Green Network, Green Huawei, Green World

Huawei, Your Green Partner

Corporate Green Strategy and Energy Efficiency Solution

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Content

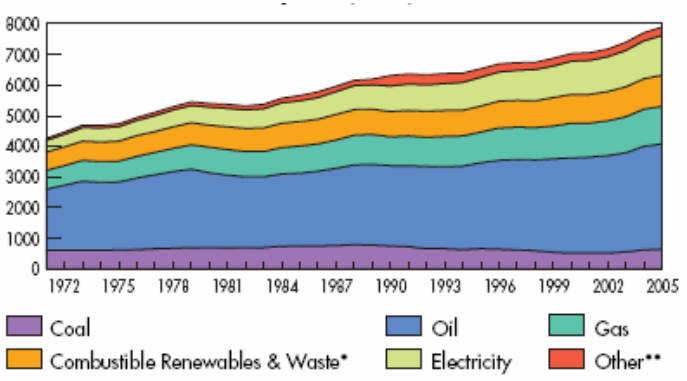
1 Climate Change and Huawei CSR

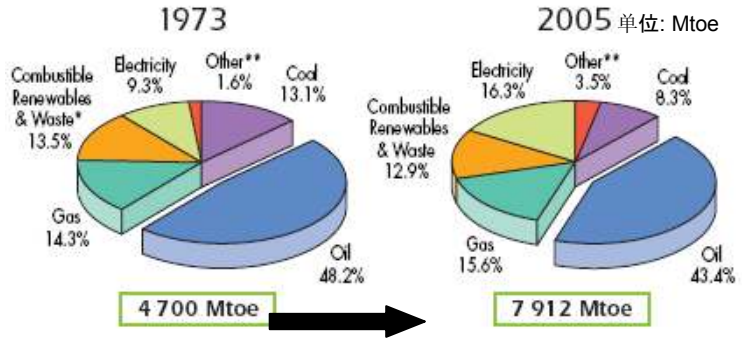
2 Challenge of Energy Efficiency in Telecom Industry

3 Huawei Energy Efficiency Solution

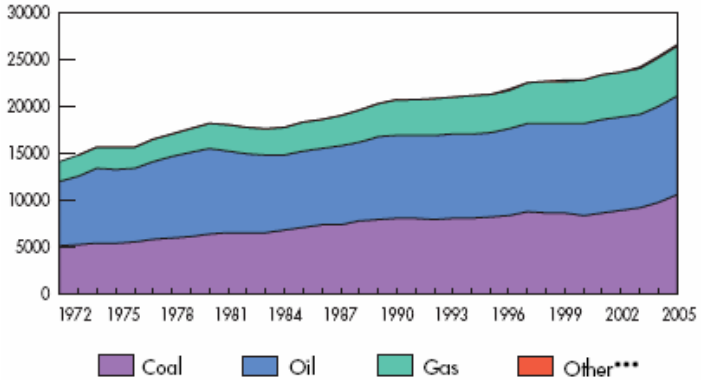
CO_2 Emission Increasing with Excessive Energy Consumption

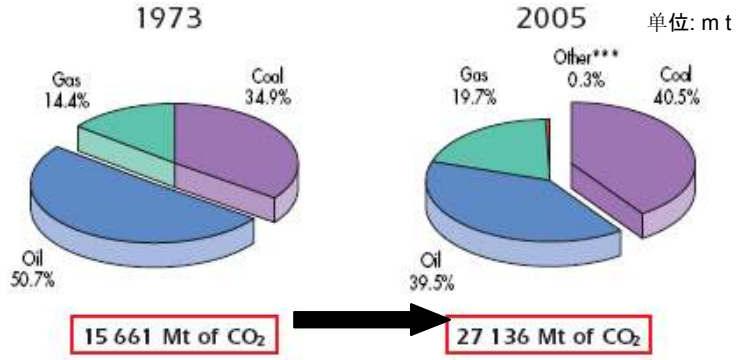
Global Energy Consumption increased 68% from 1973 to 2005





