Notice from Four Ministries and Commissions on the Issuance of the ‘Action Plan for Promoting the Development of the Automotive Power Battery Industry’

Notice from the Ministry of Industry and Information Technology, the National Development and Reform Commission, the Ministry of Science and Technology and the Ministry of Finance on the Issuance of the ‘Action Plan for Promoting the Development of the Automotive Power Battery Industry’

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To the competent authorities for industry and information technology, the National Development and Reform Commissions, the Departments (Commissions, Bureaux) of Science and Technology, and the Departments (Bureaux, Financial Bureaux) of Finance in all provinces, autonomous regions, municipalities directly under the Central Government, cities with separate planning status, and the Xinjiang Production and Construction Corps:

In order to implement the ‘Notice of the State Council on Issuing the Development Plan for the Energy-saving and New Energy Vehicle Industry (2012-2020)’ (State Council Document [2012] No. 22) and the ‘Guiding Opinions of the General Office of the State Council on Accelerating the Promotion and Application of New Energy Vehicles’ (State Council General Office Document [2014] No. 35), to accelerate the enhancement of the development capacity and standards of China’s automotive power battery industry, and to promote the healthy and sustainable development of the new energy vehicle industry, the ‘Action Plan for Promoting the Development of the Automotive Power Battery Industry’ has been formulated.This is hereby issued to you; please implement it conscientiously in accordance with local circumstances , and promptly report relevant progress to the Office of the Inter-Ministerial Joint Conference on the Development of the Energy-Saving and New Energy Vehicle Industry.

Ministry of Industry and Information Technology, National Development and Reform Commission

Ministry of Science and Technology, Ministry of Finance

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Action Plan for Promoting the Development of the Automotive Power Battery Industry

Power batteries are the heart of electric vehicles and are crucial to the development of the new energy vehicle industry. After more than a decade of development, China’s power battery industry has made significant progress; however, the performance, quality and cost of current power battery products still fall short of the requirements for the widespread adoption of new energy vehicles. In particular, there remains a considerable gap between China and international advanced standards in terms of fundamental key materials, system integration technology, manufacturing equipment and processes. This Action Plan has been formulated to accelerate the enhancement of China’s automotive power battery industry’s development capacity and standards, and to promote the healthy and sustainable development of the new energy vehicle industry.

I. General Requirements

(1) Guiding Principles

We shall thoroughly implement the spirit of the 18th National Congress of the Communist Party of China and the Third, Fourth, Fifth and Sixth Plenary Sessions of the 18th Central Committee, firmly uphold the development concepts of innovation, coordination

, green, open and shared development concepts; take the promotion of supply-side structural reform as the main thrust; and accelerate the implementation of the innovation-driven development strategy

. In accordance with the overall arrangements of ‘Made in China 2025’, we shall realise the strategic objectives for the development of new energy vehicles, give full play to the leading role of enterprises, increase policy support, improve the collaborative innovation system, achieve breakthroughs in key core technologies, and accelerate the formation of a power battery industrial system with international competitiveness.

(2) Basic Principles

Adhere to innovation-driven development. Adopt a market-oriented approach with enterprises as the main actors; strengthen the construction of a collaborative innovation system involving industry, academia, research and application; accelerate breakthroughs in key core technologies; and significantly enhance product safety and quality standards.

Uphold industrial synergy. Strengthen guidance through policy measures, give full play to the role of industry organisations and industrial alliances, promote close integration between the power battery sector and related industries such as materials, components, equipment and complete vehicles, and advance the coordinated development of the entire industrial chain.

Adhere to green development. Advocate a full life-cycle approach, improve the policy and regulatory framework, vigorously promote eco-design, and advance the development of systems for the secondary use and recycling of batteries, thereby achieving low-carbon, circular and intensive development.

Uphold open cooperation. Make full use of global resources and markets; innovate approaches and models; continuously raise the calibre and standard of cooperation; actively participate in the formulation of international standards and technical regulations; and continuously enhance international competitiveness.

