

*Lead green development and
build a beautiful home together*



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China Unicom actively responds to the national strategy of building a Beautiful China, fully integrating green and low-carbon development into the Company's strategy and the entire business cycle. It continues to promote the research and development and systematic application of energy-saving and carbon-reduction technologies, empowers the smart governance of the ecological environment through digitalisation and intelligence, incorporates green concepts throughout the entire process of corporate operations, and continuously enhances the level of green innovation and synergy, contributing to the achievement of sustainable development goals.



Measures adopted in 2025

- The Company collaborated with China Telecom to further promote the co-building and co-sharing of networks, technologies and other infrastructure, achieving a direct reduction of over 13 million tonnes of carbon emissions annually.
- The Company optimised data centre deployment, increasing innovation and application of energy-saving technologies, and actively promoting the application of green energy, with a cumulative total of 25 data centres obtaining national green data centre certification.
- The Company explored innovative models for carbon inclusion platforms. The core technology, the "Carbon Emission Reduction Calculation Model", was the first to pass the authoritative certification of a national-level green exchange institution.
- The Company actively promoted the application and substitution of clean energy, with an average annual growth rate of over 30% in the volume of green electricity and green certificates purchased.
- The Company constructed an intelligent ecological protection monitoring and management platform, and promoted the transformation and upgrading of ecological protection from traditional governance to smart governance.



Actions to be taken in 2026

- The Company will continuously promote the transformation of existing large-scale data centres and optimising their operational efficiency.
- The Company will actively promote the research and application of technologies such as photovoltaics and new energy storage technologies, with the total installed capacity of renewable energy continuing to increase and the consumption of self-generated green electricity gradually expanding.
- The Company will explore various disposal models such as trade-ins and buy-back replacements to further enhance resource recycling efficiency and disposal proceeds.
- The Company will continuously advocate the concepts of green consumption and a low-carbon lifestyle to employees, strive to create a green and healthy office environment, and promote the coordinated development of corporate operations and the ecological environment.
- The Company will continuously explore and promote the single-set filing and management of various types of electronic documents.
- The Company will engage in the streamlining of networks, centralisation of equipment and rectification of equipment rooms, and continue to ensure the adaptation and support of financial policies for equipment renewal and the trade-in of consumer goods.

Addressing global climate change

Improving the Green Development Governance System

China Unicom has accelerated the integration of green transformation into its core development strategy, actively responded to climate change, and strictly complied with laws and regulations related to environmental protection, such as the Environmental Protection Law of the People's Republic of China and the Measures for the Supervision and Administration of Energy Conservation and Ecological Environmental Protection of Central Enterprises. The Company actively implemented Order No. 41 of the SASAC of the State Council, the Measures for the Supervision and Administration of Energy Conservation and Ecological Environmental Protection of Central Enterprises, and Document No. 56, the Detailed Rules for the Assessment of Energy Conservation and Ecological Environmental Protection of Central Enterprises. It has continuously identified, assessed and managed risks and opportunities related to climate change, formulated environmental management targets and strategies, and promoted the transformation of the enterprise towards green and low-carbon development.

China Unicom's Green Development Governance Structure and Supervisory Responsibilities

Governance Level	Responsible Body	Main Responsibilities
Highest Decision-making Body	Board of Directors	★ To comprehensively supervise the formulation and implementation of the Company's long-term green development strategy, and to perform the duties of deliberation on major matters such as ecological and environmental protection and production safety. ★ When determining business plans and investment proposals, integrate the impacts of climate-related risks and opportunities into strategic decision-making.
Management and Organisation	Network Operations Business Department	★ Take the lead in and be responsible for promoting the implementation of the construction of the carbon peaking and carbon neutrality capacity system, establish and improve relevant management systems, and organise the implementation of energy conservation and carbon reduction work across the entire network. ★ Report on work matters such as climate governance, energy conservation and emission reduction to the Board of Directors or the management in charge on an ad hoc basis.
Execution and Implementation	Energy conservation and carbon reduction responsibility departments and relevant departments of the headquarters and each subsidiary	★ Focusing on fields such as network infrastructure carbon reduction, public service carbon reduction and industry empowerment businesses, implement various environmental management measures to promote the synergistic digital and green transformation and development.

The Board of Directors attaches great importance to climate change issues and continues to strengthen capacity building and performance appraisal.

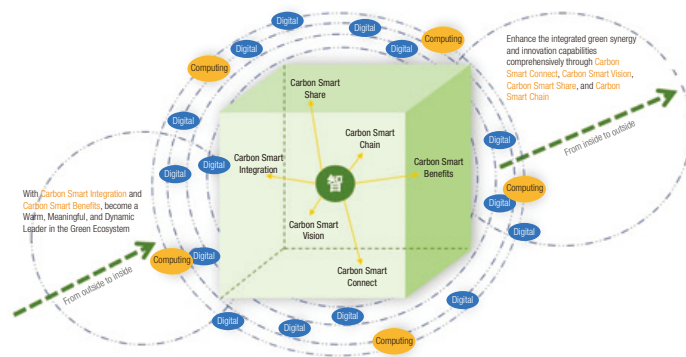
- Directors participated in the training titled “Developing a Climate Strategy to Embrace an Uncertain Future: Scenario Planning and Analysis” to enhance their professional competence through means such as reading materials and webinars.

- We undertake the “annual qualitative + term-of-office quantitative” assessment by the SASAC of the State Council on energy conservation and ecological environmental protection work of central enterprises, the assessment results of which are linked to the business performance assessment of the persons in charge of central enterprises.

