

The Ministry of Industry and Information Technology and seven other departments jointly issued the "15th Five-Year Plan for the Development of the New Battery Industry"

To implement the decisions and deployments of the CPC Central Committee and the State Council and promote the high-quality development of the new battery industry, in accordance with the "Outline of the 15th Five-Year Plan for National Economic and Social Development of the People's Republic of China," seven departments—including the Ministry of Industry and Information Technology, the National Development and Reform Commission, the Ministry of Transport, the Ministry of Commerce, the State Administration for Market Regulation, the National Energy Administration, and the National Railway Administration—recently jointly issued the "15th Five-Year Plan for the Development of the New Battery Industry" (hereinafter referred to as the "Plan").

The Plan proposes to coordinate development and security, with high-quality development as the theme, accelerating the construction of a new battery industry system that is innovation-led, safe, efficient, resilient, intelligent, and green. It will promote comprehensive leaps in technological innovation, product added value, enterprise competitiveness, and industrial chain modernization, providing strong support for developing new quality productive forces and advancing new industrialization. By 2030, China's new battery industry will achieve steady growth in scale; Innovation capabilities across the entire chain have been continuously strengthened, advanced materials have made new breakthroughs, and new battery system R&D has made significant progress, with leading companies' product defect rates reaching PPB level; The construction of a full-scenario application ecosystem is accelerating, with battery technology and clean energy and energy-consuming terminals developing rapidly and integrated; The integration of international trade and investment is being advanced in depth, serving global green and low-carbon development.

Focusing on the main objectives, the Plan proposes 19 key tasks and 5 columns in five areas: accelerating full-chain innovative development, promoting industrial transformation and upgrading, improving industrial system construction, enhancing industrial technology service capabilities, and improving the quality and level of trade and investment cooperation. At the same time, the organization and implementation of the Plan will be strengthened from aspects such as strengthening government-enterprise coordination, conducting implementation guidance and evaluation, enhancing coordination of funding channels, deepening industry-education integration, and optimizing the market environment.

Notice on Issuing the "15th Five-Year Plan for the Development of the New Battery Industry."

MIIT Joint Regulation [2026] No. 220

To the industrial and information technology, development and reform, transportation, commerce, market regulation, and energy authorities of all provinces, autonomous regions, municipalities directly under the central government, cities specifically designated in the state plan, and the Xinjiang Production and Construction Corps; the railway supervision and administration bureaus of all regions; the communications administrations of all provinces, autonomous regions, and municipalities directly under the central government; and all relevant units:

The "15th Five-Year Plan for the Development of the New Battery Industry" is hereby issued to you. Please implement it conscientiously in light of actual conditions.

Ministry of Industry and Information Technology

National Development and Reform Commission

Ministry of Transport

Ministry of Commerce

State Administration for Market Regulation

National Energy Administration

National Railway Administration

September 14, 2026

The "15th Five-Year Plan" for the development of the new battery industry

New batteries are high-efficiency electrical energy storage and conversion devices or systems centered on new mechanisms, new materials, new structures, and new processes. Represented by lithium batteries, sodium batteries, and flow batteries, they are characterized by rapid technological iteration, wide application scope, and strong radiation impact. Accelerating the development of the new battery industry is an important direction for cultivating new industries and new tracks, and is a crucial foundation for building a new energy system, cultivating new quality productive forces, and building a strong manufacturing, energy, transportation, and digital

China. To promote the high-quality development of the new battery industry, this plan is formulated in accordance with the "Outline of the 15th Five-Year Plan for National Economic and Social Development of the People's Republic of China."

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Overall requirements

Guided by Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, thoroughly implement the spirit of the 20th National Congress of the Communist Party of China and its plenary sessions, conscientiously carry out the deployment of the Fourth Plenary Session, fully and accurately implement the new development philosophy, accelerate the construction of a new development pattern, aim to basically achieve the goal of new-type industrialization, coordinate development and security, and focus on promoting high-quality development. Accelerate the construction of a new battery industry system that is innovation-led, safe, efficient, resilient, intelligent, and green, and promote technological innovation, product added value, and enterprise competitiveness. The comprehensive leap in the modernization level of the industrial chain provides strong support for developing new quality productive forces and advancing new industrialization.

