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E-mobility: China planning fresh start for domestic automobile industry

Support for e-mobility follows industrial policy objectives and aims at strengthening Chinese manufacturers; environmental objectives of minor importance

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KEY FINDINGS AND CONCLUSIONS

1. Since autumn 2013, China's government has initiated a series of programmes to promote e-mobility. New instruments and incentives aim to transform the structure of the domestic automobile sector.

2. China envisions domestic manufacturers to become market leaders in e-mobility. The political measures aim to curtail the dominance of foreign manufacturers on China's automobile market.

3. Environmental and energy aspects are of minor importance in China's new automobile policy. The government is primarily pursuing industrial policy objectives.

4. The new Chinese subsidies policy explicitly puts foreign car manufacturers at a disadvantage: imported electric cars are excluded from state subsidies, tax concessions and public procurement. China is also preparing own standards for e-car charging infrastructure.

5. If China's new automobile policy is successful, the currently very strong standing of German automobile manufacturers in high-margin market segments will come under increasing pressure.

6. China's new automobile policy is currently still undergoing a phase of reorientation. This phase is characterised by intensive negotiations, numerous pilot programmes, and further revisions of state funding measures in quick succession.

7. The reorientation phase provides a time window for co-development of the policy. Together with their Chinese partners, German and international market players have the opportunity to play an active role in the development of standards and political measures.

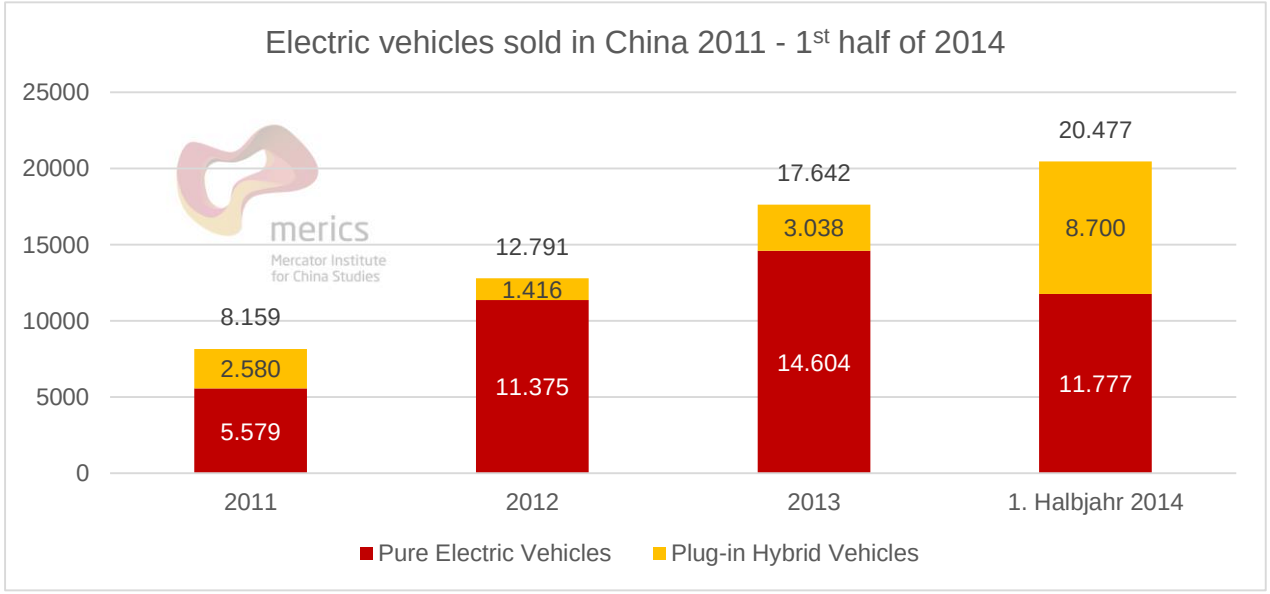
In the space of several months, the development of e-mobility [1] in China has gained significant momentum. A sector whose prospects for the future in China seemed anything but promising until recently has in no time at all become the focus of political attention. As a consequence, the Chinese government has quickly developed new subsidy measures. The situation changes almost by the day, as new support schemes are announced, discussed, implemented and again called into question. German car manufacturers, which generate large parts of their income in China, are right at the centre of all this. The Chinese government has other plans in the medium term, however. **Its objective is to fundamentally alter the structure of the automobile sector by subsidising e-mobility, and to break the market dominance of foreign manufacturers [2] in the automobile sector.**

