



Original Chinese versions of Circular and Cooling Action Plan available via:
http://www.ndrc.gov.cn/zcfb/zcfbtz/201906/t20190614_938745.html

Circular on Printing and Distributing the “Green and High-Efficiency Cooling Action Plan”*

Development and Reform Environment and Resources [2019] No. 1054

[To] the provinces, autonomous regions, municipalities directly under the Central Government and cities with separate plans, Xinjiang Development and Construction Corps Development and Reform Commissions, departments under the authorities of The Ministry of Industry and Information Technology, Departments (Bureaus) of Finance, Ecology and Environment Departments (Bureaus), Housing and Urban-Rural Development Departments (Bureaus), Market Regulation Bureaus (Departments, commissions), Government Offices Administration Departments, and all relevant entities:

To implement this year's "Government Work Report", the State Council's "13th Five-Year Comprehensive Work Plan for Energy Conservation and Emissions Reduction", the Sino-French "Bilateral Agreement on Maintaining Multilateralism and Improving Global Governance", and other documents' mandates, and to accelerate the construction of ecological civilization, to promote green consumption, advance high-quality development, and actively engage in global environmental governance, we have researched and formulated the "[Green and High-Efficiency Cooling Action Plan](#)", which is herewith printed and sent to you; please implement it carefully in light of the actual situation.

National Development and Reform Commission
Ministry of Industry and Information Technology
Ministry of Finance
Ministry of Ecology and Environment
Ministry of Housing and Urban-Rural Development
State Administration for Market Regulation
National Government Offices Administration

2019 June 13

* IGSD remind readers that this English translation is for reference only and that bracketed text indicates translator additions for English translation clarity. In cases of questions involving the Chinese text, readers should note that only the Chinese language version is binding.



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[Attachment]

Green and High-Efficiency Cooling Action Plan

This plan is promulgated to fulfill requirements in the 2019 “Government Work Report” and the “13th Five-Year Comprehensive Work Plan for Energy Conservation and Emissions Reduction,” accelerate the construction of ecological civilization, promote green consumption, advance high-quality development, and actively engage in global environmental governance.

I. Significance

The cooling industry is a significant segment of the manufacturing sector. Cooling products are important end products that meet people's needs for a better life and for upgraded consumption. Cooling-related energy consumption is large and is still growing quickly, which indicates great energy savings and emissions reduction potentials. China is the world's largest manufacturer, consumer and exporter of cooling products. China's cooling industry has an annual output value of 800 billion yuan and creates over three million jobs. China manufactures more than 80% of world's total residential air conditioners (ACs) and more than 60% of world's total refrigerators. Meanwhile, electricity used for cooling accounts for more than 15% of the electricity consumption of China's entire society, which increases on average at an annual rate of nearly 20%. The electricity load for ACs in large and medium-sized cities represents 60% of the summer peak electricity load. The energy efficiency of main cooling products can be improved by 30–50%. China has already committed to actively implement the *United Nations Framework Convention on Climate Change* (UNFCCC) and its *Paris Agreement*, as well as to improve cooling industry energy efficiency standards. Implementing green and high-efficiency cooling actions is an important step to promote energy conservation and emissions reduction, respond to climate change, and accelerate the construction of ecological civilization. It is of vital significance for promoting industrial high-quality development, nurturing a robust domestic market, fostering new green-development driving forces, and fulfilling international commitments to reduce emissions, advancing the ratification and implementation of the *Kigali Amendment to the Montreal Protocol*, and getting deeply involved in global environmental governance.



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II. Overall requirements

1 Guiding ideology

[The Cooling Action Plan will be] guided by Xi Jinping's Thought on Socialism with Chinese Characteristics for a New Era, the spirit of the 19th Communist Party of China (CPC) National Congress and the 2nd and 3rd Plenary Sessions of the 19th CPC Central Committee, and the vision of new development. It will put a focus on supply-side structural reform and follow the principles of market orientation, government guidance, standards leading the way, overall planning, increasing increment, and optimizing stock. The action plan will significantly improve cooling efficiency and green levels, expand green product supply and the green consumption market, and realize high-quality and green development of the cooling industry to meet people's growing demand for a better life.