By 2030, China's new battery industry will achieve steady growth in scale. Innovation capabilities across the entire chain continue to strengthen, with new breakthroughs in advanced electrode materials, new electrolytes, and high-end auxiliary materials; major progress in new battery system R&D; initial large-scale application of all-solid-state batteries has been achieved; long-life lithium batteries have a cycle life of 15,000 cycles; and leading companies' product defect rates have reached PPB level. The construction of a full-scenario application ecosystem is accelerating, with new battery technologies integrating and innovating with clean energy and energy-using terminals, efficiently empowering the iteration and upgrading of smart terminal products and electrification in fields such as automotive, shipbuilding, aviation, intelligent robots, construction machinery, and agricultural machinery, meeting the needs of new power system construction. Energy storage application scenarios are further expanded on the power supply side, grid side, as well as industrial parks and data centers. The integration of international trade and investment is being deeply advanced, serving the green and low-carbon development of the global economy and society.

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Key tasks

(1) Accelerate full-chain innovation and development

1. Strengthen breakthroughs in frontier and common technologies. Deepen research on fundamental and forward-looking scientific issues of new batteries, and strengthen breakthroughs in original innovation and disruptive technologies. Strengthen multidimensional collaborative innovation in battery materials, structural design, manufacturing technology, system integration, and other multidimensional processes to improve intrinsic safety, energy and power density, structural strength, and lightweight levels. Focus on key areas such as improving ionic conductivity and cycle stability, and optimizing costs, accelerating breakthroughs in all-solid-state battery industrialization technology. Forward-looking plans include new alkali metal ion batteries, multivalent ion batteries, metal-air/sulfur batteries, multifunctional composite material structural batteries, nuclear batteries, and other next-generation battery systems.

Column 1: Common and Key Technology Enhancements

1. Mechanism research. Conducts basic theoretical research in electrochemistry, thermodynamics, and dynamics, deeply studying the mechanisms of ion transport, energy conversion, and energy storage mechanisms. Develop multidimensional in-situ characterization methods from atomic scale to system level, under conventional operating conditions and extreme environments, and explore the mechanisms of surface interface interaction in high energy density storage and efficient conversion.

2. Structural innovation. Deepen research on new battery body structure technologies such as flexible, irregular, and internal series, and develop low-impedance high-efficiency connections, module-free system integration, battery chassis (compartment) integration, intelligent stringing, high-voltage DC, and zonal thermal management technologies.

3. Advanced process development. Developing electrode preparation technologies for thick electrodes, dry electrodes, and hot-press transfer printing, researching high-precision lamination, multi-layer tab laser welding technology, isostatic pressing battery manufacturing technologies, and mass production technologies such as ultrasonic spraying and membrane electrodes.

4. Breakthroughs in all-solid-state battery technology. Innovate key materials and process technology solutions for solid-state batteries, and facilitate information sharing channels between basic research and engineering applications. Key technologies such as interface contact, high ionic conductivity, long cycle life, and engineered pressure system design are being improved, promoting the integration of high-voltage, high-capacity cathode materials with new lithium metal-based anode materials and lithium-free anodes.

2. Develop advanced battery materials and high-end manufacturing equipment. Accelerate the iteration and upgrading of new battery materials, develop key materials based on abundant reserves and stable mineral resources, as well as new electrode (stack) materials with high

capacity, high stability, intelligent response, and self-healing, and enhance mass production capacity for high conductivity, high-performance solid-state electrolyte materials. Develop high-speed, flexible, and intelligent high-end complete equipment to achieve process linkage and precision improvements, improving production efficiency and product consistency. Develop specialized equipment for key processes such as film production, assembly, and chemical processing, addressing shortcomings in specialized industrial software.

Column 2: Advanced Materials and High-End Equipment Upgrades

1. Electrode (stack) materials. Develop high-voltage, high-stability manganese-based, high-nickel ternary, high-compact-density lithium iron phosphate, polyanionic, layered oxide lithium/sodium battery cathode materials, as well as high-efficiency low-expansion silicon-based, lithium/sodium metal, hard carbon, anthracite, and other anode materials. Developing composite current collectors, high-efficiency lithium supplement/sodium agents, high-performance binders, conductive additives, and low-cost, highly selective ion exchange membranes.

