

Annex

4 Green Manufacturing Project Implementation Guide (2016-2020)

To implement the "Made in China 2025", the organization to implement the green manufacturing project, the development of this guide.

I. Background

Green development is a major international trend.

Resource and environmental issues are common challenges faced by mankind, and sustainable development has increasingly become a global consensus. Especially in the context of the international financial crisis and climate change, promoting green growth and implementing the Green New Deal is the common choice of the world's major economies, and developing a green economy and seizing the high ground of future global competition has become an important national strategy. Developed countries have implemented the "re-industrialization" strategy to reshape new competitive advantages in manufacturing industry, and the influence of green concepts, policies and regulations such as clean, efficient, low-carbon and recycling has been increasing,

and the efficiency of resource and energy utilization has become an important factor in measuring the competitiveness of national manufacturing industry. Green trade barriers have also become an important means for some countries to seek competitive advantage.

Green manufacturing is an important element in the construction of ecological civilization. Industrialization has created for society

The huge wealth and improved people's material living standards, but also consumed a large number of resources, bringing enormous pressure on the ecological environment and affecting the further improvement of people's quality of life. Promoting the construction of ecological civilization requires building a green manufacturing system with high technological content, low resource consumption and low environmental pollution, accelerating the greening of production methods, and actively cultivating

Energy conservation and environmental protection and other strategic new industries, significantly increase the supply of green products, advocate green consumption, and effectively reduce the cost of development of resources and the environment.

Green manufacturing is the road to industrial transformation and upgrading. China as a large manufacturing country, the

Not yet get rid of high input, high consumption, high emissions of development, resource and energy consumption and pollution emissions and the international advanced level still exists a large gap, industrial emissions of sulfur dioxide, nitrogen oxides and dust accounted for 90%, 70% and 85% of the total emissions, respectively, the carrying capacity of resources and the environment has nearly limit, accelerate the green development of manufacturing industry can not wait. The implementation of green manufacturing project as a traction, the full implementation of green manufacturing, not only to alleviate the current resource and environmental bottleneck constraints, accelerate the cultivation of new economic growth point has an important role in reality, but also to accelerate the transformation of economic development, promote industrial transformation and upgrading,

and enhance the international competitiveness of manufacturing industry has far-reaching historical significance.

II. General requirements

In accordance with the Party's 18th National Congress and the spirit of the third, fourth and fifth plenary sessions of the 18th Central Committee, the full implementation of the construction strategy of a strong manufacturing country, strengthen the concept of green development, closely around the manufacturing industry resource and energy utilization efficiency and clean production level, with a focus on manufacturing green transformation and upgrading, supported by scientific and technological innovation, with regulations and standards green regulatory system as a guarantee, to demonstrate the pilot as a grip, increase policy support, accelerate the Build green manufacturing system, promote green products, green factories, green parks and green supply chain, grow green industries, enhance new advantages in international competition, realize efficient, clean, low-carbon cycle and sustainable development of manufacturing industry, and promote the harmonious integration of industrial civilization and ecological civilization.

(I) Basic Principles

Adhere to the key breakthroughs and comprehensive coordination to promote. Efforts to solve the key regions, key lines

In addition, we will carry out pilot demonstrations, special actions and major projects to address resource and environmental issues in the development of industries and key enterprises. At the same time, in accordance with the requirements of the whole life cycle of the product green management, strengthen the whole process of manufacturing control and producer responsibility extension, and actively apply information network technology and big data and other advanced means to fully implement green manufacturing in various industries, small, medium and large enterprises, and accelerate the construction of green manufacturing system.

Adhere to the main body of enterprises and practice social responsibility. Green development is the enterprise to improve quality and efficiency

Important way, but also the social responsibility that enterprises should undertake. Further highlight the main role of green manufacturing enterprises, strengthen the concept of efficient, clean, low-carbon cycle development, the implementation of energy saving

and environmental protection social responsibility, increase green transformation, eliminate backward production capacity, vigorously promote green technology innovation, and continuously improve the level of green manufacturing management, to achieve economic, social and ecological benefits of a win-win situation.

Adhere to policy guidance and strengthen green regulation. Give full play to the government in promoting manufacturing

Green development in the role of guidance, further change the concept of development, increase the green manufacturing policy support; effectively transform government functions, strengthen resource conservation, environmental protection and other regulations and standards constraints, strict energy-saving assessment and review, energy conservation monitoring and environmental supervision and enforcement, to promote green manufacturing for enterprises to create a level playing field and institutional safeguards.