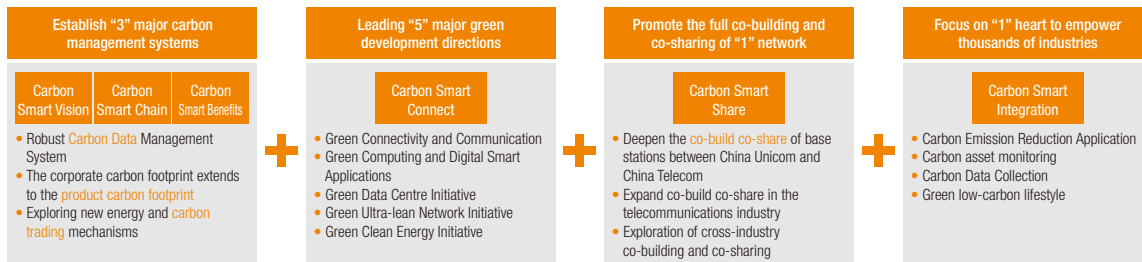
- We are implementing full coverage of the dual carbon assessment and evaluation. Two core quantitative indicators, namely “comprehensive energy consumption per unit of total telecommunications business volume” and “reduction in carbon dioxide emissions per unit of total telecommunications business volume”, were incorporated into the performance appraisal of 32 network production units. The qualitative indicator of “ecological and environmental protection violations” was incorporated into the scope of performance appraisal for all branch (subsidiary) companies.

Implementation of Green and Low-carbon Strategic Deployment

China Unicom has thoroughly implemented national and industrial policy requirements, including the Opinions on the Complete, Accurate and Comprehensive Implementation of the New Development Concept to Achieve Carbon Peak and Carbon Neutrality, the Opinions on Promoting the Gradual Shift from Dual Control of Energy Consumption to Dual Control of Carbon Emissions, and the Action Plan for Green and Low-Carbon Development of the Information and Communication Industry (2022–2025). It has strictly implemented the deployment of the China Unicom Carbon Exploration Green Action Plan (2024–2025), integrated green and low-carbon concepts into the entire process of corporate operations, coordinated the dual tasks of promoting its own energy conservation and carbon reduction while empowering the green transformation of society, and earnestly fulfilled its social responsibilities.



China Unicom Carbon Search Philosophy



Details of China Unicom's new "3+5+1+1" green actions

Strengthening climate risk and opportunity management

Climate Change Risk and Opportunity Identification Process

To systematically address the challenges of climate change and seize transformation opportunities, China Unicom has established and continuously improved a closed-loop process for the identification, assessment and management of climate change risks and opportunities, which is reviewed and supervised by the Board of Directors with cross-departmental synergy, integrating climate factors into the Company's strategy and comprehensive risk management. The management of the Company annually hears and considers the investment budget (which includes a section on energy conservation and emission reduction), and reviews and approves key action plans and targets for green development related to climate issues.

Information collection and scenario analysis	We systemically collect information such as policies and regulations, technical trends, construction and operations, market dynamics and climate data, and conduct forward-looking analysis and assessment in combination with our dual carbon goals and the Company's development strategy as well as climate-related scenario analysis.
Preliminary identification of risks and opportunities	We collaborate with various professions and departments to identify potential risks from transition risks (such as policy, market, technology and reputation) and physical risks (such as acute extreme weather and chronic climate pattern changes), while identifying development opportunities from aspects such as resource efficiency, energy substitution, product and service innovation, and market expansion.
Assessment, prioritisation and matrix construction	We assess the identified risks and opportunities, comprehensively analyse their financial impact, likelihood of occurrence, time horizon and scope of impact, and establish a "Risk and Opportunity Matrix" to determine management priorities.
Planning guidance and formulation of measures	Centring on the overall development goals, the Company incorporates green and low-carbon issues into corporate governance and strategic planning, clarifies key directions and critical measures in specialised tasks, and promotes implementation in areas such as the improvement of the dual-carbon management system, the innovative application of green and low-carbon technologies, green network construction and green service empowerment.
Monitoring, reporting and iterative updates	We integrate climate risk management initiatives into core business processes such as investment decision-making, network planning, operation and maintenance, and external empowerment, and set measurable management targets. We conduct comprehensive assessments through dynamic tracking and annual reviews, continuously monitor internal and external changes to ensure the effectiveness and adaptability of processes, and make periodic disclosures.

Climate Change Risk and Opportunity Assessment Results and Response Measures

In response to material climate risks and material opportunities, the Company has conducted an in-depth assessment of the intensity, scope, and timing of the impacts that various climate risks may cause, as well as the potential financial impacts they may bring to the business. A total of five risks and two opportunities have been assessed, and response measures have been formulated for each item. Among these, the time horizon is aligned with the five-year strategic planning and network planning periods: short-term is 0-1 year, medium-term is 1-5 years, and long-term is over 5 years.

Assessment of Current Climate Change Risk Response Measures and Financial Impact

Current Countermeasures	Description of Measures	Location of occurrence	Principal Financial Impact Arising Therefrom
Strengthen Energy Conservation and Emission Reduction	Actively respond to and fully implement the national “dual carbon” strategic deployment, continuously promote energy conservation and emission reduction, construct green networks, and strengthen digital empowerment.	The organization itself	Special investment in energy conservation and emission reduction amounted to RMB496 million.
Carry out co-building and co-sharing	Deepen the co-building and co-sharing of networks, technologies, and other infrastructure in collaboration with China Telecom.	The organization itself, industry peers	The two parties of co-building and co-sharing have cumulatively saved more than RMB390 billion in investment for the country, and saved more than RMB45 billion per year in operating costs.