2. Electrolyte materials. Enhances the stability and ionic conductivity of solid electrolytes. Develop solid electrolytes with high air stability such as sulfides and halides, as well as high-performance polymer composite solid electrolytes. Develop electrolytes for flow batteries with high chemical stability, resistance to high-pressure lithium salts, and high concentration, high thermal stability.

3. High-end manufacturing equipment. Developing equipment for high-precision double-sided solvent-free coating, high-precision high-speed lamination, membrane electrode roll-to-roll, ultrasonic spraying, chemical volumetric distribution, high-torque high-precision separator extrusion, isostatic pressing for solid-state batteries, production robots, intelligent sensing and detection, automated disassembly, efficient green extraction, and direct regeneration.

4. Specialized industrial software. Develop auxiliary engineering and battery system management tool software and general software, as well as specialized software for system combustion simulation, rigidity strength analysis, and display dynamics analysis. Use computer-aided simulation tools to conduct safety failure analysis and optimization design.

3. Enrich the supply of high-end battery products. Targeting diverse application scenarios, accelerate the high-end, diversified, and integrated development of new battery products to improve product safety and reliability. Establish a new battery product supply system centered on lithium batteries, with coordinated development of sodium batteries, flow batteries, and others. Enhancing sodium battery power and energy density, developing high-conversion efficiency flow batteries, and promoting product iteration such as hybrid supercapacitors. Upgrade batteries for thinner, lighter, and more flexible consumer electronics, optimize high-safety, all-climate new energy vehicle power batteries, develop long-life, high-safety energy storage batteries to meet

long-duration energy storage needs, and improve the supply level of batteries for low-altitude equipment, intelligent robots, and high-tolerance batteries in extreme environments such as aviation and deep-sea polar regions. Enhance the industrialization capabilities of all-solid-state batteries, aqueous batteries, and ultra-fast charging batteries.

Column 3: Innovation in New Battery Products

1. Lithium batteries. Through process optimization, material upgrades, and structural innovation, energy density, power density, and cycle life are improved. Develop high-safety lithium batteries for consumer electronics, enhance the safety, fast-charging performance, low-temperature adaptability, lightweight design, and energy density of power batteries for new energy vehicles and electric vessels, and develop high-safety, large-capacity, grid-based, ultra-long cycle life energy storage batteries.

2. Sodium batteries. Fully leverage the cost, safety, and resource security advantages of sodium batteries, accelerate the research and application of high-capacity cathode materials and high-compaction density anode materials, develop high-power start-stop batteries, research and develop high-safety, low-temperature resistance, and high energy density power batteries, and develop high-safety, high-cost-effective, long-cycle life energy storage batteries.

3. Redox flow batteries. Improve stack current density and energy conversion efficiency, reduce electrolyte costs, develop flow battery products for long-term and residential energy storage, develop high conversion efficiency, high economy, green recyclable all-vanadium flow batteries, and improve the power density and cycle life of iron-based, zinc-based, and organic flow batteries.

4. Dedicated batteries. Developing aviation-grade safety that balances high energy and power density, high sustained discharge capability, lightweight low-altitude equipment, and intelligent robot batteries. Developing ultra-reliable, biocompatible miniature batteries for medical devices. Developing special environment-resistant batteries for extreme environmental scenarios. Developing medical disposable lithium batteries with high energy density, high reliability, ampere-level discharge current, and compact size, as well as specialized batteries for agricultural machinery suitable for complex agricultural operation environments.

4. Strengthen system integration innovation. Focusing on dimensions such as structural integration, thermal management systems, battery management systems, energy management systems, high-voltage electrical systems, and system safety, we are developing system integration technologies for structural optimization, multi-domain integration, and safe and efficient systems. Promote the participation of artificial intelligence technology in supporting decision-making management and improve system-level safety levels at the battery system. Promote the integration, intelligence, and customization of electronic components for battery systems,

accelerate the research and application of high-temperature and high-voltage-resistant, low-loss, and highly reliable power semiconductor devices, and improve the supply level of new battery supporting components such as power management chips and intelligent sensors.