(ii) Main objectives

By 2020, the level of green manufacturing significantly improved, the initial construction of green manufacturing system

The green development concept of enterprises and governments at all levels has been significantly enhanced. The concept of green development of enterprises and governments at all levels has been significantly enhanced. Compared with 2015, the intensity of material consumption, energy consumption, water consumption, pollutants and carbon emissions of traditional manufacturing industries has been significantly reduced, the intensity of major pollutant emissions of key industries has dropped by 20%, the comprehensive utilization rate of industrial solid waste has reached 73%, and the resource consumption and emissions of some heavy chemical industries have reached their peak. Energy consumption per unit of industrial added value above the scale decreased by 18%, the comprehensive energy consumption per ton of steel fell to 0.57 tons of standard coal, the comprehensive energy consumption per ton of alumina fell to 0.38 tons of standard coal, the comprehensive energy consumption per ton of ammonia fell to 1300 kg of standard coal, the comprehensive energy consumption per ton of cement fell to 85 kg of standard coal, the operating efficiency of electric motors and boiler systems increased by 5 percentage points, and the proportion of high-efficiency distribution transformers operating in

the network increased by 20%. CO2 emissions and water consumption per unit of industrial value added fell by 22% and 23% respectively. Energy-saving and environmental protection industries have grown significantly, initially forming a new engine of economic growth and a new pillar of the national economy. Green manufacturing capacity has been steadily improved, a large number of key common technologies for green manufacturing have been industrialized and applied, a number of core competitive backbone enterprises have been formed, a more complete evaluation standard system and certification mechanism for green manufacturing has been initially built, 100 green industrial parks and 1,000 green demonstration factories have been created, 10,000 green products have been promoted, and a basic mechanism for promoting green manufacturing market has been formed. The initial mitigation of the impact of manufacturing development on resources and environment.

III. Key tasks

(A) the traditional manufacturing industry green transformation demonstration to promote

Implementation of clean production process transformation. Cut pollutant generation at source as an entry

In addition, the company has been able to innovate the traditional production process equipment and encourage enterprises to adopt advanced and applicable clean production technology.

The implementation of the upgrading of technology. Accelerate the level of clean production in key regions and key watersheds, the implementation of clean and efficient use of coal in industry action plan, promote the Beijing-Tianjin-Hebei, the Yangtze River Delta and other key regions and the Huai River, the Hai River and other key watershed enterprises to implement clean production transformation, from the source to reduce sulfur dioxide, nitrogen oxides, smoke (dust), chemical oxygen demand, ammonia nitrogen and other pollutants. Actively promote non-ferrous metals, chemicals, leather, lead-acid batteries, electroplating and other industries, heavy metals, volatile organic compounds, persistent organic compounds and other non-conventional pollutants to reduce, accelerate the promotion and application of toxic and hazardous raw materials (products) alternatives in key industries, the completion of mercury, lead, highly toxic pesticides and other high-risk pollutants to reduce the target. Further elimination of backward production capacity.

Column 1: production process

Key regional clean production special. In Beijing, Tianjin and Hebei Province and other "three regions and ten groups" key areas, the implementation of industrial boilers clean and efficient combustion, steel sintering flue gas cycle, cement low-NOx combustion and graded combustion, glass kiln oxygen-rich combustion, ceramics centralized clean coal gas, and chemical, textile, furniture, food, pharmaceutical and fine chemical technology transformation. By 2020, reduce soot 1 million tons / year, sulfur dioxide 500,000 tons / year, hazardous waste 8 million tons / year.

Key watershed clean production special. In the seven major watersheds, the implementation of paper non-wood fiber raw materials clean pulp, leather industry waste The clean technology transformation includes liquid circulation and high absorption dyeing, tungsten smelting mixed acid atmospheric pressure high efficiency decomposition, nitrogen fertilizer, wastewater ultra-low discharge, pesticide dye chemical raw materials and intermediates green synthesis, printing and dyeing biological enzyme pre-treatment and low salt-free dyeing, food and drug high efficiency strain application and high efficiency extraction and purification. By 2020, we will reduce 400 million tons/year of wastewater, 500,000 tons/year of chemical oxygen demand and 50,000 tons/year of ammonia nitrogen.

