



Present and future of Beijing District Heating

Beijing District Heating Group

28th April 2015

The introduction of speaker--Mrs. Liu Rong

- ★ Vice President of China District Heating Association
- ★ Director of Technical Commission of District Heating Standardization Administration of China
- ★ Deputy Director of Technical Commission of China District Heating Association
- ★ Vice President of Beijing District Heating Group

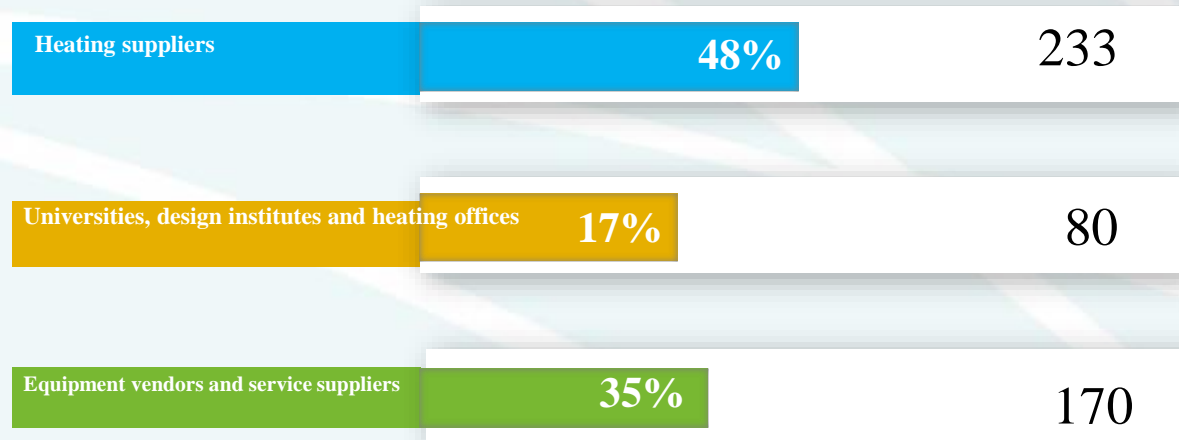
China District Heating Association(CDHA)

CDHA is a national industrial non-profit social organization co-founded voluntarily by urban heating enterprises, relevant enterprises and institutions, and social groups on June 20, 1987.

Abiding by the Constitution, laws, regulations and policies and complying with social morality, CHA shall fully play the role of bridge between government departments and enterprises in providing services, reflecting the demands, regulating behavior, and achieving self-regulatory development. It shall safeguard the legitimate rights and interests of members, strengthen the industry standards, and promote the sustainable development of urban heating utilities.

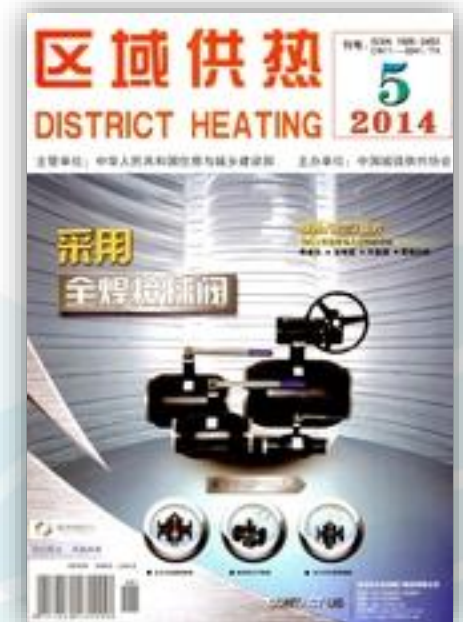
CDHA is in the charge of Ministry of Housing and Urban-Rural Development (MOHURD) and registered at Ministry of Civil Affairs (MCA)

483 Members



55%

81 governing members,
including 45 executive
governing members



Standardization Administration of People's Republic of China

Standardization Administration of the People's Republic of China(SAC) is the the member institutions of the People's Republic of China in the international organization for Standardization (ISO). It is the management institution for state Administration of quality supervision, inspection and quarantine of the People's Republic of China, which is authorized by the state council of the People's Republic of China to perform the administrative functions
District Heating Standardization Administration of China is responsible for the district heating industry.



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1. District Heating in China



China's land area is about 9.6 million square kilometers; the population is about 1.3 billion.