1. The government's objective is to strengthen the domestic automobile industry

The Chinese government is in no doubt that e-mobility is the future of the Chinese automobile industry. There is great pressure from the highest political level. President and party leader Xi Jinping expressed his opinion in May that e-mobility was the only way China could take the step from being a "major car-producing country" to being a "strong car-producing country". Xi made it perfectly clear: **the Chinese government's subsidisation of e-mobility is an industrial policy objective. Environmental and energy aspects are – unlike in Germany – of lesser importance.** The motivation for the subsidisation of electric vehicles is to strengthen domestic automobile brands vis-à-vis their foreign counterparts. The Chinese leadership senses the opportunity to break the market dominance of foreign companies in the automobile sector. As the government feels China has little chance of attacking the strong competitive position of foreign automobile companies as far as vehicles with internal combustion enginess are concerned, it is focusing on a new market segment in which domestic manufacturers can become market leaders.

The political subsidisation of e-mobility in China pursues two objectives:
I) E-mobility is to become popular
II) Domestic manufacturers are to dominate
China is not pursuing these goals from a strong position, however, but rather in response to the drastically poor sales figures of Chinese car manufacturers. The subsidising of e-mobility is therefore also a **rescue operation for the domestic automobile industry**.

Overview 1: Sales figures for electric vehicles in China



Source: China Association of Automobile Manufacturers (CAAM)

2. The experimentation phase offers an opportunity to exert influence

E-mobility has been on the agenda of Chinese policy-makers since 2009. **Since the revision of subsidy policies and the announcement of new pilot projects [3] in September 2013, the government is devoting more political attention to e-mobility.** This has two causes. Firstly, Beijing is reacting to the increasing market presence of foreign electric vehicles, such as the Tesla Model S. Secondly, the goal-oriented funding of domestic manufacturers and technologies has generally gained in importance under the new government. International car manufacturers also feel this as an effect of the recent cartel proceedings: The pressure on foreign companies has increased recently.

This greater level of political attention can primarily be linked to the speedy implementation and revision of political measures. This political realignment brings with it great uncertainties, but it also offers **a time window for all parties to exert their influence**. **Foreign players can also take advantage of this time window, as none of the measures adopted in this phase are set in stone.** This phase is more about negotiation processes and extensive consultations. There are a number of issues where a rethink still seems possible.

3. Local policy experiments are at the same time supportive and inhibitive

Chinese e-mobility is once again in an experimentation phase following the naming of 38 new pilot cities and provinces in November 2013 [4] and February 2014 [5]. This phase is characterised by high correlation of local and national interests. With the relaunch of these pilot projects, the central state is showing – unlike with earlier pilots – **a higher level of enforcement**. **The respective cities and provinces are also** more actively supporting the promotion of e-mobility[6].

The individual pilot cities and provinces are experimenting with local funding schemes that are an extension of the central state subsidies and that are aimed at promoting the success of e-mobility (see Overview 2 for examples of measures).
The pilot cities and provinces are primarily pursuing their own economic interests by funding e-mobility. The resulting local protectionism is both an impetus and a hindrance. Local governments are supporting their own industry by excluding electric vehicles made in other provinces from their local subsidies and public procurement processes, or by introducing their own charging standards. In this way, the cities are also testing possible subsidisation schemes that the national government might adopt if they are deemed successful. However, this leads to **fragmentation of the market into many local companies that are not competitive as well as to individual isolated solutions at local level that will delay the spread of e-mobility across the country**.

4. Foreign manufacturers at a disadvantage

A great number of Chinese funding schemes for e-mobility exclude foreign manufacturers. These do therefore not benefit from subsidies for electric vehicles, for example, and have to offer their models at significantly higher prices. There are also high import taxes for vehicles that have not been produced in China. The reduced sales tax for electric vehicles introduced at the start of September 2014 does not apply to imported cars either, despite the initial announcement to the contrary from the State Council[7].

