and it is difficult to decrease.

In the next 10 years, there are possibilities for FAW Electric Vehicle Company to use cost leadership strategy. Firstly, the national “Energy-saving and New Energy Automotive Industry Development Plan” had clearly pointed out that in the year 2020, the cumulative production and sales of electric vehicle should reach 5,000,000. According to the report of “Ministry of Industry and Information Technology of People’s Republic of China”, FAW Electric Vehicle Company’s target sales in the year 2015 are 250,000 (miit.gov.cn). This means that the economies of scale of electric vehicle can be achieved at that time. Therefore, the electric automotive makers’ demand of components will also increase. The suppliers are possible to implement mass production to achieve the economies of scale so that the cost will be reduced. As a result, both FAW Electric Vehicle Company’s production unit cost and the cost of input can be reduced. FAW Electric Vehicle Company is able to implement cost leadership strategy then.

5.3.2 Differentiation

Compared with cost leadership strategy, differentiation can offer a more sustainable competitive advantage. In the current stage, differentiation is FAW Electric Vehicle Company’s main strategy direction. There are two sides to analyze the differentiation: the demand side and the supply side.

On the one hand, demand means to match customers’ demand, so understanding
customers is very important on this level. At present, FAW Electric Vehicle Company positions its electric cars as the secondary family car which is based on FAW’s understanding of its customers with detailed customer survey and customer research. As we described in the chapter of empirical study, most people choose long-distance drive at weekend and on holidays, and the distance is normally larger than 300km. So people usually choose to drive on highway which requires high speed. However, the FAW Besturn B50 electric vehicle’s largest drive distance with one charge is about 136km when the speed is below 60km/h. The largest drive distance will be decreased if the speed is higher. In this case people have to choose the traditional car instead of the FAW Besturn B50 electric car. On the contrary, on weekdays people more like to drive a compact, convenient and low fuel consumption car from home to work place at cities. The FAW’s B50 EV’s design fits customers’ requirement very well. Besides, considering the development of supporting infrastructure such as recharging station in China at current stage is lagging behind, FAW Electric Vehicle Company had developed the technology which customers can use the common household electricity to charge up to 80% of full battery capacity of B50 EV in 15 minutes.

On the other hand, supply means identify the company’s capacity to supply differentiation. Firstly, FAW Electric Vehicle Company pays attention to the drivers of uniqueness. FAW has a complete distribution channels and a wide service network in China. FAW’s 4S shops cover all the first-tier cities, second-tier cities and third-tier cities to provide sale, spare part, service and survey of its electric vehicles such as Besturn electric car. This provides FAW’s customers a more convenient access to FAW’s electric car than FAW’s competitors. Secondly, signaling and reputation are very important for differentiation. At Chinese electric vehicle market, price is one of the main factors when consumers choose one brand from other different brands because they do not have enough information to know the quality and characteristics of an electric car deeply. FAW Electric Vehicle Company’s product positioning is in high-end
and middle market. Therefore, it is significant for FAW Electric Vehicle Company to signal and deliver the information of its safe, high-quality, practical, applicable electric cars to their consumers. In order to achieve the target FAW Electric Vehicle Company has taken many measures to deliver the information to its customers. For example, FAW Electric Vehicle Company participates in sports sponsorship, cooperated with Shanghai World Expo, and usually holds test drive events. These are effective signals to their customers. Thirdly, branding is of great significance to FAW’s differentiation strategy. For instance, Hongqi and Besturn are FAW’s own brands. They are firstly FAW’s traditional automobile brands and have good credibility and reputation among customers. Then FAW Electric Vehicle Company uses the brands on electric cars, which could be regarded as a guarantor of reliability. Hongqi is the first Chinese luxury car brand. Because Hongqi car is of good quality, and also because FAW has a good relationship with government, in the parade for the 60th anniversary of People’s Republic of China, Hongqi became the only official car to carry party leaders. Through a series of branding implementations, FAW Electric Vehicle Company improved its brands of electric vehicles and makes the brands more distinctive than FAW’s competitors.

5.4 Analysis of government policy

With the shortages of the global energy and the increasing environmental requirements, the electric vehicle raises more and more attention from most countries’ government worldwide. Especially when the price of oils is increasing dramatically, using of electric vehicle already becomes one of the strategies to solving the survival problem for human (Shengshihuayan, 2009). Therefore, the policy of promoting the development of electric vehicle already becomes an important part in many developed countries. The National 863 Plan also has been implemented in china to develop the R&D of the electric vehicle. Facing the shortage of energy and environment pollution, Chinese government proposed
to promote the industrialization of electric vehicle in the *National Eleventh Five-Year Plan*.