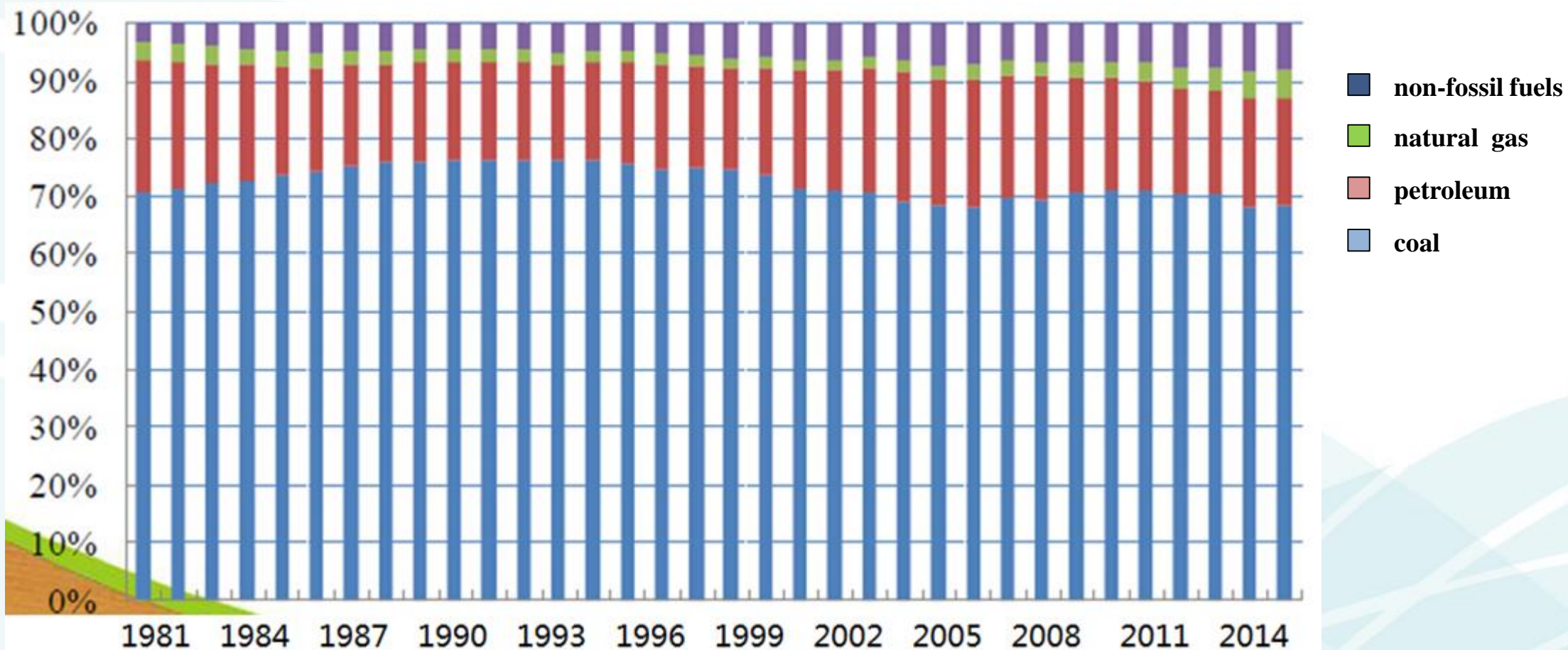
Last year, the total energy consumption is 4.2 billion tons of standard coal.

Heating consumption is 25% ,1.05 billion tons of standard coal.

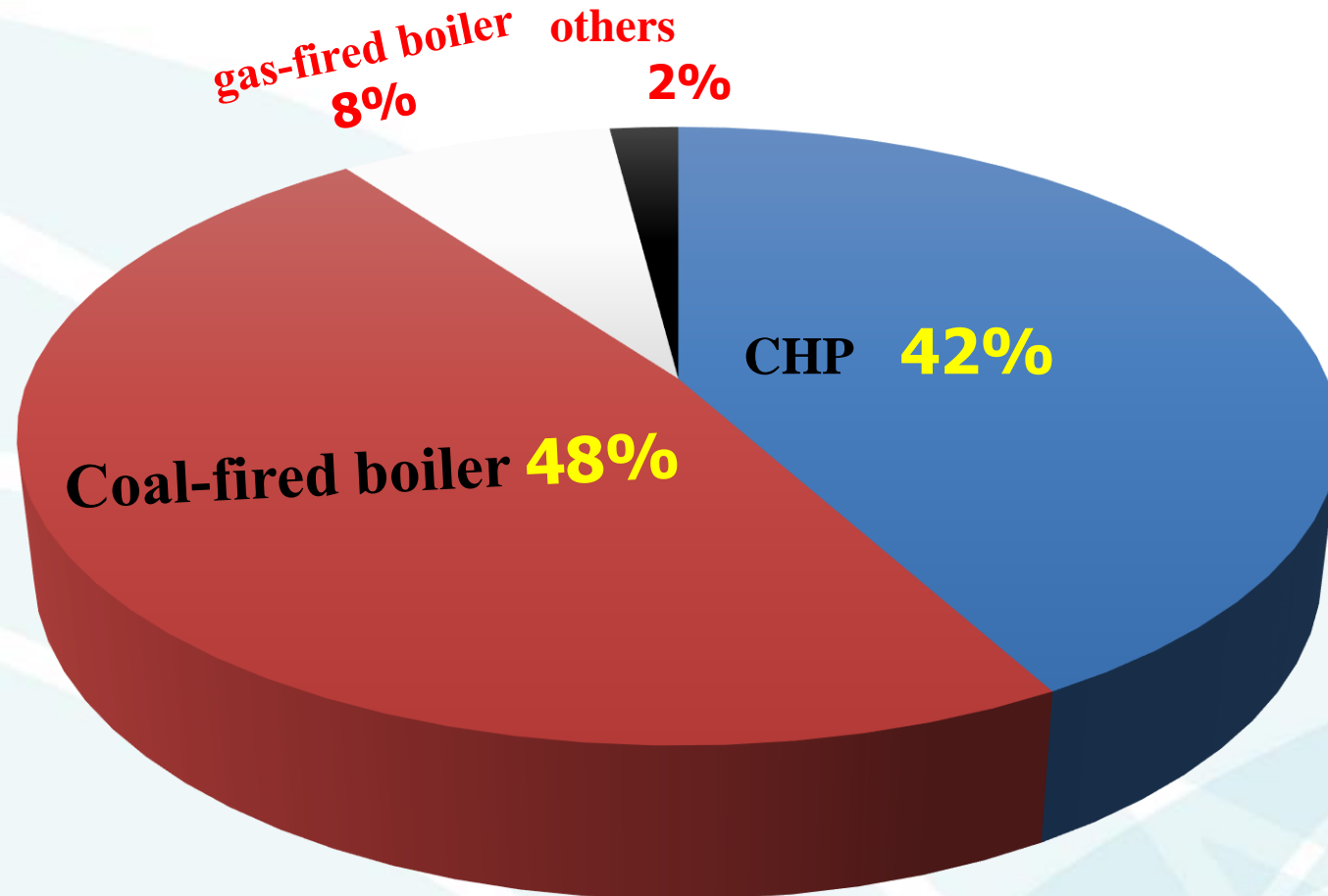
•Heating Demand: *848GW*;

•District Heating Coverage Rate: around *76%*;

