

## Chapter 2

# The Power of Batteries: The Story of BYD

**Abstract** This chapter discusses the case of BYD, a leading new-energy powered carmaker in China. Its vision capitalizes on the trend of emerging new energy industries, and the case will examine its ability to integrate business lines to generate synergies and its unique business development model that has attracted global investors including Warren Buffet.

**Keywords** New energy • Rechargeable batteries • New-energy-powered automobiles • Electric-power storage stations • Vertical integration • Industry chain

On September 29, 2008, Warrant Buffett announced his USD \$230 million investment to acquire 10 % of shares of a Chinese company called BYD, a firm that makes the next-generation batteries, electric cars and consumer electronics parts. BYD was actually the second Chinese company that Warren Buffett chose to invest. Since then, the price of BYD stock shoot to the roof, jumping nearly 10 times, and the initial investment of Buffet also appreciated from \$230 million to \$2.3 billion in merely one year. As an investor famous on gains from long-holding strategies, the speed and rate of return for his investment in BYD may seem a sweat “surprise” for Warren Buffet. No question, the “secret” for BYD’s success for both its business and its getting such a favor from Warren Buffett and the global financial market would be intriguing, and let’s take a close look at it.

### 2.1 A Fast Growing Legend

BYD, founded in 1995 by Chuangfu Wang, is a privately-owned, high-tech company. It started as a firm producing rechargeable batteries, but later expanded its business territory to new-energy-powered automobiles and new energy industries, and gained market dominance in a fast pace. BYD is widely recognized as the leader in the rechargeable battery industry, and meanwhile, a rising star in the markets of electric automobiles, electric-power storage systems, and solar power stations. BYD was listed on Hong Kong Stock Exchange (Ticker: 0285.HK) in

2007 and in Shenzhen Stock Exchange (Ticker: 002594) in 2011, respectively. In total, BYD has 2.354 billion outstanding shares, and 33.69 % of which, or 793 million, are H shares. The founder Chuangfu Wang, as the single largest shareholder of the firm, owning 570 million shares, which account for about 24.24 % of the firm's total capitalization.<sup>1</sup> In 2010, BYD was ranked the first place among the Top-100 IT companies, and the number 8th among the Top-50 The Most Creative Companies in the world (ranked the number one in China) by the Business Week.

The rechargeable battery products of BYD can actually be further decomposed into lithium battery, MH-Ni battery, as well as solar cell and components. As the leading company in the rechargeable battery industry, BYD mainly serves these primary phone producers such as Nokia, Samsung, MOTO (Motorola), Huawei, ZTE, and electric tool and portable electronics producers such as Bosch and TTI. According to a report released by the Institute of Information Technology (IIT), the lithium battery market share captured by Japan, a major lithium battery producer in the world has been shrinking in the recent years. At the same time, however, the market share of the lithium battery produced by BYD has been increasing, about 6.6 % in 2009, and 8.75 % in 2010. Meanwhile, BYD is the largest producer of the MH-Ni battery in the world where its competitors in this market include Sanyo, Panasonic and MBI.<sup>2</sup> As for the solar cell and components lines of BYD, it also increased dramatically in the past years. BYD's total sales revenue reached RMB 5.004 billion in 2010 with an annual increase of 18.28 %, largely due to the fast growth of its solar cell and components, which already accounted for 15.16 % of BYD's total sales revenue.

At the same time, BYD has been continuously making efforts in the new-energy-powered automobiles, electric-power storage stations and PV power stations by utilizing its leading-edge battery technologies. In 2003, BYD acquired the Xi'an Qinchuan Auto Co., Ltd. (now BYD Auto Co., Ltd.) to start entering into the auto making industry. Since then, BYD's compounding growth rate for the auto making business has reached 74.88 % during the 2008–2010 time span, and now it is ranked the sixth largest auto maker in China by the China Association of Automobile Manufacturers, and the largest among the domestic-non-joint-venture car producers.<sup>3</sup> On the financial side, BYD's car business achieved revenue of RMB 48.82 billion, net profit of 1.385 billion, and EPS 0.6 Yuan in 2011. From 2007 to 2011, the average annual growth rate of BYD's car business revenue reached about 20.76 %, and the net profit 10.68 %. In 2011 alone, BYD sold 1,222 new-energy-powered cars with an increase of 480 cars over 2010. BYD's auto business now becomes the major source of its total sales revenue, accounting for about 50 % of the BYD's total sale revenue.