In China, the government policies influence the electric vehicle industry in four main aspects: guidance, financial support, technology support, and formulating the enforcement policy and making the industry standards.

### 5.4.1 Guidance

Nowadays, the role of government becomes more important. It not only provides the research funding and builds the research project, but also creates the marketing needs and enhances the social use of scientific discoveries. The role of government transferred from single financial support to the establishment of technology support policy system (Shengshihuayan, 2009). Through restructuring of the technology policy system and creating more marketing need, the government can lead the business innovation and industrial transformation. Government should not be strengthened in the intervention of enterprises management, but should be strengthened in leading the enterprises on the macro-respect, in order to promote the industrial upgrade and adjust the industrial structure.

### 5.4.2 Financial support

There are two kinds of financial supporting policies: one is government purchase, and the other one is government subsidies.

**Government purchase**

The electric vehicle production is a comprehensive integration production which includes the information technology, electronics, new energy, new materials, the
development manufacture technology and so forth. The process of industrialization of High-tech, will encounter many difficulties, but it is very promising. The government purchasing can reduce the risk of industrialization of electric vehicle in the introduction stage, and trigger the consumer need and investments. Moreover, enhance the purchasing of electric vehicle can also push the mass production of electric vehicle and development of the related industries.

**Government subsidies**

The government subsidies are focusing on the users of the electric vehicle. These policies can push the development of electric vehicle efficiently, and it provides the power of development and purchasing for both producers and customers. The government of China already published the subsidies criterion about the private purchasing electric vehicle. From then on, the subsidies would cover the individual consumers. The highest subsidies is 60,000 RMB, it makes the cost of buying electric vehicles reduced to a lower level. Take the Senya EV as an example, this model will be produced by FAW in July 2011. If the price of Senya EV is around 150,000 RMB, because customer who buys the pure electric vehicle could get 45,000 to 60,000 RMB subsidies from central government, and could get 20,000 to 40,000 RMB subsidies from the local government, the real cost of buying Senya EV would be around 60,000 RMB. This price is nearly the same as the price of traditional cars, and the using cost of electric vehicle will be much lower than the traditional cars. So, comparing with the traditional oil vehicles, the electric vehicles will gain much more competitive advantages in the price aspect.

There are also many benefit policies published by the local government to encourage citizens purchasing the electric vehicles. For example, the customer will get 60,000 RMB for subsidies beyond the national subsidies in Jilin province; it means customers will get 120,000 RMB subsidies in maximum if they purchase the electric vehicle.
Additionally, many attractive benefit policies were published by Beijing and Shanghai. In these two cities, the new energy vehicle would get the free license plate fee, and lower acquisition tax, purchasing tax, and highway maintenance tax. And in the using process, the parking fee will be reduced, and will not be restricted by policy of the running limitation. All these policies provide an excellent external environment for the electric vehicles and will promote the development of electric vehicle.

5.4.3 Technology support

*Research and development*

At present, in order to develop the electric vehicles as soon as possible, government provides great funding to the development departments and electric vehicle companies. The primary research and development of the electric vehicle technology was implemented by the Chinese government. In the form of *National Significant and Special Vehicle Project*, government invested in the development of electric vehicle and several main vehicle producers in china. The pure electric vehicle and hybrid car of Chery Company and the fuel cell vehicle of SAIC were involved during that period. During the *National Tenth Five-Year Plan*, government invested 2,400,000,000 RMB for the R&D of the electric vehicle, and the investment increased to 5,000,000,000 RMB in the *National Eleventh Five-Year Plan*

*Infrastructures*

In order to achieve the industrialization, the development of electric vehicle does not only need the mature technology for the whole car or the market guiding, but also needs the supporting generated from service after sale and the infrastructures. The Chinese government implements plenty of benefit policy to the electric vehicle, such as building the charging stations, the charging piles, and the battery replacement stations; parking for free; lower or free electric vehicle revenue tax and etc. The complete infrastructures
will provide a convenient external environment for both the electric vehicle production and the electric vehicle consumers, and also played an important role to push the purchasing electric vehicles.