National Energy Structure

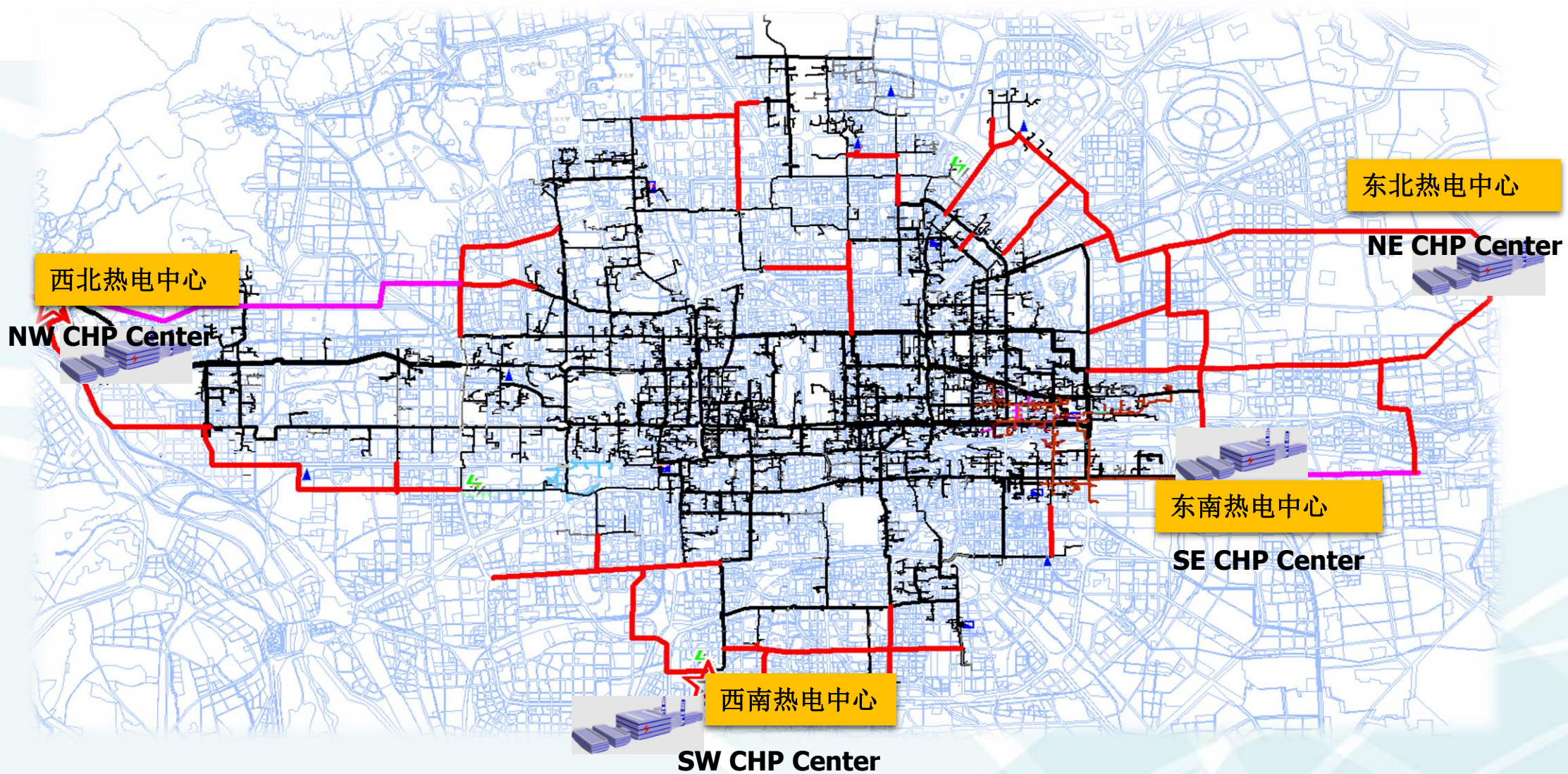


National District Heating Energy Structure

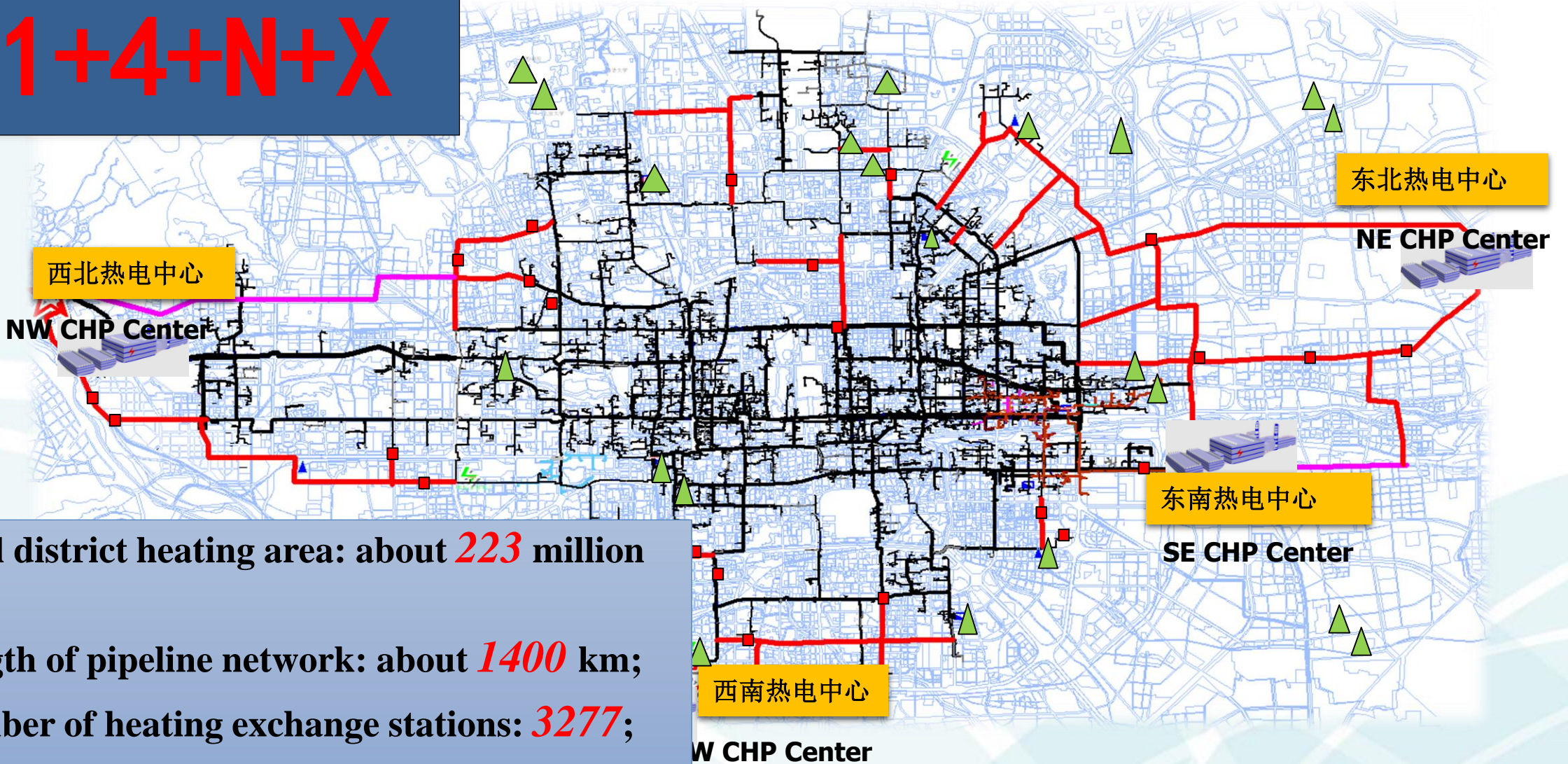


■ combined heat and power generation (CHP) ■ coal-fired boiler ■ gas-fired boiler ■ others

2. District Heating in Beijing



1+4+N+X

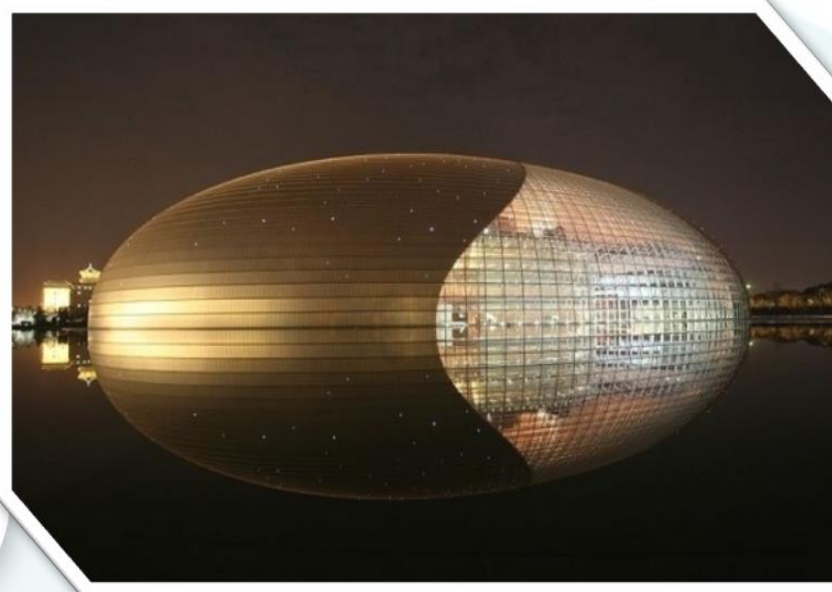


- Total district heating area: about **223** million m²
- Length of pipeline network: about **1400** km;
- Number of heating exchange stations: **3277**;
- Heating users: **1,080,000**.

