China Telecom's Implementations Towards Green and Low Carbon Network

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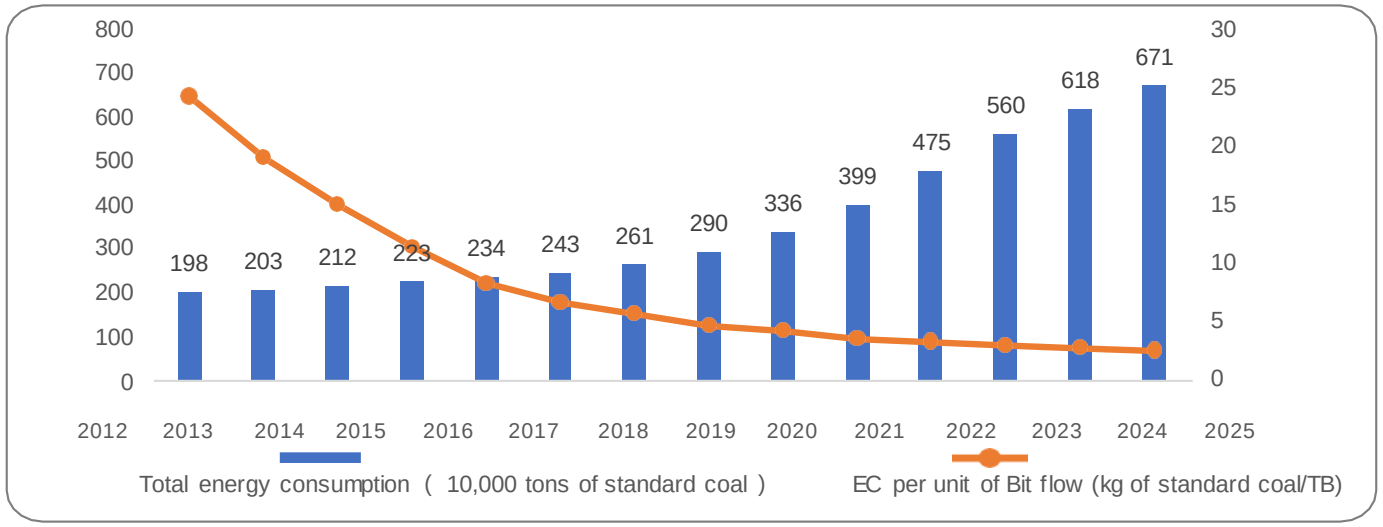
Green Network——Practice Green Development

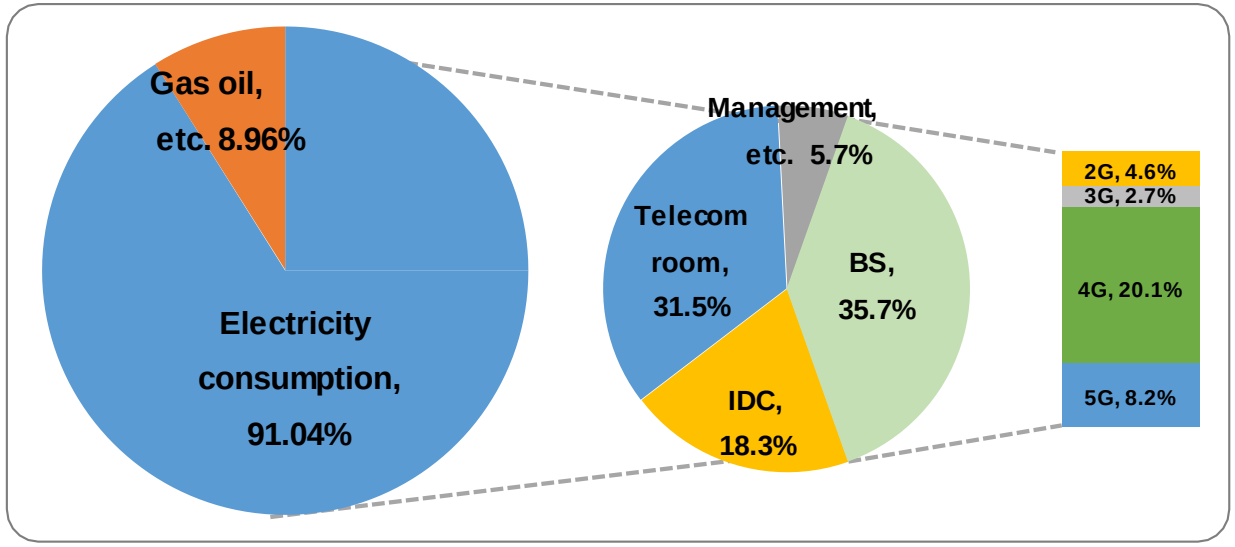
China Telecom actively:

- ✓ **Responds** to the national requirements of "peak carbon dioxide emissions and carbon neutrality";
- ✓ **Practices** the green development philosophy, promotes green networks, green supply, green projects, green office and green application;
- ✓ **Participates** in the development of ecological civilization.