5.4.4 Formulating the enforcement policy and making the industry standards

The enforcement policy to the traditional automobile
The enforcement policy normally focuses on the fuel vehicles. The government implements the enforcement policy of the fuel vehicles on producing, sale, using and emissions in the right time and right area. The enforcement policy of the fuel vehicles makes a direct promotion to the development of electric vehicle, especially the policy about the restricted fuel vehicles emissions. (Shengshihuayan, 2009)

The government policy of electric vehicle was formulated in the specific Chinese context. It emphasized the harmony and coordination among the organizational management, economic incentives, marketing promotion, and the technology development.

The industry standards
In the fierce market competition, excellent marketing performance is not only depending on the technology leadership, but also on the marketing strategy, the service after sale, and the development of the related industries. It was to say, the government has to formulate an industry standard in a macro-strategy aspect. The industry standard consists of technology standard of electric vehicle, the auto emission standards, the patent application of electric vehicle, and the alliance of electric vehicle. The industry standard will provide a harmony environment of innovation for the companies.
5.4.5 The challenge to the foreign electric vehicle companies

Until now, all of the benefit policy of electric vehicle which published by the Chinese government mainly focuses on the Chinese companies. It means that the government purchasing policy or the government subsidies policy will mainly be given to the electric vehicle which produced by the Chinese companies. It becomes a challenge to the foreign electric vehicle in the pricing aspect. If the price is too low, the foreign company will not earn the profit; if it is too high, the foreign products may not have the price advantages. And because of the establishing of the T10 alliance, the Chinese companies can influence the formulating of industry standard and the national standard of the electric vehicles. This is the challenge to the foreign electric vehicles. However, joint venture could be regarded as a solution for foreign electric vehicle companies.

5.5 Further discussion about Porter’s Five-Forces Framework

In this section, we are going to discuss about our findings in the application of the Five Forces model in the Chinese electric vehicle industry. Moreover, we will talk about the existing research on extending the Five-Forces Framework and Porter’s response. At the end, we are going to propose our hypothesis, which is the extended Five Forces model.

5.5.1 The application of the Five Forces model in the Chinese electric vehicle industry

As mentioned before, Porter’s Five Forces model is a useful tool for company to analyze the intensity of the competition and the profitability of the industry. It can help the company to make the right strategy. In this paper, we use Five Forces model to
analyze how the competitive intensity and profitability of the Chinese electric vehicle industry is determined by the five competitive forces. By the result of our analysis, we found that the force of government policy dramatically affects the intensity of the competition and the profitability of the Chinese electric vehicle industry through following two ways.

Firstly, government can impact on the industry through directly participating in the competition. For example, as mentioned before, in China, because the government subsidies policy promotes the sales of the electric vehicles, and because the government gives tremendous financial support to the company’s electric vehicle development project, the government significantly changes the profitability of the electric vehicle industry.

Secondly, government can indirectly affect the industry competition and the profitability through changing the other five forces. For example, when we evaluate the threats of traditional gasoline car as substitutes to electric vehicles, we found the cost is a factor to determine the customers’ choice between traditional gasoline car and electric car. In the Chinese market, the price of electric car is much higher than that of traditional gasoline car. Because the functional value of the traditional gasoline vehicles and the electric vehicles are quite similar, the customer might prefer to buy traditional gasoline vehicles. So the result might be that the threat of the traditional gasoline car as substitutes to the electric vehicles is high. However, after we take government polices into account, we found that because of the government subsidies policy to the electric cars and the government license restriction to the traditional gasoline car, the actual cost of buying electric cars is lower than that of buying traditional gasoline car. So in this case the price should not be seen as a factor to increases the threat of traditional gasoline car as substitutes to electric vehicles.
Based on our research, we find out that the profitability of the Chinese electric vehicle industry tends to be increased if:

- Government directly invests on to the established players in the industry.
- Government gives financial support such as fund, tax incentives and rent incentives to the established players in the industry.
- Government supports to build the industry alliance.
- Government has the law and policy restriction to the new entrants.
- Government has subsidy policy to the products of the industry.
- Government has the law and policy restriction to the substitutes.
- Government invests on the complements such as infrastructure construction.

### 5.5.2 Is government policy really a missing force?

Eszter (2009) argued that Porter’s framework has been challenged. The industry is affected by a sixth force, which is termed as the relative power of other stakeholders. The stakeholders refer to the group including: complementary products, the government, the public, shareholders and employees. All these factors have an effect on the automobile industry, especially in the crisis period. The effect depends on which factor has the greatest influence (Eszter, 2009).