II. Development Directions and Key Objectives

(1) Development Directions

Continuously improve the performance, quality and safety of existing products, further reduce costs, and ensure the supply of high-quality power batteries by 2018; vigorously advance the research, development and industrialisation of new types of lithium-ion power batteries, achieving large-scale application by 2020; focus on strengthening fundamental research into new power battery systems, and achieve technological transformation and development testing by 2025.

(2) Key Objectives

1. Significant improvements in product performance.By 2020, the specific energy of new-generation lithium-ion power battery cells will exceed 300 Wh/kg; the specific energy of battery systems will aim to reach 260 Wh/kg, with costs reduced to below 1 yuan per Wh, an operating temperature range of −30 °C to 55 °C, and support for 3C charging capability. By 2025, breakthrough progress will be made in new-system power battery technology, with cell

specific energy reaching 500 Wh/kg.

2. Product safety will meet the requirements for large-scale deployment. New materials will be widely adopted, whilst intelligent manufacturing and consistency control will be significantly improved. Product design and system integration will satisfy functional safety requirements, ensuring safe production and use throughout the entire life cycle.

3. The industry will develop in a reasonable and orderly manner. By 2020, the total production capacity of the power battery industry will exceed 100 billion watt-hours, with the emergence of leading enterprises possessing international competitiveness and production and sales volumes of over 40 billion watt-hours.

4. Major breakthroughs have been achieved in key materials and components. By 2020, key materials and components such as cathodes, anodes, separators and electrolytes will reach world-class standards; the upstream industrial chain will achieve balanced and coordinated development; and innovative backbone enterprises with core competitiveness will be established.

5. High-end equipment will underpin industrial development. By 2020, equipment for the research and development, manufacturing, testing, validation and recycling of power batteries will have achieved automated and intelligent development, with production efficiency and quality control levels significantly improved and manufacturing costs substantially reduced.

III. Key Tasks

(1) Establishing Power Battery Innovation Centres

Promote the establishment of collaborative, open and shared power battery innovation platforms involving large, medium and small enterprises, universities and research institutes, whilst guiding and supporting the pooling of superior resources to form market-oriented innovation centres.Accelerate the establishment of R&D and design, pilot-scale development, testing and validation, and industry service capabilities that meet internationally advanced standards. Conduct research into major key common, fundamental and forward-looking technologies for power batteries—including key materials, individual cells and battery systems—as well as research into intellectual property strategy and portfolio development, to provide the industry with support in areas such as technology development, standard-setting, talent cultivation and international exchange. (Ministry of Industry and Information Technology)

(2) Implement the Power Battery Upgrading Programme

Coordinate support for power battery R&D through national science and technology programmes (special projects, funds, etc.) to achieve a specific energy of over 300 Wh/kg for individual cells by 2020, continuously improve product performance, and accelerate the adoption of high-performance products in vehicles. Encourage leading power battery enterprises to collaborate with upstream and downstream partners to concentrate efforts on breakthroughs in key technologies for materials and components, individual cells and battery systems, thereby significantly enhancing the performance and safety, and strive to achieve the industrialisation and application in complete vehicles of new lithium-ion products with a cell energy density of 350 Wh/kg and a system energy density of 260 Wh/kg. (Ministry of Industry and Information Technology, Ministry of Science and Technology)

(3) Strengthening Research into New-System Power Batteries

Through the National Key Research and Development Programme, the National Natural Science Foundation and other initiatives, universities, research institutions and key enterprises are encouraged to collaborate on the research, development and innovation of new-system power battery products. Active efforts will be made to promote the research and engineering development of new-system batteries such as lithium-sulphur batteries, metal-air batteries and solid-state batteries, with the aim of achieving a specific energy of 400 Wh/kg or more for individual cells by 2020 and 500 Wh/kg by 2025.(Ministry of Science and Technology, Ministry of Industry and Information Technology, National Natural Science Foundation of China)