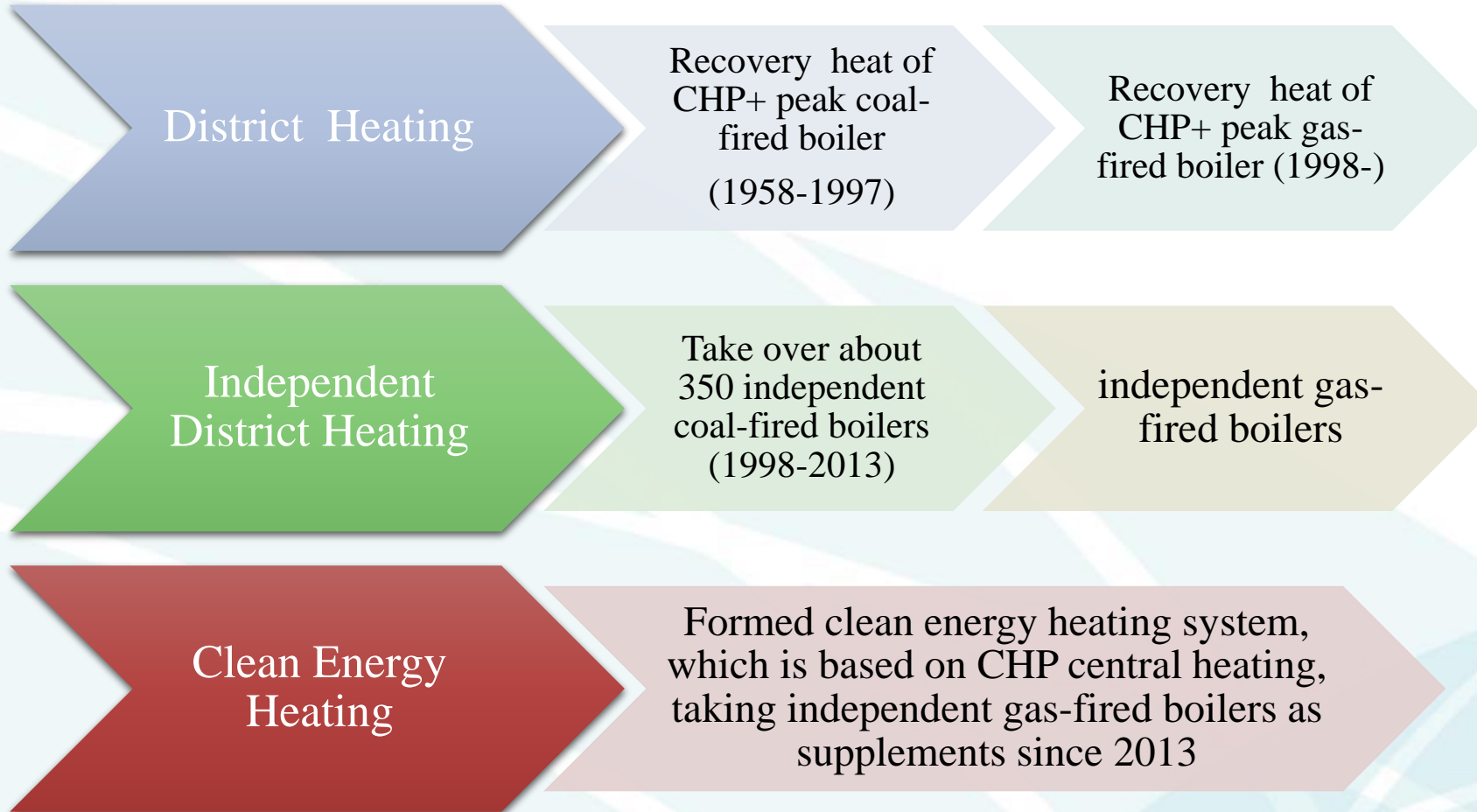
W CHP Center

2.1 General situation

BDHG is the largest heating enterprise in China, which is also the unique state-owned heating enterprise in Beijing with the history of 57 years. It is charged with the responsibility of offering district heating services for central government and military agencies, embassies, Beijing government offices, large enterprises and the public. By the end of 2014, the total assets is 32.9 billion CNY, with total liabilities 18.2 billion CNY, and net assets 14.7 billion CNY. In 2014, the revenue is 6.8 billion CNY and the total staff is 8,075.



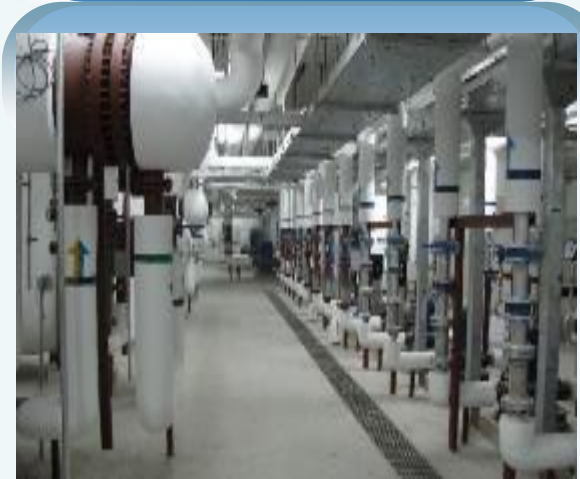
2.2 Three Stages of Heating Energy Method