Implement efficient and low-carbon transformation of energy use. Accelerate the application of advanced energy-saving and low-carbon technologies

Equipment, improve the efficiency of energy use, and expand the proportion of new energy applications. Focus on the implementation of energy-saving transformation of high energy-consuming equipment systems, and strive to make the industrial boilers (furnaces) ~~motors~~ (pumps, fans, air compressors) systems, transformers and other general equipment in use to achieve advanced domestic standards of operational energy efficiency. Deeply promote the energy-saving transformation of process industrial systems, focusing on the promotion of raw material optimization, energy gradient utilization, recycling, process reengineering and other system optimization process technologies, popularization of low-grade waste heat and pressure power generation, refrigeration, heating and recycling. Promote the decarbonization of industrial energy, actively use new energy, carry out demand-side management of electricity, and vigorously build new energy, distributed energy and smart microgrids in factories and parks. By 2020, the shape of

The company's energy-saving capacity is 150 million tons of standard coal.

Column 2 energy use efficient

Process industry system transformation special. Construction and improvement of the enterprise energy control center; steel industry to implement high-value utilization of by-product gas; non-ferrous industry to implement new cathode structure aluminum electrolyzer, efficient reinforcement of Bayer alumina production, continuous blowing of crude copper and other technical transformation; ferroalloy industry to implement the “rotary kiln - mineral furnace” process and other transformation; petrochemical industry to implement the propane dehydrogenation, the The petrochemical industry implements the transformation of propane dehydrogenation, one million tons of purified terephthalic acid plant (PTA), the petrochemical industry implements the transformation of aerospace furnace pulverized coal pressurization gasification, nitric acid comprehensive treatment; the cement industry implements the transformation of high solid to gas ratio clinker calcination, no spheroidization grinding; the paper industry applies the transformation of low energy consumption pulping such as high efficiency double-disk grinder; the food processing industry implements the transformation of mechanical steam recompression, automatic continuous sugar cooking; the textile industry implements the transformation of Synthetic fiber melt spinning filament ring blowing cooling, efficient drying and shaping and other transformations.

Low carbon transformation special. Construction of photovoltaic, solar thermal, heat pump and smart microgrid in factories and parks to improve the production process. The proportion of renewable energy use. In the fields of cement, steel, lime, calcium carbide, adipic acid, nitric acid, fertilizer, refrigerants, etc., promote the demonstration of a

Implement efficient transformation of water resources utilization. To control the total amount of industrial water consumption, improve the use of

Water efficiency, protection of the water environment as the goal, the use of water system balance optimization of the overall solution and other water-saving technologies, the chemical industry, iron and steel, paper, printing and dyeing, food, pharmaceutical and other high water-consuming industries to implement transformation.

Promote the application of unconventional water resources, support industrial enterprises using electric adsorption, membrane treatment, seawater desalination and other technologies, the use of urban water, mine water, highly concentrated salt water, seawater, etc.

Chemical water conservation special projects. Dry distillation, sulfur-containing waste water vapor purification and reuse, condensate recovery, urea process condensate hydrolysis and analysis, polymerization mother liquor treatment and reuse, vacuum alkali filter wash, water additives, pickling wastewater purification and other technical transformation. By 2020, the annual water saving will be about 600 million cubic meters.

Steel water conservation special projects. Implementing coking phenol-cyanide wastewater treatment and reuse, cold rolling wastewater treatment and reuse, clearing and sewage separation and quality separation, and Efficient recycling, cascading, comprehensive sewage treatment and reuse, intelligent leak detection and renewal of pipe networks and other technical improvements to promote the use of urban water, seawater, etc. By 2020, annual water savings of about 500 million cubic meters.

Special project on water saving in paper manufacturing. The implementation of multi-stage counter-current washing closed screening, replacement cooking, oxygen delignification, pulp in high concentration screening and

Implementation of basic manufacturing process green transformation. Accelerate the application of clean casting, forging

Welding, surface treatment, cutting and other processing processes to promote the traditional basic manufacturing processes green

The development of the manufacturing process, intelligent development, the construction of a number of basic manufacturing process green demonstration projects. By 2020, the traditional machinery manufacturing energy-saving 15% or

Casting, forging and welding cutting manufacturing process transformation special. Focus on the promotion of digital casting island, clean and efficient casting and forging combination and parts rolling precision forming, casting sand recycling, laser - arc composite efficient clean welding, efficient material-saving friction welding, less smoke and dust and harmless green welding material preparation, less cutting fluid green processing and other technologies. By 2020, more than 30% energy saving, material saving, waste reduction of more than 20%.

