

# Green Development

China Mobile takes the comprehensive promotion of the construction of a beautiful China as its guiding ideology, deeply implements the “C<sup>2</sup> Three Energy – China Mobile Carbon Peaking and Carbon Neutrality Action Plan” and has explored a green development model that fully exploits the advantages of new generation information technology to realize joint energy conservation and carbon reduction of enterprises and society. The Company dedicates to achieving its own green and low-carbon development, improving the efficiency of ecological environment governance, and supporting high-level protection of the ecological environment, to contribute positively to the construction of China’s ecological civilization.



**Conducting  
Green and Low-Carbon  
Operations**



**Supporting Social Initiatives in  
Energy Conservation and  
Environmental Protection**



# Feature Actively Responding to Climate Challenges

China Mobile supports the carbon peaking and carbon neutrality goals, actively addressing climate challenges with a clear strategic planning system, a sound governance structure, comprehensive management processes, and well-defined objectives.

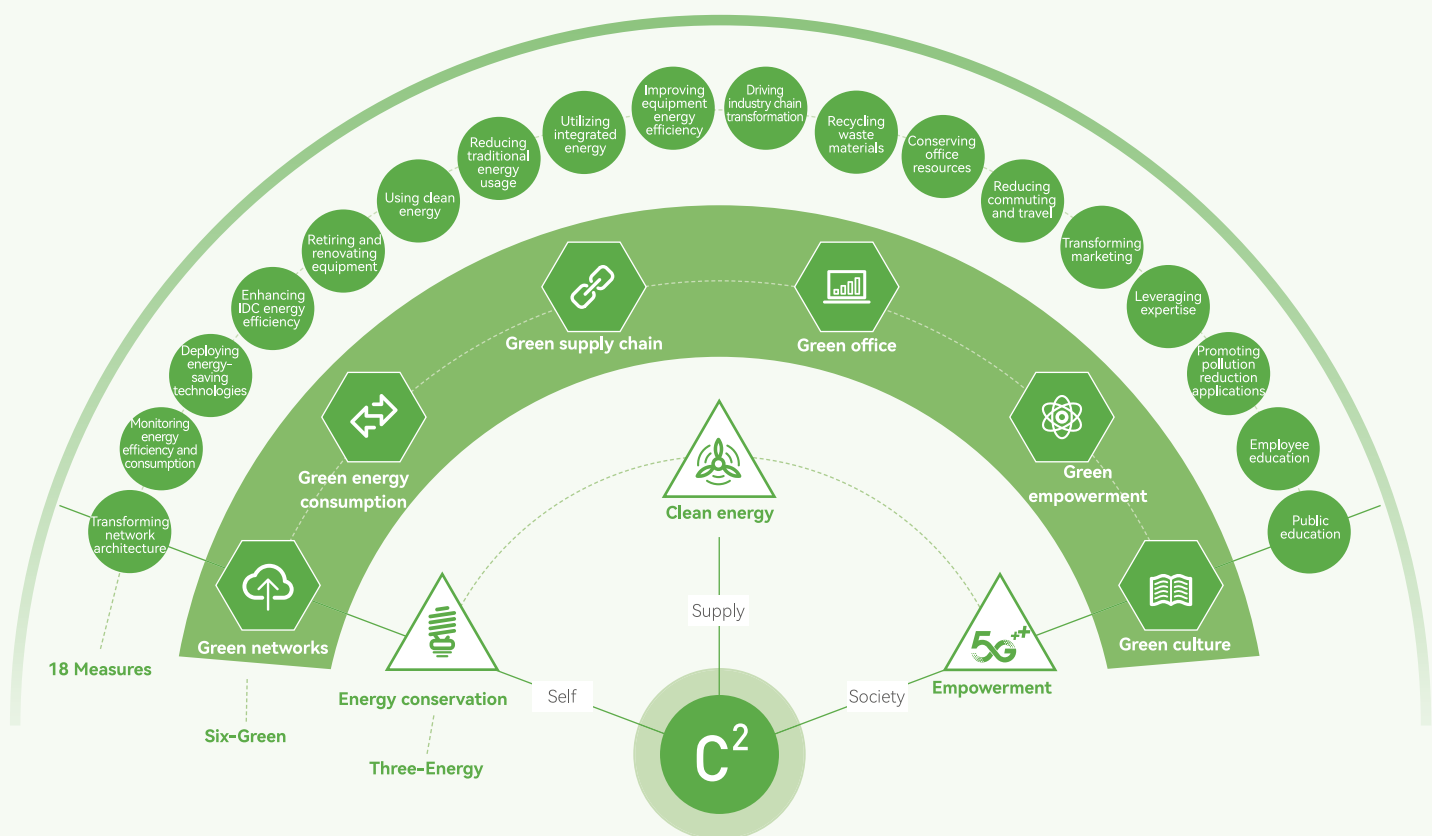
## Steadily Advancing C<sup>2</sup> Three Energy Plan

In 2023, China Mobile deeply pushed the “C<sup>2</sup> Three Energy – China Mobile Carbon Peaking and Carbon Neutrality Action Plan”, through three main lines of “energy conservation, clean energy, and empowerment, steadily promoting green, low-carbon sustainable development around six pathways of green networks, green energy consumption, green supply chain, green office, green empowerment, and green culture.

To solidly promote the “C<sup>2</sup> Three Energy – China Mobile Carbon Peaking and Carbon Neutrality Action Plan”, the China Mobile has formulated the *China Mobile Energy Conservation Management Measures* and the *China Mobile Environmental Pollution Risk Prevention and Control Management Measures*, set up the organizational structures and responsibility assignment for environmental-related issues including climate change, and put forward specific requirements for various tasks such as energy conservation planning, energy consumption monitoring and evaluation.

The case of *Information Technology Empowering Lucid Waters and Lush Mountains: China Mobile Constructs Three Energy and Six Green Development Model* was selected for the Excellence Practice by the China Enterprise Reform and Development Research Association.