---

<sup>1</sup> All data for BYD are from Prospectus of BYD, 2011 unless indicated otherwise.

<sup>2</sup> *Worldwide Market Update on NiMH, Li Ion and Polymer Batteries for Portable and the Future Applications*, Institute of Information Technology (IIT), 2010.

<sup>3</sup> Analyst Report on BYD, Guotai Junan Securities, 2011.

So the question is, what actually happened behind these magical numbers, and what business models and strategies powered BYD for its fast development and drove BYD to where it is today. Let's take a closer look.

## 2.2 Choose a Budding Industry

When we explore the success ingredients of BYD, the first thing catching people's eye is the industries that BYD selected to enter. BYD's major business lines cross rechargeable batteries, new-energy-powered automobiles, and new energy industries which are all sunrise industries in China and in the world as well. In particular, the new-energy-powered automobile was the most notable one of BYD in the market today.

China's auto industry, generally speaking, is still in its fast development stage, and the demand for autos is still far away from the saturation point. At the same time, the domestic auto brands have been on the quick rise and their market shares have been noticeably increasing year over year. The auto production and sales in China was the largest in the world in 2010 with both production and sales exceeding 18 million units. The current vehicle population in China is around 114 million, which means that, on average, every one out of 12 persons owns a car. This number is still far below the level of the developed countries, and indicates great potential for auto industry in China in the future. The gradual formation and rise of China's domestic brands such as BYD, CHERY and GEELY broke the monopoly of the joint venture brands such as GM-Shanghai, and led the Chinese auto industry towards a new paradigm. According to the statistics of the CAAM, the sales of the domestic auto brands have reached 2.933 million and the market share of these brands was about 30.89 % in the year of 2010.<sup>4</sup> China's domestic auto makers have better understanding about the domestic customers' needs, more flexible design ability to accommodate customers' preferences, and stronger cost management, and thus play an increasingly important role in the market place. Domestic auto brand manufacturers, as represented by BYD, CHERY and GEELY, continuously increase their investments on R&D and product designs, and have significantly improved quality and functionality of their autos, gained higher degree of recognition from the market, and accelerated growth of their sales and market shares.

Energy saving and emission reduction have been commonly acknowledged in the car designs, and using new energy undoubtedly is the direction to go for the further development of auto industry. Ever since 2008, how to develop new-energy-driven automobile has become the focus of the entire global auto industry with the increased pressure of the soaring oil price, the energy saving and emission reduction. In order to make the strategic transition for its growth model, the

---

<sup>4</sup> <http://www.caam.org.cn/newslist/a35-1.html>

Chinese government issued a series of policies to support the new-energy-driven cars. The auto industry has been listed as one of the strategic emerging industries in China's long term plan. For example, in June 2012, the China's State Council released "The 12th Five-Year Plan for National Strategic Emerging Industries". According to this plan, the new energy auto industry will accelerate the R&D on its core technologies and applications to enhance the industry integration. As announced by China's Ministry of Finance, they plan to inject about 1–2 billion RMB every year into new-energy-driven auto industry and remove all the restrictions on license plate auction, license-plate lottery and traffic control with new-energy-driven cars. These policy supports and the awareness of general public about energy conservation and emission reduction will undoubtedly drive the development of the new-energy-driven auto in China into a new stage.