2.3 Four Milestones of Heating Technology Development

1

Direct heating system
changed into indirect
heating system



2

Usage of the flow
cotroller



3

Pooled Operation of
Multi-heat sources
technology



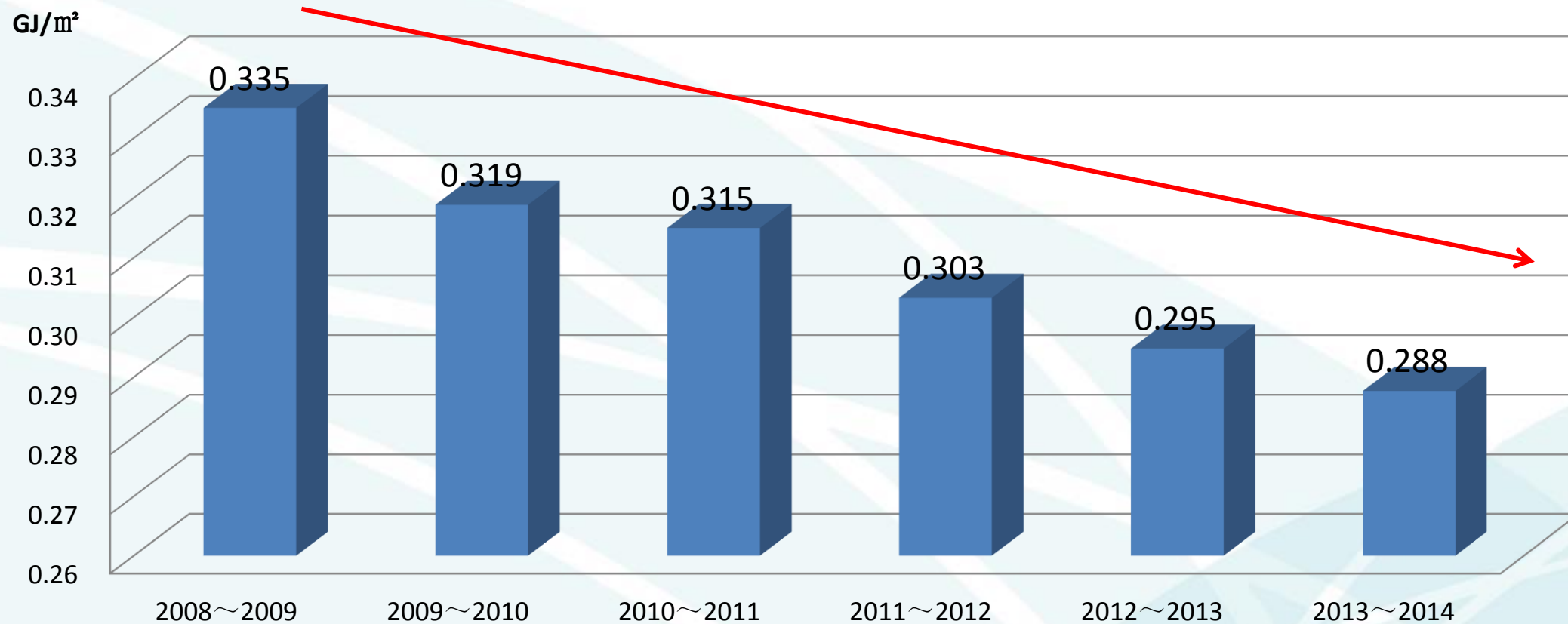
4