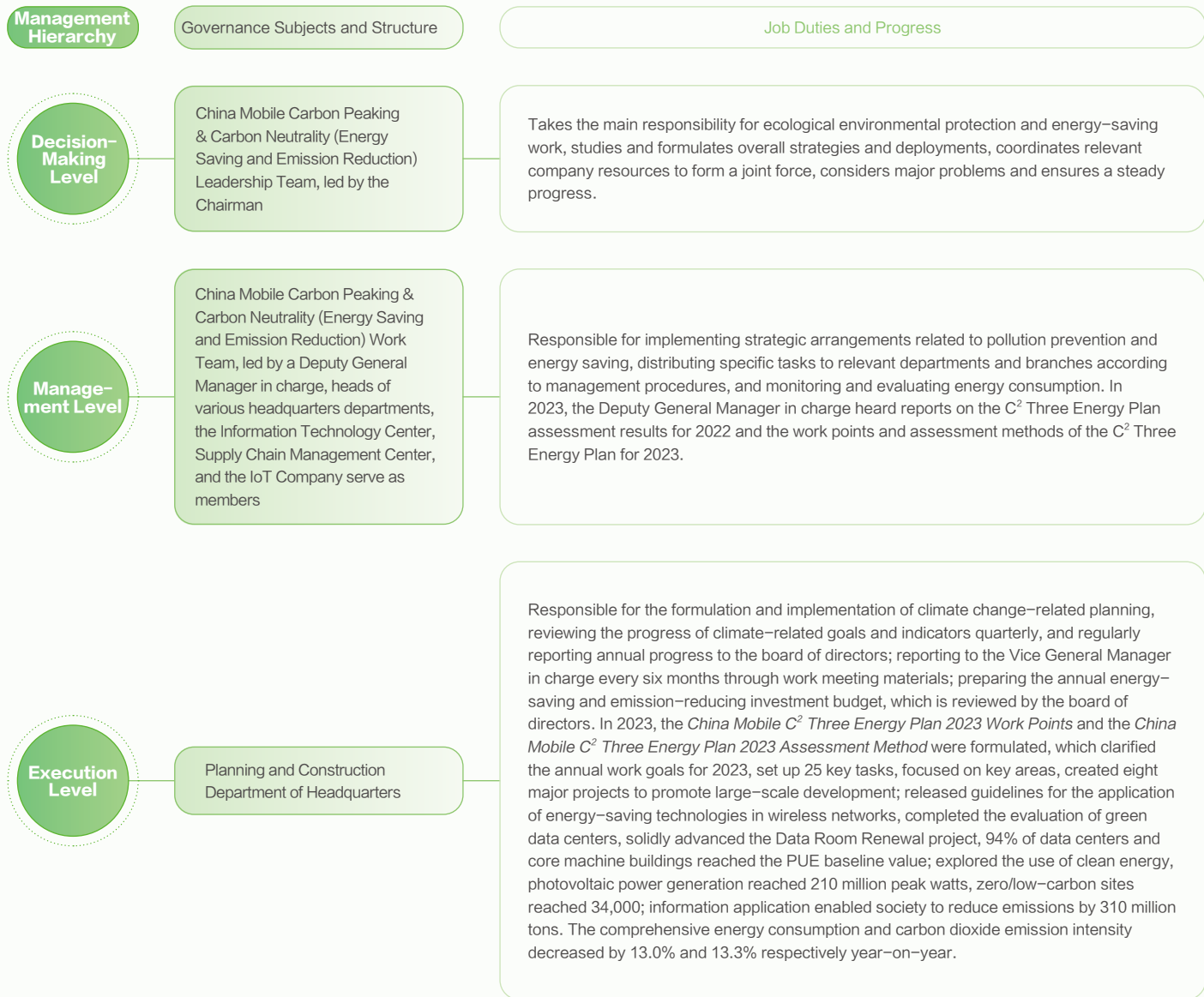
### C<sup>2</sup> Three Energy China Mobile Carbon Peaking and Carbon Neutrality Action Plan





# Establishing Comprehensive Climate Governance Framework

China Mobile has set up a three-tier governance structure of decision-making level – management level – implementation level for climate change issues.



China Mobile’s board members pay high attention to the issue of climate change. In recent years, the Company has continuously strengthened the ability of the board of directors to deal with climate change.

**Subject** Online seminar on Achieving Carbon Peaking and Neutrality, and Promoting High-Quality Corporate Development

**Training Content** Covers the Carbon Peaking and Carbon Neutrality strategy’s policy framework, foundational insights, and practical methodologies

**Number of Directors Participated** 3 people




**Subject** Case Studies on Carbon Peaking and Carbon Neutrality Initiatives Webinar Series

**Training Content** Company showcases on the transition to green and low-carbon energy, refining and elevating industrial configurations, pioneering in green low-carbon innovations, and bolstering carbon absorption capabilities

**Number of Directors Participated** 3 people

## Enhancing Climate-Related Incentive Structures

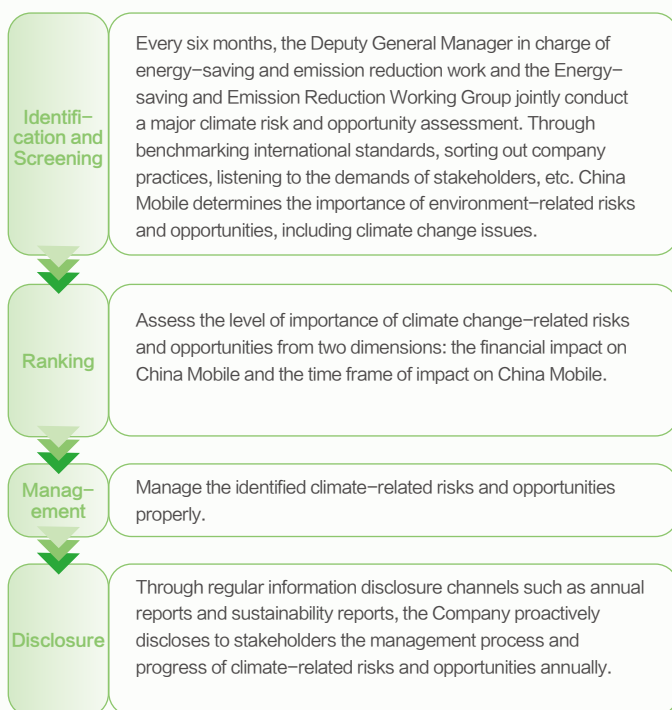
China Mobile sets up a combined financial and non-financial incentive mechanism, incorporating climate change response assessment indicators into the performance evaluation system of senior managers and employees at different levels, promoting the formation of a corporate culture atmosphere where all employees actively participate in energy-saving and emission-reducing efforts.

Incentive Subjects	Type of Incentive	Assessment Indicator	Incentive Plan Explanation
 The Chairman	Financial Incentive	Reduction of Emission Intensity	The performance assessment system for the Company's Chairman includes pollution prevention and energy-saving efforts, directly linking these criteria to the Chairman's salary.
 Energy Manager	Financial Incentive	Reduction of Emission Intensity	The Company has incorporated carbon emission totals and carbon intensity, along with other climate change-related metrics, into the KPI assessment system for provincial subsidiaries. Specific evaluation documents have been prepared. The compensation for the general managers and energy managers of the provincial subsidiaries is directly tied to the annual KPI assessment results. Ten specialized companies and directly managed units have been included in this assessment system to evaluate their carbon reduction efforts.
 All Employee	Non-financial Incentive	Reduction of Emission Intensity	In 2022, provincial companies in Jiangsu, Anhui, Shandong, Fujian, Zhejiang, Gansu, Henan, Sichuan, Liaoning, and Hunan ranked among the top ten in assessment scores. In the first quarter of 2023, the headquarters awarded the aforementioned units the title of "Advanced Collective in the China Mobile 2022 Carbon Peaking and Carbon Neutrality Action Plan", while also awarding ten employees the title of "Outstanding Individuals in the China Mobile 2022 Carbon Peaking and Carbon Neutrality Action Plan".

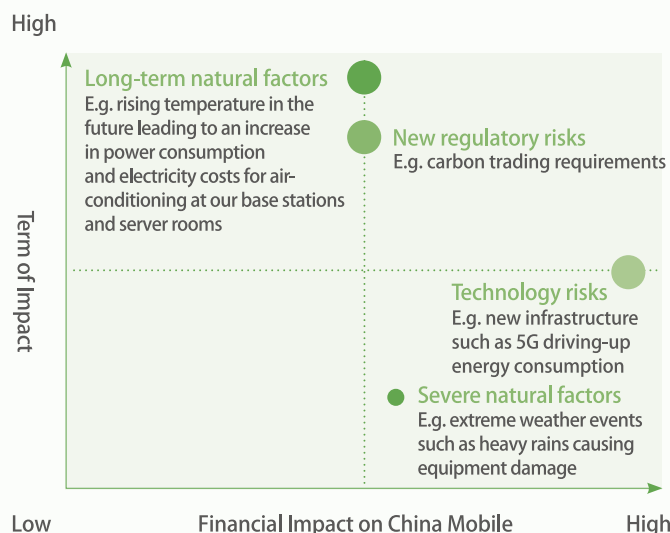
## Managing Climate Risk Comprehensively

China Mobile has established an effective and comprehensive climate risk management system, incorporating climate change issues into all stages of risk management.