(IV) Promoting the Coordinated Development of the Entire Industrial Chain

Relying on major technical transformation and upgrading projects and the major project package for enhancing the core competitiveness of the manufacturing sector, support will be increased for overcoming bottlenecks and the industrialisation of key core technologies. Efforts will be accelerated to foster a number of leading enterprises in fields such as cathodes, anodes, separators, electrolytes and battery management systems. The coordinated development of the power battery industry with related sectors—including materials, components, equipment and complete vehicles—will be promoted, thereby advancing the construction of an industrial chain system that is self-reliant, controllable, coordinated, efficient and aligned with development objectives.Support the research and development of high-performance supercapacitor systems and further expand their industrial application.
(Ministry of Industry and Information Technology, National Development and Reform Commission, Ministry of Science and Technology)

(5) Enhancing Product Quality and Safety Standards

In light of technological progress and industrial development, adjust and refine management measures such as the standardised conditions for the power battery industry and the access management rules for new energy vehicle manufacturers and products. Strengthen supervision and inspection of product quality and safety; encourage power battery manufacturers to enhance technological and managerial innovation; improve production standards and quality assurance systems; ensure safe production; and enhance capabilities for online monitoring, online control and full life-cycle traceability of product quality, thereby continuously improving product performance and quality and safety standards. (Ministry of Industry and Information Technology, General Administration of Quality Supervision, Inspection and Quarantine)

(VI) Accelerating the Development and Improvement of the Standards System

Publish, implement and continuously refine the standardisation roadmap for new energy vehicles.Strengthen the formulation and revision of standards covering power battery product performance, service life, safety, reliability, smart manufacturing and recycling; formulate and implement standards such as those for power battery specifications, dimensions and product coding rules. Ensure the thorough implementation of national standards, and encourage enterprises to establish corporate standard systems that exceed national requirements. Support industry organisations and enterprises in actively participating in the formulation of international standards and technical regulations, and continuously enhance their influence in the field of international standards and technical regulations. (Ministry of Industry and Information Technology, General Administration of Quality Supervision, Inspection and Quarantine)

(7) Strengthening the Development of Testing, Analysis and Evaluation Capabilities

Support the development of power battery testing and analysis capabilities through the ‘Made in China 2025’ special fund and national science and technology programmes. Strengthen research into testing technologies and evaluation methods; accelerate the formulation of industry-wide testing and evaluation procedures; and improve the evaluation system that

combines enterprise self-testing, public service testing and national certification testing. Encourage research institutions, testing and certification bodies, as well as power battery and new energy vehicle manufacturers, to accumulate relevant data on product testing and validation, thereby laying a solid foundation for product development, the formulation and revision of standards, and product consistency control.

. (Ministry of Industry and Information Technology, National Development and Reform Commission, Ministry of Science and Technology, General Administration of Quality Supervision, Inspection and Quarantine)

(8) Establish and improve the safety supervision system

Implement comprehensive supervision throughout the entire lifecycle of power batteries, including production, use and end-of-life disposal, and encourage industry organisations and specialist bodies to establish product information service platforms. Improve the safety supervision system for new energy vehicles; manufacturers of new energy vehicles should monitor and manage the operation and safety status of the complete vehicles and power batteries they sell

, and establish a product safety early-warning system and a mechanism for the regular identification of potential safety hazards, thereby strengthening the prevention of safety incidents. (General Administration of Quality Supervision, Inspection and Quarantine; Ministry of Industry and Information Technology)

(9) Accelerating the R&D and Industrialisation of Key Equipment

Through initiatives such as the Major Equipment Upgrading Programme to Address Weaknesses, promote the industrialisation of complete sets of intelligent manufacturing equipment; encourage strategic alliances between power battery manufacturers and equipment manufacturers; explore the establishment of cooperative models involving shared capital and risk; strengthen collaborative research and development of manufacturing equipment for critical processes; advance the industrialisation of complete sets of digital manufacturing equipment; and enhance the stability, reliability and level of intelligence of such equipment to effectively meet the demands of power battery production and resource recycling. (Ministry of Industry and Information Technology, National Development and Reform Commission)