2 Main targets

By 2022, the energy efficiency levels of cooling products on the market, such as residential ACs and variable refrigerant flow (VRF) [ACs], shall be improved by 30%, and the market share of green and high-efficiency cooling products shall be increased by 20%, which generates annual electricity savings of about 100 tWh. By 2030, the cooling energy efficiency of large-scale public buildings shall be increased by 30%, the overall energy efficiency levels of cooling shall be improved by more than 25%, and the market share of green and high-efficiency cooling products shall be increased by more than 40%, which produces annual electricity savings of 400 tWh.

III. Main tasks

1 Strengthen the guidance of standards

Energy efficiency standards for cooling products will be substantially upgraded for mandatory phaseout of inefficient cooling products. The minimum energy performance standards for the main cooling products shall reach or exceed the entry-level requirements of developed countries, while level I energy efficiency requirements shall meet internationally-advanced levels. [Additional actions are to] accelerate combining the energy efficiency standards for residential fixed-speed ACs and variable-speed ACs, [and] amend the compulsory energy efficiency standards for products such as VRF ACs, commercial freezers, refrigerated display

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cabinets, heat pumps, chillers, and heat-pump water heaters. By 2022, the minimum energy performance standards for residential ACs shall be raised by 30%, VRF ACs by 40%, refrigerated display cabinets by 20%, and heat-pump water heaters by 20%. By 2030, the minimum energy performance standards for main cooling products shall be further increased by more than 15%. [Additional actions are to] accelerate the promulgation of energy efficiency standards for cooling products, including data centers, mobile ACs, cold storage warehouses, refrigerated trucks, ice makers, and dehumidifiers, and to phase out 20–30% of low efficiency cooling products. Leading enterprises are encouraged to promulgate enterprise standards that are stricter than national standards, striving to be enterprise standard "forerunners."

National standards or industry standards will be promulgated or amended for green design, manufacturing quality, system optimization, economical operation, testing and monitoring, and performance evaluation of cooling products and systems, including public buildings, industrial facilities, data centers, cold chain logistics, and combined cooling, heat and power (CCHP). Promulgation and amendment of product and safety standards for environment-friendly refrigerants utilized by the cooling industry will be accelerated in order to promote the deployment of low global warming potential (GWP) refrigerants. Social groups such as associations, institutions and alliances to develop cooling-related group standards, such as green technology, innovative products, after-sales service, and recycling, dismantling, and reuse, will be encouraged.

Endorsement of energy efficiency standards and adoption [of these standards] as important technical bases for policy measures, including energy-saving evaluation, government procurement, project tendering, energy-saving technology transformation, testing and certification, product promotion, and market regulation, will be strengthened, so that the energy efficiency standards can be effectively implemented. Expand the range of products covered under energy efficiency labeling. As a trial, information will be added such as energy efficiency forerunners and refrigerant GWP on the energy efficiency labels of the main cooling products. Carry out standard and labeling education and implementation training, and strengthen personnel capacity building for manufacturers and regulatory agencies.

2 Expand the supply of green and high-efficiency cooling products

Ensure implementation of the *Guiding Catalog for Green Industries* to promote policy and financial support for green industries. Include advanced and applicable green and high-efficiency technologies into the categories of encouraged [technologies] in the *National Catalog for Promotion of Green Technologies* and the *Guiding Catalog for Industrial Structure Adjustment* in a timely manner, to connect green technologies with funding and industry.

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Devote further efforts to research and development of key common technologies, including variable speed control, high-efficiency compressors, compact, lightweight and efficient heat transfer, high-performance lubricants, innovative cold-storage materials, high-precision testing evaluation, and value-transfer methods, so as to drive the exploration and storage of revolutionary technologies. Improve and strengthen the energy efficiency forerunner program to identify industry models and to incentivize enterprises to further improve cooling efficiency. Encourage enterprises to drastically raise the supply scale of green high-end products, such as variable speed products and temperature (humidity) precision control products. Motivate manufacturers to provide customized and precisely adapted green and high-efficiency cooling systems for industrial and commercial users, with a mission to transfer from "manufacturing" to "product/engineering+services".