### China Mobile's Climate-Related Risk and Opportunity Management Process






### China Mobile Climate-Related Risk Materiality Matrix



## ※ Climate-Related Risks and Opportunities

### Time Range and Definition

Short-term (0-1 year)	Regularly formulating and reviewing progress of work plans related to climate change every year or every half a year.
Mid-term (1-3 years)	Formulating a three-year work plan related to climate change every three years as a medium-term plan.
Long-term (3-5 years)	Every five years, a five-year strategy and work plan related to climate change is formulated, which is consistent with the national Five-Year Plan.

 Risk Category	 Description	 Risk Response Measures
Current and Emerging Regulatory Risks	<p>* The Company's headquarters and Beijing Mobile subsidiary, with China Tie Tong's headquarters and its Beijing subsidiary have been included in the Beijing Carbon Emission Trading System (ETS) pilot. According to the mandatory verification regulations of the ETS, if the verified emissions exceed the quota, China Mobile must bear the relevant cost.</p>	<p>* Assess carbon emissions, the corresponding compliance cost, and the non-compliance regulatory risk cost on a quarterly basis, and notify branches and subsidiaries of the results.</p> <p>* Assess the consistency of the internal management rules of carbon trading with the regulatory agency's ETS pilot regulations every year to ensure that the Company's provisions comply with regulatory requirements.</p> <p>* In 2023, the Company's headquarters and Beijing Mobile subsidiary, China Tie Tong's headquarters and its Beijing subsidiary reduced the quota purchase in the Beijing ETS market to meet the relevant requirements.</p>
Technological Risks	<p>* The Company has built a leading and the largest 5G SA commercial network, and the power consumption of 5G base stations is more than that of 4G. If more energy-saving and lower energy-consuming technologies are not developed and used, rapid growth in energy consumption and rapid increase in energy costs will result.</p>	<p>* The Planning and Construction Department of the headquarters is fully responsible for the planning and implementation of responding to climate change, and cooperates with subsidiaries to carry out energy-saving and climate change mitigation work every year.</p>
Severe Natural Factors	<p>* The Company is actively developing its 5G business, and the stable operation of base stations, machine rooms, and optical cables are very important for the Company to provide reliable 5G services to customers. Extreme weather can cause different degrees of damage to the Company's infrastructure and fixed assets and interfere with network quality. With the increase in the severity and frequency of extreme weather events, it may lead to an increase in the Company's capital expenditure.</p>	<p>* Every year, a post-disaster reconstruction plan is formulated to predict the amount of investment for post-disaster reconstruction during the planning period.</p> <p>* Allocate a part of the investment budget for rebuilding post-disaster facilities when formulating the annual investment plan.</p>

Opportunity Category	Description	Opportunity Realization Strategies
Products and Services	<p>* Information and communications technology (ICT) solutions can effectively aggregate resources and increase the efficiency of resource and energy use. They are deemed to be a viable pathway to reduce greenhouse gas emissions across all sectors. In response to the national Carbon Peaking and Carbon Neutrality goal, there is a huge demand within the Company's client base for green transformation. This has created substantial business expansion opportunities for the Company.</p>	<p>* Further delve into the opportunities presented by the emission reduction policy, fully harness the carbon reduction leverage of digital-intelligent technology, assist in enhancing energy utilization and production efficiency across all industries, promote intensive resource allocation, efficiency enhancement, and emission reduction, support the green transformation goals of the whole society.</p>
Resource Efficiency	<p>* With the promotion of the Carbon Peaking and Carbon Neutrality goal, the Company is set to benefit from improved energy efficiency.</p>	<p>* Set up a special fund for energy conservation and emission reduction, achieve efficiency enhancement and emission reduction annually through the usage of the special fund.</p> <p>* In 2023, the PUE of the Company's data center and core computer building was reduced by 4.5% compared to 2022, saving 680 million kilowatt hours of electricity and reducing costs by RMB 460 million.</p>

## ※ Climate Risk Scenario Analysis

In order to understand the impact of significant climate-related risks on the Company's business strategy and decision-making within different time ranges, the Company utilizes the industrial energy-saving scenario and model for analysis.



Industrial energy-saving scenarios

**Scenario 1:** By 2025, the comprehensive energy consumption per unit of telecom service shall decrease by 15% compared with 2020 (MIIT's requirement).

**Scenario 2:** By 2025, the comprehensive energy consumption per unit of telecom service shall decrease by 20% compared with 2020 (China Mobile's target).



Description of the model

Based on forecast on network scale and the energy-saving requirements of the two scenarios, we can calculate the maximum annual electricity consumption that would meet the energy-saving requirements (the expected annual electricity consumption less the maximum annual electricity consumption equals annual electricity savings needed).



Application of business strategies and decisions

We determined energy conservation goals at different levels by subdividing the potential impact of the different scenarios.

By 2025, the comprehensive energy consumption per unit of telecom service shall decrease by 20% compared with 2020. We devised specific strategies and measures based on this year's target, including:

- ◆ **Communication Network:** Promoted the transformation of network architecture including C-RAN and network cloudification, took solid steps in promoting construction of all-fiber foundation, furthered deployment of wireless network energy-saving technologies, continued to raise the energy efficiency of data centers and server rooms, and phased out old 2G and 4G equipment.
- ◆ **Energy Use:** Actively utilized clean energy and gradually reduced conventional energy use.
- ◆ **Supply Chain Management:** Incorporated green and low-carbon technology evaluation results into the procurement scoring system, tightened procurement requirements on energy use efficiency, energy-saving functions and green manufacturing processes for 5G and other network equipment, power supply equipment, air conditioners and other supporting facilities, encouraged equipment suppliers to expand R&D and supply of green technologies and products, and recycle waste materials.
- ◆ **Offices:** Saved office resources, reduced emissions relating to commuting and business travel, and advanced green marketing.

## Regular Monitoring of Environmental Performance

China Mobile has set clear, measurable quantitative targets for energy usage and greenhouse gas emissions, alongside corresponding key performance indicators. We regularly collect and analyze the energy consumption, greenhouse gas emissions, and intensity indicators of provincial companies and professional companies. When the indicators of relevant units change abnormally and there is a risk of exceeding expected targets, the headquarters will urge them to take more actions to improve energy efficiency and reduce emissions.

The Company has launched a targeted inspection campaign focused on enhancing energy efficiency and reducing carbon emissions. This includes scrutinizing the application of energy-saving technologies at base stations, evaluating the use and management of energy resources in data centers, monitoring the green and low-carbon operations, examining the progress of green energy initiatives, and assessing the setup of showcase sites for comprehensive energy use, with the goal of addressing any discovered shortcomings. Additionally, the Company has embarked on an internal carbon audit initiative, hiring external auditors to rigorously check the accuracy, authenticity, and compliance of energy usage, statistics, and CO<sub>2</sub> emissions data across its various departments.