Green Network——Energy consumption trends



Energy consumption trends in China Telecom



Energy consumption composition of China Telecom in 2020

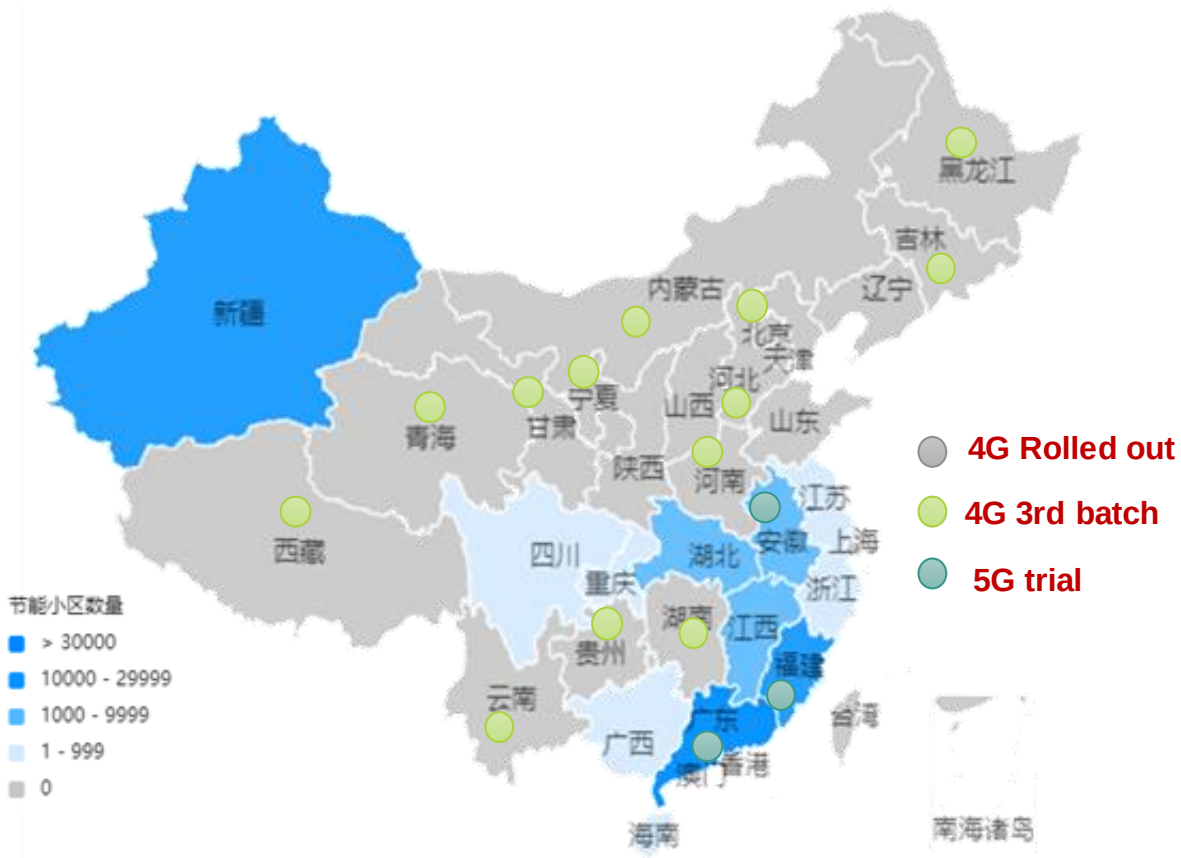
4.51 kg standard coal/TB
Total energy consumption per unit of information flow in 2020