Global CO2 Emission increased 73% from 1973 to 2005





Source: International Energy Agency 2007

Climate Change Results in Natural Disasters

Typhoon



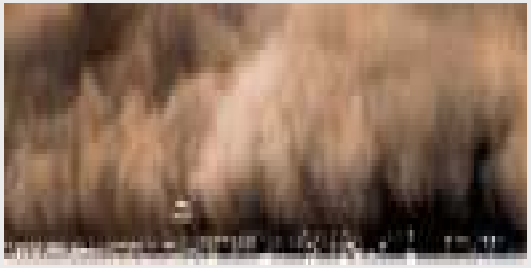
Flood



Drought



Snowstorm



Fire



Sea level rising

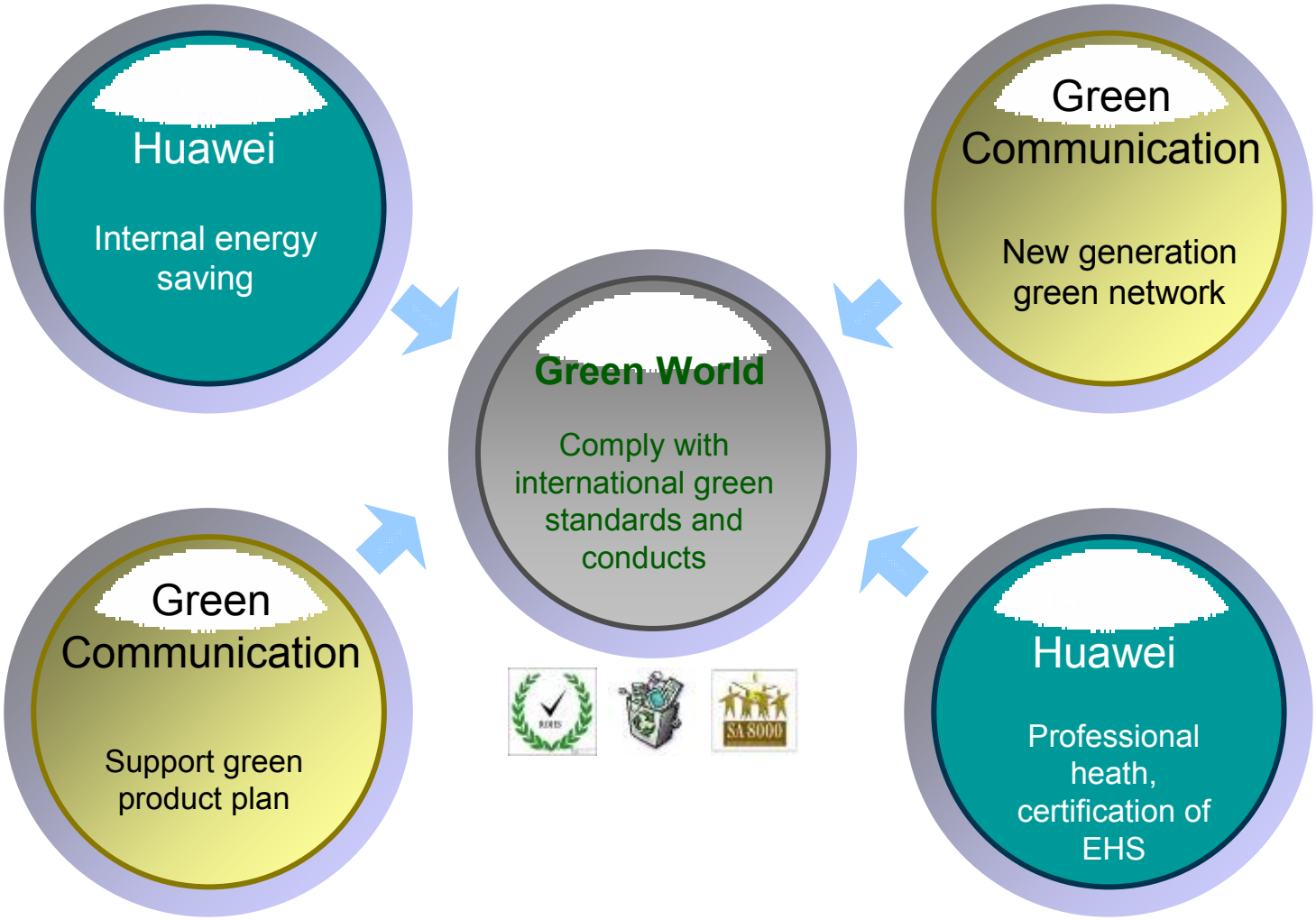


What can we do in telecom industry?