Digital
management of
energy metering

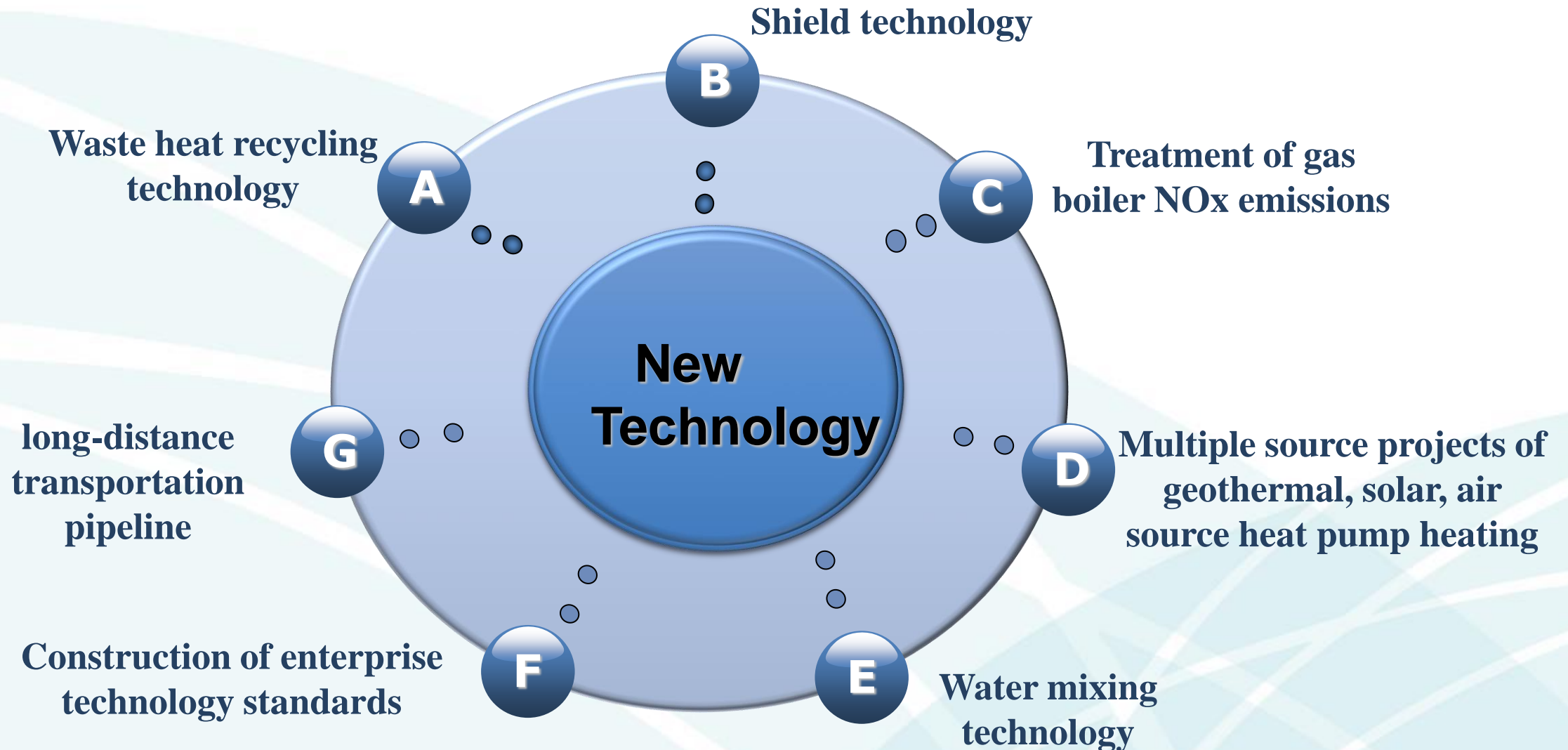


Heating Consumption is declining

2008-2014 heating season consumption (Converted to 0.6°C)

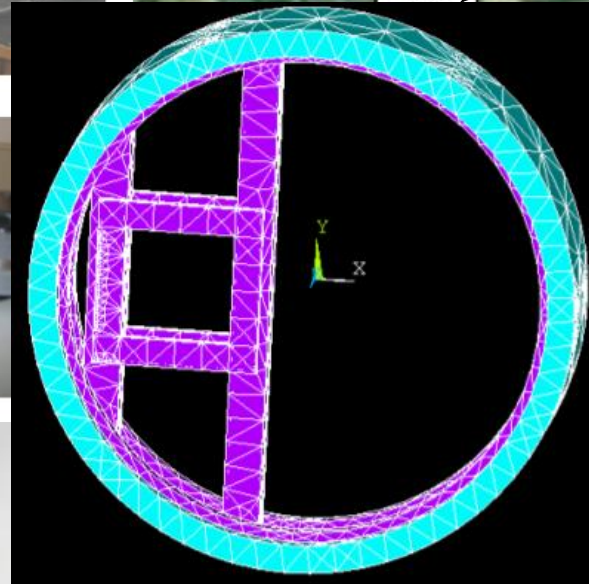
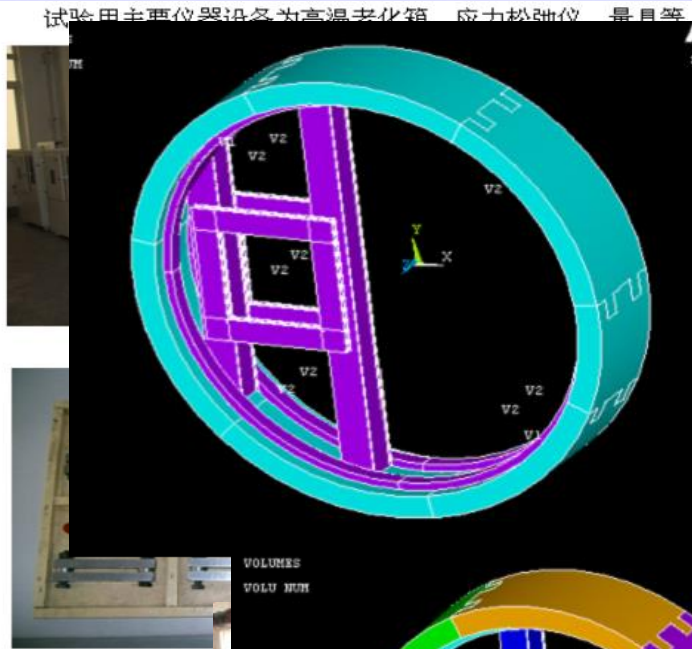