Future Climate Change Risks and Response Measures

Risk Category	Sub-category	Risk Description	Risk Level	Location of occurrence	Time horizon	Main Financial Impacts	Impact on the business model and value chain	Response Measures
Transition Risk	Legal and Policy Risk	To achieve the carbon peak and carbon neutrality goals, more stringent greenhouse gas emission control measures may be adopted.	Medium	The organisation itself, major suppliers, and the upstream and downstream of the supply chain	Short- to medium-term	Increase in direct costs	Business operation adjustment	We dynamically conduct research on policy trends and periodically optimise key tasks for our dual carbon goals.
	Technology Risk	There is a significant gap between the growth in demand for high-computing power business and current carbon emission reduction technical capabilities.	Medium	The organisation itself, major suppliers	Short- to medium-term	Increase in direct costs	R&D and procurement	We promote the application of energy-saving and carbon-reduction technologies, strengthen investment in green technology research and development and the application of achievements, and collaborate with supply chain partners to jointly build a green and sustainable supply chain ecosystem.
	Market and Reputational Risk	The strengthening of consumer preference for low-carbon products has driven a rapid increase in industry entry standards and compliance thresholds.	Low	Downstream supply chain, end-users	Medium- to long-term	Increase in indirect costs	Products and services	We seize market opportunities, develop green and low-carbon products, and transform sustainable development performance into brand competitiveness through transparent ESG information disclosure.
Physical Risk	Acute Risk	Physical risks posed by extreme weather such as floods, blizzards and earthquakes cause varying degrees of damage to the safe operation of communication networks.	Medium-high	The organisation itself	Short- to medium-term	Increase in indirect costs, increase in capital expenditure	Infrastructure maintenance, products and services	We continuously improve risk pre-control measures and contingency plans, and strengthen drills, etc.
	Chronic Risk	Global warming has an impact on the operation, maintenance and power consumption of communication facilities, and sea level rise causes damage to coastal equipment and facilities.	Low	The organisation itself	Long-term	Increase in capital expenditure	Infrastructure construction and maintenance	We continue to follow up on information collection and perform necessary updates to risk pre-control and contingency plans for relevant regions.

Climate Change Opportunities and Our Response Measures

Opportunity Category	Sub-category	Opportunity Description	Opportunity Level	Location of occurrence	Time horizon	Main Financial Impacts	Main Business and Strategic Impacts	Response Measures
Low-carbon Opportunity	Resource Efficiency	Use low-carbon technologies to improve the efficiency of energy consumption.	Medium	The organisation itself	Short- to long-term	Reduced operating costs	Improvement in operational efficiency	We vigorously promote low-carbon technologies and increase the use of clean energy.
	Products and Services	Increased demand from customers for the green transformation of development models.	Medium-high	End-users	Short- to long-term	Increase in operating revenue	Products and services	We develop digital solutions such as ecological environmental protection and energy consumption management to facilitate the green development of the whole society.

Note: Given the large scale of the Company's assets, their wide geographical distribution, and the complex and diverse operational scenarios, this report provides qualitative descriptions of the financial metrics for assets or business activities impacted by climate-related risks and opportunities, as well as the financial metrics involving capital expenditure, financing, or investment; at the current stage, it is difficult to provide quantitative disclosures without undue cost or effort.

To ensure the effective implementation of the aforementioned response measures, the Company has invested resources in areas such as talent cultivation, appraisal and incentives, and has established contingency plans for environmental emergencies.

- We have formulated and issued the “China Unicom Green and Low-Carbon Work Management Measures” to regulate the green and low-carbon work of China Unicom, strengthen energy conservation and ecological environmental protection, carbon peaking and carbon neutrality management, improve energy utilisation efficiency, and ensure the orderly and efficient advancement of various green and low-carbon tasks.
- We are strengthening the development of the talent pool in the field of green development, reasonably planning the talent structure, incorporating contents such as green development, energy-saving technologies, and carbon peaking and carbon neutrality into training programmes, and striving to enhance the capabilities of the green development talent pool.
- We have established and improved the comprehensive appraisal and evaluation mechanism for corporate green development and dual carbon management; refined the Company's internal indicator early warning and notification mechanism; incorporated carbon peaking and carbon neutrality work into the appraisal and evaluation system of branch (subsidiary) companies; clarified appraisal rules; and strictly held parties accountable and deducted points for negative incidents such as data falsification and violations of environmental laws and regulations.
- We have established an energy conservation and emission reduction management incentive mechanism, under which the headquarters shall commend and reward units with outstanding achievements in energy conservation and emission reduction work, and provide appropriate investment preference policies based on circumstances.
- Contingency plans for environmental emergencies have been established, and there were no violations of laws and regulations in the environmental field in 2025. We have established and improved the system for the investigation and rectification of environmental safety hazards, conducted emergency drills, enhanced early warning capabilities, and continuously refined environmental management processes ranging from emergency preparedness and emergency response to post-event recovery and information disclosure.

Scenario Simulation Analysis

This scenario simulation analysis is specifically conducted during the reporting period to assess the potential impact of possible acute physical risks on the Company's network operations, service fulfillment, and sustainable value creation from 2026 to 2030. The scenario assumes that as temperatures rise, the average intensity of typhoons, the proportion of Category 4-5 super typhoons, and the extreme precipitation rate at individual stations will all show an upward trend, and extreme weather events such as floods, blizzards, and earthquakes may occur. This scenario is derived from the “National Natural Disaster Situation” reports published by the Ministry of Emergency Management over the years, records of historical extreme weather events within the Company's operating regions, and past natural disasters experienced by the Company. It is also combined with certain assumptions from the RCP 2.6 scenario, and internationally accepted climate scenarios will be gradually introduced in the future.

Risk factors: extreme weather such as floods and snowstorms

(1) Analysis of the Impact on the Company's Operations and Sustainable Value

Scenario 1: Flood Scenario (corresponding to a high-risk climate scenario)

When regional daily rainfall exceeds historical extremes and triggers flooding, the core impacts faced by the Company include:

- Network service interruption: Base stations and optical cables located in low-lying areas are flooded, resulting in the suspension of mobile signals and home broadband services in the corresponding areas, and the interruption of dedicated lines for government and enterprise customers (such as government affairs and medical communication links), affecting the continuity of social public services.
- Impact on assets and costs: Damage to server rooms and equipment, and an increase in maintenance/replacement costs; meanwhile, an increase in user compensation arising from service interruption and investment in emergency repair manpower/materials.
- Performance volatility: An increase in the number of user complaints and a decline in the public's evaluation of the Company's “reliability of communication services”; meanwhile, the periodic disclosure of low-carbon operation targets is affected by network interruptions.