(B) resource recycling and green development demonstration applications

Strengthen the comprehensive utilization of industrial resources. Focus on smelting slag and dust sludge, chemical waste

Tailings, coal and electricity solid waste and other difficult to use industrial solid waste, promote a number of advanced and applicable technologies and equipment, cultivate a number of backbone enterprises, and expand the comprehensive utilization of resources base pilot. Based on renewable resources standard

enterprises, accelerate the transformation and upgrading of renewable resources technology and equipment, deepen the construction of urban mineral demonstration bases, promote the development of renewable resources industry agglomeration, to achieve intensive, professional and large-scale development of renewable resources industry. By 2020, resource recycling

The output value of the utilization industry reached 3 trillion yuan.

Column 5 industrial resource
Comprehensive utilization of bulk industrial solid waste special. Focus on smelting slag and dust mud, chemical slag, tailings, coal and electricity slag and other comprehensive utilization, the promotion of smelting slag extraction of high-value components and the overall use of by-product gypsum scale preparation of cement retarder, high-strength gypsum, tailings production of dry mortar, aerated concrete, thermal insulation

The ash utilization rate is 75%.

Special recycling resource industry. Focus on the resource utilization of waste materials, used mechanical and electrical products, etc., the implementation of steel scrap processing with

Delivery system, waste non-ferrous metals, rare metals, clean separation and high-value utilization, waste plastics automatic sorting and high-value utilization, waste bottle chips high-

Promote industry green synergy links Implement

circular production methods, promote enterprises and parks

In addition, the company has developed a number of industrial industries, such as the industrial zone, inter-industry linkage symbiosis, mutual supply of raw materials, resource sharing, expansion of different industrial solid waste synergy, energy conversion, waste re-resourcing and other functions, and

Special industry green integration. Strengthen the horizontal coupling ecological links between coal power, metallurgy, chemical industry, building materials and other process industries to promote industry integration; promote industrial waste heat for urban heating and cooling, cement kiln co-processing of domestic waste, sludge and fly ash, etc. to promote industry-city integration; use industrial waste heat to develop facility agriculture, ecological tourism, and promote industrial use of biomass demonstration projects to promote industrial integration.

Report on comprehensive utilization of regional synergy special For Beijing, Tianjin,

industry between regions.

Cultivate remanufacturing industry. Actively promote the

application of remanufacturing surface engineering, additive manufacturing

Fatigue detection and remaining life assessment and other technical processes, the establishment of remanufacturing reverse intelligent logistics system, improve the remanufacturing product recognition system, the implementation of high-end remanufacturing, intelligent remanufacturing and in-service remanufacturing demonstration projects. By 2020, the remanufacturing technology and process will reach the international level.

Advanced level, the scale of remanufacturing industry reached 200 billion yuan.

Column 7 Remanufacturing
<p>High-end intelligent remanufacturing special. For aero engines, gas turbines, shield machines and other large sets of equipment and copiers, medical equipment, molds, etc., to promote efficient non-destructive disassembly, green cleaning, rapid intelligent inspection of blanks, nano-composite forming, plasma spraying, three-dimensional volume damage parts forming and other technologies.</p> <p>In-service remanufacturing special. For the service life of the turbine compressor, CNC</p>

(C) green manufacturing technology innovation and industrialization demonstration applications

Breakthrough in energy-saving key technology and equipment. Around the major key constraints on the development of energy-saving industry

We will increase R&D and demonstration efforts in the fields of coal saving, electricity saving, waste energy recycling, efficient energy storage, intelligent control, etc., cultivate a number of core competitive backbone enterprises, and break through 40 major energy-saving technologies and equipment. By 2020, the output value of the energy-saving industry will reach

To 1.7 trillion yuan.

Upgrade major environmental protection technology and equipment. In the field of air, water, soil pollution prevention and control, increase the multi-pollution collaborative disposal, environmental pollution prevention and control of special materials and pharmaceuticals, environmental monitoring and measurement

of special instruments, environmental emergency response and other advanced environmental technology and equipment research and development, the construction of 100 advanced environmental technology and equipment demonstration projects, to create 20 energy-saving environmental protection equipment equipment manufacturing base, and strive to break through 50 environmental protection technology and equipment, environmental protection industry output value reached 2 trillion yuan.

Develop applicable technology and equipment for comprehensive utilization of resources. To enhance the level of industrial resource comprehensive utilization technology and equipment, promote industrial application as the goal, break through 100 major resource comprehensive utilization technology and equipment, cultivate 100 resource comprehensive utilization industry innovation center, basic

Formation of technology research and development and equipment industrialization capacity to adapt to the development of industrial resource recycling industry.