Huawei corporate green policy

Green Communication, Green Huawei, Green World



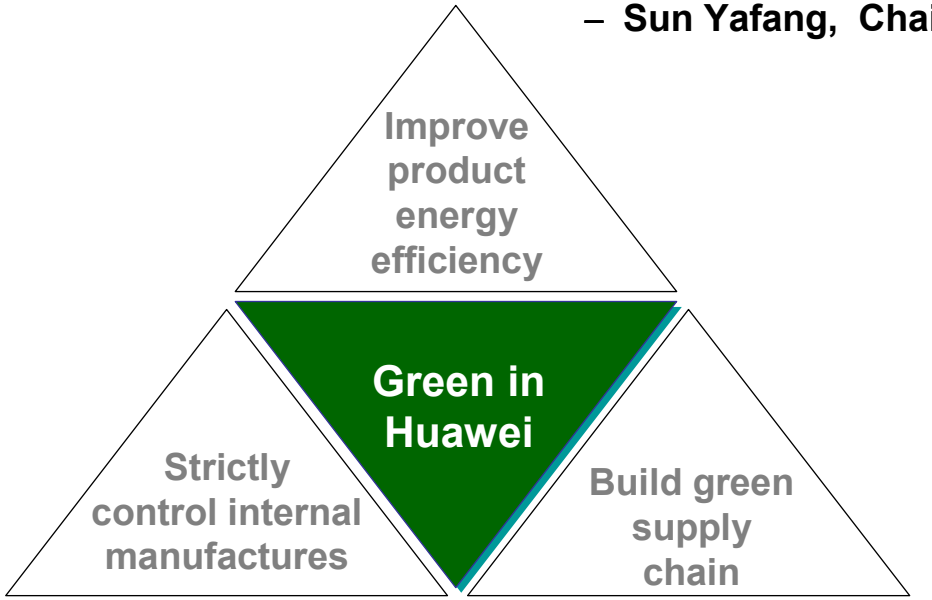
Commitment to be green

by product improvement & internal control

HUAWEI is committed to social responsibility and environmental protection.

Ultimately achieve the goal to reduce operators' power consumption, room footprint, on-site maintenance manpower, noise & radiation, network equipment and complexity.

