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Special Issue: New Energy Vehicles in China

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Minister Wan Gang Attends Discussion over Automotive Development at 2014 NPC and CPPCC Sessions

On March 4, 2014, those NPC deputies and CPPCC members who are related to automotive industry held discussion in Beijing. Besides 30 of them, the participants also included representatives from the National Development and Reform Commission (NDRC), MOST, the Ministry of Industry and Information Technology (MIIT), the Ministry of Finance (MOF), China Machinery Industry Federation, China Association of Automobile Manufacturers and China Society of Automotive Engineers. Wan Gang, vice chairman of the National Committee of CPPCC and minister of Science and technology, and Miao Wei, minister of industry and information technology, attended the discussion.

The talks focused on how to build up a new drive for China's growth by developing automobiles, particularly new-energy vehicles(NEVs). Minister Wan

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pointed out that developing new-energy vehicles should go through three stages-covering R&D, demonstration and market entry, and in the third stage, market rules should be followed and manufacturers should adopt innovative technologies and new management styles, and that by support of generic technology platforms and government policies, new business models will be developed from the standpoint of users. According to him, as new business models emerge with the technological advances and efficient use of vehicles, more efforts should be dedicated to facilitating the automotive industry's future development.

(Source: MOST, March 13, 2014)

Policy , Technology Support and Business Model

In September 2013, MOF, MOST, MIIT and NDRC jointly issued a circular on further promoting the use of new-energy vehicles from 2013 to 2015, unveiling specific policies on fiscal subsidies for buyers in the regard. It serves as a catalyst for the development of NEVs in coming years.

According to the circular, a battery-electric passenger vehicle will receive a subsidy of 35,000 to 60,000 yuan; a plug-in hybrid passenger vehicle with a range of 50 miles on battery power will receive 35,000 yuan; the subsidy for a battery-electric bus will range from 300,000 to 50,000 yuan; a battery-electric special-purpose vehicle will receive 2,000 yuan per kilowatt battery capacity, with the total amount not exceeding 150,000 yuan; a fuel cell passenger vehicle 200,000 yuan; and a fuel cell commercial vehicle 500,000 yuan.

Meanwhile, the subsidy will be given by way of reducing year by year. For instance, the subsidy for battery-electric passenger vehicles, plug-in hybrid passenger vehicles (including extended range type), battery-electric specific vehicles and fuel cell vehicles in 2014 and 2015 will be cut by 10% and 20% respectively based on 2013. The amount for battery-electric buses and plug-in hybrid buses (including extended range type) will remain unchanged.

Minister of industry and information technology Miao Wei emphasized that as products must be recognized by the market, the government subsidy is merely a temporary measure. New-energy vehicles will be finally accepted by the market with their commercial advantages.

Technology support

According to MOST, by March 2013, the number of new-energy vehicles running in 25 pilot cities had increased to 39,800 from 27,432 at the end of 2012, and charging/swap stations had exceeded 8,000. It marked China as a frontrunner in the use of new energy vehicles in the world. The production of new-energy vehicles also increased rapidly. 47,800 had been produced in 25 pilot cities, and over 60,000 nationwide by the end of July 2013.

China launched the major R&D Project on electric vehicles (EV) in 2001. Now, a research and innovation network, with the focus on new-energy vehicles, parts and components and key technologies, has been put in place. The cost of lithium battery has now fallen by nearly 50 percent from 5 yuan/wh in 2009, and the energy density has more than doubled. The life cycle of a single cell has increased substantially. The annual production of power batteries has reached 20 billion wh, which can meet the needs of 200,000 vehicles.

According to MOST, a networked system of charging facilities will be built, and the business model for infrastructure and their operators and the price for EVs' electricity consumption will be specified. Innovative market models will be adopted. Business models for charging facilities will be worked out. Multiple players will be mobilized to be involved in the construction and operation of the facilities, and a rational profit sharing mechanism and an open, sustainable infrastructure operating mechanism will be developed at an early date.

Business model

In 2013, as a way to facilitate the commercialization process, some cities started rental services of new-energy vehicles, allowing common users to experience advantages of NEVs as an environment-friendly and low-cost mode of transport. Beijing and Hangzhou are two pioneer cities. Renting is becoming a new way to expand NEV market.

In May 2013, EV Beijing Partnership Program was launched in Tsinghua High-tech Park, which signifies that new-energy vehicles are starting to open to private consumers in Beijing. All 16 BAIC Group's E150Eev were rented out. In the first half of September, the Program's university trip started in Beijing Institute of Technology, providing 30 battery-electric vehicles for the faculty members there. For the next step, the Program will reach Beijing Jiaotong University, Tsinghua University and others, and high-tech parks. Its ultimate aim is to cover 100 high-tech parks and 100 universities by 2017and build a shared university EV rental network so as to increase efficiency in the use of the vehicles.