However, Porter (2004) argues that he understands government as a “factor” rather than a force because government is neither inherently good nor bad for industry profitability. Government policy is transitory and it can be viewed as subordinate variables, just like complementary products and the industry growth rate (Porter, 2004).

However, through the research we found one phenomenon which cannot be explained by Porter’s theory: in the Chinese electric vehicle industry, the government’s participation can significantly change the profitability of the industry. Beside, we also
found that in most countries, especially in China the government policy is the decisive force for the development of the electric vehicle industry. Government policy also has a profound impact on the profit potential of the corporations.

5.5.3 Our hypothesis: the extended Five Forces model

In order to better explain this phenomenon, we propose our hypothesis, the extended Five Forces model. In this model, we try to introduce the force of government policy into the Five-Forces Framework to illustrate the five forces of the Chinese electric vehicle industry is affected by the force of government policy. The extended Five Forces model also illustrate that the intensity of the competition and the profitability of the Chinese electric vehicle industry are determined by the five forces and the force of government policy.

Figure 5-1 Extending Five Forces Framework (own hypothesis)
We need to point out that the extended model can be used in the Chinese electric vehicle industry and it is proved to be effective in this specific context. However, it is just our hypothesis and it has not been tested in other context, such as the American information technology industry, which is quite different from the Chinese electric vehicle industry. This could be seen as the limitation of our hypothesis. We hope that the hypothesis can be validated and developed in the future research so that it could be of the general meaning.

6. Conclusion and Recommendations

6.1 Conclusion

Our thesis investigates the current Chinese electric vehicle industry and the effect of government policies on both the industry and the company. We also surveyed FAW Electric Vehicle Company’s strategy and operating performance through interviews with its managers and data from annual report, websites and existing articles.

We used Porter’s Five Forces framework as a main analysis tool in this thesis. Five forces model is used to analyze the industry situation in term of rivalry between established competitors, threats of new entrants and substitutes, the bargaining power of buyers and suppliers to find a position in the Chinese electric vehicle industry where FAW Electric Vehicle Company can best defend itself. Besides, we used the conceptual framework of product life cycle theory and Porter’s generic strategy theory. Product life cycle theory provides was used to predict the change of electric vehicle market in different stages and Porter’s generic strategy theory was employed to choose the right strategic direction for the company.
According to the analysis, we are convinced that the competition intensity of electric vehicle in Chinese market is low, but FAW Electric Vehicle Company still faces the challenges from the other three big Chinese automobile companies. Through the evaluation of capital requirement, economies of scale, product differentiation, absolute cost advantages, and access to distribution channels in the Chinese electric vehicle industry, we could conclude that the barrier to new entrants is on the medium level. The bargaining power of buyers is quite strong in the Chinese electric vehicle industry while the bargaining power of suppliers is weak. Besides, we found that the government policies significantly change the five forces in the Chinese electric vehicle industry.

Through the analysis of product life cycle, we personally believe that the Chinese electric vehicle is at the introduction stage. At this stage, the demand of electric vehicles is limited, and the technology is not mature, and the infrastructure such as charging stations is relatively lagging behind. However, government already has made the plan to develop the infrastructure. So in the future, the demand of electric vehicles will be increased and the profitability of the industry will be on a high level.

According to our investigation, we have to accept that FAW Electric Vehicle Company has some problems. For example, FAW Electric Vehicle Company’s current incentive system is mainly based on the evaluation of employees’ quantitative performance rather than qualitative performance. Therefore, it is not conducive to the company’s differentiation strategy. Regarding these problems, we are going to give our recommendations to FAW Electric Vehicle Company in the following section.

6.2 Recommendations for FAW Electric Vehicle Company

According to our investigation, we suggest that FAW Electric Vehicle Company should
try to maintain and enhance the relationship with Chinese government. Besides, we recommend that FAW Electric Vehicle Company should maintain and enhance its competitive advantages through both cost leadership and differentiation strategies. Specifically, we recommend FAW Electric Vehicle Company to improve its competitive advantages through the following ways:

**6.2.1 From the perspective of cost leadership**

In order to achieve cost advantage in the future, FAW Electric Vehicle Company should be strengthened in the following areas.