Overview 2: The political objectives and measures of the central government and selected cities

	Objectives	Measures (selection)
Central government	By 2015: 500,000 electric vehicles By 2020: 5 million electric vehicles By 2015, 30 percent of all new vehicles sold for public transport are expected to be electric vehicles.	• Naming pilot cities and provinces • Subsidies for cars and public transport vehicles in the pilot regions • Electric vehicles to be exempt from sales tax
Beijing	By 2015: 35,000 electric vehicles, of which 30,000 are cars A total of 36,900 charging stations to be installed by 2015	• Additional subsidies of the same amount as the central state subsidies • The subsidy amount will remain constant after 2015 until at least 2017. • Penalties will be imposed on property developers if they refuse to allow charging stations for private users to be installed on their property. They must provide the required services free of charge, such as making construction plans available.
Wuhan	By 2015: 10,500 electric vehicles, of which 4,300 are cars Charging stations to be installed in 20 percent of all car parks in newly constructed residential areas and in all large public car parks.	• Additional subsidies of the same amount as the central state subsidies • Toll exemption for electric vehicles • Free parking in public car parks for the purpose of charging electric vehicles • Electric vehicles are exempt from driving restrictions designed to reduce the volume of traffic.
Xi'an	By 2015: 11,000 electric vehicles, of which 5,300 are cars 500 charging stations to be installed by 2015 A minimum of 60-70 percent of all vehicles built for local public transport / the public sector are to be electric vehicles → a minimum of 1,100 vehicles by 2015	• Additional subsidies of the same amount as the central state subsidies • Electric vehicles to be exempt from road tax

It appears that China's introduction of its own standards for quick charging (with DC current) **is aimed at creating unfavourable market conditions for foreign vehicles** (see Section 8). These measures are designed to facilitate the dominance of the e-mobility market by domestic manufacturers of electric vehicles. It has not yet been ruled out, however, that the situation may improve for foreign manufacturers through negotiation and the exertion of influence (see the scenarios in Section 9).

5. Price advantages for Chinese manufacturers

A number of Chinese manufacturers have launched their own electric vehicles on the market. **Thanks to the state subsidies, the electric vehicles can be offered at prices that enable them to compete with conventional cars. The same can certainly not be said for Germany, for example.** This not only allows electric vehicles produced in China to compete with electric vehicles manufactured abroad, but also with vehicles that have internal combustion engines. **However, neither the quality and design nor the status value of Chinese electric vehicles can compete**

with foreign models thus far. Chinese manufacturers are also playing catch up when it comes to the performance and efficiency of their batteries. This is where foreign manufacturers have the chance to gain successes on the Chinese e-mobility market despite all of the disadvantages.

6. Increasing willingness to buy among consumers

The reluctance to buy electric vehicles is similarly high in China as it is in Germany. As is the case everywhere, doubts about the sufficient availability of charging facilities is the main impediment.
Safety considerations have also come to the fore in China after several vehicles made by Tesla and BYD caught fire. China cannot currently be regarded as a private consumer market for e-mobility. **Recent surveys have shown, however, that consumers are becoming increasingly prepared to purchase an electric vehicle[8].** The basic prerequisite is therefore in place for e-mobility to be a success in China. **Yet the willingness of consumers to buy a Chinese electric car is still much lower.** Even if Chinese manufacturers were to quickly bridge the gap in quality, it would still take some time to generate increased willingness to buy due to the poor reputation of Chinese vehicles. Foreign manufacturers will continue to dominate consumer business until then.

Overview 3: Costs for electric vehicles in Beijing

How much does an electric vehicle cost in Beijing?[1]				
Type of vehicle	Vehicle model	Original retail price (in CNY)	Retail price taking into account all concessions (round figures)[2]	
			CNY	EUR
Electric vehicles solely powered by electricity	Beiqi E150EV	220,800 – 230,800	106,900 – 116,100	12,800 – 14,000
	BYD E6	309,800 – 369,800	169,300 – 224,200	20,300 – 26,900
	BMW i3 (import)	450,000	450,000	54,000
	Tesla Model S (import)	648,000 – 852,500	648,000 – 852,500	77,800 – 102,300
Plug-in hybrid electric vehicles	BYD Qin	189,800 – 209,800	140,350 – 158,650	16,900 – 19,100
	Roewe 550 Plug-In	248,800 – 259,800	194,250 – 204,350	23,300 – 24,600
	Chevrolet Volt (import)	498,000	498,000	59,800

[1]Our own calculations based on http://auto.sina.com.cn/calculator/ [2] Subsidy amount dependent on type of vehicle and range of vehicle; the amount of locally paid subsidies differs from city to city; subsidies apply for 2014. Subsidies will be gradually reduced on a yearly basis until 2016. Imported vehicles will not benefit from state subsidies. They have also been excluded from sales tax concessions until now.