Column 4: Leaps in High-End System Integration Technology

1. Battery management system. Improves estimation accuracy of battery management systems across wide temperature ranges, high rates, and aging and degradation scenarios, enabling early and precise early warnings of thermal runaway. Accelerate the development of highly integrated, low-power, and lightweight hardware solutions to meet the needs of large-scale energy storage, special equipment, and other multi-scenario applications.

2. Thermal management system. Efforts will be made to develop wide-temperature range, low-energy, and high-efficiency heat pump technologies, develop high thermal conductivity, low-viscosity heat exchange media, and promote system architecture upgrades toward integration and lightweight design. Focusing on the technological characteristics of new types of batteries such as solid-state batteries, sodium batteries, and flow batteries, we are developing customized temperature control solutions.

3. Energy management system. Enhance the operational reliability and intelligent scheduling capabilities of energy management systems, promote comprehensive collaborative control among multiple energy entities, and achieve dynamic optimization of energy distribution schemes. Promote integrated construction of source-grid-load-storage, and develop energy management systems adapted to multi-link optimization of photovoltaics, wind power, energy storage, and power grid.

4. Electronic components. Develop high-reliability relays, high-current connectors, high-precision intelligent sensors, high-temperature and high-voltage resistant low-loss semiconductor devices, develop high-precision analog front-end chips, integrated battery management systems, power management, isolated communications, and promote the widespread adoption of domestic chips.

5. Promote innovative applications across multiple fields. Increase the application level of new batteries such as flexible batteries and special-shaped batteries in smart wearable devices, smart homes, and mobile medical devices; consolidate and expand the scale of applications in new energy vehicles and consumer electronics; and expand application scenarios in "deserted wastelands" and cold regions. Actively promote electrification in public transportation, heavy trucks, aviation, inland waterway vessels, agricultural machinery, and other fields, and carry out innovative applications of new energy storage in intelligent computing centers and industrial green microgrids. Explore innovative application models such as direct green power connection,

virtual power plants, and computational-power collaboration. Exploring application scenarios such as deep space, deep sea, deep earth, and polar exploration, brain-computer interfaces, intelligent bionics, intelligent robots, and special equipment, serving major national strategies and frontier technology development needs.

6. Improve the recycling system. Implement the extended producer responsibility system, promote enterprises to establish waste battery recycling systems that match product sales volume, either self-built or commissioned, accelerate the construction and operation of waste battery recycling service outlets, support the research and industrial application of new technologies and equipment for fine dismantling, low-cost utilization, and efficient extraction of valuable elements, improve the refinement and automation of processes such as dismantling, crushing, sorting, and smelting waste batteries, and promote efficient utilization of renewable resources. Guide localities to reasonably allocate treatment capacity that matches regional waste battery generation, and promote resource concentration toward leading enterprises. Guide enterprises to lay out comprehensive utilization capacity for waste batteries in major export markets for new batteries where conditions permit, and enhance resource security capabilities.

(2) Promote industrial transformation and upgrading

7. Enhance the level of digital and intelligent development. Promote new-generation information technologies such as artificial intelligence, digital twins, and big data analytics to empower the entire new battery industry chain, accelerating the development of next-generation intelligent manufacturing. Scenario-based and graph-based driving digital and intelligent transformation of the new battery industry, supporting data sharing and interoperability across key upstream and downstream links, and building industry-specific large models and AI R&D platforms across battery systems. Promote intelligent material design models and optimize the intelligent battery development process. Deepen the gradient cultivation of smart factories, improve equipment intelligent sensing, fault prediction, and safety control levels, and promote visual management and intelligent regulation of production and logistics warehousing. Enhance battery safety warning and life assessment capabilities.

Column 5: Digital Intelligence Empowerment

. Design and development. Promote AI technology empowerment for cross-scale battery material design, development, and screening, develop technologies such as AI design and optimization of electrode/electrolyte formulations, and battery design and performance prediction integrating multiphysics and AI, thereby enhancing the digital design level of battery products.

2. Manufacturing. Intelligent production lines for key processes are being built, AI-controlled manufacturing parameter optimization and flexible production line reconstruction platforms are

developed, leveraging machine vision and multi-scale physical property characterization to achieve millisecond-level optimization of critical processes, developing modular and intelligent manufacturing equipment, and improving equipment utilization and battery product pass-through rates.