To facilitate the use of EVs, the Program has allied utilities, transport companies, charging post manufacturers and management companies for high-tech parks. To appeal to potential buyers, Beijing has built access allowing citizens to EVs test-drive as a means to cultivate EVmarket.

In September 2013, China's first EV rental center started running on a trial basis in Hangzhou. The electric vehicles, known as micro-buses, can be rented at any time, with a charge of 20 yuan per hour. More than 30 such centers are planned in Hangzhou, with a goal to put 5,000 to 10,000 EVs into use within a year.

Though the business model of EVs is not yet mature, its impact on the whole industry is positive and the message from users' experiences is vital to EV commercialization in future.

(Source: China High-tech Industry Herald, November 4, 2013)

Marked Progress Achieved in NEV Demonstration

Ten Cities-One Thousand Vehicles Pilot Program for new-energy vehicles was jointly initiated by MOST, MOF, NDRC and MIIT in 2009. Since then, NEV development has been expedited in China, and electric buses have grown into a highlight in the pilot cities.

In 2012, China published the Energy Saving and New-Energy Vehicle Industry Development Plan (2012-2020), in which it set forth the roadmap of focusing on the commercialization of battery electric vehicles and plug-in vehicles, and promoting non-plug-in hybrid vehicles. Therefore, China will prioritize battery electric vehicles for long-term development of new energy field, while expanding the use of hybrid vehicles to be fuel-efficient.

According to statistics, over 80 percent of the buses in the Pilot Program are hybrid vehicles, and are locally recognized for their energy saving performance. At the annual local CPC and CPPCC sessions early this year, 21 provincial governments confirmed their plans of developing new energy industry, among which 12 would accelerate the development of new-energy vehicles.

Over the past few years, a group of NEVs have been put into operation in different cities. For example, the Tianjin Bus Group bought 106 hybrid buses produced by Yutong Group in April 2012, and used them on four BRT lines. So far, the 100 plus buses have traveled a total distance of 10 million km and saved 30 percent fuels, which showcased their advantages to the government and the public. The Tianjin government has approved a plan for the promotion of NEVs, targeting at another 12,000 cars by the end of 2015.

The Baoding Bus Group of Hebei Province bought 300 Yutong new-energy buses in March 2013, which could cut hazardous emission by 6,000 tons each year based on statistics available. The Hebei provincial government also launched its new energy car promotion campaign at the local CPC and CPPCC sessions.

The above examples proved that domestic new-energy vehicle manufacturers, such as Yutong Group, are capable of mass producing high quality energy saving vehicles, the performance of which has been acknowledged by the users.

Experts say that hybrid buses are now ready for commercialization, but the high cost is the major constraint. Therefore, the government needs to continue its support for the expanded use of such vehicles with preferential policies, while also paying due attention to the development and use of battery electric cars, thus facilitating sound growth of both energy saving and new energy auto industries.

Yutong Group handing 106 hybrid buses to Tianjin Bus Group in March, 2012

Yutong new energy buses in operation

New energy buses in operation in Zhengzhou

(Source: Science & Technology Daily, March 5, 2014)

First Group of NEV Pilot Cities Announced

The Ministry of Finance announced the first group of 28 pilot cities and regions for new-energy vehicles, including Beijing, Tianjin, Shanghai, Chongqing and city clusters in the provinces of Hebei, Zhejiang, Fujian, Jiangxi and Guangdong. The listed automobile manufacturers, such as BYD and JAC, were confident about the future market.

According to experts in this area, the Chinese government has set high thresholds for potential candidates for the pilot program. The municipalities and key regions need to put at least 10,000 new energy vehicles into use during 2013-2015, while the rest will each have to promote a minimum of 5,000 such vehicles. This is much higher than the requirement of 1,000 vehicles each year in each city specified by the Pilot Program launched in 2009. The target number for Beijing, Shenzhen and Tianjin is 35,000, 34,980 and 12,000 respectively.

The announcement is definitely good news for automobile manufacturers. A promotional representative from JAC confirmed that the producers were assured of subsidy for selling new energy vehicles in the pilot cities. He also said that a new model of their battery electric vehicles was being tested, and would be launched in Shanghai once it met the local entry criteria.

BYD representatives indicated that the announcement would enable their new energy cars to enjoy the same policies as those of local producers, which facilitated market expansion. According to them, the BYD fuel-efficient cars would also be shipped to Shanghai for testing.