– Sun Yafang, Chairwoman of HUAWEI



Green Communication, Green Huawei, Green World

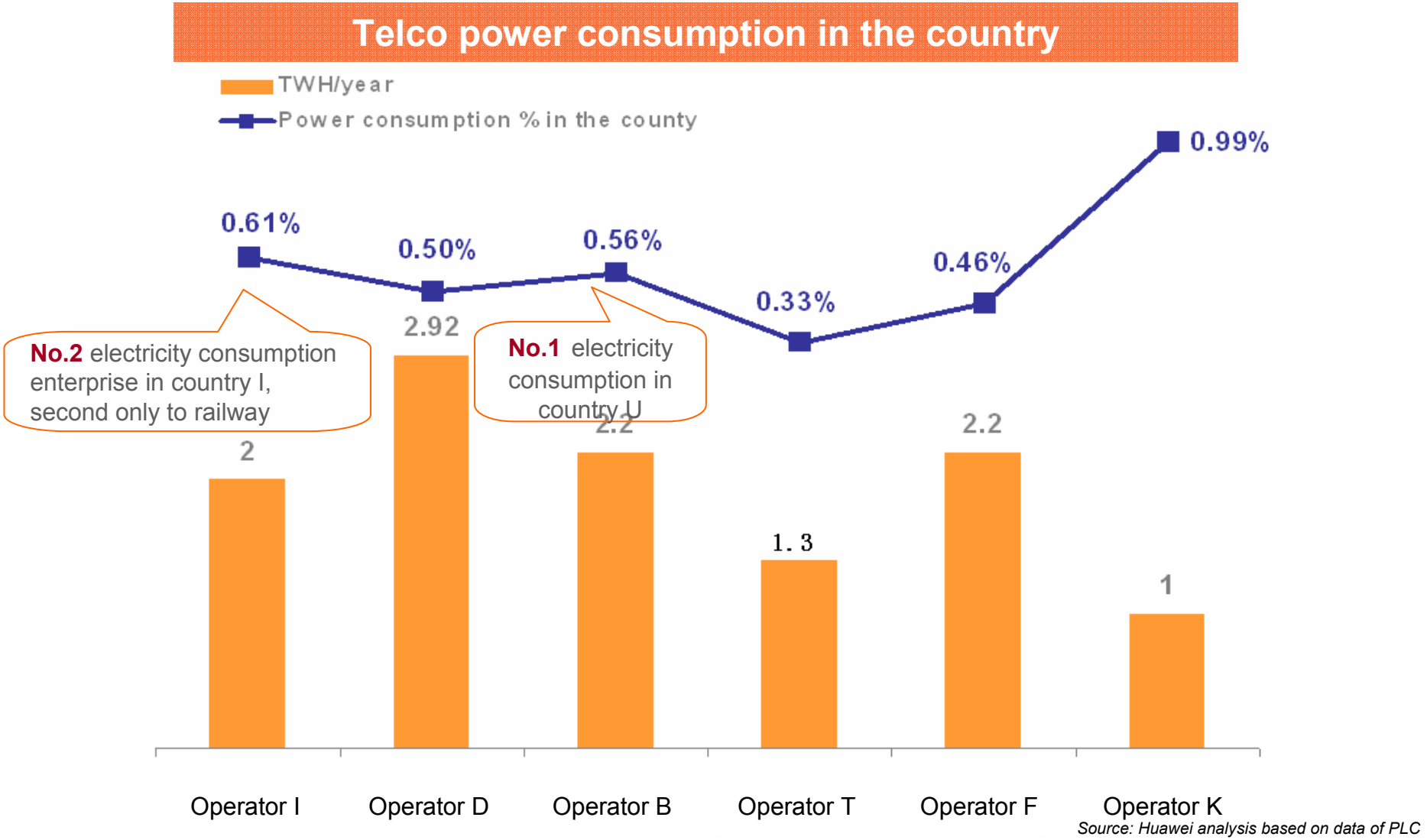
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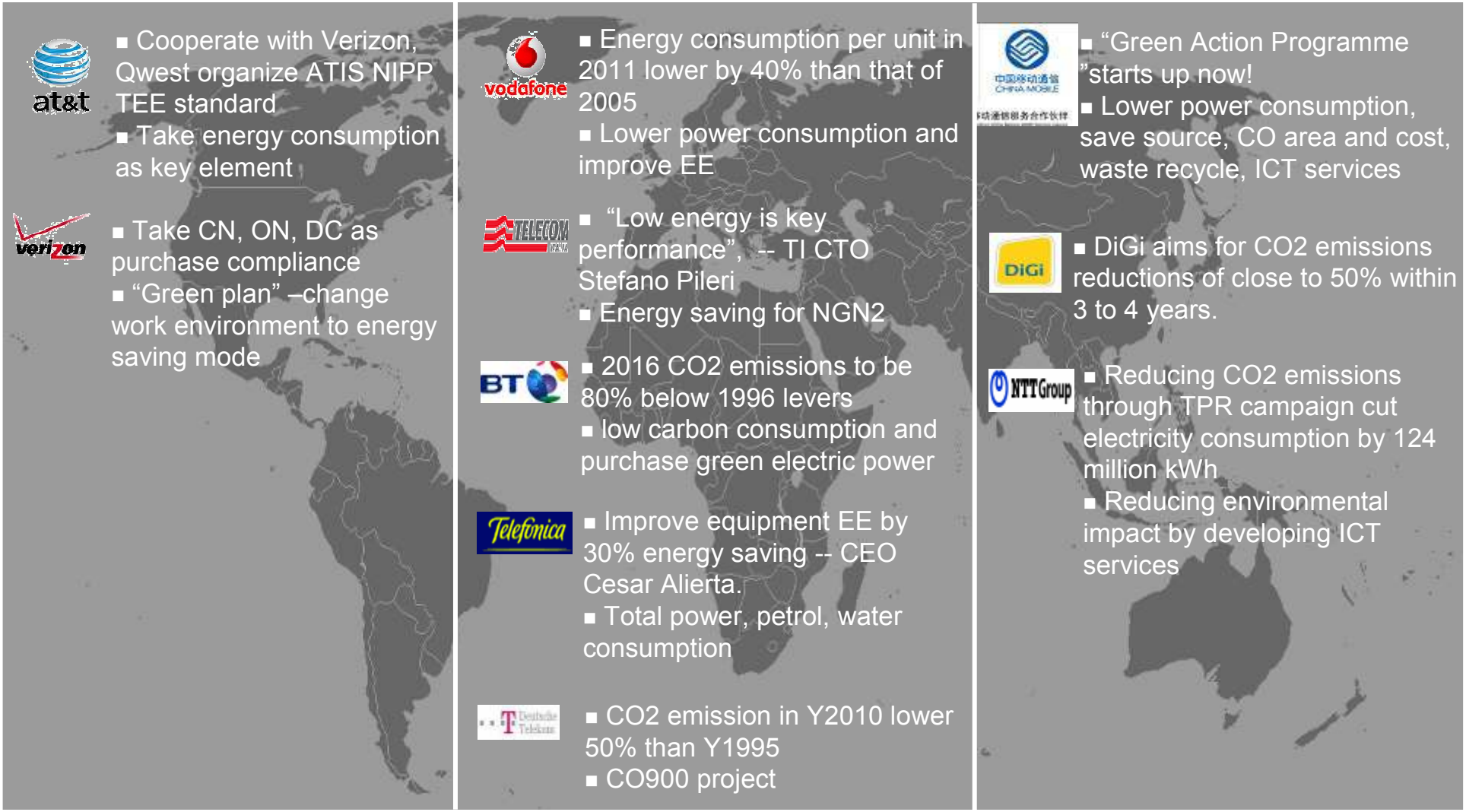
3 Huawei Energy Efficiency Solution