Scenario 2: Blizzard Scenario (corresponding to a medium-to-high risk climate scenario)

When heavy snowfall is accompanied by low temperatures below -15°C, the Company is affected as follows:

- Failure of network facilities: Outdoor base stations suffer antenna damage due to snow pressure and outages caused by low-temperature battery power loss, leading to a decrease in communication coverage in northern counties and mountainous areas; trans-regional backbone fibre optic cables fracture due to icing, resulting in the interruption of inter-provincial communication links.
- Operational resilience under pressure: The time for emergency repair teams to reach fault points is extended due to road icing; meanwhile, to ensure communications in key areas (such as hospitals and heating command centres), the cost of temporarily deployed satellite communication equipment increases, squeezing the budget for green energy-saving renovation in the current period.
- Social responsibility performance risk: Users in remote areas are unable to obtain blizzard warning information due to communication interruptions; the Company is required to bear public opinion pressure regarding “insufficient public service support”, affecting its positive corporate image.

(2) Climate Resilience Enhancement Measures for Scenarios

Scenario 1: Flood Scenario Response

- Optimising the deployment of network assets: Relocating base stations in low-lying areas to high ground, and installing waterproof barriers and intelligent pumping systems in core equipment rooms.
- Establishment of emergency resource pools: Reserving emergency mobile base stations and satellite communication terminals, sharing flood warning information with regional emergency management departments, and deploying repair forces in advance.
- Engaging with stakeholders: Jointly develop a “flood-communication impact” early warning model with water conservancy departments and provide “communication backup solutions during flood periods” to government and enterprise customers, reducing the impact of service interruptions on social public services.

Scenario 2: Blizzard Scenario Response

- Strengthening facility coldness resistance: Implementing base station snow-resistance reinforcement and low-temperature battery upgrades, and installing anti-icing sheaths for backbone optical cables.
- Upgrading emergency response mechanisms: Establishing a “Blizzard-Network Risk” tiered response contingency plan, and deploying backup power supplies and emergency repair teams in advance in key areas (such as counties and mountainous areas) to ensure communication coverage.
- Balancing costs and sustainability goals: Incorporating emergency repair costs into the dedicated climate risk budget to avoid crowding out green network construction funds, while transferring a portion of extreme weather losses through insurance.

Climate Governance Targets and Indicators

The production and operating activities involved in the greenhouse gas emissions of the Company primarily consist of network operations, office operations, heating, canteens and company vehicles, etc. Indicators such as comprehensive energy consumption per unit of information flow and comprehensive energy consumption per unit of total volume of telecommunications business are mainly used to measure and manage climate-related risks and opportunities. Among these, the type of greenhouse gas is carbon dioxide, and the sources mainly include indirect carbon dioxide emissions arising from the consumption of electricity and purchased heat, and direct carbon dioxide emissions arising from the consumption of gasoline, diesel, natural gas, coal, etc.

Overall Objective

China Unicom promotes technological innovation and application in areas such as energy conservation, carbon reduction and zero-carbon development, bringing the Company's green development to a new height, and empowering the low-carbon development of the entire society to achieve significant results.

- During the 14th Five-Year Plan period, energy consumption and carbon emissions per unit of production capacity, as well as energy consumption and carbon emissions per unit of revenue, to improve year by year, and the growth rate of carbon dioxide emissions to be lower than the growth rate of energy consumption.

- By 2025, the comprehensive energy consumption per unit of information flow to decrease by more than 20% compared to the end of the 13th Five-Year Plan period, and the comprehensive energy consumption per unit of total telecommunications business volume to decrease by more than 15% compared to the end of the 13th Five-Year Plan period, leading the industry's overall development goals. For 2026, the Company commits to the continuous improvement of its overall comprehensive energy consumption intensity and greenhouse gas emission intensity. However, in view of external uncertainties such as market volatility in the total business volume of the telecommunications industry and green power consumption policies, this report does not, for the time being, set or disclose an absolute total greenhouse gas emission target.

Overall Progress

- Comprehensive energy consumption per unit of information traffic decreased to 1.8 kg of standard coal/TB, a decrease of 38% compared to the end of the 13th Five-Year Plan period.

- Twenty-five of our data centres were selected as National Green Data Centres.

- We have improved the statistical monitoring and reporting system for energy conservation and emission reduction; each unit has established and improved a statistical monitoring system for energy conservation and emission reduction, strengthened the measurement and recording of energy consumption and pollutant emissions during the production and operation process, established relevant statistical ledgers, and reports on a monthly, quarterly and annual basis. Branches in Beijing, Shenzhen and other locations have engaged third-party institutions to conduct verification or assurance of the Company's greenhouse gas emissions and other data.