In order for consumer business to contribute to the strengthening of China's e-mobility industry, either the price advantage will have to increase further or the quality of Chinese electric vehicles will have to improve greatly.

7. Public transport and taxis to take the lead, with private consumers to follow

The reluctance of consumers also influences political strategy. The strategy focuses on the use of e-mobility for public transport (local public transport, street cleaning, post office vehicles, etc.) and in the taxi business. **China is looking to public procurement to strengthen e-mobility.** According to the plan for public procurement of electric vehicles published in July 2014, electric vehicles are intended to make up 30 percent of all vehicles sold in the public sector by 2016[9]. Chinese manufacturers are therefore – unlike their foreign competitors – concentrating on developing vehicles that are also suitable for use as taxis. Electric buses are an equally important part of the Chinese manufacturers' strategy. The boost offered by public procurement particularly serves to empower domestic manufacturers. Public procurement will continue to be important in promoting e-mobility in the future. A transition is afoot, however. Incentives such as the reduction in sales tax and the debate on introducing petrol tax, whose revenue would be used to install more charging stations, show that **public transport is to take the lead as the main sales market, while the most recent political focus has been targeted at strengthening consumer business.**

8. Charging facilities to be rapidly expanded

The Chinese government is aware that e-mobility cannot be successful without a large network of charging stations across the country. The central government is therefore applying high pressure on all relevant parties. For electric vehicles used in public transport, the central government has decided there should be a 1:1 ratio of charging stations to vehicles. In addition to an increased use of electric vehicles, all pilot cities and provinces are pursuing **ambitious goals for the expansion of charging facilities**[10]. Cities such as Beijing and Shenzhen have set themselves particularly high targets, while also pursuing ambitious targets regarding electric vehicles for private use.

9. Use of standards as a political instrument

A large obstacle preventing the economically and technically viable expansion of the charging infrastructure is the yet-to-be-settled process of standardising charging stations. It is not just individual cities that continue to use different standards. There are also different companies operating with their own standards within the same city. So various systems currently exist alongside one another in China, which represents a hindrance to the expansion of e-mobility. An additional hurdle for foreign manufacturers is that **China seems to be intent on going it alone with regard to standards for quick charging (with direct current, DC).**

With regard to charging standards for slow charging (alternating current, AC) there has already been progress in the unification of German/ European and Chinese standards, also thanks to German efforts. When it comes to quick charging standardisation, the state operator State Grid[11] has suggested that any company that wishes to use Chinese quick charging facilities in cities or on motorways will have to adapt to the Chinese standard. **Of paramount importance here is the industrial policy objective of disadvantaging foreign competitors by introducing a Chinese standard that is not compatible with international standards.** Meanwhile, negotiations on the standards will continue. There is every chance that this strategy will be reconsidered, as a separate Chinese standard would be disadvantageous in the long-term for Chinese manufacturers planning to expand onto international markets.

10. Scenarios – what next for Chinese e-mobility?

Scenario 1: E-mobility prevails – Chinese manufacturers dominate – foreign players fail to exert influence
Political measures - Discrimination against foreign manufacturers - Local protectionism: Central government approves local protectionism until leading companies are strong enough, before intervening to forbid such protectionist measures at local level - Introduction of binding national standards, massive state investment in converting charging facilities and expanding the charging infrastructure to cover the whole country
Key policy results - Significant increase in sales figures for electric vehicles from the end of 2014; e-mobility can compete with conventional vehicles - Chinese manufacturers conduct development activities behind the protective shield of the state (subsidies, public procurement, etc.) to create high-quality and technologically advanced electric vehicles - Market shares of foreign companies in the Chinese automobile market fall significantly as electric vehicles become increasingly popular - Prices of electric vehicles on the Chinese market are comparatively low