According to a forecast issued by IIT in Japan, the sales of electric cars, hybrid cars and plug-in hybrid cars will reach 4 million units in 2015, and 8 million in 2020. In addition, according to a recent research report issued by the China Academy of Science and Technology for Development,<sup>5</sup> the ownership of pure electric cars and plug-in hybrid cars in China can rise to above 0.5 million by 2015, the moderate/heavy hybrid cars can approach 1 million and the average fuel consumption of the passenger cars will be reduced to 5.9 l/100 km, and the power battery production capacity can be nearly 10 billion watts. By 2020, the ownership of pure electric cars and plug-in hybrid cars can grow to 5 million units, sales of moderate/heavy hybrid cars will account for 50 % of the sales of passenger cars, the domestic automobile fuel efficiency can meet the international standard, and the average fuel consumption of the passenger cars will approach 4.5 l/100 km. Such huge new-energy-driven auto market will become the determining factor for the auto companies in competing for their market positions.

Meanwhile, long term demand for electric cars is projected to keep growing with focus on the second- and third-tier cities in China. Alike to the auto industry's development in Japan and Korea in the past, it's quite promising for China's auto market to remain fast growing in the next 3–5 years along with the high economic growth in China. Considering the large population and low ownership per family in China, the forecasted growth rate of automobile sales can reach 10 % in the next 10 years.<sup>6</sup>

However, there are some downsides as well for the auto industry in terms of strict regulations and control on the entry permit, investment, production and sales for the auto industry in China. On one hand, the development policy of automobile industry enacted by China's National Development and Reform Committee (NDRC) has clearly stipulated that the initial investment of an automobile factory should be above RMB 2 billion, the investors' own fund should be no less than RMB 800 million, and the R&D investment could not be less than RMB 500 million. Such huge capital requirement is the main barrier for the new entries.

---

<sup>5</sup> <http://www.casted.org.cn/en/web.php?NewsID=5327>

<sup>6</sup> <http://auto.sohu.com/20120712/n348008224.shtml>

On the other hand, the economy of scale plays an important role in the auto industry, and it won't be profitable until a certain level of scale is achieved. Therefore, it is usually difficult for a new company to be able to conduct large-scale production and secure the operation funds from day one. In addition, there is also high requirement for the technology used, and a company may be stuck in an unfavorable situation if it lacks independent research ability and its core technology.

### **2.3 All Movement Starts with Power**

Even though BYD is best known today for its new-energy-powered cars, its initial business line is rechargeable batteries. The market share of the rechargeable batteries that were made domestically in China has been sustainably growing during the last several years. Currently, the rechargeable batteries are widely used in the cell phones, laptops, electric tools and other electronic products. More specifically, lithium Ion battery has been utilized in mobile phones, laptops and digital cameras, and nickel cadmium battery has been installed in the electric tools and electric toys. Of course, the largest application of rechargeable battery is still the cell phone.

At present, the rechargeable batteries are primarily produced in China, Japan and Korea. The major producers are Sanyo Electric, SONY and Panasonic in Japan, and Samsung and LG in Korea. The companies in China, Japan and Korea pretty much dominate the entire lithium Ion battery market worldwide. In addition to BYD, there are also some other producers in the Chinese domestic market, such as China Bak Battery, Tianjin Lishen Battery and Dongguan New Energy. As the competition intensified, the market share of Japanese producers has been diminishing while China and Korea's shares have been on rise.

The industry's entry threshold, however, has been elevated due to the technology upgrade and increased scale of production. The rechargeable batteries require high technologies which are needed to ensure the stability and energy density for battery products. At present, some core technologies can only be developed by BYD and few large companies in Japan and Korea. New entrants are confronted with big obstacles if they don't have the access to such key technologies.

Moreover, it is often those large-scaled electronic product companies that are the buyers of the rechargeable batteries as well, and they typically demand high quality for the batteries. The supplier can obtain the opportunity to provide such high quality products with low cost only if they have large-scaled production and possess fine quality control system. Therefore, the new entrants will find it even harder to break into the current market.