(Source: China High Tech Industry Herald, December 2, 2013)

New-Energy Vehicles Witnessing Rapid Development

On February 8, the Ministry of Finance, MOST, Ministry of Industry and Information Technology and National Development and Reform Commission jointly published a document on the promotion of new energy vehicles, reducing the NEV subsidy by 5 percent in 2014 from 2013 level, and by 10 percent in 2015. The document also made it clear that the NEV subsidy would continue after 2015.

According to China Passenger Car Association, this document showed the government's determination on developing NEVs, which would boost the confidence of both the market and the producers and push forward the NEV industry. With expanded subsidy and improved infrastructure, NEVs are embracing rapid growth in China. In addition, the NEV subsidy will continue after 2015, which is good news for the industry.

Based on the statistics of China Association of Automobile Manufacturers, 17,533 new energy vehicles were produced in 2013, an increase of 39.7% than the previous year, among which 14,243 were battery EV and 3,290 were plug-in hybrid vehicles. In the same year, 17,642 such vehicles were sold, a growth of 37.9% than 2012, and among them 14,604 were battery EV and 3,038 were plug-in hybrid vehicles.

Moreover, the second group of 12 pilot cities for NEV was announced, including Shenyang, Changchun, Harbin and cities from Inner Mongolia, Jiangsu, Guizhou and Yunnan province.

Many more regions have shown interests in developing new energy vehicles since early 2014. Among 31 provinces, 21 have identified new energy industry as a priority in the local government work report, and 12 have put the focus on new energy vehicles. Shanghai is planning to develop distributive energy supply system to support the expansion of NEVs; Guangdong will focus on NEVs and energy efficient electric engines; Shanxi has identified the pilot city program as a local priority in 2014, and Liaoning is trying to adopt NEVs for any newly added buses and taxis.

In a plan for developing fuel-efficient and NEVs issued early this year, the Tianjin Municipal government proposed to promote such vehicles among private users. In doing so, the government will build 41 battery swap stations, 5 vehicle charging stations, 1 centralized battery charging station, 6 battery delivery stations, 1,680 AC charging posts and 74 gas filling stations by 2015. By 2020, the charging facilities will be increased to result in 71 swap stations, 5 vehicle charging stations, 3 centralized battery charging stations, 30 battery delivery stations, 16,000 AC charging posts and 132 gas filling stations so as to form a charging network for new energy vehicles.

The Beijing Municipal government issued a document in January this year to finalize local subsidy for new energy passenger cars at the same level as the national one, with a subsidy ceiling of 114,000 yuan. On February 11, the government published a detailed regulation to set clear rules for the entry and exit of new energy passenger car producers and products in Beijing so as to ensure the quality of related products and services. At the same time, the government will scale up the promotion of electric taxi cars as well as the building of charging facilities.

Zhejiang Province is taking the lead in terms of NEV purchases among private users, number of new energy cars promoted as well as operational performance. In 2014, the province is planning to develop new approaches for the commercial operation of new energy cars, improve infrastructure and services, run a pilot program for industrial technology innovation, and enhance the talent pool and capital needed for NEV development.

(Source: China High Tech Industry Herald, February 17, 2014)

Business Community Concerning about NEV Progress

The sales of new energy vehicles are expected to grow markedly in 2014. At the 4th Global New-Energy Vehicle Conference, Ye Shengji, Deputy Secretary-General of the China Association of Automobile Manufacturers, predicted that 60,000 to 80,000 NEV will be sold in China in 2014, which is 3-4 times than in the previous year.

According to Ye, the sales of NEV was 17,000 in 2013, including hybrid cars. "Since the national subsidies for NEV will be further implemented in 2014, we expect that the sales of NEV will increase to 60,000 to 80,000, if local monopoly can be broken up, and among them about 30,000 are passenger cars," Ye said.

The most powerful impetus comes from policy initiatives. In September 2013, the Ministry of Finance, MOST, Ministry of Industry and Information Technology and National Development and Reform Commission issued a document to continue NEV promotion, targeting at 500,000 NEVs. The new subsidy policy is more encouraging, as the business community reckons, "the manufacturers are better mobilized since the subsidy goes directly to them rather than the local government budget."

According to a company executive, NEV development will accelerate in 2014, and is going to boost in 2016 and 2017.

Mr. Fu Yi, Deputy General Manager of Potevio, said that more should be done to scale up the industrial development of NEV to satisfy the growing market, and the necessary infrastructure, such as charging stations and posts, must be built in advance. Potevio started to build charging stations in Shenzhen in 2009, and has invested a total of 1.3 billion yuan in the past four years. PetroChina, Sinopec and other industrial giants will also expand the input in charging facilities.