Special investment in energy conservation and emission reduction

(RMB million)

↑ 303.3%

2025	2020
496	123

Greenhouse gas emissions

(Million tonnes)

↓ 2.8%

2025	2020
13.8	14.2

Energy savings

(10,000 tonnes of standard coal)

↑ 118.8%

2025	2020
53.6	24.5

Comprehensive Energy consumption per unit of information traffic

(kg standard coal/TB)

↓ 38%

2025	2020
1.8	2.8

Safeguarding biodiversity

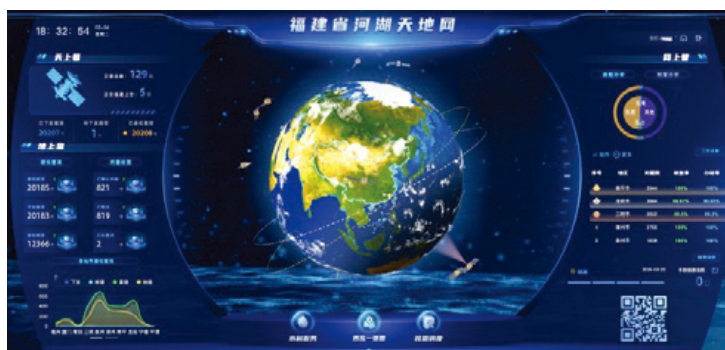
China Unicom deeply integrates into the overall landscape of the construction of a Beautiful China, fully leverages its technical expertise, and comprehensively incorporates the concept of environmental protection into its business decisions and practises. While strictly adhering to the ecological protection red line, the Company actively safeguards biodiversity and contributes professional strength to the sustainable development of the ecological environment through practical actions.

- Network planning fully considers environmental protection and avoids ecological protection red lines. In the course of its operations, the Company does not have a significant impact on the environment and natural resources. Its energy consumption is primarily derived from electricity usage, and its overall energy consumption intensity is at a relatively low level. The site selection and deployment of AIDC strictly comply with national policy requirements for data centres regarding high efficiency, green and low-carbon development, and the application of renewable energy, conform to local urban or town planning requirements, satisfy the requirements of current national standards, policies and regulations, and avoid ecological protection red lines.

- We are carrying out intelligent governance. Focusing on key areas such as biodiversity conservation, ecological restoration of forestry and grasslands, and enhancement of water source conservation capacity, we are constructing an intelligent ecological protection monitoring and management platform, achieving real-time perception, intelligent analysis and scientific early warning of ecosystem status, and promoting the transformation and upgrading of ecological protection from traditional governance to smart governance.

Case Study

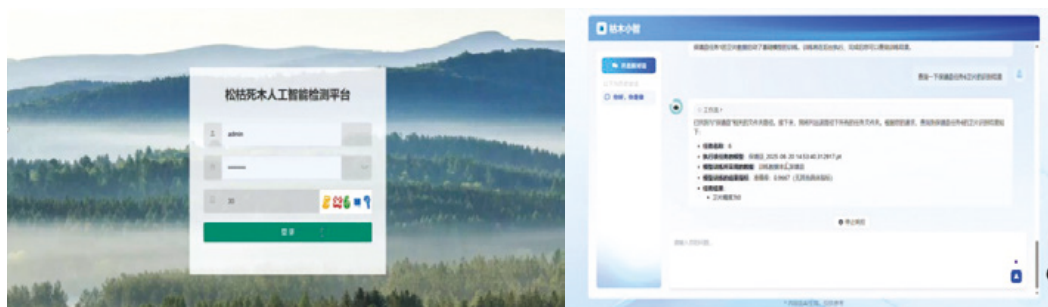
Leveraging advanced technologies such as 5G+Beidou, drones and unmanned vessels, China Unicom has established the “Sky-Earth Network” platform for rivers and lakes in Fujian Province, achieving dynamic extraction, rectification through work orders and closed-loop management of problem spots related to “illegal occupation, illegal mining, illegal piling and illegal construction” in river and lake management, with a monitored basin area reaching 112,800 square kilometres, providing efficient digital support for the ecological governance of rivers and lakes.



Fujian Province River and Lake “Space-Ground Network” Platform

Case Study

Hunan Unicom has collaborated with the Provincial Academy of Forestry to develop an intelligent agent for the identification and monitoring of discoloured standing trees affected by pine wilt disease. We have achieved an identification accuracy rate of greater than 85% and an identification completion rate of greater than 70%, with the identification cost per unit area reduced to one-tenth of that of manual labour, effectively improving the efficiency of monitoring infected pine trees.



Intelligent agent for the identification and monitoring of discoloured standing trees with pine wilt disease

Continuously deepening co-building and co-sharing

China Unicom has actively collaborated with other operators to continuously deepen co-building and co-sharing cooperation, and has steadily expanded the scope and depth of co-building and co-sharing of 5G network infrastructure. This has effectively avoided redundant investment and resource consumption, significantly reduced energy consumption and carbon emissions during equipment production, construction and operation, and provided practical references and industry examples for the sustainable development of global information infrastructure and carbon neutrality goals.

Deepening the Co-building and Co-sharing between China Unicom and China Telecom

China Unicom, in collaboration with China Telecom, aims for co-building and co-sharing across “all frequency bands, all modes and all regions”, deeply promoting the co-building and co-sharing of networks, technologies and other infrastructure, providing a fine example for the large-scale construction of global mobile networks and low-carbon emission reduction.

- Both parties jointly implemented the “Signal Upgrade” initiative, promoted the enhancement of 5G coverage in key scenarios, and advanced the deployment of 5G-A capability upgrades, with a total of over 165,000 new 5G mid-band base stations added.
- We have jointly promoted a single 4G mid-band network and low-band co-building and co-sharing, with over 2 million 4G mid-band shared base stations, and each has access to over one million low-band base stations.
- We signed the “Memorandum of Understanding on Further Comprehensively Deepening Opening-up, Sharing and Cooperation” with China Telecom, expanding the scope of cooperation to all specialties, with a clear intention to co-build 12,000 route kilometres of trunk fibre optic cables. VoWiFi completed interconnection pilots, and synchronous caesium clocks achieved mutual backup, effectively enhancing the reliability of the synchronisation network.

The co-building and co-sharing between both parties have resulted in cumulative investment savings for the country exceeding

RMB **390** billion

Savings in operating costs exceeding

RMB **45** billion per year

Reducing carbon emissions by more than

13 million tonnes/year

The co-building rate of trunk fibre optic cables reached

90%

The co-building and co-sharing rates of pole and conduit resources both exceeded

90%

Synergistically Promoting the Commercial Rollout of 5G Inter-network Roaming

China Unicom continues to join hands with other operators to collaboratively promote the commercial promotion of 5G inter-network roaming, achieving centralised and efficient utilisation of resources, further expanding coverage breadth, enhancing penetration capabilities, and providing users with more stable and efficient communication services.