 <b>Goals</b>	 <b>Key Performance Indicator</b>	 <b>Progress in 2023</b>
<ul style="list-style-type: none"> <li>By 2025, save energy usage by more than 40 billion kWh.</li> <li>By 2025, the decrease in comprehensive energy consumption per unit of total telecommunication services should be no less than 20% compared to 2020.</li> </ul>	<ul style="list-style-type: none"> <li>Annual total energy saving.</li> <li>Comprehensive energy consumption.</li> <li>Comprehensive energy consumption per unit of total telecommunication services.</li> <li>Y-o-Y decrease in comprehensive energy consumption per unit of total telecommunication services.</li> </ul>	<ul style="list-style-type: none"> <li>Total electricity saved for the year amounted to 8.99 billion kWh. The accumulated electricity saving has reached to 19.77 billion kWh and keeps increasing year by year from 2021 to 2023.</li> <li>Comprehensive energy consumption was 7.748 million tons of standard coal.</li> <li>Comprehensive energy consumption per unit of total telecommunication services was 64.5 kg of standard coal per RMB 10,000.</li> <li>Y-o-Y decrease in comprehensive energy consumption per unit of total telecommunication services was 13.0%.</li> </ul>
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="background-color: #4CAF50; color: white; padding: 5px 10px; font-weight: bold;">Energy Consumption</div> <div style="flex-grow: 1; border-bottom: 1px solid #ccc; position: relative;"> <div style="position: absolute; top: -10px; left: 50%; transform: translate(-50%, -50%);"> <span style="font-size: 2em;">&gt;</span> </div> </div> </div>		
<div style="background-color: #4CAF50; color: white; padding: 5px 10px; font-weight: bold;">Greenhouse Gas Emission</div> <ul style="list-style-type: none"> <li>By 2025, control greenhouse gas emissions from Scope 1 and Scope 2 to within 56 million tons.</li> <li>By 2025, the decline in greenhouse gas emissions per unit of total telecommunications services should be no less than 20% compared to 2020.</li> </ul>	<ul style="list-style-type: none"> <li>Total direct greenhouse gas emissions (Scope 1).</li> <li>Total indirect greenhouse gas emissions (Scope 2).</li> <li>Decrease in greenhouse gas emissions per unit of total telecommunication services .</li> </ul>	<ul style="list-style-type: none"> <li>Total direct greenhouse gas emissions (Scope 1) were 0.22 million tons of CO<sub>2</sub>.</li> <li>Total indirect greenhouse gas emissions (Scope 2) were 35.18 million tons of CO<sub>2</sub>.</li> <li>Decrease rate in greenhouse gas emissions per unit of total telecommunication services was 13.3%.</li> </ul>
 <b>Goals</b>	 <b>Key Performance Indicator</b>	 <b>Progress in 2023</b>

# Conducting Green and Low-Carbon Operations

China Mobile exercises strict control over its own energy consumption and the increase in greenhouse gas emissions, exploring potential energy savings and greenhouse gas emission reductions across all sectors, processes, and personnel. At the same time, it is improving the proportion of clean energy supplies, steadily reducing traditional energy use, and realizing energy saving in its own production operations and clean energy in energy consumption.

## Building Green Networks

China Mobile is dedicated to delivering more information with less energy, even as business demands continue to grow. In 2023, the Company's base stations accounted for approximately 58% of its total energy consumption, while data centers accounted for about 24%. Targeting these two key energy-intensive scenarios, base stations and data centers, the Company takes energy-saving measures such as employing digital management tools for monitoring energy consumption and efficiency, tracking energy consumption trends and analyzing efficiency distribution.



### Green Base Stations

#### Transformation of Network Architecture

- ◆ The centralized radio access network (C-RAN) architecture is used to build wireless networks, further simplifying power supply and air conditioning configurations, and reducing the power consumption of supporting facilities. By the end of 2023, the 5G main equipment single station energy consumption decreased by **17.4%** Y-o-Y and **86,000** ultra-simple base stations had been built.
- ◆ The number of network levels and network equipment is streamlined, forming a flattened architecture and processing facility network with data centers at the core, enhancing the convergence of cloud and network, as well as fostering cooperation between cloud and edge computing.
- ◆ The cloud infrastructure with complete layout, large scale, advanced architecture is further established, continually improving the efficiency of resource use.
- ◆ Promoting the construction of an all-optical pedestal, adopting new ultra-low-loss optical fibers, and reducing the energy consumption of photoelectric conversion.

#### Deployment of Wireless Network Energy-Saving Technologies

- ◆ Released the *Guiding Opinions for Application of Energy-Saving Technologies in China Mobile's Wireless Networks (2023)*, facilitating the full-scale adoption of power-saving techniques at both the station and network level for 4G and 5G base stations.
- ◆ Incorporated numerous power-saving technologies in our wireless networks, including subframe silencing, channel silence, shallow and deep sleep modes, as well as cooperative multi-layer network power-saving. By turning off unnecessary hardware across time, frequency, and space domains, we achieved cooperative power-saving across multi-layer wireless networks, all without any noticeable impact on user experiences.
- ◆ In 2023, the Company saw a **9%** increase in energy efficiency in individual 5G stations from the previous year, with a **99%** deployment rate of corresponding energy-saving technologies in applicable scenarios. Plus, over **99%** of our 4G/5G base stations were integrated into a comprehensive, intelligent, cooperative multi-layer wireless network power-saving management system.



### Green Data Centers

#### New data centers

- ◆ Use advanced energy-saving technologies and measures such as new air conditioning terminals, high-temperature chilled water, natural cooling sources, city electricity direct supply and high-voltage DC, liquid cooling, micro-modules, comprehensive use of waste heat, to build data centers. In 2023, the average power utilization efficiency (PUE) of large and ultra-large data centers dropped to **below 1.32**.

#### Existing data centers, core server rooms, access server rooms, and convergence server rooms

- ◆ Carried out the Server Room Renovation project. By the end of 2023, an investment of RMB 1.63 billion was made to renovate 546 server rooms, and the overall PUE of server room operation decreased by **4.5%**.

The Company implements the requirements of the *Guidance Directory for Retiring High-Energy-Consumption and Old Communications Equipment* and the *Directory for Retiring High-Energy-Consumption and Outdated Electromechanical Equipment (Products)* by the Ministry of Industry and Information Technology, the *Guidance Catalogue for Industrial Structure Adjustment* by the National Development and Reform Commission. Regular investigation and elimination of high-energy-consuming and outdated equipment are carried out. At the same time, the Company updates the *Guidance on the Determination of Inefficient and Ineffective Assets of China Mobile* each year and carries out the optimization, transformation, or withdrawal of high-energy-consuming and low-energy-efficient network equipment in the current network according to the guidance requirements. By the end of 2023, a total of 157,000 sets of ineffective equipment had been decommissioned, and 111,000 sets of inefficient equipment had been integrated.





### Research and Application of Integrated Source-Grid-Load-Storage at Zhejiang Communication Sites

The Company has developed source-load-storage coordinated linkage technology, distributed virtual power plant technology, virtual electric meter power auditing model, direct current photovoltaic technology, lead-carbon energy storage technology, storage integration technology, and energy operation platform, targeting the energy consumption characteristics of communication sites. They pioneered an integrated source-grid-load-storage energy operation system at communication sites, realizing flexible interaction between communication sites and the grid, and filling the void in the comprehensive, full-process digitalized energy-saving operation of communication sites.

By the end of 2023, Zhejiang subsidiary's source-grid-load-storage integration project has saved more than **570 million kwh** of energy for communication sites, reduced carbon dioxide emissions by **325,000 tons**, and saved more than **RMB 350 million** in electricity bills. The project has been promoted to Zhejiang Tower, maximizing the energy saving, carbon reduction, cost reduction, and efficiency enhancement of communication sites under the premise of ensuring safe operation.



Integrated Source-Grid-Load-Storage Energy Operation Platform.