Environmental protection technology industrialization special. Organization and development of coal-fired flue gas multi-pollutant ultra-low emissions, wet electrostatic dust removal and other air treatment technology and equipment, high concentration of ammonia nitrogen wastewater treatment, supercritical water oxidation treatment, dynamic membrane filtration and other water-saving pollution reduction technology, vehicle and marine exhaust gas purification technology, sludge high-speed fluid injection crushing and drying and other solid waste treatment technology, high efficiency and low resistance to long-life dust filter media and other environmental protection materials, PM2.5 portable monitor, volatile Organic compounds (VOCs) online analyzer and other environmental monitoring instruments, oil spill emergency recovery, mobile three waste emergency treatment and other environmental pollution emergency technology.

Energy-saving technology industrialization special projects. Organize the development of high-efficiency energy-saving boilers, membrane oxygen-rich combustion

(D) green manufacturing system to build a pilot

With enterprises as the main body, led by standards, green products, green factories, green industrial parks, green supply chain as the focus, green manufacturing services platform as support, the implementation of green management and certification, strengthen demonstration guidance, and comprehensively promote the construction of green manufacturing system.

Establish and improve green standards. Develop and revise energy consumption, water consumption, material consumption, pollution control, and

The standards and norms for comprehensive utilization of resources and green manufacturing management system, improve the green standards for the whole life cycle of products from design, manufacturing, use, recycling to remanufacturing, and develop standards for green factories, parks and supply chains. Build an open public platform for the creation of green standards, support industry associations and alliances, etc. to participate in the development of standards, and strengthen the docking with international standards

Mutual recognition. Strengthen the implementation of standards, the establishment of enterprise green manufacturing standards self-declaration system, to carry out the standard and leader activities, and promote the evaluation of the effectiveness of the implementation of standards.

Develop green products. According to the concept of green management of the whole life cycle of products, follow the energy

The principle of minimizing the consumption of resources, minimizing the ecological and environmental impact, and maximizing the renewable rate, vigorously carry out pilot demonstrations of green design, prioritize household detergents, degradable plastics, power batteries, green building materials, etc. as a breakthrough to develop and promote green products, actively promote the third-party evaluation and certification of green products, establish a mechanism for collaboration among all parties, issue green product catalogs, guide green production, and enhance Green products internationalization level and promote international cooperation. By 2020, we will develop and promote 10,000 kinds of green products.

Create a green factory. In accordance with the intensification of land use, clean production, resourcefulness of waste and

Energy low-carbon principle, combined with industry characteristics, classification to create a green factory. Optimize the manufacturing process, apply green and low-carbon technology to construct and transform the plant, and intensively use the plant. Select advanced and applicable clean production process technology and efficient end management equipment, reduce resource consumption and environmental impact in the production process, create a good occupational health environment, implement clean and dirty flow, waste water recycling, solid waste resource and harmless utilization. Adopt advanced energy-saving technologies and equipment, build photovoltaic power plants, intelligent microgrids and energy management centers, and optimize the energy consumption structure of factories. Implement digital and intelligent control systems for resources, energy and environment to realize dynamic monitoring and management of resources, energy and pollutants. By 2020, create 1,000 green demonstration factories.

Build green industrial parks. Select a number of industrial with good basic conditions and strong representation

Park, promote the creation of green industrial park demonstration, and deepen the national low-carbon industrial park pilot. Focusing on enterprise clustering, industrial ecological linkage and service platform construction, implement integrated energy and resource solutions for parks, deepen the recycling transformation of parks, realize graded utilization of energy, recycling of water resources, exchange and utilization of waste, economical and intensive utilization of land, improve the efficiency of resource and energy utilization in parks, optimize spatial layout, and cultivate a number of demonstration parks with strong innovation capability and demonstration significance. By 2020, create 100 green industrial parks.

Create a green supply chain. Take automobiles, electronic appliances, communications, large sets of equipment Based on the leading enterprises in the industry, such as green supply standards and extended producer responsibility system as support, accelerate the establishment of resource-saving, environmentally friendly procurement, production, marketing, recycling and logistics system. Actively apply the Internet of Things, big data and cloud computing and other information technology to establish a green supply chain management

system. Improve procurement, suppliers, logistics and other green supply chain specifications, and carry out pilot green supply chain management. By 2020, the initial establishment of green supply chain management system in key industries, the extended producer responsibility system to make substantial progress.

Construction of green manufacturing service platform.