Case Study

Tibet Unicom and Tibet Mobile/Tibet Broadcasting & Television took the lead in implementing 5G two-way inter-network roaming pilots, becoming the first province in the country to achieve practical application after the Ministry of Industry and Information Technology issued the “Notice on the Commercial Promotion of 5G Core Network Inter-network Roaming”. Through inter-operator resource sharing, 5G coverage capabilities and user experience in remote and sparsely populated areas are significantly enhanced, investment and operation and maintenance costs are substantially reduced, centralised and efficient utilisation of resources is promoted, and new momentum is injected into the high-quality development of border regions.

Case Study

Liaoning has taken the lead in completing the pilot verification of 5G bidirectional inter-network roaming under emergency scenarios, becoming the first province in the country to achieve application in this field. Under extreme scenarios, users may access the 5G networks of other operators without changing their SIM cards or phone numbers. This technology truly achieves “full network access” via “access to a single network”, establishing a “single network backup” communication security defence line for emergency scenarios.

Improving the energy efficiency of network facilities

China Unicom has incorporated “dual carbon” work into its corporate strategy and rolled out systems such as the “Administrative Measures for Energy Conservation and Emission Reduction of China Unicom (Provisional)” to strengthen the management of energy conservation, ecological environmental protection, carbon peaking and carbon neutrality, improve energy utilisation efficiency, implement life-cycle carbon emission control over the entire processes of network planning, construction, maintenance, and operation, and promote the development of communication networks towards a more efficient and greener direction.

Promoting the Construction of Green Data Centres

By continuously optimising data centre deployment, increasing innovation and application of energy-saving technologies, and actively promoting the application of green energy, a new paradigm for green data centres has been created, with a cumulative total of 25 data centres obtaining national green data centre certification.

- **We adhere to strict control of PUE.** We continuously optimize data center energy consumption monitoring capabilities; real-time online monitoring of energy consumption and PUE for data centers with over 500 racks has currently been achieved, and the power usage effectiveness of newly built, renovated, and expanded large and ultra-large data centers has been reduced to within 1.25.

- **We are promoting the application of energy-saving technology.** We are continuously promoting the application of energy-saving technologies and products such as high-voltage direct current (HVDC), integrated power supply, liquid-cooled cloud cabins and high-efficiency energy-saving air conditioning, and actively promoting the application of renewable energy such as distributed photovoltaics.

Promoting the Improvement of Energy Efficiency of Communication Base Stations

We have collaborated with industry partners to optimise base station power consumption indicators, and promoted the application of hardware technologies and network architecture optimisation such as BBU centralised management, resulting in a year-on-year increase in base station energy efficiency of over 30%.

- **We are promoting the intensive management of BBUs.** The Company promoted the decommissioning and withdrawal of BBU equipment and advanced centralised management, with a cumulative total of 450,000 BBU units decommissioned and 200,000 BBUs withdrawn; the centralized deployment ratio of 4/5G BBUs increased by 23%, a cumulative total of 800,000 units of legacy equipment were retired from the network, and 11,000 sets of power supply and air-conditioning equipment were updated, driving the continuous improvement of overall network energy efficiency.

- **We are standardising energy conservation and emission reduction statistical supervision.** We implement various management requirements, strictly execute the energy conservation and emission reduction statistical system, and improve the assessment, reward and punishment system by incorporating indicators such as energy efficiency enhancement and environmental protection into the scope of branch/company assessments. We ensure that electromagnetic radiation from base stations meets national standard requirements, conduct electromagnetic radiation monitoring of base stations upon completion of construction, and disclose the results to the public.

Case Study

Prior to the establishment of base stations, Tianjin Unicom utilises professional 5G base station electromagnetic radiation testing instruments and equipment for evaluation. After the 5G base stations are put into operation, electromagnetic radiation levels in the vicinity of the base stations are strictly tested by third-party professional teams. The stations are activated only after passing the review by the Tianjin Municipal Ecology and Environment Bureau, ensuring that the electromagnetic radiation levels of the radio signals from Unicom base stations comply with national and international standards.



Environmental Protection Assessment of Electromagnetic Radiation for Tianjin Unicom 5G Base Stations

Promoting the Green Transformation of Communication Equipment Rooms

We are actively promoting the green and low-carbon reconstruction of equipment rooms, and promoting the dual improvement of greenness and safety of communication equipment rooms through the promotion of applications such as precision cooling, utilisation of natural cooling sources, 240V high-voltage direct current (HVDC) technology and DC cloud cabins.

• **Core equipment rooms.** We are continuously promoting the renovation of core equipment rooms to achieve a reduction in the PUE of the renovated equipment rooms to below 1.5.

• **Aggregation and integrated access equipment rooms.** We adopt measures such as vertical installation of BBUs, micro DCs and precise air supply via air-conditioning cowls according to local conditions, and utilise natural cooling sources as much as possible to reduce energy consumption in the equipment room.

Strengthening Green and Low-carbon Technological Innovation

We are continuously investing resources to carry out research on core green and low-carbon technologies, and create the China Unicom “Carbon Exploration” management platform that integrates “carbon identification”, “carbon management”, “carbon control”, and “carbon reduction”. Actively promote the construction of a green and low-carbon standard system, continue to cultivate and systematically engage with international standards organizations such as ITU, with a cumulative total of 9 projects led and completed, participation in 1 national standard, 11 industry standards led, and participation in 23 industry standards.