Increase research and development of environment-friendly refrigerants and actively promote the reuse and safe disposal of refrigerants. Ensure implementation of the *Regulation on Ozone-Depleting Substances Management* and the *Montreal Protocol*, and guide enterprises to quickly convert to AC production lines that use low-GWP refrigerants, accelerate phaseout of hydrochlorofluorocarbon (HCFC) refrigerants, and limit usage of hydrofluorocarbons (HFCs). Cooling product manufacturers are encouraged to build green factories and strictly control refrigerant leaks and emissions during production processes.

3 Promote green and high-efficiency cooling product consumption

Improve the government procurement systems for energy-efficient and environment-friendly products, expand the scope of government green procurement and further support government procurement of innovative green and high-efficiency cooling products. For project bidding processes, encourage tenderers to include greenness and energy efficiency indicators as important conditions in the comprehensive evaluation criteria for products, and increase the weight of indicators such as greenness and energy efficiency. Promote adoption of the *Guidelines for Enterprise Green Procurement (Trial)*, encourage bulk procurement enterprises to raise the procurement proportion of green and high-efficiency cooling products by means of [making] voluntary energy conservation commitments and engaging in [relevant] promotion initiatives.

Strictly implement the statistical survey system for high-efficiency household electric appliance sales and incentivize local governments to improve market promotion mechanisms. Where conditions permit, subsidies and rewards can be provided to incentivize consumers to purchase green and high-efficiency cooling products to replace old and low-efficiency cooling products, through measures such as "energy conservation subsidies" and "replacing old



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products with green products.” Encourage retailers and e-commerce platforms to set up dedicated green product sales zones to showcase green and high-efficiency products. Enhance professional and technical training and require operations and after-sales service staff to strictly follow operational procedures in order to ensure the efficient and economical performance of cooling equipment and effectively prevent refrigerant leakage during equipment installation, usage, maintenance and transportation.

4 Advance energy-saving transformation

Enhance cooling related energy-saving retrofits with focuses on key demonstration projects, including the energy-saving retrofits of central air-conditioning systems, energy efficiency upgrade of data-center cooling systems, cooling-system retrofitting for zones and parks, and green upgrade of cold-chain logistics. [Such projects shall] renew and upgrade cooling technology and equipment, optimize load supply and demand matching, and achieve systemic economical operation, and drastically raise the energy efficiency performance and green levels of existing systems.

Carry out energy-saving retrofitting projects for central air-conditioning systems. Support retrofitting projects to eliminate inefficient equipment and apply technological upgrades such as intelligent controls, pipeline optimizations, energy recovery, cooling and energy storage, natural cooling sources, multi-energy complementary usage, and natural ventilation at key locations such as public institutions, large public buildings, subways, and airports. Where conditions allow, partial-time-and-space AC usage models can be promoted.

Launch energy efficiency upgrade projects for data-center cooling systems. In accordance with the *Guiding Opinions on Strengthening the Construction of Green Data Centers*, support energy conservation and green renovation projects for old data centers (including the data centers of public institutions) in order to optimize and upgrade equipment layout, cooling structure and envelope structure, to encourage the usage of high-efficiency cooling systems such as liquid-cooled servers, back heating pipes, indirect evaporative cooling, in-row ACs, and automatic misting. Adopt cooling methods such as natural cooling sources, in effective coordination with mechanical cooling, to significantly raise the energy efficiency performance of data centers.

Conduct cooling retrofitting projects for parks and zones. Where conditions allow, support shall be provided to choose parks or zones with significant cooling demand and concentrated electricity load, such as commercial complexes, university campuses, administrative areas, and leisure resorts to design comprehensive cooling retrofitting plans, and explore the business



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model for construction of high-efficiency and green cooling systems through outsourced cooling services, payment by metered cooling, and guarantee contracting for cooling demand and energy-performance.

