Full Speed to Green
Chinese Firms Take Pole Position in the Clean Car Race

In July 2009, ten of the most influential independent Chinese car manufacturers met to form an alliance to take the lead in the race to develop clean car technology. This came in response to the government's announcement of plans to make China a world leading manufacturer of hybrid and all-electric vehicles within three years.

At this meeting the group agreed to develop industrial standards and to overcome jointly the obstacles of green car technology. This step will allow the participating companies to cut research and development costs as well as to reduce the risks involved. High-profile manufacturers who signed up for the alliance include Chery, which provided a fleet of clean cars for the Olympics and recently launched its hybrid car, the A5 BSG. Other members, such as SAIC, the biggest car company in China, and Geely, have also announced plans to launch hybrid cars as early as 2010.

BYD Going It Alone

A notable absentee from the gathering was BYD, the poster child of the Chinese clean car industry. The upstart car manufacturer has an edge over its Chinese and foreign competitors when it comes to battery technology, and is the beneficiary of a USD 230 million (RMB 1 = approx. USD 0.14) investment by the US billionaire Warren Buffet. Being one of the world's largest battery manufacturers, it has experience with lithium-ion batteries, regarded as the most promising technology for plug-in cars because of its high energy density and low weight.

In December 2008, BYD presented the first dual mode electric vehicle in the world, the F3DM EV, to the public. So far, however, the F3DM has only been available for public fleet users and not to private consumers. Nevertheless, this move placed BYD ahead of its Chinese competitors and foreign car manufacturers such as GM, Nissan, and Toyota, all of which plan to hit the market with their respective cars at the end of this year.

Level Playing Field

Last year China became the world's largest car market, overtaking the US for the first time, but it is a latecomer to petrol-fuelled cars and the industry remains highly fragmented. It also lags far behind European, Japanese, and North American competitors in terms of technology for internal combustion engines and batteries.

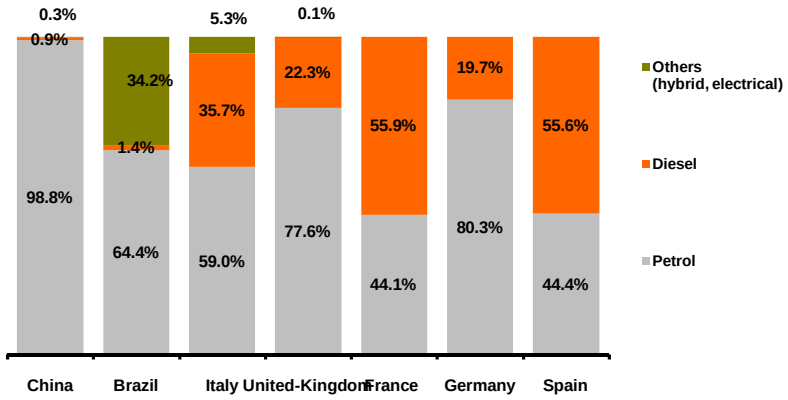
In the increasingly important clean car sector though, it stands more than equal. Electric vehicles require a technology that has not been mastered or monopolised yet by the legacy car companies, and therefore it constitutes a field of research where China can compete on the same level with Western manufacturers.

To achieve its ambitious goal of becoming a world leader the government has drawn up a framework to promote the development of the clean car industry. Beijing plans to spend USD 1.5 billion on investments to help manufacturers to upgrade relevant technology. The annual production capacity of hybrid and electric vehicles is to be 500,000 by 2012. Although this would be only five per

cent of total car sales, it would be an enormous increase compared to a mere 2,100 in 2008.

Furthermore, the government plans to have 60,000 green cars on the street by 2011. To achieve this, it will offer incentives in the form of subsidies to public-sector large fleet users of hybrid cars, such as governments, public transportation operators, taxis, and the postal service, in 13 cities. These subsidies will amount to about USD 7,300 per vehicle and will be based on the difference in price between electric vehicles and regular fuel burning vehicles. In contrast to Brazil and, to a lesser extent Italy, few new energy cars can be seen on the roads of China or Europe. Even so, China is probably one of the most promising markets for new energy vehicles.