Enhancing resource utilisation efficiency

China Unicom adheres to the core principles of the circular economy, namely “reduction, reuse and recycling”. It strictly implements environmental protection standards from the source of equipment procurement, continuously advocates for green consumption and low-carbon lifestyles, actively promotes the application and substitution of clean energy, and continues to deepen the integration of digitalisation, intelligence and greening in operational management to systematically enhance the comprehensive level of sustainable development.

Exploring New Energy and Carbon Trading Mechanisms

We are adopting diversified paths such as market-based green power trading, construction of renewable energy facilities and direct connection of green power to vigorously promote green energy transformation. We are actively participating in carbon market trading, completing carbon compliance on time and in full, and earnestly fulfilling our green responsibilities.

• **Green energy market trading.** We actively encourage and guide our subsidiaries to conduct green electricity and Green Electricity Certificate (GEC) trading in a timely manner to increase the consumption of renewable energy, with an average annual growth rate of over 30% in the volume of green electricity and GECs purchased.

• **We are continuously promoting the transition to green energy.** Differentiated promotion of research and application of technologies such as photovoltaics and new energy storage technologies, and promotion of pilot applications of various energy storage technologies such as lithium battery energy storage and vanadium redox flow battery energy storage, have led to prominent results in green energy transformation.

• **Strengthening carbon market trading capabilities.** The Company has carried out local carbon allowance trading practises for its units included in the regional carbon markets at Beijing Unicom, Shenzhen Unicom, and the Pujiang Cloud Data Centre and Lingang International Data Port of Shanghai Unicom, completed compliance on schedule, and actively utilised green electricity carbon offset policies to explore new models for long-term controllable carbon compliance costs.

• **Internal carbon pricing mechanism.** The Company has not yet established internal carbon pricing for use in its decision-making.

Case Study

Shanghai Unicom actively fulfils its emission reduction obligations. Pursuant to the relevant requirements of the “Trial Measures for the Management of Carbon Emissions in Shanghai” issued by the Shanghai Ecology and Environment Bureau that the “emission factor for purchased green electricity is 0”, it consumed approximately 42 million kWh of green electricity in 2025, which is equivalent to a carbon reduction of approximately 24,000 tonnes.

Promoting the Circular Utilisation of Materials

We strictly comply with laws and regulations such as the Circular Economy Promotion Law of the People's Republic of China, and have established management systems such as the China Unicom Administrative Measures for the Revitalisation of Fixed Assets and the China Unicom Administrative Provisions on the Disposal of Waste Materials, to revitalise fixed assets and conduct fine management and effective recycling of waste, thereby improving resource utilisation efficiency.

Promoting the Revitalisation and Utilisation of Fixed Assets

We are thoroughly implementing the “China Unicom Administrative Measures for the Revitalisation of Fixed Assets”, actively promoting asset revitalisation and efficiency enhancement, breaking geographical and professional restrictions, increasing the intensity of internal resource integration within the Company. The next step will be to explore new revitalisation models such as cooperative operation, joint development, and entrusted operation, so as to achieve resource sharing and maximisation of the Group's overall benefits.

- We engage in the streamlining of networks, centralisation of equipment and rectification of equipment rooms; promote the decommissioning and lease termination of inefficient assets; and ensure the adaptation and support of financial policies for equipment renewal and the trade-in of consumer goods.
- The revitalisation of fixed assets reached a scale of RMB1.65 billion, of which the revitalisation amount of network assets was RMB1.544 billion and the revitalisation of digital fixed assets was RMB30 million, promoting the healthy development of the circular economy.

Classified Treatment of Waste

We strictly comply with laws and regulations such as the “Administrative Measures for the Transfer of Hazardous Waste”, have established management systems such as the “China Unicom Administrative Provisions on the Disposal of Waste Materials”, and are improving the green, low-carbon and circular development system. The production process of the Company does not involve the discharge of industrial wastewater and exhaust gas, and the Company is not a key pollutant discharging unit.

- **We are continuously strengthening the management of the disposal of waste materials.** To further enhance the operability and enforceability of the system, the “China Unicom Administrative Provisions on the Disposal of Waste Materials” was revised and issued in October 2025 to standardise the disposal methods of waste materials and increase disposal efforts.
- **Disposal of waste materials by category.** The waste generated is categorised by use into network category, digitalisation category, etc., and can be categorised by type into cables, storage batteries, telecommunication equipment, general office materials, etc. Among these, hazardous waste refers to storage batteries.
- **We are continuously deepening the management of the disposal of waste materials.** China Unicom's supply chain platform has achieved seamless integration and digital synergy with internet auction platforms such as Alibaba Auction and Zhongbo Auction, respectively, to publicly release information on the disposal of China Unicom's waste materials, promoting the dual circulation of internal corporate resources and social recycled resources. We have established a three-tier circular system for waste materials consisting of “internal revitalisation – refurbishment and reuse – standardised disposal” to refurbish and reuse idle IT equipment, office furniture and other items.
- **We are promoting the harmless disposal of hazardous waste.** When disposing of waste storage batteries, disposal shall be carried out by recyclers with qualifications such as hazardous waste business licences in strict accordance with environmental protection regulations, and the disposal and handover of waste storage battery shall be processed in accordance with local requirements.
- **We are strengthening the reduction and classification of non-hazardous waste in office operations.** We advocate the concept of “moderate consumption” to avoid excessive procurement of office supplies; strictly control the scope and number of copies for printing and issuing paper documents; promote double-sided printing and online office workflows to reduce paper consumption; and establish a “classified disposal – designated inspection – standardized transfer” process, using dedicated colored transfer boxes to avoid mixed loading.
- **We are achieving waste recycling and reuse.** Recyclables are collected on-site by resource recycling enterprises for recycling and utilisation; kitchen waste is transported to treatment plants for the production of organic fertiliser or biogas through composting and anaerobic fermentation; hazardous waste is separately treated through harmless disposal by hazardous waste disposal enterprises; and for other waste, the volume of landfill is reduced, with priority given to incineration for power generation.