2.4 Application of New Technology



NE CHP Center — Shield technology

First time of shield technology used in heating system in China



Northeast CHP Center: shield tunnel length is 6 km. This project is specially designed to solve the force problem of shield tunnel section, and has got the relevant national patent.

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Treatment of Gas boiler NOx emission

Beijing local standards
NOx emission standards:
$80\text{mg}/\text{m}^3$;



Our enterprise makes use of low-nitrogen burners and pressurized combustion technology to limit the NOx emission under $30\text{mg}/\text{m}^3$

Multi source heating



Ground source heat pump



Air source heat pump project

Edited several Chinese heating industry standards

Most China heating standards are edited

by us : from 2010 till now,

4 industry standards , **1** local standard

edited;

14 national, industry and local standards

associated.





3. Future Prospect

3.1 Future Prospect of China

- Consumption control :

Till 2030,the total amount of energy consumption less than 5.5billion tons of standard coal.

The clean utilization of coal - pulverized coal boilers and micro coal atomization



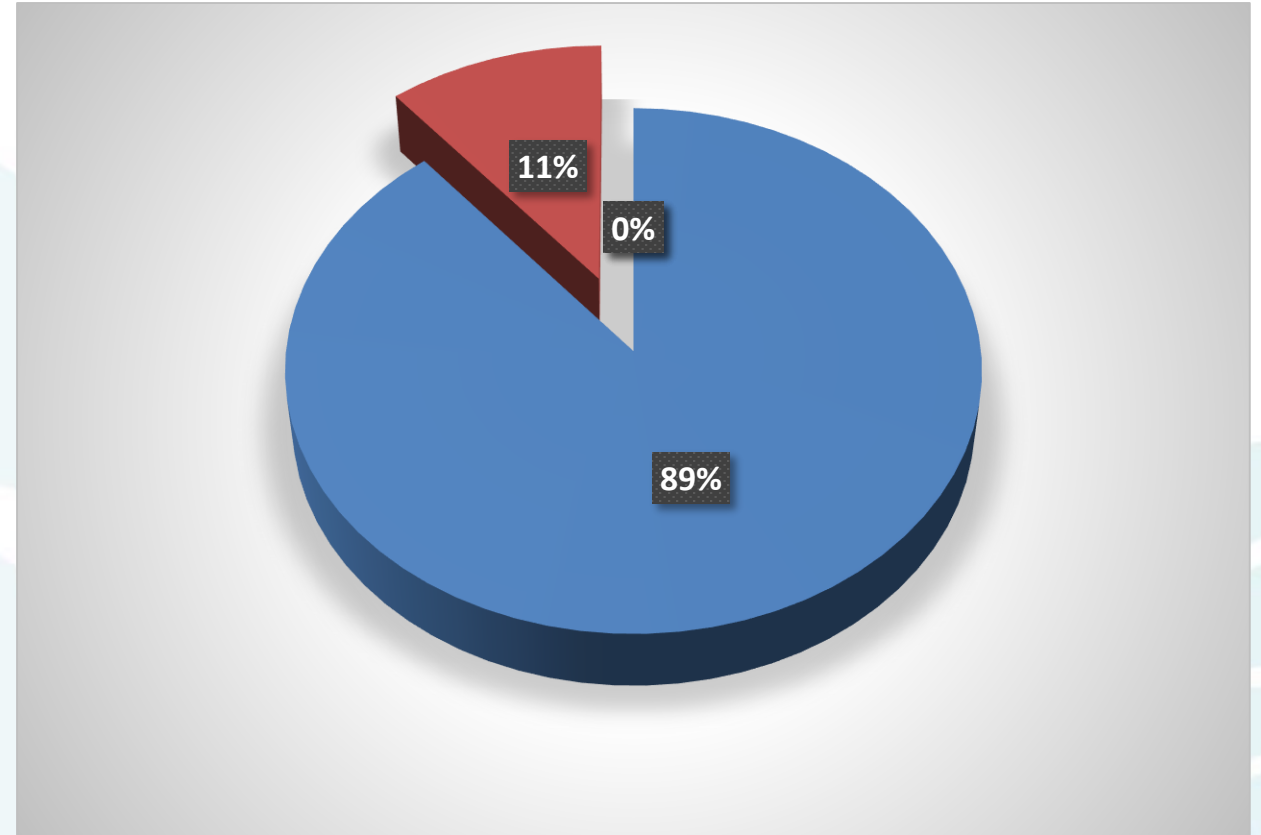
- Control the total coal consumption, develop the proportion of natural gas and renewable energy sources.
- Our country is featured by “lean oil, less gas, rich coal”. The use of coal should be gradually clean. Such measures can be taken.
- Make efficient use of pulverized coal boilers, coal boiler.
- Use supercritical and ultra-supercritical generating units.
- Accelerate the use of coal liquefaction and coal gasification technology.

The utilization of wind power

Capacity of wind power in China is 41.8GW .