Fast development of the downstream industry and stable increase of demand for rechargeable battery is the trend in the current rechargeable battery industry. Many portable electronic devices such as mobile phones, personal computers, digital

cameras, digital video cameras and MP3 have gradually become parts of consumers' daily life, and lithium-ion battery has been gradually adopted in these electronic products. As a result, the demand for lithium-ion battery has been increasing significantly. Meanwhile, the market share of NI-MH battery and nickel-cadmium cell has been decreasing due to the low energy density. However, the NI-MH battery market share remained stable due to the demand from the hybrid cars. In addition, the government policy supports towards the new-energy-driven automobiles will further increase the demand of rechargeable battery including NI-MH battery, because such battery serves a critical role for new-energy-driven cars.

More specifically, there are three factors that BYD's rechargeable batteries powered the success of BYD's car business. The first one is BYD's independent research that enabled BYD to develop the lithium iron phosphate battery, which is a safer, greener, longer lasting, and less expensive technology with a technical advantage over the NI-MH battery in the operation of hybrid electric vehicles (HEV) in terms of energy density, power generating, discharge rate, and the improvement in the acceleration performance, maximum speed and endurance of cars. At present, BYD has more than 100 lithium iron phosphate battery patents and more than 90 patent applications.

The second one is the better power generator for the electric vehicle that BYD produced. The permanent magnet synchronous motor (PMSM) developed by BYD has bigger power, torque, and lower weight-to-power ratio, with productivity of 5–60 kw, which can completely meet the requirements of dual-mode electric vehicles and Blade Electric Vehicles (BEV).

The third one is the synchronized power control system. The integrated power control system of BYD matches power cell, driving motor and the whole vehicle system all together. This system combines the hybrid mode and the EV mode, and, in this way, the goal of "going green and environment protection" is also achieved in the sense that cars may only rely on the battery when the cell is full. When battery is low, however, it will be switched to the hybrid mode and the fuel efficiency is also raised.

## 2.4 The Energy of New Energy Industry

At the same time, many attentions have been given to the clean or alternative energies in general. Concerning on the non-reproducible nature of the existing energies and environment protection, many countries are looking for a solution of renewable energy for sustainable economic growth. Solar energy came into people's attention and got increasing policy support because of its abundance, even distribution and cleanliness. In addition, it requires relatively low initial investment, and is closer to the end users, which helps solve the problems caused by the long distance transmission, lower the operating cost, and increase the transmission

efficiency. Therefore, solar energy has become one of the major trends of future energy development in the world, including China.

Technically, however, the solar and wind types of energy cannot be integrated directly to the traditional power grid due to their highly dependence on the environment and unstable power. For this reason, electric-power storage stations can help smooth the electricity power provision of solar energy and solve the issue of instability. In addition, the electric-power storage station can store the energy surplus and release them when there is a need or shortage. This functionality of electric-power storage station can adjust and iron out the “peaks and troughs” in the electricity demand curve.

According to a forecast released by Pike Research, the market scale of energy storage stations will increase from USD \$1.5 billion in 2010 to \$35.3 billion in 2020.<sup>7</sup> With the development of the new-energy-generated electricity and smart grid, the large scale of commercial application of the electric-power storage station will be accelerated, and this will greatly enhance the development of the new rechargeable batteries represented by the iron cell. According to the data provided by the European Photovoltaic Industry Association (EPIA), the installed capacity of solar energy reached 7,203 MW in 2009, and will reach 0.3 billion MW in 2014, and the sales revenue of solar energy battery will attain \$165 billion in 2015.<sup>8</sup>

Holding the core technology and well maintained government relationship, BYD has become the leader in the new energy industry in China by making great effort and progress in the new energy automobiles, solar energy and electric-power storage stations.

The key for new energy vehicle is the battery which is also one of the most important factors that customers are concerned on new energy vehicle. The competition of new energy vehicles boils down to the competition of the batteries. However, BYD started the R&D on battery technology very early and gained tremendous early comer advantages. BYD is now a leading electric vehicle maker in the entire world. In 2008, BYD introduced the hybrid car F3DM which was the first model not relying upon the professional charging stations, and electric car E6 and electric bus K9 appeared later. BYD's good government relationship also helped BYD promote and commercialize its electric vehicles successfully. In 2010, BYD sold 1,000 K9 electric bus to Changsha municipal government. In addition, in 2011, BYD signed a memorandum of understanding (MOU) with the SMRT Corporation in Singapore, which manages public transportation of Singapore, for further cooperation in the electric buses and taxies, and an agreement with the DAN Bus Company in Israel to replace the half of its current operating vehicles with BYD's electric bus, which is also the first time for Israel to have the full-sized electric bus. What's more is that the BYD's E6 pure electric taxi running in Shenzhen has very good performance. On average, every E6 car has been