Energy Consumption in Telecom Industry



Source: Huawei analysis based on data of PLC

Operators taking actions



- Cooperate with Verizon, Qwest organize ATIS NIPP TEE standard
- Take energy consumption as key element

- Take CN, ON, DC as purchase compliance
- "Green plan" –change work environment to energy saving mode

- Energy consumption per unit in 2011 lower by 40% than that of 2005
- Lower power consumption and improve EE

- "Low energy is key performance", -- TI CTO Stefano Pileri
- Energy saving for NGN2

- 2016 CO2 emissions to be 80% below 1996 levers
- low carbon consumption and purchase green electric power

- Improve equipment EE by 30% energy saving -- CEO Cesar Alierta.
- Total power, petrol, water consumption

- CO2 emission in Y2010 lower 50% than Y1995
- CO900 project

- "Green Action Programme "starts up now!
- Lower power consumption, save source, CO area and cost, waste recycle, ICT services

- DiGi aims for CO2 emissions reductions of close to 50% within 3 to 4 years.

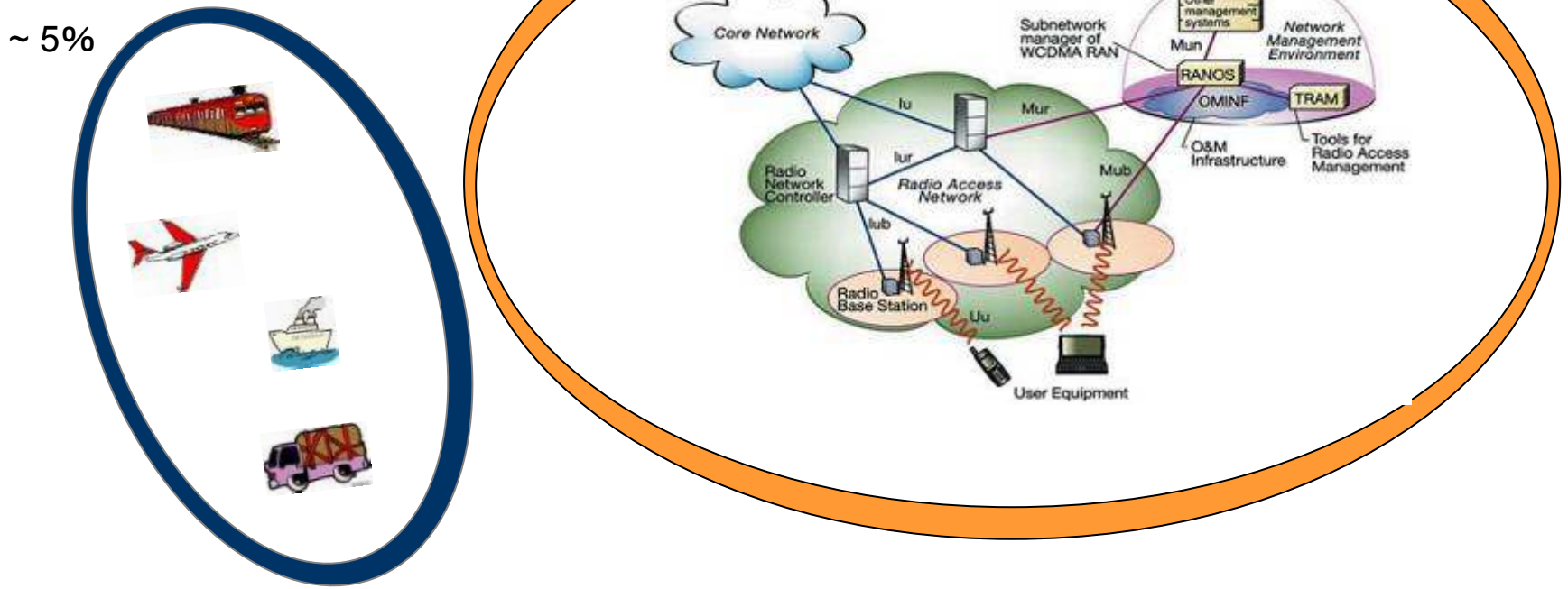
- Reducing CO2 emissions through TPR campaign cut electricity consumption by 124 million kWh
- Reducing environmental impact by developing ICT services