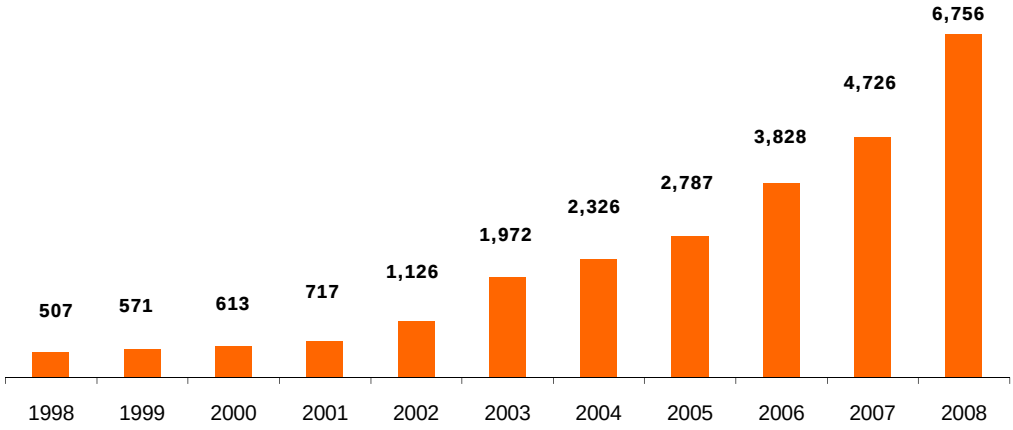
Fig. 1: Type of fuel



Source: GiPA Drivers Survey 2009

Together with the US, China is the largest emitter of greenhouse gases and its cities are well known for their heavily polluted air. With the fastest growing car market this will become even more of an urgent problem for the country. Clean energy vehicles help improve air quality as well as reduce the country's carbon footprint and its dependence on imported oil.

Fig. 2: New registrations of passenger cars (China)



Source: China Association of Automobile Manufacturer (CAAM)

Chinese Welcome Clean Transport

Clean energy transportation is already widely accepted in China, with millions of electric bicycles and scooters on the nation′s streets. Low acceptance due to the limitations of plug-in hybrids and all-electric cars would also be far less of a problem in China than in other countries. Since for most Chinese this is the first car they are buying, their expectations regarding the technology included might not be as high as those of Western customers. In addition, the driving pattern of Chinese favours plug-in vehicles. Most of the Chinese who can afford a car live in big cities and commuting distances are generally fairly short. Moreover, distances are also usually driven at low speed due to frequent traffic jams.

According to industry executives Mr Ma Ming, vice president of BYD technology department, and Mr Lu Wah Ping, deputy director of Chery′s marketing department, the main obstacles Chinese clean energy car manufacturers are facing are the issues of charging the battery and the price of the car. As most Chinese do not have a private garage, the availability of household outlets to recharge car batteries is very limited. Furthermore, the charging time of a battery can be very long: the battery of the BYD F3DM for example needs about nine hours until it is fully recharged via a household outlet. By using public charging stations this time could be reduced tremendously since the F3DM needs only ten minutes to achieve a 50 per cent charge.

Short of a Few Plugs

Convenient as this seems, the lack of fast charging facilities is holding back the roll-out of electric and other clean energy cars into the market – a problem also facing the developed world. Even the introduction of the BYD F3DM has not had the desired influence on the relevant organisations to speed up provision of the necessary services.

National Electric Network, the authority responsible for providing electric power to clean energy cars, has said that it is not willing to invest in a costly nationwide network by itself without an additional allowance supplied by the government. Aside from price, such infrastructure requires rigorous consideration of the influence on the urban electronic route reconstruction, supply of transformation devices, and on private residents′ electric reading metres.

National Electric might soon find itself working with or competing against China′s oil and gas giant, China National Offshore Oil Corp (CNOOC). CNNOC revealed in November of last year that it was considering building a nationwide recharging network for electric cars. Director of corporate strategy, Shan Lianwen, said the company is looking at the possibility of setting up stations where drivers of plug-in automobiles would be able to swap out a depleted car battery for a fully recharged one. This follows a business model already in place in parts of Israel, Canada, and the US.

Priced for the Market

Unsurprisingly, price remains the biggest obstacle to the widespread adoption of such vehicles, especially outside of the metropolises of Shanghai and Beijing. Although the BYD F3DM is priced at least 40 per cent cheaper than Toyota′s famous Prius hybrid in China, at about RMB 150,000, it is still twice as much as a comparable petrol-powered vehicle. Subsidies would therefore be necessary to make the purchase of expensive but low-emission vehicles affordable for private car buyers.

The authorities though have not yet provided any incentives to encourage the private purchase of clean energy cars. Like other countries, it implemented a "cash-for-clunkers" deal in early 2009 designed to encourage drivers to trade their old, polluting models for newer ones in exchange for a partial subsidy. They also pushed through a ten per cent tax break on smaller, more efficient vehicles such as mini-vans. The situation has forced BYD and other manufacturers to call on the government to speed up the introduction of clean energy subsidies.

In spite of these obstacles, Beijing is committed to some form of environmentally more acceptable economic policy, be it in the energy, household appliances, or transport sectors. As the latter sector receives investment, economies-of-scale will drive down market prices. Added to this is the rising cost of petrol that will force consumers to make different purchase choices.

The government sees a competitive advantage in turning China into a cleantech giant, a vision shared by many domestic car makers. Combined, they will work to overcome whatever barriers they face in order to capture market share and expand into lucrative foreign markets.