Perform green upgrade projects for cold chain logistics. In the fields of agricultural products, food and pharmaceutical products, leading cold-chain logistics enterprises are supported to collectively upgrade their cooling equipment and facilities, including green and high-efficiency refrigerators, refrigerated display cabinets, commercial refrigerated cabinets, refrigerated trucks, and cold-storage warehouses, as well as to establish energy consumption management and control centers that utilize technologies such as the Internet of Things and precise temperature (humidity) controls to reduce both costs and the rate of corrosion.

5 Deepen international cooperation

[China will] actively participate in and lead the reform and construction of the global environmental governance system. We will advance the implementation of the UNFCCC and its *Paris Agreement*, as well as the *Montreal Protocol*, and demonstrate China's image as a responsible large country through improving energy efficiency, reducing greenhouse gas emissions and phasing down HFCs. We will facilitate bilateral and multilateral practical cooperation to share international best practices in green and high-efficiency cooling policies, projects and technologies, and actively push forward the Belt and Road Green Cooling Initiative. We will carry out the international comparative analyses on cooling energy efficiency standards and test methods, in an effort to promote regional and international coordination and mutual recognition. We advocate "green cooling for all", and support trade facilitation of green products. We encourage "bring in and export out" [where] green and high-efficiency cooling products [are concerned], and nurture and expand the global green and high-efficiency cooling market, so that high-quality cooling products can benefit the whole world.

IV. Safeguard measures

1 Improve policy measures

Effectively implement existing fiscal, taxation and financial policies in support of the development of green industries. Encourage local governments to expand channels and implement innovative measures to support green and high-efficiency cooling products. Further implement peak-and-valley electricity and natural-gas pricing [policies] and encourage implementation of a market-oriented and seasonally-diversified natural-gas pricing policy.

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Enterprises will be entitled to a corporate income tax credit or waiver if they have purchased and used green and high-efficiency cooling products and equipment, as well as clean-energy ACs, in accordance with the provisions of the *Catalog of Special Energy and Water Conservation Equipment Eligible for Corporate Income Tax Benefits*. Guide banks and financial institutions to provide funding support for green and high-efficiency cooling product manufacturers and renovation projects, implement the *Green Credit and Loan Guideline*, and boost the development of a green and high-efficiency cooling industry through green loans and green bonds. In addition, technical assistance, low-interest loans, and grants from international financial institutions can be used to raise cooling efficiency and promote environmental-friendly refrigerant alternatives.

2 Strengthen supervision and administration

Strictly crack down on acts such as fraudulent product energy efficiency labeling, fraudulent certification and testing, and false advertisement, and strengthen cooling-product spot checks. Furthermore, improve the disclosure system for supervision and spot-check results. The results of spot checks and information concerning administrative penalties shall be included in both the national enterprise credit information public disclosure system and the national credit information sharing platform for joint punishment. Enhance quality accountability mechanisms, and strictly investigate and pursue liability. Products that fail to meet compulsory energy efficiency standards must be recalled by the manufacturers within the prescribed time, and under serious circumstances, such manufacturers shall be ordered to suspend production for rectification. Strengthen supervision of cooling-product recycling and disposal, and regulate the recycling, disassembling and reuse of waste cooling products and refrigerants. Encourage social supervision including consumer supervision, third-party oversight and enterprise mutual investigation to regulate market behavior and protect consumers' rights and interests.

3 Provide public broadcasting and guidance

Advocate for the concept of healthy and rational consumption, foster an economical, civilized, moderate and reasonable consumption style, and create a positive social environment in favor of green consumption. A variety of media outlets, especially the new media, can be used to disseminate information on green consumption, promote green products, broadcast green and energy-efficient methods for AC usage, appraise positive models, and disclose unqualified products. A variety of campaigns shall be organized for themed public education and information sharing during National Energy Conservation Week, National Low-Carbon Day, and Environment Day.