IV. Supporting Measures

(1) Strengthening Policy Support

Leverage the guiding role of government investment in attracting private capital; encourage the use of private capital to establish a power battery industry development fund; and increase support for power battery industrialisation technologies. Provide coordinated support for core technology R&D through national science and technology programmes (special projects, funds), etc.
; utilise funding channels such as those for industrial transformation and upgrading, technological modernisation, high-tech industrial development programmes, smart manufacturing programmes, and the Advanced Manufacturing Industry Investment Fund to provide targeted support to leading enterprises in areas including cutting-edge basic research, battery products and key components, manufacturing equipment, and recycling.Power battery products that meet the relevant criteria shall be exempt from consumption tax in accordance with regulations; power battery enterprises that meet the relevant criteria shall enjoy tax preferential policies for high-tech enterprises, technology transfer and technology development, in accordance with regulations. (Ministry of Industry and Information Technology, Ministry of Finance, State Taxation Administration, Ministry of Science and Technology, National Development and Reform Commission, Ministry of Commerce)

(2) Improving the Industrial Development Environment

A comprehensive review and rectification of policy measures that are detrimental to fair competition nationwide shall be carried out. The State shall unify product testing standards and specifications, whilst local authorities shall strictly implement national standards. Supervision and inspection of third-party testing organisations shall be strengthened to ensure the fairness and impartiality of testing and inspection. The ‘Technical Policy on the Recycling

and Reuse of Electric Vehicle Power Batteries (2015 Edition)' shall be implemented; measures for the management of power battery recycling and reuse shall be promulgated and implemented in due course to reinforce enterprises' primary responsibility in the production, use, recycling and reuse of power batteries, and to gradually establish and improve the management system for power battery recycling and reuse

management system. Prevent and curb monopolistic practices and unfair competition. Strengthen public opinion oversight and guidance to foster a favourable public opinion environment for industrial development. (Ministry of Industry and Information Technology, General Administration of Quality Supervision, Inspection and Quarantine, National Development and Reform Commission, Ministry of Science and Technology, Ministry of Commerce)

(3) Harnessing the Role of Industry Alliances

Establish a new, effectively functioning mechanism for industry-academia-research collaboration between power battery enterprises, research institutions, higher education institutions and upstream and downstream industries

, make full use of existing foundations and conditions to establish and improve the Power Battery Industry Innovation Alliance, and leverage the role of organisations such as industry associations,

to facilitate exchange and collaboration on the development of common key technologies, the licensing and protection of intellectual property rights, standards research, and policy recommendations; strengthen industry self-regulation; and promote the coordinated development of the power battery and related industries. (Ministry of Industry and Information Technology)

(4) Accelerating the Training and Recruitment of Talent

Establish a multi-tiered talent development system and advance efforts to cultivate, recruit and attract talent and expertise. Encourage enterprises and research institutes to focus on key core technology areas such as materials and system integration, to accelerate the cultivation and attraction of a group of internationally renowned leading talents. Strengthen the development of relevant disciplines such as power batteries and system integration; encourage enterprises, research institutes and universities to establish joint training mechanisms, enhance the development of joint training bases, and cultivate application-oriented talent in relevant disciplines. (Ministry of Education, Ministry of Human Resources and Social Security, Ministry of Industry and Information Technology)

(5) Strengthening International Cooperation and Exchange

Fully leverage the role of multilateral and bilateral cooperation mechanisms to strengthen international exchange and cooperation in areas such as technical standards, policies and regulations, and actively participate in and promote the formulation of international standards and technical regulations.Encourage mutually beneficial cooperation between domestic enterprises and high-calibre foreign enterprises, and promote the exchange of power battery technology and talent, project collaboration and the commercialisation of research outcomes. Support domestic power battery enterprises in technology transfer, product exports and overseas investment in factory construction, and encourage eligible enterprises to establish research and development centres in developed countries. (Ministry of Industry and Information Technology, General Administration of Quality Supervision, Inspection and Quarantine, Ministry of Commerce, Ministry of Science and Technology)