---

<sup>7</sup> Pike Research: [http://finance.21cn.com/newsdoc/zx/a/2013/0204/08/20343293\\_all.shtml](http://finance.21cn.com/newsdoc/zx/a/2013/0204/08/20343293_all.shtml)

<sup>8</sup> EPIA: <http://www.epia.org/home/>

running over 1 year and 100,000 km without any technical defects and the quality of battery has been tested to be highly stable and reliable. Motivated by the maturing technology, abundant government subsidies, and the establishment of the charging facilities, the electric vehicle industry starts to grow fast, and BYD is undoubtedly the largest beneficiary.

Solar energy is another revenue engine for BYD in its initial field—rechargeable battery industry. BYD has established a vertical integration of business lines including poly-silicon, Silicon chip, battery module and packaging. BYD entered into the solar industry in October 30, 2008 by taking the Solar Cell Project from the Shangluo municipal government in Shanxi province. This is a multi-phased construction program for an annual productivity of 1 GW poly-silicon and 1 GW solar energy. In the first phase of project, BYD had achieved the annual output of 100 MW poly-silicon and 100 MW solar energy in 2010, and in phase two, it had realized the annual output of 300 MW in 2011. So far, the annual output has risen to 600 MW and the ultimate goal is to reach 1 GW annually. The businesses of solar cells and parts have brought revenue of RMB 759 million to BYD. For any solar energy companies, the core competence would be the energy conversion efficiency and the conversion cost. As for the energy conversion efficiency, BYD has a leading edge of 16.5 % of efficiency in the world. Then, for the conversion cost, BYD adopted the metallurgical method instead of the traditional Siemens process.<sup>9</sup> This helps BYD lower down its cost by 20 %. With the superiority in cost and efficiency, solar cell has become the important cash cow of BYD.

BYD also did well in the electric-power storage stations. The iron cell of BYD has an advantage over those traditional lead acid batteries in that iron cells have high-power charge-discharge property and avoid the problem of instability of wind energy and solar energy. BYD got the pilot project to build up the electric-power storage stations and the energy conversion system for the China Southern Power Grid Co. in August 2010. Later, BYD started cooperation with the Los Angeles Department of Water and Electricity (LADWP) in the project to develop the renewable electricity power grid in September 2010. BYD also signed a contract with the Changsha municipal government for a project of a 10 MW electric-power storage station. With the support of the various level of government in and outside China, BYD made the steady progress in the commercialization of electric-power storage stations.

---

<sup>9</sup> Siemens process referred to a popular process based on the thermal decomposition of trichlorosilane at 1100 °C on a heated silicon rod placed inside a deposition chamber. This process was developed in the late 50s with reference to the company that carried out its early development and was abandoned recently due to its high energy consumption and pollution.



## 2.5 Money Is Power, Too

BYD became notable not only because it developed a new type of physical power to energize new types of automobiles and new electronics, but also it presented to the business community and beyond a great example to utilize the financing to “power” its success.

In addition to its historical listing HK Stock Exchange in 2002 with HK\$1.6 billion raised, which significantly consolidated BYD’s leading position in the battery industry, and provided BYD with the opportunity to enter the auto industry, BYD also conducted pre-IPO financing to make BYD not only technically ready for taking-off, but also financially ready for getting access to the public funding to support its business expansion.

At the end of August 2008, Warren Buffett was interviewed by “Squawk Box” of CNBC and told interviewer that “You will see me making abundant investment in China in favorable environment.” Following his talk soon, on September 27, 2008, Buffett’s Sino-American Energy Holdings Co. announced buying the shares of BYD. Sino-American spent \$230 million for buying 225 million shares of BYD, which account for 10 % of the entire BYD outstanding shares.