### Innovating Base Station Energy-Saving Technology Based on Artificial Intelligence in Shandong

The Company has created a new three-dimensional energy conservation model of “One Body, Dual Wings, Triple Upgrades” that refers to one management platform, two hardware refurbishment, three intelligent upgrades and solves the three major challenges of balancing energy saving at wireless base stations and user online perception, high carbon emission at base stations, and the difficulty in coordinating energy efficiency within machine rooms. This has led to the realization of intelligent energy management, clean energy supply, and efficient energy use. By the end of 2023, it had saved **221 million kWh** of electricity annually, reducing CO<sub>2</sub> emissions by **125,400 tons**.



### Creating a New Benchmark for Green Energy Efficiency in Data Centers in Fujian

China Mobile (Fujian Fuzhou) Data Center is a regional ultra-large data center located in Fujian. In 2021, the average annual PUE of the data center was 1.70. To improve the comprehensive efficiency of energy utilization, Fujian subsidiary established a PUE improvement task force. By employing over ten energy-saving measures such as internal circulation of cold storage tank and main engine cold pool resources, optimization of parameters of cold source equipment, and optimization of airflow organization, the full potential of existing equipment for energy saving was explored. Meanwhile, energy-saving techniques like plate heat exchangers, artificial intelligence, and frequency converters for chillers were applied to reduce PUE.

After comprehensive remediation, in 2023, the PUE of China Mobile (Fujian Fuzhou) Data Center dropped to 1.36, becoming **the Company's data center with the lowest average annual PUE in warm winter and hot summer regions**. The data center's energy conservation and emission reduction case has been selected into the *2022-2023 High Quality Energy Conservation and Emission Reduction Case Collection of Data Centers* by the China Association of Communications Enterprises, and the relevant energy-saving technologies have been promoted and applied.



China Mobile (Fuzhou, Fujian) region level ultra-large data center.



### Strengthening Energy Efficiency Control in Data Centers of Hebei

In 2023, the Company intensively analyzed the high energy consumption scenarios in data centers in Hebei. According to the characteristics of the business load, targeted enhancement of energy efficiency control was carried out, saving 9.924 million kWh of electricity throughout the year.

#### Deep matching of gradient load

Adopted the chiller+cold storage tank charging energy-saving mode when the load is low, dual refrigeration units run at low frequency under the plate exchange mode when the load is medium to low, and adopted the dual refrigeration branch, a one-to-two energy-saving mode of the refrigeration system when the load is medium.

#### Extend the duration of plate exchange conditions

Through improving the performance of the cooling tower and deep maintenance of plate exchange, the wet bulb temperature of plate exchange enabling conditions was raised from 9 degrees Celsius to about 12.5 degrees Celsius, effectively extending the annual usage time of natural cold sources by about 21%.

#### Optimize the operation logic of water pumps

Using the characteristic of low energy consumption at low frequency of dual cooling pumps, increased the temperature difference between supply and return water, reduced the total water flow, established the optimal energy-saving model for water pumps, and ensured the balance of cooling supply and demand in the machine room.

#### Precision control of terminal air conditioning

Through the installation of baffles, renovation of grilles, replacement of ventilation floors, reduction of fan speed, and adjustment of water valve opening, precise air supply, cooling capacity saving, and energy consumption reduction are achieved.



### Applying High-Dimensional Cooling System in Guangxi

China Mobile, in collaboration with partners, has introduced a high-dimensional cooling system in Guangxi. Through the joint operation of indoor and outdoor units, efficient heat exchange between heat sources in the machine room and natural cool sources outside the machine room is achieved. Moreover, the system is equipped with temperature sensors and remote communication modules, which can upload temperature information to the monitoring system, and the monitoring system can control the operation state according to the indoor temperature. Test results show that the average energy-saving rate of the air conditioner is about **30.24%** under the 28 degrees Celsius linkage scenario and about **70.13%** under the 35 degrees Celsius linkage scenario.



### Implanting Data Center Cooling System Automatic Driving Mode in Hubei

The Company has introduced an automatic driving technology for the cooling system in Hubei, allowing refrigeration equipment to automatically adjust operation modes under different outdoor environmental temperatures, fully utilizing natural cold sources, and minimizing energy consumption of refrigeration equipment. In 2023, the Wuhan Donghu High-tech Data Center saved a total of **1.1046 million kWh** of electricity and reduced CO<sub>2</sub> emissions by **627.25 tons**.



### Independently Developing Energy-Saving Wind Wall Product in Shanxi

The Company has independently developed a new air conditioning terminal product, SmoothWind. By arranging the air conditioner and the cabinet in parallel, the heat exchange area is increased, achieving zero wind resistance and zero loss, and greatly improving the energy-saving level of the cabinet. In 2023, the SmoothWind product completed pilot verification, helping the Taiyuan Data Center in Shanxi to reduce its PUE to **1.26**.



Innovative research and development of the new air conditioning end product SmoothWind.

## Promoting Green Energy Use

China Mobile actively integrates into the national energy transformation landscape, proactively enhances the utilization rate of clean energy, steadily reduces the proportion of traditional energy use, and effectively promotes the comprehensive use of energy.



### Actively Introducing Green Energy

Set up small wind power and rooftop photovoltaic renewable energy power generation devices in regions with suitable climate conditions, and introduced clean energy in data centers and base stations. Combined with the characteristics of communication network load and operation assurance requirements, promoted the design and operation and maintenance innovation of the power system, properly explored the potential of battery equipment, and jointly promoted green power consumption.

**164** million kilowatt-hours

of green energy generated during the year

**94,000** tons

reduction of carbon dioxide emissions

**158** million kilowatt-hours

of green electricity purchased through active participation in green electricity trading

**90,000** tons

reduction of carbon dioxide emissions



Building solar energy base station in Xinjiang.



### Steadily Reducing the Use of Traditional Energy

- Strictly controlled the consumption of fossil energy and actively utilized non-fossil energy sources.
- Accelerated the elimination of coal heating by 2023, with the proportion of provincial (autonomous regions and municipalities) subsidiaries with near-zero direct carbon emissions reaching **74%**.
- Improved the operation and maintenance standards of fixed generator sets, optimize the configuration and scheduling of mobile oil engines, and effectively controlled the consumption of diesel and gasoline under the premise of ensuring network emergency power generation.



### Promoting the Integrated Utilization of Energy

- Increased utilization of energy cascades, construction of comprehensive energy projects that harmoniously benefit electricity, heat, cold, gas and other energies, and improved the efficiency of energy utilization.
- By 2023, **more than 40%** of the cities have established comprehensive energy utilization demonstration areas, and at least two green energy-saving technologies have been used in these areas in power supply, heating and cold water, air conditioning, lighting, water resource utilization, energy control, etc.



## Promoting Green Office

China Mobile has constructed a data-driven environmental protection office system, strengthening the awareness of all employees to Cherish our Earth and Practice Green Office, encouraging employees to actively participate in daily office carbon reduction actions, advocating that everyone should be an energy-saving and carbon reduction practitioner.

### Saving Office Resources

Through paperless and electronic office means such as “5G with e-signature”, “You say, I Write Down”, “AI Scan King”, the smart legal affairs, smart reimbursement and smart quality inspection can be operated online and paperless anytime and anywhere, saving **13.43 million sheets** of paper throughout the year, reducing greenhouse gas emissions by **26 tons**.

48 provincial specialty companies with communication engineering projects have fully launched the application of all-engineering file paperless archiving capabilities. By the end of 2023, a total of 1,676 projects and nearly 220,000 document paperless archiving have been completed.

Optimize the configuration and operation management of office space energy use facilities, improve the energy supply scheme and facilities, and save all kinds of energy consumption.