Establish a basic database of the whole life cycle of products and

Key industries green manufacturing production process material flow and energy flow database, increase the disclosure of information. Establish a green manufacturing evaluation mechanism, and develop green evaluation indicators and assessment methods by industry and field. Build a patent pool for green manufacturing technology and promote intellectual property protection and sharing. Innovate service mode, build green manufacturing innovation center and green manufacturing industry

Alliance, actively carry out third-party service organizations green manufacturing consulting, accreditation, training and other services, provide green manufacturing solutions, promote contract energy management and environmental protection services, energy conservation and environmental protection services to reach 1.8 trillion yuan by 2020.

IV. Security measures

(A) Strengthen organizational leadership. The establishment of green manufacturing project implementation coordination mechanism, the formation of clear responsibilities, collaborative efforts to promote the work pattern. Green manufacturing project by the Ministry of Industry and Information Technology, Development and Reform Commission with the Ministry of Science and Technology, Ministry of Finance, Ministry of Environmental Protection, Ministry of Commerce, General Administration of Quality Supervision, Inspection and Quarantine, Chinese Academy of Engineering and other relevant departments to jointly organize the implementation. The establishment of an expert group to provide technical support for the implementation of the guidelines, to carry out phased assessment and evaluation. Each region should develop a specific implementation plan according to local practice,

including the region's development planning, and do a good job of connecting with the national guide, and carefully organize the implementation.

(B) increase financial and tax support. Further increase financial support, fully

Use existing funding channels, play the role of the central financial funds to guide the incentive, focus on supporting the implementation of the guide in the pioneering, public welfare pilot demonstration and public service platforms, basic capacity building and other weak links. Make full use of industrial transformation and upgrading at all levels, technological transformation, energy conservation and emission reduction, science and technology programs (special, funds) and other funding channels and government and social capital cooperation (PPP) mode, increase the green manufacturing-related special support. Improve the green product government procurement and financial support policies, the implementation of tax incentives for comprehensive utilization of resources, energy saving, water conservation and environmental protection special equipment income tax preferential policies.

(C) broaden financing channels. Strengthen the linkage between industry and finance, and build a green financial

system.

Broaden green manufacturing financing channels, further develop green credit, green bond market, promote the securitization of green credit assets, guide and encourage social capital to set up and operate green industry funds according to market-oriented principles, support green enterprises to go public and raise funds, make full use of special construction funds, financial leasing, equity investment funds, the New Third Board listing financing and other financial means to guide social capital to participate in major green manufacturing. We will make full use of special construction funds, financial leasing, equity investment funds, new third-board listing and financing and other financial means to guide social capital to participate in the construction of major green manufacturing projects, and increase support for the green transformation and upgrading of traditional manufacturing industries, the industrial application of new green technologies and products, and the construction of green manufacturing systems.

(D) Strengthen supervision and management. Actively promote the improvement of green manufacturing-related laws and regulations.

Construction of green manufacturing management system in accordance with the law. Strengthen the supervision of

environmental law enforcement, energy conservation monitoring, clean production audits and producer responsibility extension, improve the construction of energy conservation monitoring and other law enforcement teams at all levels, strengthen post-event supervision, and strictly punish all kinds of illegal and non-compliant behavior. Strict energy conservation law enforcement, the development and full implementation of mandatory energy consumption limit standards and differential tariffs, promote the right to use energy, water, emissions, carbon emissions trading, the formation of green development of long-term incentives and constraints mechanism. Regularly carry out surveys and assessments of the development of green manufacturing. Strengthen the construction of corporate social responsibility, promote large and medium-sized enterprises, listed companies to publish annual social responsibility reports, disclose information on resource and energy consumption, pollutant emissions, employee responsibility care, etc., improve the awareness of green responsibility of small and medium-sized enterprises, and give full play to social supervision and supervision of public opinion.

(E)strengthen international cooperation. Actively introduce foreign advanced applicable green manufacturing development

Ideas, technology and management experience, the use of multi-channel funding, and strengthen exchanges and cooperation with foreign governments, enterprises, scientific research institutions, international organizations in green manufacturing.

Implementation of national

The "One Belt, One Road" strategy encourages green manufacturing technology, equipment and services to "go global" to achieve sustainable development.

(F) spread the green concept. Give full play to education and training, media, green public welfare

The role of organizations, industry associations, industry alliances and other institutions to strengthen public opinion propaganda, enhance the green concept, advocate green consumption, and further enhance the green awareness, participation and enthusiasm of the whole society to create a good consumer culture and social atmosphere for green manufacturing.