Energy Consumption of Telco's operation…

Retail, Office ~ 10%

Network Operation ~ 85%

Logistics ~ 5%



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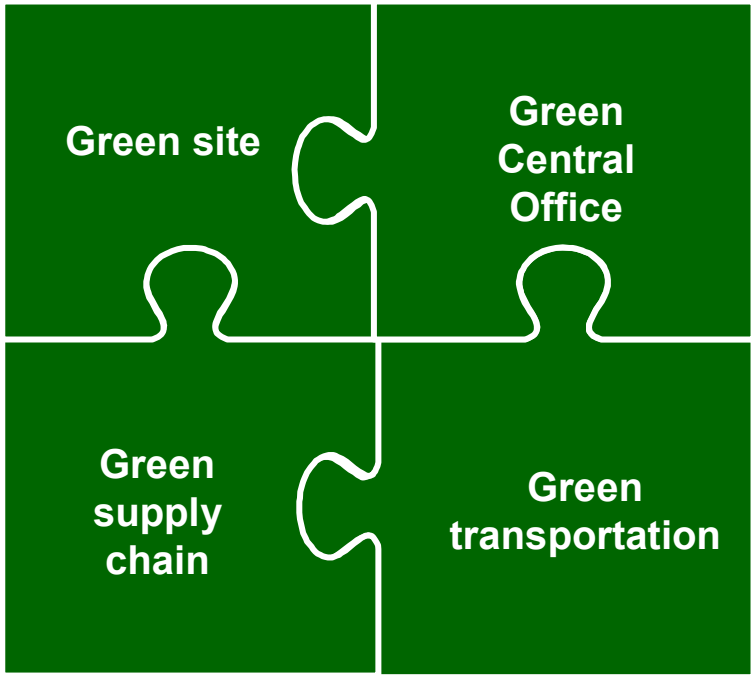
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Huawei End-to-end Energy Efficiency solution

Major approaches:
- To reduce BTS numbers
- Increase PA efficiency
- Tower mounted RRU



Major approaches:
- ATAE server
- Distributed HLR
- Thermal Management

Major approaches:
- Package innovation
- Product recycle

Major approaches:
- ASON Intelligent Network
- High density port
- Improved ASIC tech.

Green site

High density QTRU reduces both power consumption and room

Before Swap, existing 5 racks

After Swap, 1 rack



QTRU Saves 80% room space & 30+% power consumption

Source: CMCC swap case

Green site

Renewable Energy Sources to reduce CO2 emission



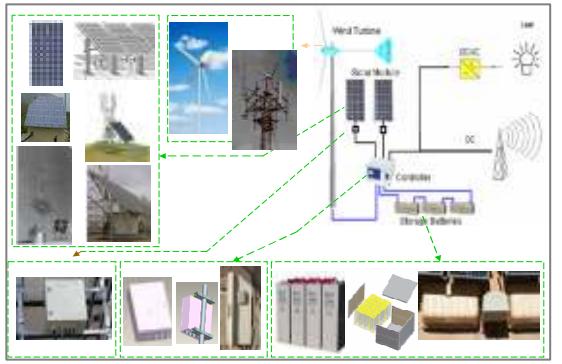
Solar

- >400 sites supplied by Huawei use solar power
- TCO of equipment below 1000W breakevens in 5 years



Wind

- TCO of equipment below 1000W breakevens in 3 years ;
- Wind speed of start: 3M/s, wind speed of load: 4.5/s;