Buffet’s PE equity financing is critical for BYD’s next step development and eventual success. It was not difficult to figure out the decline of the traditional auto industry then and the key for the future development lies in the new-energy-powered automobiles. Not only these new types of automobiles are the solution to the energy safety and environmental protection, but also it represents future cash cow of the industry. Those who can secure their market positions today will have much better chance to earn a higher return in the future.

However, the issue is that it will typically take a really long time to see pay-off for the investment on new-energy-driven vehicles, while the R&D on new-energy-driven vehicles usually requires a huge amount of funds. Without sufficient capital and technological innovation ability, the chance for failure is high in terms of either R&D, or the commercialization of the innovation. Moreover, back in 2008, the infrastructure for electricity charge stations in China was not in place yet, and these new-energy-driven automobiles were just scraps.

However, BYD’s financing ability by getting the favor of Buffett totally changed the game. Buffet’s injection of his PE equity fund helped BYD obtain the money needed for R&D, and also made BYD ready for its later gaining the access to the public funding. Since then, everything happened in BYD was considered to be aligned with the expectations. BYD’s stock price soared for almost ten times in 2009. The USD \$230 million of Buffett’s investment rose to \$2.3 billion and Chuangfu Wang became the richest man of the year in China.

In addition, a strategic investor such as Warren Buffett not only brought BYD with financing, but also generated great branding effect for BYD. With Buffet’s investment, BYD was known by the whole world overnight. To help BYD gets publicized, Buffett even recommended BYD’s electro mobiles to President Obama of United States. This “soft power” truly energized BYD for its full speed journey.

## 2.6 Innovation through Imitation

The success of BYD was also largely attributed to its “imitation-based innovation” model advocated by Chuanfu Wang. As a CEO with engineer background, Wang requested that all the engineers of BYD should learn how to disassemble cars first, and BYD even allocates a budget for purchasing these best designed and made cars such as Benz, BMW and Toyota for the engineers to disassemble, imitate, and then, possibly innovate. During the course, BYD tried all possible ways to legally follow the patent protection requirements.

Facing the questions regarding whether BYD was actually just a copying cat, Chuanfu Wang responded in the following way. It seems to him that, for any creation of a new product in this world, 60 % is based on public literature, 30 % on existing samples, the 5 % is on material factors, and only 5 % comes from an independent R&D. BYD adopted many non-patent technologies and how to mix these non-patent technologies became BYD’s innovation. Patents should be respected but the dispute for patent issue could be legally resolved. It seems to him, the imitating-based innovation is not purely copying and it’s legal.

Based on such a model, BYD has made a great breakthrough on the R&D and produced a car of model BYD-F3 that is the first model of entirely-domestic-made car with sales over 100,000 units in China. At the same time, this model significantly reduced the budget for R&D, and hence, reduced the production cost and made the car more affordable for more potential buyers.

## 2.7 The Vertical Integration of An Entire Industry Chain

BYD recognized that the imitation-based innovation may help BYD’s growth to certain extent, but cannot help maintain their leading position in the market in the long run. As Chuangfu Wang stated, BYD’s ultimate goal is to build an advanced R&D platform instead of merely imitating. Indeed, what truly helped build up BYD’s leading position in the market place is its vertical integration across rechargeable batteries, new-energy-powered automobiles, and new energy industries based on their unique advantages in the battery technology.

BYD introduced the new hybrid car model F3DM to the market on December 15, 2008. F3DM was equipped with the “iron cell” which was independently developed by BYD with more than 700 patents that BYD has applied for. Such iron cell was widely considered a great technology breakthrough, and that’s also one of the reasons why many global companies haven’t made significant progress in the electro-mobile industry yet, simply because they haven’t developed such advanced batteries.