Carry out energy-saving renovations for existing office buildings, optimize the operation control of refrigeration and air conditioning equipment, and set office environment fresh air and temperature and humidity according to national recommended standards.

Actively develop photovoltaic power generation. In 2023, Jiangsu Mobile deployed photovoltaic power generation devices in six office buildings in Wuxi, generating 570,000 kWh of electricity throughout the year, reducing carbon dioxide emissions by 325 tons; Guangxi Mobile built a distributed photovoltaic power station in the logistics warehouse center in the High-tech Zone, generating 1.77 million kWh of electricity throughout the year, reducing carbon dioxide emissions by 1,009 tons.

In the canteen of the headquarters office area, they distribute “Carbon Reduction With Me · Green Movement First” seed cards and pure natural organic compost made from kitchen waste collected by the restaurant, spreading the green concept of turning waste into treasure.



Sorting bins.



“Green Box Comes to You”.

### Reducing Commuting and Travel Emissions



#### Reducing Commuting Emissions

Encouraging employees to opt for green commuting methods such as walking, shared bikes, public transportation, and new energy vehicles, considering their commuting distance.

In 2023, the per capita commuting greenhouse gas emissions decreased by **22%** year-on-year.



#### Reducing Travel Emissions

Promoting online meetings and training to reduce unnecessary travel. For essential travel, employees are encouraged to choose lower-emission options like high-speed rail, with the Company’s information technology platform tracking employees’ travel-related greenhouse gas emissions. In 2023, the Company’s headquarters hosted **778** inter-provincial video and telephone conferences.

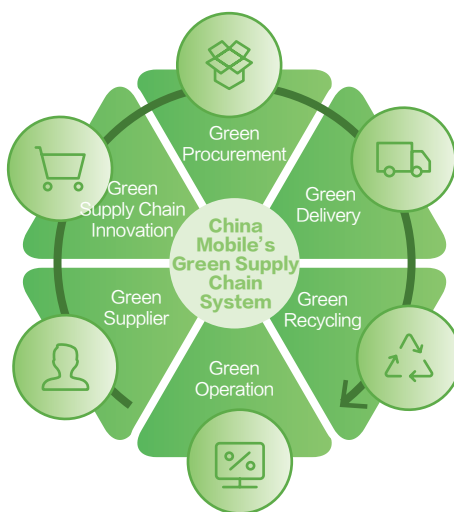


# Supporting Social Initiatives in Energy Conservation and Environmental Protection

China Mobile actively promotes the deep integration of emerging technologies such as 5G and the green low-carbon industry, plays a leading role in the supply chain, stimulates the leverage of information technology, and cooperates with all parties in the industry chain to build a green supply chain. It promotes the intelligent transformation and upgrade of various fields with the engine of green development, driving the whole society to achieve energy-saving and emission reduction.

## Jointly Building a Green Industrial Chain

In 2023, China Mobile released the *China Mobile Guiding Opinions on Green Supply Chain*, clarified the development goals of the green supply chain, formulated implementation plans and specific measures of implementation path, and enhanced the green supply capacity of the industrial chain and supply chain.



### ※ Implementing Green Procurement

With the concept of green procurement as the guide, the Company continuously improves the green procurement standard, deepens the collaboration of industrial chain enterprises, and increases the supply of green products.

#### Optimizing Responsible Sourcing System

Green energy-saving technology test results are incorporated into the purchase score, covering 102 types of equipments in the centralized procurement directory, whereby the active communication equipment's coverage proportion exceeds 90%.

345 products from 9 categories, including mobile communication network equipment, are listed in the *China Mobile Green Procurement Product Applicability Directory*.

The *China Mobile Supplier Cooperation Guide* is established. It requires cooperative suppliers to perform tax obligations, make active social insurance payments, and adhere to laws and regulations regarding legal labor, labor protection, occupational health safety, social responsibility, and environmental protection.

All suppliers participating in procurement are required to sign an online integrity commitment, and the Social Accountability (SA8000), Occupational Health and Safety Assessment Series (OHSAS18001) and Environmental Management System (ISO14000) certification are identified as the supplier qualification review, dynamic quantitative appraisal, and comprehensive strength assessment benchmarks.

#### Continuously Promoting Online Procurement

Relying on the electronic procurement and tender bidding system, standardization, online and automation of tender documents and tender templates are promoted. From the announcement, bidding, tendering, evaluation to contract signing, the entire process is automated online. By the end of 2023, the paperless procurement rate reached 99.9%, with 35,000 paperless procurement projects carried out throughout the year, thereby reducing the number of paper documents by 130 million and reducing carbon dioxide emissions by 260 tons.

## ※ Expanding Green Suppliers

The Company embeds environmental principles throughout the supplier management process, and works with all stakeholders in the supply chain to develop a sustainable ecosystem.



### Nurturing Green Suppliers

Comprehensively assess the performance of suppliers in aspects such as environmental certification and management system construction, green management actions or plan formulation, and carbon emission information disclosure.



### Establishing Supplier Incentive Mechanism

Suitable incentives are given to suppliers who have outstanding performances of energy-saving and carbon-reducing in areas such as product technology innovation, process innovation, and production and distribution at the procurement sourcing stage.

## ※ Constructing Green Logistics System

The Company strengthens the use of green packaging and empowers the circulation link through technical means, which fully reduces the impact of goods packaging and logistics network on the environment.

### Application of Green Packaging



In collaboration with the suppliers, design and use regenerated paper materials for equipment packaging to reduce the use of non-degradable materials such as glue.

The router products of our own brand use renewable paper for packaging, and the packaging volume is reduced by changing the antenna folding method, saving about 5%–15% of the packaging paper per product.

Established the China Mobile Green Packaging Enterprise Standard, achieved a green packaging ratio of over 80%, saving 278,500 cubic meters of timber annually.

### Promoting Green Circulation

The Company started the “end-to-end” label physical assets all life cycle visual management in the industry, persuading strategic suppliers to use radio frequency identification (RFID) tags, creating “digital identity cards” for 55 types of products, and lifting the utilization rate of dismantled assets to 80%.

### Developing Green Warehousing

Established a green warehouse evaluation index system, actively develop smart warehousing, and reduce greenhouse gas emissions during transportation through the optimal logistics distribution method and route.

## ※ Conducting Green Recycling

The Company constructs a material recycling system, strengthens idle and obsolete materials management, and promotes cross-regional and cross-project asset revitalization. The recycling standard of materials has been established, a renewable resource reverse logistics service system has been set up, and various recycling modes such as producer recycling, third-party corporate recycling, and industry alliance recycling have been explored. In 2023, RMB 1.428 billion of stagnant materials were disposed of, and the proportion of stagnant inventory dropped to 1.84%.

The project of *Solutions to Revitalize the “Material Supermarket” of Enterprises and Institutions* won the **highest project award** of the 2023 World Summit on the Information Society (WSIS), the **only** major award won by domestic enterprises at the summit.



### In Shandong, Exploring the Disposal of Scrapped Materials Based on a Green Collaborative Supply Chain

In Shandong, the Company has developed a green and efficient recycling system tailored to various categories of discarded materials. By implementing diverse strategies including price adjustments, auction platforms, and a unified approach to dismantling and collection, we have realized significant social and economic advantages.


**Battery materials:** Adopt a price linkage mechanism and conduct battery material disposal transactions through public trading, introducing full competition and effectively improving disposal income.

**Non-battery materials that are easy to dismantle:** Disposal is carried out through a public auction platform, standardizing the auction transaction process.

**Non-battery materials that are not easy to dismantle:** The original two links of dismantling and disposal are optimized into one integrated dismantling and recovery link, which is responsible for dismantling and disposal by the same recycler, simplifying business processes and solving the cost problems of dismantling, transit, transportation, and storage.