6.1 %
Decrease compared with the previous year

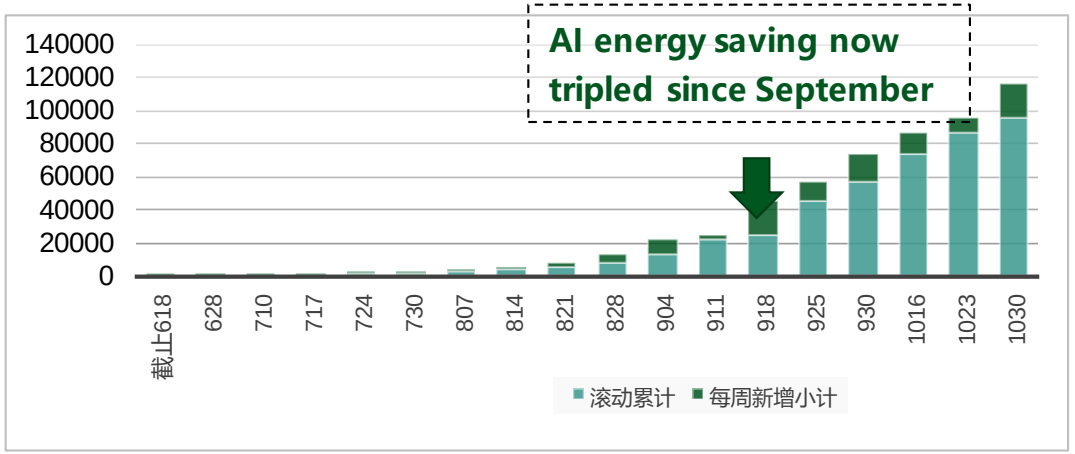
6.6 million kWh
Power saved

Green Network—Best Practices

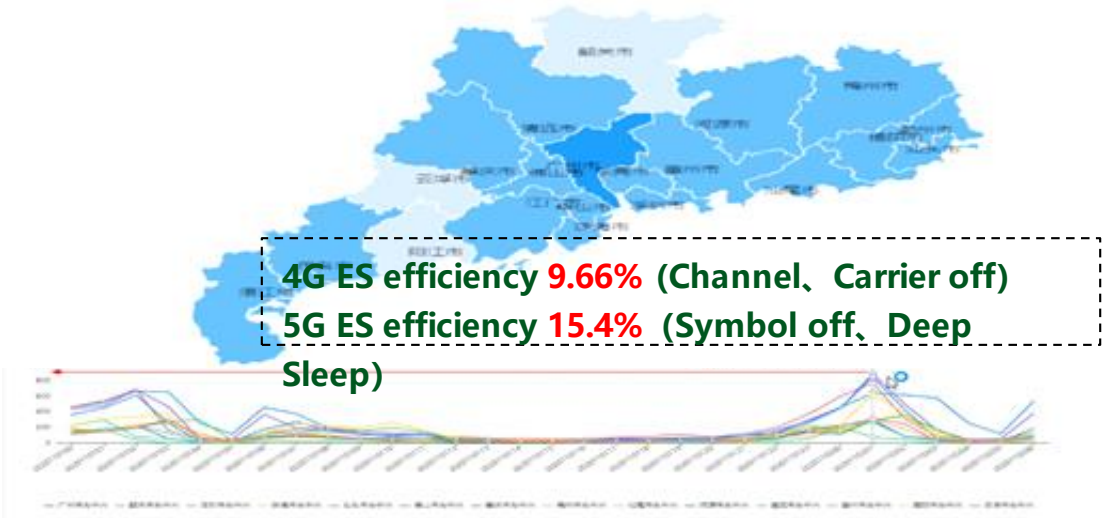
Build Smart Energy-Saving Systems for Base Stations



Energy saving cell statistics (June to Dec, 2020)



Guangdong BS intelligent energy saving case



Green Network——Main Actions

Category	Main Actions and Progress
Management on energy-efficiency and emission reduction	• Compiled a three-year rolling plan for energy conservation and emission reduction, and clarified the goals and key measures • Controlled the growth of total energy consumption, and the PUE value of large/super large data centers • Established and improved the statistical monitoring system of energy consumption
Eliminate outdated production capacity	• Continued the withdrawal of inefficient equipment and computer rooms from the network, and advanced configuration optimization and redundancy removal of supporting facilities in computer rooms
Promote renovation for energy efficiency	• Promoted energy-saving experience and best practices of intelligent shutdown technology for 4/5G base stations, and actively explored energy-saving measures for 5G base stations • Continued to use the contract energy management model to introduce social capital and technology to carry out energy-saving and emission reduction transformations