3. Smart connectivity applications. Developing intelligent management and operation and maintenance systems that integrate physical models and data-driven algorithms, building a battery large model system. Relying on industrial internet platforms to achieve data aggregation and edge decision-making, improving closed-loop management of battery lifecycle data.

8. Accelerate green transformation and development. Promote the application of low-carbon emission reduction, energy-saving and consumption-saving, and environmentally friendly new technologies in the new battery industry. Expand the scale of renewable energy applications, promote green design for new battery products, guide enterprises to prioritize standardized and easily disassembled design schemes, use materials that are non-toxic or harmless or low-toxicity, and easy to recycle, steadily increase the proportion of recycled materials, promote enterprises to build green supply chain management systems, and build a number of zero-carbon factories, green factories, and green parks.

9. Build an integrated ecosystem. Support the integrated development of the new battery industry across technologies, business formats, and fields, and build an innovative industrial ecosystem. Promote integrated development of new batteries with smart terminals, transportation, energy and power, construction machinery, and other fields. Support manufacturing enterprises in breaking through traditional production and sales models, cultivating innovative models such as service-oriented manufacturing, and continuously increasing commercial added value. Accelerate cross-innovation in battery technologies within diverse material systems, empowering industrial upgrading through the integration of advanced materials, intelligent manufacturing, and green low-carbon technologies.

10. Improve the level of industrial security and development. Build a new battery full industry chain safety system, accelerate domestic exploration and development of mineral resources such as lithium and cobalt, improve the utilization of resources like salt lakes and lithium mica, and prevent supply chain security risks. Strengthen safety monitoring and risk warning in production, warehousing, logistics, and usage stages to improve emergency response capabilities. Breakthroughs in key technologies such as battery consistency control, thermal runaway suppression, efficient fire suppression, and post-accident safe response. Strengthen public service capacity for energy storage battery safety management. Strengthen cybersecurity for industrial control systems, refine standards for data classification and grading, guide enterprises to fulfill their main responsibilities, and improve the level of network and data security protection.

Standardize the transportation of lithium batteries and other products, promote railway transport pilots, and reduce logistics costs.

(3) Improve the industrial system construction

11. Cultivate high-quality industrial enterprises. Build a gradient cultivation system for high-quality enterprises, cultivate and strengthen leading enterprises in the new battery sector, support mergers and reorganizations, cultivate world-class enterprises around the entire industry chain, strengthen the backbone of high-tech enterprises and specialized and innovative SMEs, and forge the backbone of specialized and innovative "Little Giant" enterprises and manufacturing single champion enterprises. Strengthen monitoring and services for gazelle enterprises and unicorn enterprises. Implement the manufacturing industry excellence quality improvement project and continuously carry out quality management capability evaluations of manufacturing enterprises. Build a number of characteristic industrial clusters for small and medium-sized enterprises to lay a solid foundation for the high-quality development of the new battery industry.

12. Optimize industrial regional layout. Optimize the layout of the lithium battery industry according to the principles of regional agglomeration and main entity concentration. Guide localities to leverage comparative advantages and achieve differentiated and distinctive coordinated development. Consolidate and enhance the role of high-quality development driving forces in regions such as Beijing-Tianjin-Hebei, Yangtze River Delta, and the Guangdong-Hong Kong-Macao Greater Bay Area, better leverage the role of coastal city clusters in Guangdong, Fujian, Zhejiang, and other regions, and accelerate the cultivation of new advanced battery manufacturing clusters. Relying on the industrial foundations of regions such as the Yangtze River Economic Belt, Yellow River Basin, and Northeast China, promote strengthening, supplementing, and quality upgrading of the new battery industry. Focusing on resources in central and western regions, enhancing the resilience of the new battery industry chain.

(4) Enhance industrial technology service capabilities

13. Improve the industrial science and technology innovation system. Build an integrated technical breakthrough path for the industrial chain, and improve the core technology innovation system for new batteries. Support the construction of manufacturing innovation centers, national industrial technology engineering centers, and other science and technology innovation platform bases, and promote the construction of pilot manufacturing platforms and key laboratories in key regions. Support collaborative innovation among industry, academia, research, and application, encourage open sharing and sustainable operation of R&D pilot resources, strengthen the supply of key common technologies, and promote simultaneous improvement of basic research and industrialization capabilities. Deeply implement the national high-tech zone new track cultivation action and cultivate a batch of key new battery tracks in national high-tech zones.