(Source: China High Tech Industry Herald, Jan. 20, 2014)

MOST Official Talks about NEV

Electric vehicles in China have grown rapidly over the past 15 years, and will develop better in the future, according to a MOST official at 2013 International Forum on Electric Vehicle Technology Innovation (EVTIF 2013).

According to preliminary statistics, over 70,000 energy-efficient and new-energy vehicles had been produced by the end of August 2013. Through EV pilot program and EV technology innovation program, an efficient coordination mechanism at national level has been put in place. This, combined with industrial plans, R&D programs and fiscal policies, has speeded up EV technological innovation.

The official pointed out that with new favorable policies for new energy vehicles, EV industry should seize the opportunities brought by auto industry restructuring, and unleash innovation potential, in a bid to promote further growth of EVs.

(Source: Science and Technology Daily, October 28, 2013)

Scholar Talks about Development and Technology of New Energy Vehicle

Dr. Ouyang Minggao, member of the Standing Committee of CPPCC and professor of Tsinghua University, said at 2013 EV Technology Innovation Forum that, China's auto industry faces challenges in energy mix, air pollution and CO2 emission, and the strategy of auto energy development is two-fold. On the one hand, we should optimize the existing energy system and develop energy-saving vehicles, namely the transition strategy; on the other hand, we should start technology transformation, develop new-energy vehicles and build new energy systems, namely the transformation strategy. The parallel interactive strategy will help ensure sustainable development of vehicle energy in China.

Dr. Ouyang said that the core of energy-saving and new-energy vehicle is to change the energy system, while the essential components of the energy system platform are still engine and battery (including fuel cells) and power drive system. He suggested more efforts be made for technical innovation of the engine. "If you want me to name the single most important technology, I would say battery and charging facilities."

According to the professor, there are three approaches to building a new generation of energy system at present. The first is to evolve from gasoline vehicle to hybrid vehicle (HV) to rechargeable hybrid electric vehicle (HEV), which is absolutely a major development process for the vast majority of commercial vehicles and passenger vehicles above middle level in a long period to come; second is from natural gas vehicle to fuel cell vehicle; third is to research on battery, motor and power drive system to build various forms of battery electric vehicles (BEVs).

Dr. Ouyang thought that there are three approaches to the development of NEVs in China. First is to develop advanced internal combustion engine, and then develop it into hybrid engines and rechargeable engines; second is to realize mass production of small battery EVs, as such EVs have become the current trend; third is that enterprises could build platforms to develop fuel cell vehicles, as fuel cell vehicles share the same platform of fuel system with gas vehicles, and applicable electric chassis with battery EVs, and similar power platform with hybrid vehicles.

He pointed out that, in order to build integrated EV platforms, we should develop from module electrification to BEV, from light HEV to deep HEV, from vehicles with clutches to without clutches, and finally to diversification of energy sources. Besides fuel cell platforms, the integration of slow AC charging is equally important.

The scholar believed that,"major cities or clusters of major cities are the basic components in China's transportation system. China has already ranked the world's No.1 in new energy vehicle application in major cities' public transportation systems, in inter-city hi-speed railway transportation, in electric bicycle usage in counties and towns. We've made huge achievement in electric transportation, and will strive for the next miracle in China's EV development."

(Science & technology Daily, October 28, 2013)

Beijing Embraces New Energy Vehicle

Beijing announces new measures for purchasing new energy vehicles

On January 28, Beijing officially announced Management Method on Demonstration and Application of Small New Energy Passenger Vehicles.

The document says that 50 percent of subsidies come from state finance and 50 percent from Beijing finance according to the Notice on Further Promoting New Energy Vehicles issued by central government. The total subsidy will be no higher than 60 percent of the selling price. In Beijing, consumers can pay at a subsidized price.

To improve air quality and develop strategic emerging industries, Beijing strove to see 170,000 new energy vehicles on streets by 2017.

New energy vehicles will be licensed under a separated distribution system. License plates will be directly distributed if applications are fewer than allocated, and be randomly chosen if applications are more than allocated. In 2014 Beijing, 10,000 new energy vehicles are supposed to be allocated to individuals, and 10,000 to organizations. In January this year, 1771 applications have been approved by license-plate lottery system, among which individuals own 731 effective codes, and organizations own 1040 effective codes.