Green Network—Best Practices

Green Procurement for Energy Conservation and Consumption Reduction

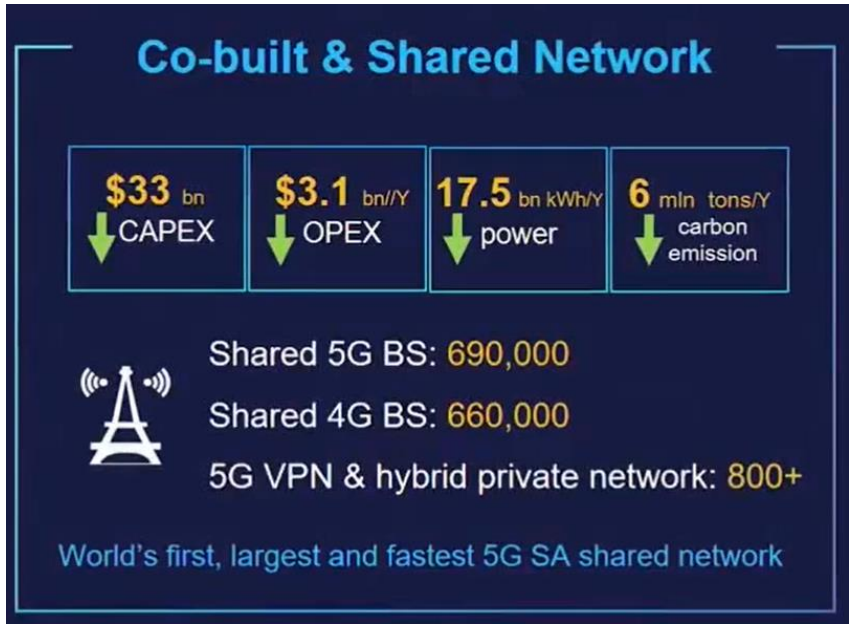
- Take the procurement of air-cooled chilled water air conditioning system for the computer room of Internet Data Center
- Introduce new environment-friendly technologies such as natural cold source refrigeration technology, chilled water air conditioning, liquid cooling technoligy which saved **20%** energy compared with conventional refrigeration equipment and **3.26 million yuan** of electricity in the whole year.

Fig.1 Installation site of the air-cooled chiller for the computer room

Fig.2 Liquid Cooling IDC Infrastructure

Green Projects——Co-built & Shared Network & Infrastructure

- **China Telecom and China Unicom: Co-built & Shared Network**



Significantly lower network building costs

*Data estimated at 400,000 Base stations

- **Infrastructure Co-built and Shared in 2020**

Category	Unit	Co-building	Shared
Pole lines	Kilometer of lines	5217	11946
Conduit	Kilometer of lines	8901	1399

CAPEX ↓ 80 Billion RMB/year

OPEX ↓ 8 Billion/year

CO2 ↓ 7 million tons/year

Green Supply & Office

Promote Green Supply

- CTC insists on giving preference to resource-saving and environment-friendly products, and working with suppliers to deal with climate change.

Promote Green Office

- CTC persists in green office, advocates water conservation, continuously strengthens the use and management of water resources, carries out sewage discharge treatment, promotes the recycling of production water, and actively uses reclaimed water to replace tap water on the premise of meeting water requirements.
- CTC promotes paperless office by minimizing paper use in operation and office; advocates saving paper, and take measures to reduce the use of paper both technically and systematically, such as promoting electronic management of accounting archives, electronic VAT invoices, and paperless operation.

Promote Green Applications

【Build a Green Campus】

Zhejiang Post and Telecom Engineering Construction Co., Ltd. deployed a “Green Campus Energy Consumption Big Data Platform” in Zhejiang A&F University. By virtue of its integration and visibility, the platform can present the energy consumption data in real time, visually show the power and water consumption of the campus, monitor the air conditioning and street lamps, and improve the equipment operation efficiency. The 3D view module can comprehensively present the specific equipment and power consumption in each area, and switch the lens angle, enabling people to directly learn about the basic information, real-time data, alarm and energy consumption statistics of each equipment, so as to realize unified management, save management cost and improve equipment management efficiency.