Firstly, FAW Electric Vehicle Company should achieve scale-efficient production. FAW Electric Vehicle Company has built the electric vehicle production line with large production capacity, which it already has the ability to achieve large-scale production. Thus, FAW Electric Vehicle Company needs to keep this advantage and optimizes its manufacture process, brings its lean production and JIT production which already had been implemented in the FAW traditional automotive production into the electric vehicle manufacture.

Secondly, FAW Electric Vehicle Company should invest on process innovation. Process innovation is vital to FAW not only because it can cut the cost and make the process more efficient, but also because it can better fulfill customer’s needs. Through the process development FAW Electric Vehicle Company can build FAW can build up advantages over its competitors.

Finally, FAW Electric Vehicle Company should keep the advantages of established distribution channels. As we mentioned before, FAW Electric Vehicle Company has the mature and complete distribution channels of traditional automobiles. FAW Electric
Vehicle Company can use this established distribution channels to reduce the marketing cost.

6.2.2 From the perspective of differentiation

In order to achieve sustainable differentiation advantage in the future, FAW Electric Vehicle Company should analyze its resources and capability, and should also evaluate influence of government policies and the changing external environment. FAW Electric Vehicle Company should be strengthened in the following areas.

Firstly, FAW Electric Vehicle Company should improve its marketing ability such as abilities of branding and advertising. For instance, according to our interview, one general characteristic of the electric vehicle consumers is that they are happy to accept new things. So FAW Electric Vehicle Company could try to promote its electric vehicle brand through internet such as social media websites and blogs. Using social media websites could help FAW Electric Vehicle Company to spread its new information of electric vehicles quickly and attract new customers. Furthermore, Blog is a new developing platform for FAW Electric Vehicle Company to interact with its customers, thereby to build its brands image.

Secondly, FAW Electric Vehicle Company should enhance its cross-functional coordination. Cross-functional coordination is important to FAW when FAW implements the customer-oriented strategy. Customers’ needs can be fulfilled when FAW Electric Vehicle Company’s individual employees in separate departments act consistently. For example, the design of the electric vehicles is a whole system. Every part can affect each other. Consumer requiring higher speed of electric car requires the company to consider about not only engine re-designing but also battery capacity re-designing, and vehicle weight re-designing.
Thirdly, FAW Electric Vehicle Company should continue investing on R&D and new product development. Because the electric vehicle is at the introduction stage, R&D is very important. In the current Chinese electric vehicle market, neither technology nor industry standard is mature. FAW Electric Vehicle Company investing on the product R&D can enhance the function of its electric vehicles, and, thus, better fulfill customers’ needs. Besides, if FAW Electric Vehicle Company can achieve the industry-leading technology, FAW Electric Vehicle Company’s product standard can define the electric vehicle industry standard and even the national standard. Consequently, FAW Electric Vehicle Company can keep on the leading edge over its competitors and enhance the competitive advantages.

Finally, FAW Electric Vehicle Company should improve its incentive system linked to qualitative performance target. Because of the nature of enterprise ownership of FAW, and the management system of FAW, compared with FAW’s competitors, FAW Electric Vehicle Company’s incentive system has disadvantages. The employee performance evaluation system does not include the suitable indicator to evaluate employees’ qualitative performance. Employees’ qualitative performance is not linked to the incentive system. However, In order to get the differentiation advantage, FAW Electric Vehicle Company has to build an incentive system linked to qualitative performance target rather than quantitative target. For example, now FAW Electric Vehicle Company implements the traditional compensation system centered on salary and bonus, therefore, the effect of motivation is not so as effective as expected. FAW Electric Vehicle Company should redesign its compensation system based on work analysis, work evaluation, and qualitative performance appraisal. For example, FAW Electric Vehicle Company could bring “internal market” into FAW Electric Vehicle Company, and make customers’ satisfaction in each chain as one of the indicators to evaluate the upstream sector’s performance. For instance, the sales sector’s satisfaction could be regarded as an indicator to evaluate production sectors’ qualitative performance.
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Appendix

Interview guide

The Chinese electric vehicle industry

1.1 In your opinion, which stage do you think the Chinese electric vehicle industry is at? (Introduction, growth, mature, decline) What are the characteristics of the Chinese electric vehicle industry at this stage? (Market growth, demand growth, product variety, number of competitors, barriers to entry and exit barriers, technological change, customers’ purchases behavior, etc.)