2025 waste disposal income

RMB **875** million

Promoting Green Consumption

Implementing the “Action Plan for Promoting Large-scale Equipment Renewal and Consumer Goods Trade-ins” issued by the State Council, we launched the “Trade-in and Terminal Consumption Subsidy” marketing campaign across 14,000 physical outlets nationwide, actively responding to the national call to expand domestic demand and promote consumption.

- Our business outlets have fully implemented the “Trade-in” themed service upgrade. By setting up clear guiding signage outside the outlet, customers are effectively attracted and guided to enter the outlet for an experience. At the same time, by providing comprehensive policy explanations and intuitive post-subsidy price tags, it helps consumers easily understand the subsidy policy, actively contributing to the upgrade of green consumption.

- By utilising platforms such as WeChat, Douyin, Kuaishou and Xiaohongshu, combined with promotional touchpoints at business outlets, 70,000 frontline sales personnel were organised to carry out integrated online and offline promotion for trade-ins, reaching 80 million customers and promoting the widespread transmission of green consumption concepts.

Case Study



Offline physical outlets are launching “Trade-in and Terminal Consumption Subsidy” marketing activities

Creating a Green Office Environment

Actively practising the concept of green development, we are systematically building a green office and business operation system, and reducing operational energy consumption through measures such as promoting a paperless office, smart energy management and water-saving renovation of buildings. Meanwhile, we continuously advocate the concepts of green consumption and low-carbon living to employees, striving to create a green and healthy office environment and promoting the coordinated development of corporate operations and the ecological environment.

- **Implementation of a paperless office.** We utilise the digital archive system to achieve the digitalisation of office documents, and continuously explore and promote the single-set filing and management of various types of electronic documents.

- **We are enhancing the paperless service experience.** We have continuously upgraded online service processing, with 2.566 billion online business transactions processed throughout the year and 20.20 million sheets of paper saved through the issuance of electronic invoices, enhancing the service experience through green and low-carbon operational methods.

- **Smart energy management.** Innovative “1+2+N” system architecture: “1” Group-level multi-terminal platform, achieving full-scenario visualisation and intelligent interaction of energy and carbon data; “2” major capability centres, with the energy management centre responsible for real-time monitoring of equipment energy consumption and intelligent command, and the carbon data management centre achieving full-process digitalisation of carbon inventory, accounting and assets; “N” scenario empowerments, covering office buildings, industrial parks, etc., supporting rapid replication across the three levels of “Headquarters-Province-City”. The project “Practical Application of the Green Smart Building Energy and Carbon Management Platform” has been recognised by the China Enterprise Confederation as an “Outstanding Case Study of Green and Low-Carbon Corporate Development in 2025”.

Case Study



China Unicom APP Green and Low-carbon Service Experience

- **We are strengthening water conservation management.** Setting a water-saving target of zero growth in per-capita water consumption in the headquarters of China Unicom. Pantry and restrooms are equipped with infrared sensor intelligent water-saving faucets, with the water flow rate adjusted to 0.8–1.0 L/min to reduce ineffective water flow; strengthen equipment maintenance and inspections to avoid leakage. The total annual water consumption of China Unicom's headquarters and directly affiliated office areas was approximately 336,300 tons, and the domestic wastewater discharge of the headquarters and directly affiliated units was 254,400 tons. The Company's water for daily office use and for its production and operations is mainly sourced from the municipal unified water supply, and there is no risk related to water resources.

- **We are strengthening power conservation management.** We completely switch to LED energy-saving lighting fixtures, optimize the design of lighting systems, and reasonably renovate circuit control methods. We formulate internal and external lighting activation plans for buildings, implement zoned and time-slotted control for lighting in public areas, and turn off non-essential lighting during non-office hours.

Facilitating Low-carbon Lifestyles

Actively exploring innovative models for carbon inclusion platforms, the core technology, the “Carbon Emission Reduction Calculation Model”, was the first to pass the authoritative certification of a national-level green exchange institution, filling the gap in the field of individual carbon accounts within the telecommunications industry.

- **We have collaborated with the Beijing Green Exchange to jointly conduct the development of individual carbon emission reduction calculation models and methodology research for the telecommunications industry.** Leveraging the characteristics of operators, a total of nine types of individual carbon emission reduction scenarios have been developed, covering no less than 30 low-carbon behavior data points across telecommunications, finance, and daily life, etc.; emission reduction factors under emission reduction scenarios with operator characteristics have been calculated to promote the normalization and standardization of carbon emission reduction measurement on the individual and consumer sides of the information and communications industry.

- **Blockchain technology empowers the individual carbon account system.** We have reconstructed the carbon account system based on blockchain, innovatively proposed a dual-account measurement model to break through the single-point failure bottleneck of traditional centralised storage and enhance the efficiency of carbon emission reduction traceability and transaction processing. We have achieved data interoperability across multi-carbon account platforms, providing technical assurance for the credible accounting, verifiable circulation and refined management of individual carbon inclusive assets.

Case Study

China Unicom utilises integrated innovative technologies such as big data, blockchain and privacy computing to establish a secure, credible and reliable personal carbon account system. Since its launch, it has developed 789,800 registered users, with cumulative carbon emission reductions reaching 27.77 tonnes. In the future, it is expected to drive hundreds of millions of users to participate in carbon emission reduction, assisting in reducing tens of thousands of tonnes of carbon emissions annually.



Product Application Interface of the Carbon Inclusion Platform

Carrying out Green Culture Publicity

We are integrating green concepts into all scenarios of production and daily life, and promoting green procurement, green office and green travel. We have launched green travel initiatives, advocated the “135” green travel mode, encouraged the use of public transport for commuting and business activities, and promoted carpooling for group activities. During the National Energy Efficiency Promotion Week, low-carbon knowledge was disseminated to the public through diversified forms such as display boards in business outlets, energy-saving SMS and online scientific education.