To the investors, the true attractiveness of BYD is its leading position in several important new-energy-related industries through the vertical integration based on

its advanced battery technology. Rupert Hoogewerf<sup>10</sup> once said, Chuangfu Wang follows the trend in scientific and technology development, innovation in new energy, and the rising environmental concerns, and thus, created a new pattern in the auto industry.

Furthermore, the BYD's vertical integration covers a whole industry chain including energy generation, collection, transportation, charging, electro mobile parts, and electro mobiles. According to a forecast issued by the World Bank,<sup>11</sup> the market value for the entire automobile chain can reach USD \$280 billion by 2020—a very promising future for the companies in the industry. And currently, BYD is the only auto company who has integrated the whole industry chain.

## 2.8 Can BYD Continue Its Legacy?

BYD's core business lines consist of automobiles, rechargeable batteries and new energies. As for the automobile industry, as the development of new-energy-powered vehicles is heavily dependent upon the build-up of charging stations and the government's subsidies, so the new-energy-powered cars may not be able to be popular in a large scale in the next 3–5 years. Regarding the traditional-energy-powered car business, the second and third tier cities in China will become the main growing markets in the near future. One of the features of this market is its high level of sensitivity to price, which is definitely a piece of good news to BYD, because BYD can offer cars with a very affordable price and high performance-to-price ratio. Consequently, the key to capture such market is to design a variety of different car models and increase the performance ratio.

On the other hand, the new-energy-driven vehicles have gained increased attentions of the Chinese government, as China has started some quite generous subsidy policies to stimulate the purchase of new-energy-driven vehicles. It is expected that China's accumulative electric and hybrid vehicles will reach 500,000 units by 2015 and 5 million by 2020. As of June 2010, China's central government has launched trial subsidy programs in five Chinese cities—Shanghai, Changchun, Shenzhen, Hangzhou and Hefei. The program offers a subsidy of up to RMB 60,000 (about USD \$9,523.2) to buyers of purely electric vehicles and RMB 50,000 to hybrid vehicle buyers. As a result, with the advanced technology and well-maintained government relationship, BYD's future in new-energy-driven vehicle business seems promising.

As for the rechargeable battery business, even though the sales revenue of BYD's rechargeable batteries has displayed some downturn recently due to the

---

<sup>10</sup> Rupert Hoogewerf, born in Luxembourg, is the publisher of the Hurun Report, a monthly magazine best known for its "China Rich List", a ranking of the wealthiest individuals in China. As a qualified chartered accountant, Hoogewerf worked for 7 years at Arthur Andersen, before launching Hurun Report.

<sup>11</sup> The China New Energy Vehicles Program: Challenges and Opportunities, World Bank, 2012.

revenue reduction of its customer companies that generally purchase batteries as part of their end product purchase from BYD, the sales of lithium battery used in new-energy-driven vehicles and other usages of the batteries are expected to drastically increase in the future.

However, the most promising business of BYD seems in the solar energy field. Because of its advantages in the R&D and manufacturing, BYD will be able to expand its solar business to the downstream power stations and establish a comprehensive photovoltaic power chain. Given its combined expertise in PV power station and storage, BYD can provide comprehensive on- and off-grid solutions in various markets of power storage.

As the first decade of the twenty-first century has revealed, this century will be a century that are featured by significant technology innovations, including the ones in the new energies that will power and shape our daily life for the rest of this century and beyond. Either by his vision, insight, or purely luck, Mr. Wang and BYD has occupied a very strategically advantageous spot that will allow BYD to fully capture all the potentials that the century will bring to a firm. To run a successful business in China today, one needs to have several ingredients of success in hand: low cost, high technology, adequate capital, industry integration, well maintained government relations, and powered by new energy. As the story told in this chapter, BYD is lucky enough to have them all. Therefore, it should be reasonable to trust Warren Buffet's judgment, as proved by the majority of his previous decisions, and project BYD with an even more gloried future.

Who Gets Funds from China's Capital Market?

A Micro View of China's Economy via Case Studies on  
Listed Chinese SMEs

Wang, J.G.; Yang, J.

2013, XVIII, 139 p. 12 illus., Softcover

ISBN: 978-3-642-44912-3