To accelerate the promotion and demonstration of NEVs, the Method states that Beijing Municipal Science & Technology Commission is responsible for promoting technical progress of small new energy passenger vehicle and coordinating with relevant departments in demonstration and application; Beijing Municipal Commission of Development and Reform, building charging facilities; Beijing Municipal Commission of Economy and Information Technology, approving and recording enterprises and products involved in the demonstration and application; Beijing Finance Bureau, allocating and supervising financial subsidies; Beijing Municipal Commission of Transport, reviewing application of small new energy passenger vehicles; Beijing Traffic Management Bureau, allocating license-plates; Beijing Municipal Administration of Quality and Technology Supervision, conducting compliance testing and random testing.

(Source: Science & Technology Daily, January 29, 2014)

Beijing releases detailed rules on NEVs access

In February, 2014, Beijing Municipal Commission of Economy and Information Technology, Beijing Municipal Commission of Development and Reform, Beijing Municipal Science & Technology Commission, Beijing Municipal Administration of Quality and Technology Supervision jointly issued a notice on detailed rules of reviewing and recording NEVs enterprises and products.

According to the Notice, the NEVs should specify on mileage, highest speed, highest speed within 30 minutes, (0-50)km/h acceleration performance, (50-80) km/h acceleration performance, energy consumption rate,

storage battery capacity, make commitments on quality, and meet standards of safety performance in Beijing.

The Notice also states that manufacturing companies should have complete sales and after-sales service system. Non-Beijing-registered manufacturing companies of small new-energy passenger vehicles should get registered in agencies of industry and commerce in Beijing, or entrust one auto sales agency in Beijing with legal entity status to do it; In addition, 5 or more maintenance centers for such vehicles will be located in reasonable service areas; so as to arrange technical staff to work in sales and maintenance, and build charging facilities, mainly fast charging ones that are open to the public; provide 24-hour services, and take actions within 30 minutes after the occurrence of accidents; build or entrust institutions and individuals to build self-use charging facilities, and cover that in after-sales service system; provide guidance and training on safe use of such vehicles; and offer quality guarantee for vehicles for no less than 3 years or 60,000 km, and for key components like batteries for no less than 5 years or 100,000km.

(Source: Science & Technology Daily, February 17, 2014)

Beijing to build 5km-radius charging service network for vehicles

On January 28, 2014, Beijing's first "P+R" (Park and Ride) charging station near Fengbo Station, railway Line 15, was put into use. This marks the first attempt in Beijing to build charging stations in public parking lot. It aims to build a 5km-radius public charging service network from 2014 to 2017, paving the way for gradual popularization of private electric vehicles.

What was simultaneously put into use was the centralized charging station in Houshayu, Shunyi District. The two stations, located respectively in east and west Shunyi District, has formed a charging network featuring centralized charging and distributed recharging, thus bringing more benefit for local electric taxis by increasing their mileage. Meanwhile, according to the needs of electric taxis and private electric vehicles, relevant departments will utilize social resources in a reasonable manner, build up a dual system of parking at appropriate times and charging when parking, and provide more convenience for charging EVs.

According to 2013-2017 Beijing Clean Air Action Plan, it is estimated that by 2017, there will be 200,000 new-and-clean-energy vehicles in the city, among which 180,000 will be battery EVs and 170,000 will be for private use. Correspondingly, State Grid Beijing Electric Power Company mapped out 2013-2017 Clean Air and Electric Power Action Plan. Under the guidance of Beijing Science & Technology Commission, charging facilities will be built in "P+R" parking lots, 4S EV stores, expressway service areas, large stores and public parking lots, thus a public charging service network will be built in area within a radius of 5 km.

(Source: Science & Technology Daily, January 28, 2014)

Beijing NEV Experience Center established and put into operation

Supported by MOST and Beijing Science & Technology Commission, Beijing NEV Experience Center was established and put into operation. The Center is dedicated to building a platform integrating NEV policy publicity, driving philosophy, knowledge popularization, simulated experience and test drive. Up till now, we have built in-door experience & exhibition hall, auto exhibition hall, test drive fields, charging facilities, and online experience centers. The public could gain knowledge on NEV through hi-tech interaction & exhibition systems like simulated driving system, touching system and AR system (a real-time interactive system).

Since the establishment of the Center half a year ago, the Center has received a total of 8,000 people. It has been awarded as Beijing Science Popularization Base. In the Center, the public could gain knowledge on NEV, and get to know NEV manufacturing process, working principle, energy conservation and environmental protection, thus gradually understanding the necessity and significance of NEV development and relevant policies.

(Source: Ministry of Science and Technology, January 8, 2014)

(Editor's Note: All news in the issue are translated from Chinese texts for your reference. They are subject to checks and changes against official release of original Chinese or English texts.)