1.2 In your opinion, how the five forces (rivalry, the threat of new entrants and substitutes, the bargaining power of buyer and supplier.) shape the intensity of competition in the Chinese electric vehicle industry? Please describe them respectively.

1.3 In your opinion, do you think to what extent the government policy could influence the Chinese electric vehicle industry? From which facets? Which policy has the biggest effect on the Chinese electric vehicle industry? How? Which policies have promoted the development of the Chinese electric vehicle industry? How? In order to promote the development in the further, what policies should the government make?

1.4 How do the government policies affect the five forces in the Chinese electric vehicle industry? Please describe them respectively.

1.5 Compared with the traditional vehicle industry, how is the current profitability of the Chinese electric vehicle industry? How do the government policies influence the
profitability of the Chinese electric vehicle industry? What is your prediction and expectation about the profitability in the next five years and ten years respectively?

1.6 What is your understanding and perception of the current customer demand of the electric vehicles in China? What is your understanding and perception of the consumers’ attitudes towards the electric vehicles in China? How do the government policies affect the consumers’ attitudes towards the electric vehicles in China? What is your prediction and expectation about the market demand of the electric vehicle in the next five years and ten years respectively in China?

1.7 What is your opinion about the development of infrastructure and supporting facilities of electric vehicle in China, such as charging stations, and what’s the current limitation? How do the government policies influence the development of infrastructure and supporting facilities of electric vehicles in China? What is your prediction and expectation of the construction of supporting facilities in the future in China?

1.8 In your opinion, are there any other important factors of the Chinese government could influence the Chinese electric vehicle industry? What are they and how do they influence?

**FAW Electric Vehicle Company**

2.1 Could you describe the development of FAW electric vehicles? Do you think FAW Electric Vehicle Company is the first mover in the Chinese electric vehicle market? Compared with other electric vehicle manufactories in the Chinese market, what first-mover advantage does FAW Electric Vehicle Company have?

2.2 Which models of electric vehicles has FAW Electric Vehicle Company launched?
Which models of electric vehicles will FAW Electric Vehicle Company launch? What are the product characteristics? What are the differences compared with FAW’s competitors?

2.3 What are the product positioning and the target customer groups of FAW electric vehicles? Has FAW Electric Vehicle Company participated in the government procurement of electric vehicle, such as TAXI Procurement?

2.4 How is the competition intensity of the Chinese electric vehicle industry? What are the main players? What are the main competitors to FAW Electric Vehicle Company in the Chinese electric vehicle market? What are their characteristics? How will FAW Electric Vehicle Company compete with them?

2.5 Does FAW Electric Vehicle Company face the competition comes from the international players? How do you deal with it?

2.6 Is there any threat of new entrants from both international and Chinese companies, such as the Volvo electric vehicle and Audi electric vehicles? How do you deal it?

2.7 How is the relationship between FAW Electric Vehicle Company and your customers?

2.8 How is the customer’s recognition of the FAW electric vehicles? How do FAW electric vehicles increase the customers’ recognition?

2.9 What are the substitutes to the FAW electric vehicles? How does FAW Electric Vehicle Company deal with the threat from the traditional cars as the substitutes?

2.10 How is the relationship between FAW Electric Vehicle Company and your
suppliers? Is it stable? Does FAW electric vehicle face the threat or competition from the suppliers? How do you deal with it?

**Strategy**

3.1 What competitive advantages do you think FAW electric vehicle has? (For example: technology, innovation, production costs, product differentiation, distribution channels, government support, etc.) How do you maintain and enhance it?

3.2 Does FAW Group plan and implement the differentiation strategy of the electric vehicles?

If the answer is YES, which sectors are involved in? Such as production technology, design, marketing strategies, etc.

3.3 Does FAW Group plan and implement the cost leadership strategy of the electric vehicles? Compared with the other electric vehicle manufactories, does FAW Group have the cost advantages? In which area? For example, technology cost, production cost, distribution channels, etc.

3.4 How is the relationship between FAW and the Chinese government? How do the government policies affect the FAW Electric Vehicle Company? Is the effect positive or negative? How do you deal with it? Does FAW Electric Vehicle Company have some extent of influence to the formulating of the government policy?

3.5 In your opinion, are there any other important factors which could influence the development of FAW Electric Vehicle Company? What are they and how do they influence? How do you deal with them?
3.6 What problems do you think FAW Electric Vehicle Company has?