14. Strengthen the guiding role of standards. Continue to build a lithium battery standard system, and advance the development of standards for key new battery areas such as all-solid-state batteries and sodium batteries. Implement the "Guidelines for the Construction of the National Lithium Battery Industry Standard System," accelerate the development of key common and advanced applicable standards, and fill gaps in standards such as product safety levels, performance grading, and rapid testing. Promote the joint establishment of standards with application fields such as new energy vehicles, intelligent robots, low-altitude equipment, engineering, and agricultural machinery. Strengthen coordination and coordination of standardization work, and jointly advance standardization in all fields of new batteries. Enhance the internationalization of standards and deeply participate in the development and formulation of international standards organizations.

15. Optimize the level of testing and certification services. Enhance inspection and testing technical capabilities, product defect and failure analysis capabilities for new battery products and key materials, organize capability testing of inspection and testing institutions in a timely manner, break through a batch of common and key core conformity assessment technologies, and promote international mutual recognition of related certifications. Strictly implement relevant laws and regulations on quality and certification, improve and perfect the new battery quality certification and product grading and classification evaluation system, and deepen the quality chain strengthening work. Enhance the integrated public service capabilities for standard development, testing and evaluation, failure analysis, and certification and accreditation.

16. Improve the intellectual property system. Strengthen full-chain protection and efficient utilization of intellectual property in the field of new batteries. Improve intellectual property protection and trade secret management systems, and build an intellectual property protection system covering R&D and innovation, achievement transformation, and industrial application. Strengthen the patent layout of key core technologies such as all-solid-state batteries, large-capacity long-life energy storage batteries, and high energy-specific sodium batteries, and reserve a batch of high-value patents. Make full use of the "green channel" for priority patent examination, support enterprises in improving the quality and efficiency of patent application layouts, and establish a key patent protection list. Strengthen international exchanges and cooperation in intellectual property and actively participate in the formulation of international intellectual property rules.

17. Improve product traceability and carbon footprint management. Strengthen public service capabilities such as full lifecycle traceability management for new batteries, enhance coding management, establish a digital ID card management system for products such as new energy vehicle power batteries, achieve transparency and intelligent management of information across the entire industry chain, and explore international access solutions for digital passports for new batteries. Coordinate the construction of a carbon footprint accounting system for new battery

products and actively carry out product carbon footprint management. A new battery full lifecycle evaluation model has been established, the product carbon footprint factor database is continuously improved, and international data recognition and sharing are promoted.

(5) Improve the quality and level of trade and investment cooperation

18. Guide enterprises to "go global" in an orderly manner. Strengthen analysis and assessment of global new energy market demand and geopolitical environment. Coordinate the use of both domestic and international markets and resources, guiding enterprises to carry out diversified and orderly outbound investments. Improve risk prevention and emergency response mechanisms, and strengthen the safety assurance for enterprises going global.

19. Build a highland for open cooperation. Strengthen efficient interaction with international economic and trade organizations, industry business associations, and professional investment institutions, and regularly carry out cooperation and matchmaking. Building a new battery industry and technology cooperation platform with international influence to meet diverse international market application needs and enhance the global adaptability of enterprise product systems. Improve the overseas comprehensive service system, promote international multilateral and bilateral mutual recognition and cooperation, and lower technical trade barriers.

3

Strengthen organizational implementation

Improve the consultation and linkage mechanism, strengthen departmental coordination and government-enterprise collaboration. Conduct in-depth investigation and research, strengthen planning tracking and guidance, and carry out dynamic monitoring, mid-term evaluation, and summary evaluation of plan implementation. Strengthen the coordination of special fund channels and promote breakthroughs in key technologies for new batteries. Support eligible backbone enterprises in the new battery industry chain for financing. Deepen the integration of industry and education in the new battery field, and build a high-end talent training network. Advocate honest business practices, safe production, energy conservation and environmental protection, harmonious employment, and taxation according to law, and promote the establishment of a fair competition, healthy, and orderly market environment.