## ※ Encouraging Green Innovation


The Company enhances green technology innovation, creates a greenhouse gas emission management platform based on blockchain technology, and encourages upstream and downstream enterprises to steadily disclose environmental and greenhouse gas emission information.



### Creating a Supply Chain Greenhouse Gas Emission Management Platform Based on Blockchain in Jiangsu

To address the challenge of lacking quantified greenhouse gas emission standards in the enterprise supply chain, the Company introduced a product carbon footprint accounting standard. Based on the “end-to-end” strategy and the independently developed blockchain service platform SMBaaS, they created a quantified output capability for greenhouse gas emissions in the supply chain, achieving reliable and quantifiable output of greenhouse gas emission data in the supply chain.

By the end of 2023, a total of **631,200** key greenhouse gas emission activity data has been collected at the Lishui District Warehouse of Jiangsu Mobile. Based on the greenhouse gas emission output model, transport routes were optimized, loading methods and the size of the packaging for centralized procurement products were adjusted, directly reducing the transport volume by **16,500 tons-km**, and the average volume of the optical cable products dropped by **4.89%**. As a result, greenhouse gas emissions were reduced by **1,331.86 tons** in total.

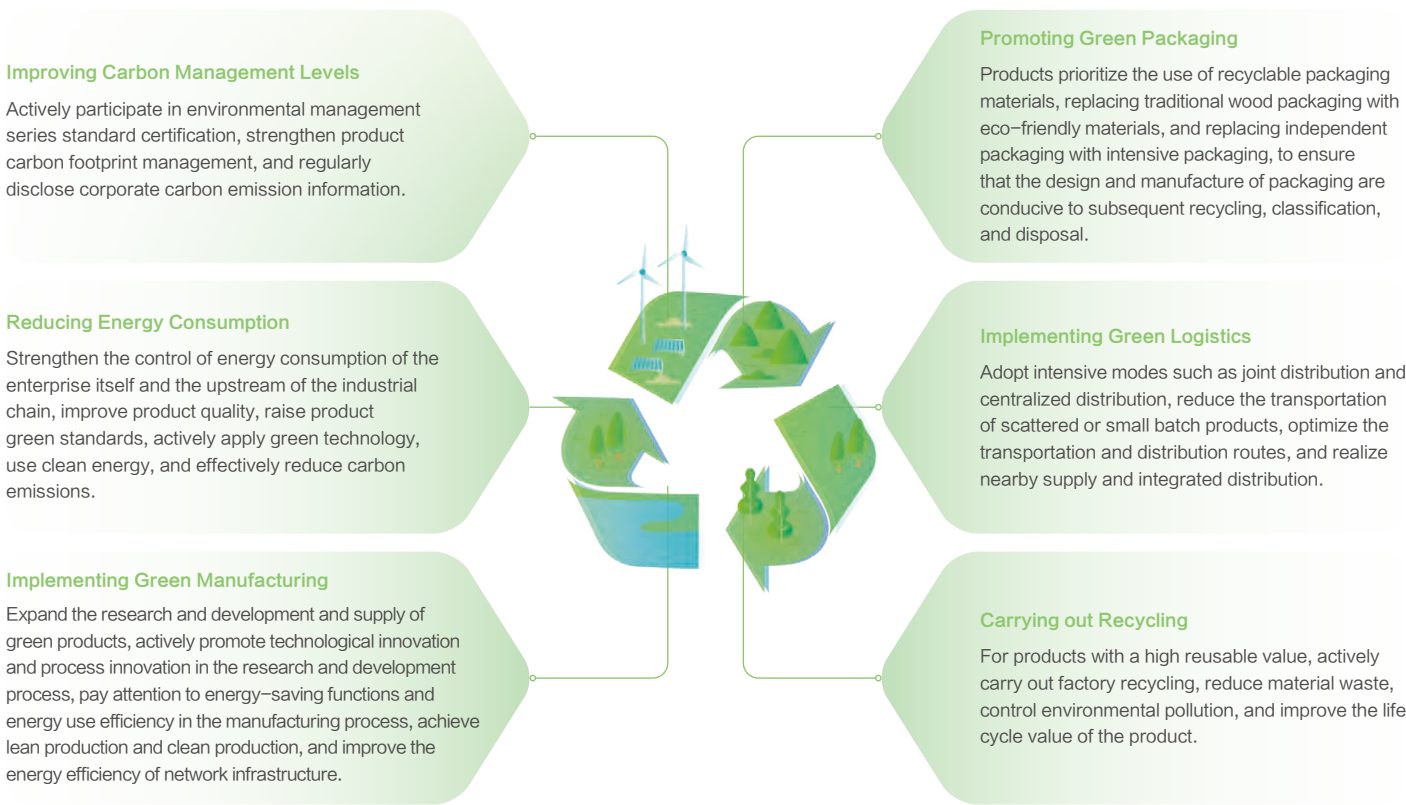


Supply Chain Greenhouse Gas Emission Management Platform based on Blockchain.

## ※ Deepening Green Communication

In 2023, the Company, together with its partners, issued the *China Mobile Green Supply Chain Action Initiative Proposal*. Through its six propositions, it calls on all suppliers to practice green, low-carbon, and environmentally friendly concepts in every aspect of production and operation.

### Energy-saving and Carbon Reduction, a Journey We Embark on Together – China Mobile Green Supply Chain Action Initiative



## Empowering Emission and Carbon Reduction of Society

China Mobile fully exerts the empowering role of the new generation of information technology in green development, actively supports the society-wide pollution reduction and carbon reduction, biodiversity protection, advocates green lifestyle, releases the potential for low-carbon development, and cultivates green development kinetic energy. In 2023, the Company utilized information technology to assist society in reducing greenhouse gas emissions by **310 million tons**, and every TB of information flow helped society reduce greenhouse gas emissions by **115 kilograms**.

### ※ Supporting the Green Transformation of Economic Society

The Company takes the digitalization, intelligentization, and green transformation demands of various industries as the guidance, accelerates the improvement of the service supply capacity of deep integration of digital technology and vertical industry applications, and assists the digitization and green transformation of economy and society .



#### Flapping the “Wings” of 5G, Welcoming the Power Transformation

Leveraging the advantages of 5G technology and core product capabilities, China Mobile IoT has crafted a Carbon Peaking and Carbon Neutrality energy consumption product ecosystem centered around the pivotal elements of source, network, load, storage, and carbon. This framework is designed to facilitate digital management and optimization in the energy sector’s crucial phases, including production, transportation, consumption, and storage, significantly contributing to the development of a new electric power system.

In the context of distributed photovoltaic (PV) scenarios such as agri-voltaic systems and rooftop installations, operational challenges are prevalent, including substantial difficulties in network resource coverage, high costs, and the inability to ensure unmanned or minimally manned operations. In Guangdong, China Mobile IoT has pioneered the application of 5G RedCap technology in distributed PV settings, inaugurating a new energy management platform at the Huaneng Guangdong Control Center. This initiative leverages intelligent applications such as PV data collection and drone inspections to conduct quantitative analyses of power loss and promptly address and rectify defects, to increase clean energy generation effectively.