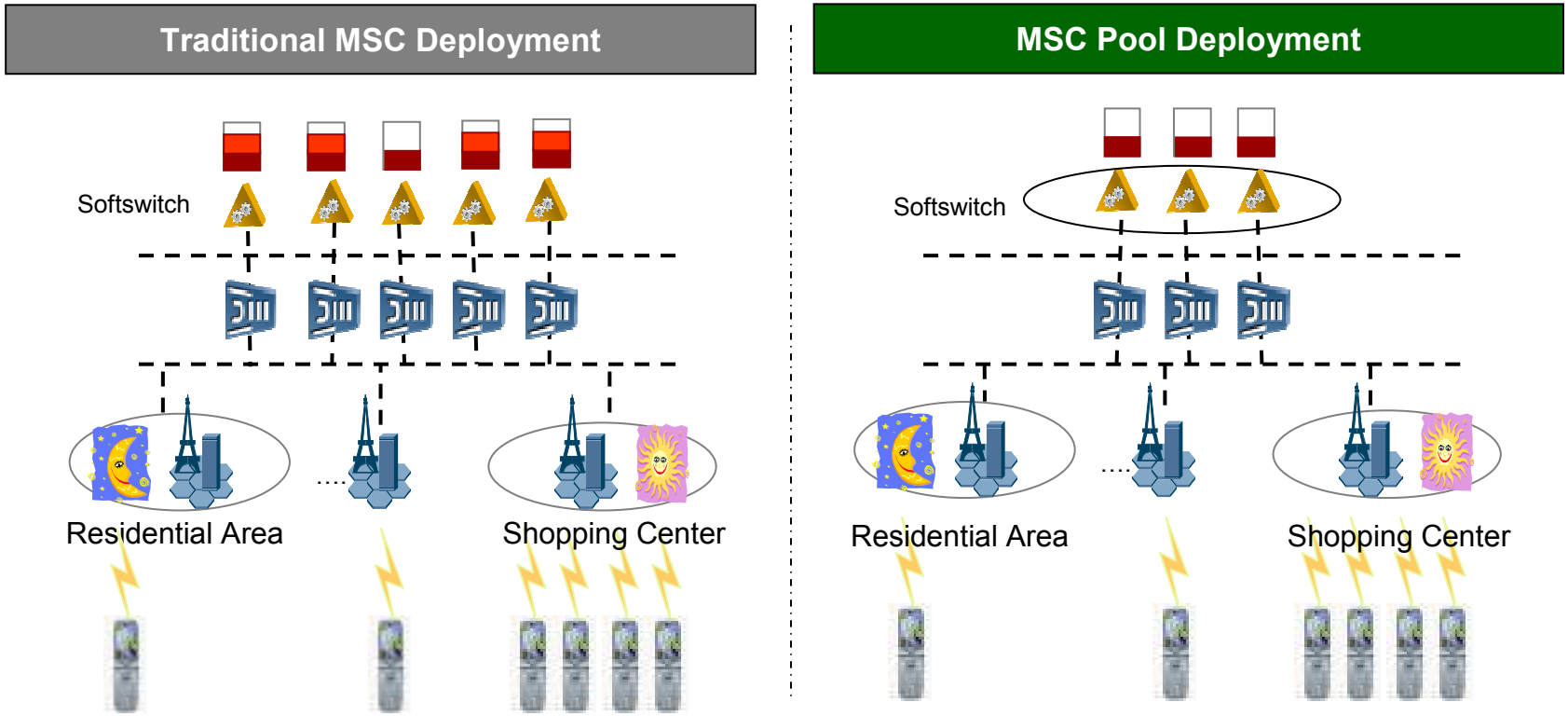


Mixed energy

Reinforce of wind and solar, mixed energy

Green central office

MSC Pooling in Urban Areas

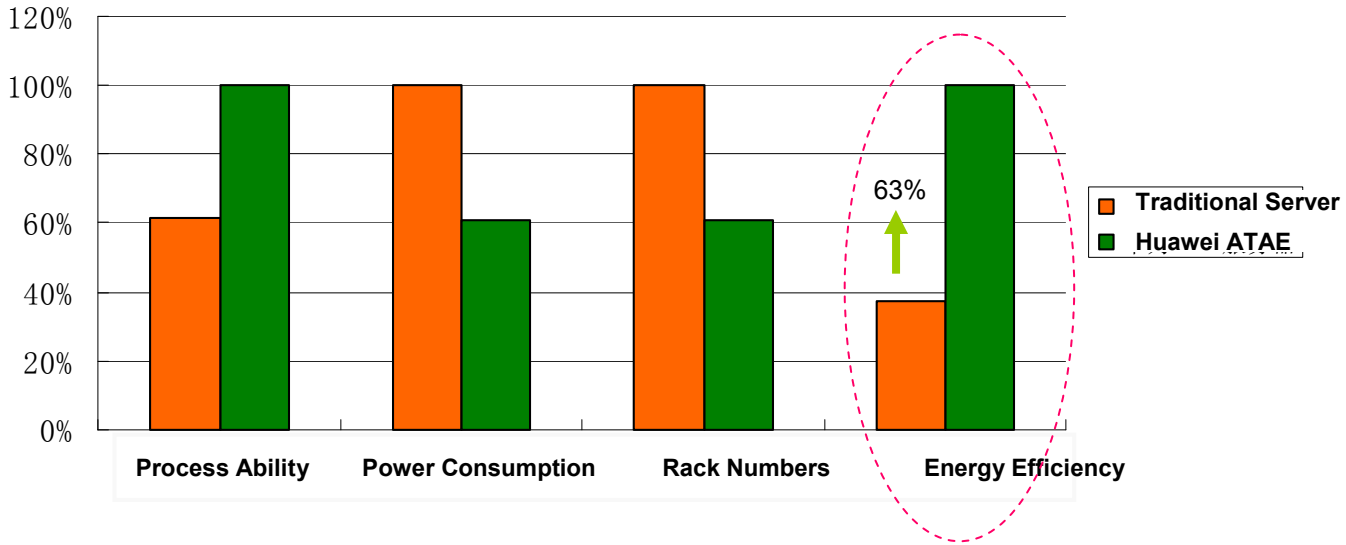


- Power saving 20% in typical dense urban through MSC Pool deployment
- No need to update BSS in network consolidation with Huawei MSC Pool solution

Green central office

Replace traditional server with ATAE to improve energy efficiency

Example of Power saving with ATAE platform for WAP Gateway



Traditional Server Solution



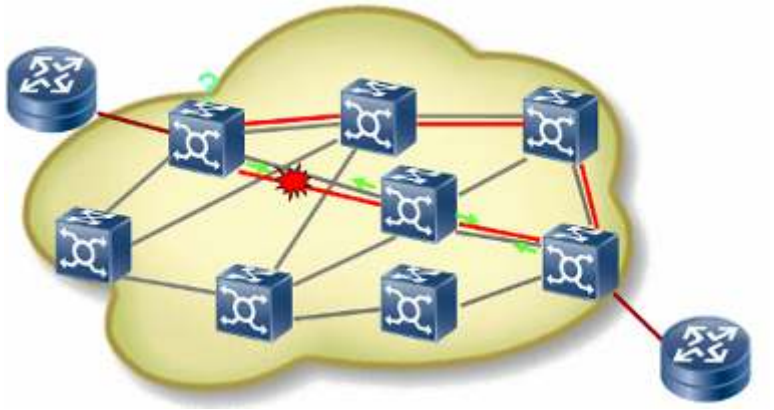
DC ATAE Solution



Green Transmission

Intelligent Network – ASON to improve transportation efficiency

ASON Network Diagram



Traditional Network vs. ASON Network

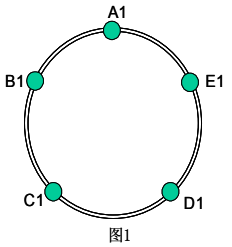


图1

	A1	B1	C1	D1	E1
A1					
B1	22				
C1	21	22			
D1	21	21	22		
E1	22	21	21	22	

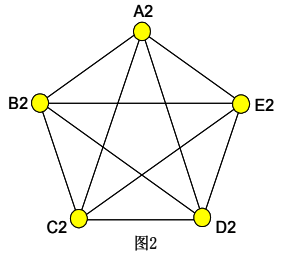


图2

	A2	B2	C2	D2	E2
A2					
B2	48				
C2	48	48			
D2	48	48	48		
E2	48	48	48	48	

- ASON replace ring network with MESH network, energy efficiency increasing dramatically with bandwidth utilization improved from 40% with MSP/PP protection to 70% with combinations of protection and recovery.
- ASON breaks down ring network restrictions, and services can be directly transmitted. Optimal routing algorithm can reduce the number of pass-through nodes and saves the pass-through bandwidth and less pass-through node port and cross-connect resources are occupied.
- The ASON-based MESH network makes network service protection and recovery more flexible

Green supply chain

A CMCC-Huawei joint program - Visible green package & logistics

Traditional paper package



visible transportation cabinet green package







Reuse of visible cabinet green package saves 50% wood consumption

Stock → Transportation → Arrival → Return









Thank You

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