Scenario 2: E-mobility is partly successful – Chinese manufacturers fail to become dominant – foreign parties successfully influence developments
Political measures - Due to foreign influence: Approval of foreign vehicle models for government incentives at central and local levels - Due to foreign influence: Compatibility with international standards - Local protectionism forbidden - Little state investment in expanding the charging infrastructure due to reduced industrial policy motivation
Key policy results - Increase in sales figures for electric vehicles, but significantly less than in Scenario 1; no strong competition for vehicles with internal combustion engine - Stable, strong market shares for foreign companies, but stronger competition with Chinese manufacturers than previously - Chinese manufacturers develop better quality and more technologically advanced electric vehicles that can, however, only to a limited extent compete with foreign manufacturers' models. - Prices for electric vehicles on the Chinese market high compared to Scenario 1, as the sector is dominated by foreign models
Scenario 3: China's industrial policy is not successful – e-mobility does not become popular – foreign vehicles dominate
Political measures - Local protectionism has control of the automobile sector; no uniform national standards or business models for e-mobility - Targeted discrimination of foreign manufacturers continues. - No extensive investment in expanding the charging infrastructure, due to a deterioration in the economic situation or scarce public funds
Key policy results - E-mobility fails to establish itself, consistently low sales figures for electric vehicles; no competition for vehicles with internal combustion engines - Foreign-brand vehicles with internal combustion engines dominate the Chinese automobile sector - High market shares for foreign companies (thanks to vehicles with internal combustion engines as well as in the niche market of e-mobility) - Chinese manufacturers fail to develop high-quality or technologically competitive electric vehicles - High prices for electric cars - The charging infrastructure continues to have poor coverage

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[1] The term used in Chinese for electric vehicles " 新能源汽车" (new energy vehicles) includes vehicles powered solely by electricity, plus plug-in hybrid vehicles and hydrogen vehicles. For the current political subsidies programme, non-plug-in hybrid vehicles do not fall into the category of new energy vehicles in China. Unless expressly stated otherwise, this MERICS China Monitor considers "e-mobility" and "electric vehicles/cars" to encompass both electric vehicles that are powered solely by electricity and plug-in hybrids. Due to their scant importance for the Chinese market, hydrogen vehicles have not been included in the analysis.

[2] For the purpose of simplification, this MERICS China Monitor refers to "foreign" and "domestic" manufacturers. In actual fact, foreign automobile companies active in China are only active within joint ventures with domestic manufacturers, as this is a requirement in China (in e-mobility, Daimler is pursuing this model), or else they only import their vehicles (e.g. BMW and VW). Strictly speaking, the separation of "foreign" and "domestic" must therefore differentiate between:

- Chinese companies or Chinese/foreign joint ventures largely developing and manufacturing in China in which the Chinese side owns or gets the desired technological knowhow, and
- Manufacturers or vehicle models with foreign owners that do not conduct the technology transfer as desired from the Chinese side

[3]MOF, MOST, MIIT, NDRC (2013a): "关于继续开展新能源汽车推广应用工作的通知". http://www.gov.cn/zwgk/2013-09/17/content_2490108.htm, accessed on 1 September 2014

[4]MOF, MOST, MIIT, NDRC (2013b): "四部委确定第一批新能源汽车推广应用城市或区域名单". http://www.mof.gov.cn/zhengwuxinxi/caizhengxinwen/201311/t20131126_1016259.html, accessed on 1 September 2014

[5]MOF, MOST, MIIT, NDRC (2014): „关于支持沈阳长春等城市或区域开展新能源汽车推广应用工作的通知". http://www.most.gov.cn/tztg/201402/t20140212_111800.htm, accessed on 1 September 2014

[6]Xinhua (2014): "政府工作报告作出 6 处重要修改". http://lianghui.people.com.cn/2014npc/n/2014/0312/c376088-24619046.html, accessed on 3 September 2014

[7]MIIT, State Administration of Taxation (2014): "免征车辆购置税的新能源汽车车型目录(第一批)" http://www.miit.gov.cn/n11293472/n11293832/n11293907/n11368223/16122662.html. Accessed on: 05.09.2014

[8] Tencent Auto (2014): "新能源汽车消费及投资前景报告发布". http://auto.qq.com/a/20140423/020982.htm, accessed on 1 September 2014

[9] National Government Offices Administration (2014): "政府机关及公共机构购买新能源汽车实施方案". http://www.ggj.gov.cn/gzdt/201407/t20140711_286065.htm , accessed on 1 September 2014

[10] MERICS China/Mapping (2014): "Auf Probefahrt: Chinas Pilotstädte und -provinzen für Elektroautos" ("Taking a Test Drive: China's electric vehicle pilot cities and provinces")*.http://www.merics.org/merics-analysen/china-mapping/auf-probefahrt-chinas-pilotstaedte-und-provinzen-fuer-elektroautos.html, accessed on 1 September 2014

[11]Diyi Diandong (2014): "中德电动标准到底"统一"了什么？". http://www.d1ev.com/news/industry/2014071132873.html, accessed on 1 September 2014