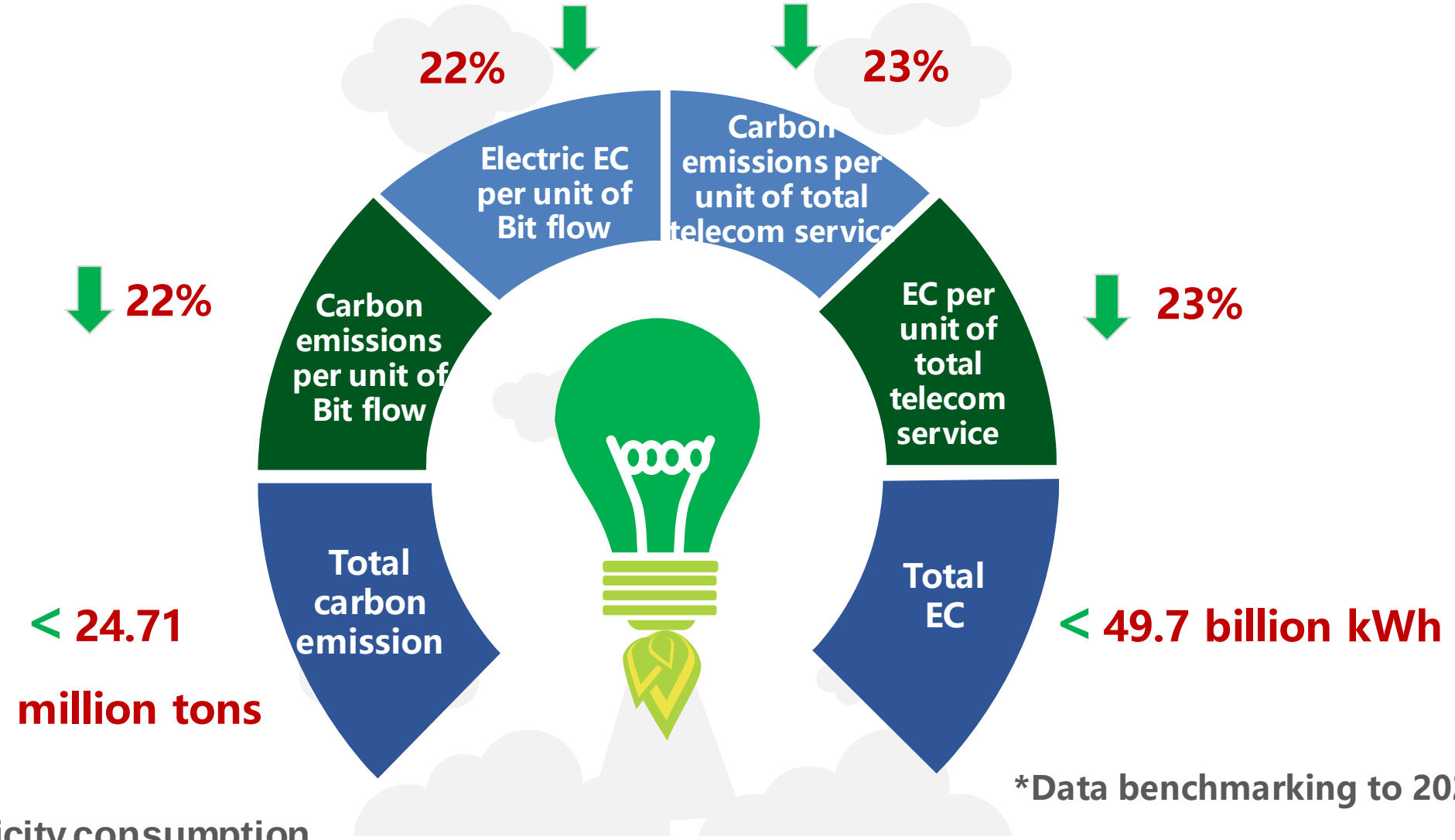
Picture of the “Green Campus Energy Consumption Big Data Platform” that realizes 3D visual display of the campus

Picture of the operation interface of the “Green Campus Energy Consumption Big Data Platform”

China Telecom’s “Green Campus Energy Consumption Big Data Platform” has reduced the operation risks, human interference, energy efficiency loss, operation cost and equipment failure, and improved the service level, security of energy efficiency, energy consumption quality, work efficiency and management level.

— Lou Weilin, deputy director of the Division of Campus Construction and Public Administration of Zhejiang A&F University

2025 Target - Total volume and reduction of carbon



*Data benchmarking to 2025

EC-electricity consumption

Thank You!

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