#### Ocean 5G Creates “Blue Granary”, Exploring “Green Treasures”

In 2023, the Company initiated a pilot project in Jiangsu’s Tongzhou Bay to construct a “Offshore Wind Power + Marine Ranching” 5G offshore energy complex. Leveraging offshore wind power, it provides foundational network and computility support for marine ranching, services for offshore fishermen, marine environmental monitoring, and marine regulation and emergency rescue, among others. This project has deployed a variety of underwater observation instruments, achieving real-time monitoring of marine environmental elements such as ocean currents, tide levels, temperature, and salinity. Data is transmitted in real time through a wide-coverage offshore 5G network, assisting aquaculture enterprises in staying informed about the marine ranch’s ecological environment and the growth conditions of marine products. The construction of the “Offshore Wind Power + Marine Ranching” 5G offshore energy complex deeply integrates marine resources, effectively protects the nearshore aquaculture environment, and outlines a new path for marine ecological environment governance.



#### 5G Empowers Non-ferrous Metal Green Manufacturing

In partnership with collaborators, the Company has constructed a digital green smelting factory in Honghe Prefecture, Yunnan, integrating 5G and cloud technologies. This smelting factory employs China Mobile’s 5G and Internet of Things (IoT) technologies for data collection and monitoring, enabling precise control over the production process. This significantly enhances energy efficiency, reduces energy consumption, and decreases the emission of waste and hazardous substances. Energy consumption has been reduced from 1,652 kg of standard coal per ton to 1,247 kg of standard coal per ton. Moreover, by utilizing technologies such as 5G+Automated Guided Vehicles (AGV), 5G+Rail Guided Vehicles (RGV), and 5G+conveyance bridge systems, the company has achieved remote unmanned control and high automation of storage, improving warehouse management efficiency by over 80%.



Automated transportation of tin ingots in Yunnan green smelting factory.



## ※ Harnessing Technology to Safeguard Beauty of Nature

The Company adheres to an eco-first development approach, promoting an integrated “Smart Environmental Protection” solution and product service that encompasses “monitoring, management, and prevention”. It has established ecological monitoring systems in several nature reserves, including the Sanjiangyuan area in Qinghai, the Yellow River Delta, the Yangtze River Basin, and around Poyang Lake. Additionally, by leveraging the technological advantages of 5G, satellite remote sensing, drones, video surveillance, and the Internet of Things (IoT), the Company monitors wildlife populations, contributing to ecological management and biodiversity conservation.



### In the Source of the Three Rivers, Witness the Beauty of Diversity

Qinghai is the source of the three rivers and the “Chinese Water Tower”. In 2023, with the support of China Mobile, this “virgin land” in the hinterland of the Sanjiangyuan, which is cold and oxygen-deficient and rarely visited by people, was covered by 5G networks. The voice of ecological protection in Qinghai is being broadcasted to the world over gigabit broadband.

#### Saying Goodbye to “Communication Blind Zones” and Seeing Hoh Xil

In May 2023, for the first time, high-bandwidth, long-distance microwave transmission was applied in the uninhabited high-altitude areas to connect the Chuo Nai Lake Protection Station in the heart of the Hoh Xil region and its surrounding seven kilometers to the 5G network. Through China Mobile’s 5G private network, the Chuo Nai Lake Protection Station achieved real-time remote monitoring via 5G for the first time, broadcasting live the birth of Tibetan antelopes at Chuo Nai Lake.



China Mobile’s base station at the source of the Yellow River.

#### “Window to the Source of Rivers”, Cloud Watch Over the “Chinese Water Tower”

The establishment of the “Window to the Source of Rivers” remote video network observation system in Yushu uses short, medium, and long optical paths, high-definition video, audio connections, and digital network real-time transmission to effectively overcome the slow response, high cost, and narrow coverage of human patrolling and field investigations. This further enriches and perfects the integrated terrestrial and celestial ecological monitoring and early warning system, effectively supporting the management of the Sanjiangyuan National Nature Reserve and the monitoring of biodiversity.



Wild Tibetan antelopes in Zhonai Lake captured by China Mobile’s remote video network observation system.

### Providing Intelligent Solutions for Crested Ibis Conservation in Shaanxi

The crested ibis is an important species in the protection of biodiversity in the Qinling Mountains and an important symbol of the ecological culture of the Qinling Mountains. The Company, in collaboration with the Shaanxi Hanzhong Crested Ibis National Nature Reserve Administration, has developed a “5G+ Wild Crested Ibis Monitoring and Analysis” platform. This platform integrates 5G and artificial intelligence technologies to deploy wildlife cameras and high-definition pan-tilt units in major Crested Ibis roosting sites. It utilizes bird recognition algorithms and AI superbrains on the backend to monitor key information such as the number and distribution of Crested Ibises in their habitats. This significantly reduces the frequency of manual patrols, provides accurate data for the formulation of protection strategies for staff, and pioneers the use of information technology in the conservation of wild Crested Ibises.



Images of crested ibises captured by the “5G+ Wild Crested Ibis Monitoring and Analysis” platform.



The “5G+ Wild Crested Ibis Monitoring and Analysis” platform provides monitoring and statistical analysis of key information such as the number and distribution of crested ibis populations in their habitats.



### “Cloud-based” Mountain Patrol, Smartly Protecting Green Waters and Mountains

The Qingliangfeng National Nature Reserve in Anhui, known as the Natural Botanical and Zoological Garden and Species Gene Bank of East China. To better safeguard this precious land, The Company collaborated with China Mobile Cloud to develop the Shexian Smart Forest Chief Information Platform in Anhui. By integrating modules for forest pest control, Forest Chief system information display, forest resource management, disaster emergency response, command center displays, backend configuration management, and a mobile patrol app, forestry patrols have moved from “measuring by foot” to “management in the cloud”. By the end of 2023, the Shexian Smart Forest Chief Information Platform had detected over 50 fire hazards from burning weeds at the forest edge. Forestry law enforcement personnel were dispatched to the scene in real-time based on alerts from the information platform, preventing forest fires.

“

*There has been no fire here for 39 years, a result of generations of foresters’ daily guardianship. With advanced digital technology, I believe forest management in Shexian will get better.*

”

—Wang Shanqing, Station Master of She County Station, Anhui Qingliangfeng National Nature Reserve

## Advocating for a Green Lifestyle

China Mobile focuses on integrating new digital-intelligent elements into green living, promoting the coexistence and integration of digital and green lifestyles. For the 15th consecutive year, the Company has carried out the “Energy Saving Publicity Week” and a series of green environmental protection themed public welfare activities. These initiatives aim to spread knowledge about energy saving and low carbon throughout society, deepen the concept of green lifestyle among the public, and encourage the active adoption of green and low-carbon living practices.



### Piloting a New Carbon Inclusion Model in Collaboration with Government and Enterprises in Jiangxi

The carbon inclusion system is an incentive mechanism established to assign value to the energy-saving and carbon reduction actions of citizens and small and micro enterprises. China Mobile focuses on empowering new low-carbon living methods through digital-intelligent means. In collaboration with the Jiangxi Provincial Government Affairs Administration, the Company has created a new model of Green Treasure Carbon Sink Platform (provincial public institution low-carbon points system platform) + China Mobile (Jiangxi) App + Universal Green Rights + Ecological Partners. This model introduces a mobile section on the Green Treasure Carbon Sink Platform, offering users various green coin accumulation methods and green coin exchange benefits such as phone bills and data, accelerating the application and popularization of the low-carbon points model on the Green Treasure Carbon Sink Platform. By the end of 2023, the Green Treasure Carbon Sink Platform had **1.7312 million** registered people, with a daily active user count of **243,800**, accumulated carbon points of **804 million**, and achieved a reduction of **8,132.11 tons** of greenhouse gas emissions.



The Company supports the public welfare event “Green Shanghai, Together with You”, which is conducted by the “Green Shanghai” special Fund of China Green Foundation.