Abandoned wind power rate **11%**



- Replacing small boiler plant with CHP
- Formulate new standards of emission
- Adopt LEED (Leadership in Energy and Environmental Design) architecture

3.2 Future Prospect of Beijing

Innovation Development

- urban and district heating as main way
- utilize different non fossil fuel
- utilize different social resource, accept different operation model

District Heating

Technology Leading

- smart heating
- Energy network
- Low temperature heating technology
- Long-distance transportation pipelines

Smart Heating System

scientific wisdom in
command and decision-make



规划设计



热源供应

efficient cooperation



生产调度



输配运维

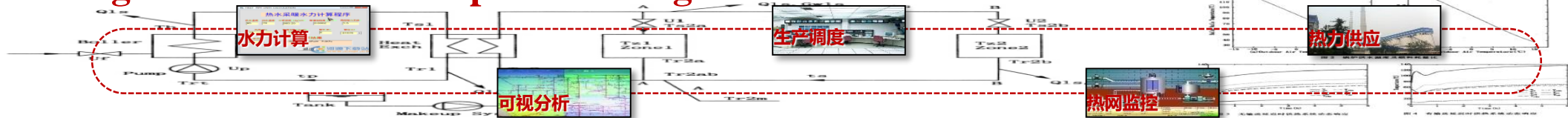


销售服务

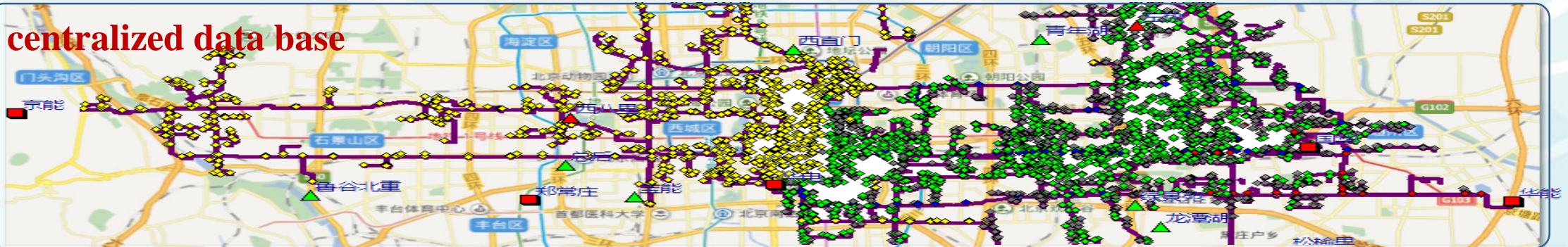


应急抢修

Intelligent and low-consumption heating network

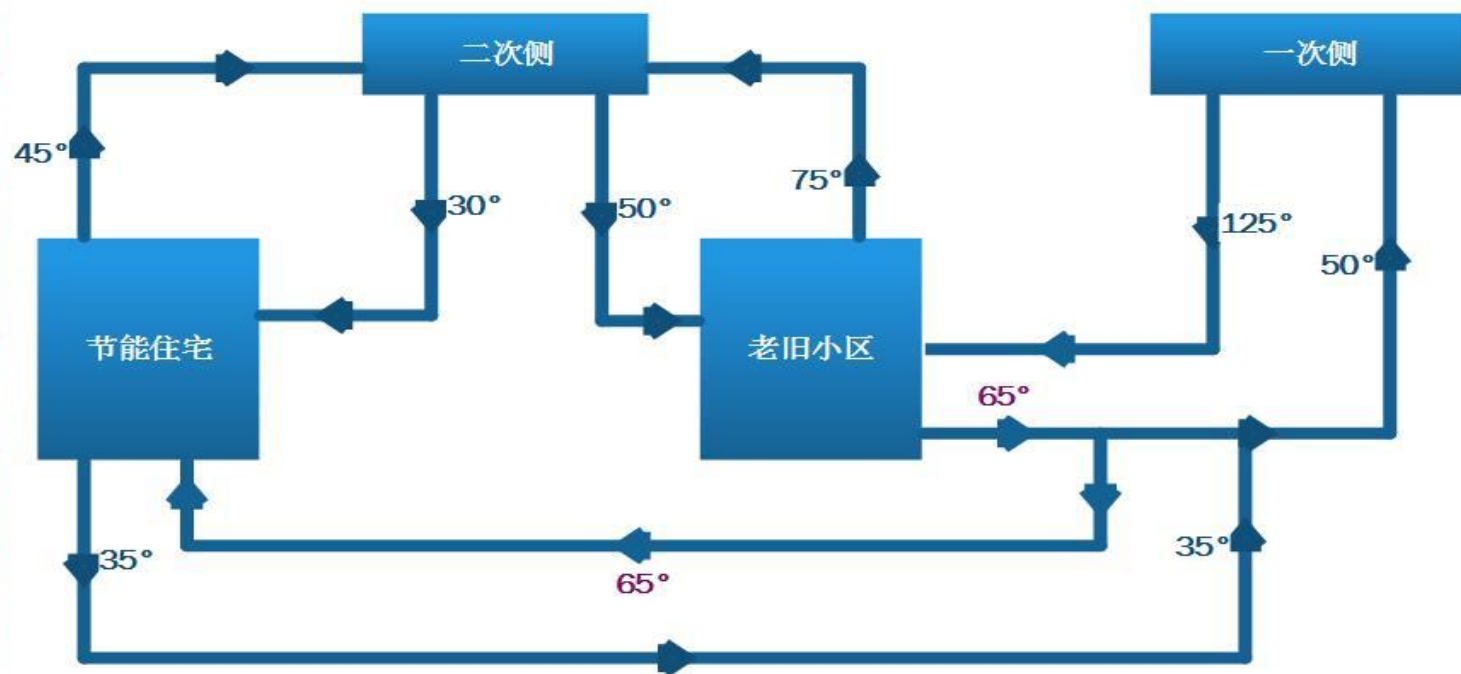


centralized data base



Low temperature heating

北京低温供热技术



低温供热系统

traditional heating parameters

Primary system: 125°C/55°C

Secondary system: 75°C/50°C

Low temperature heating parameters

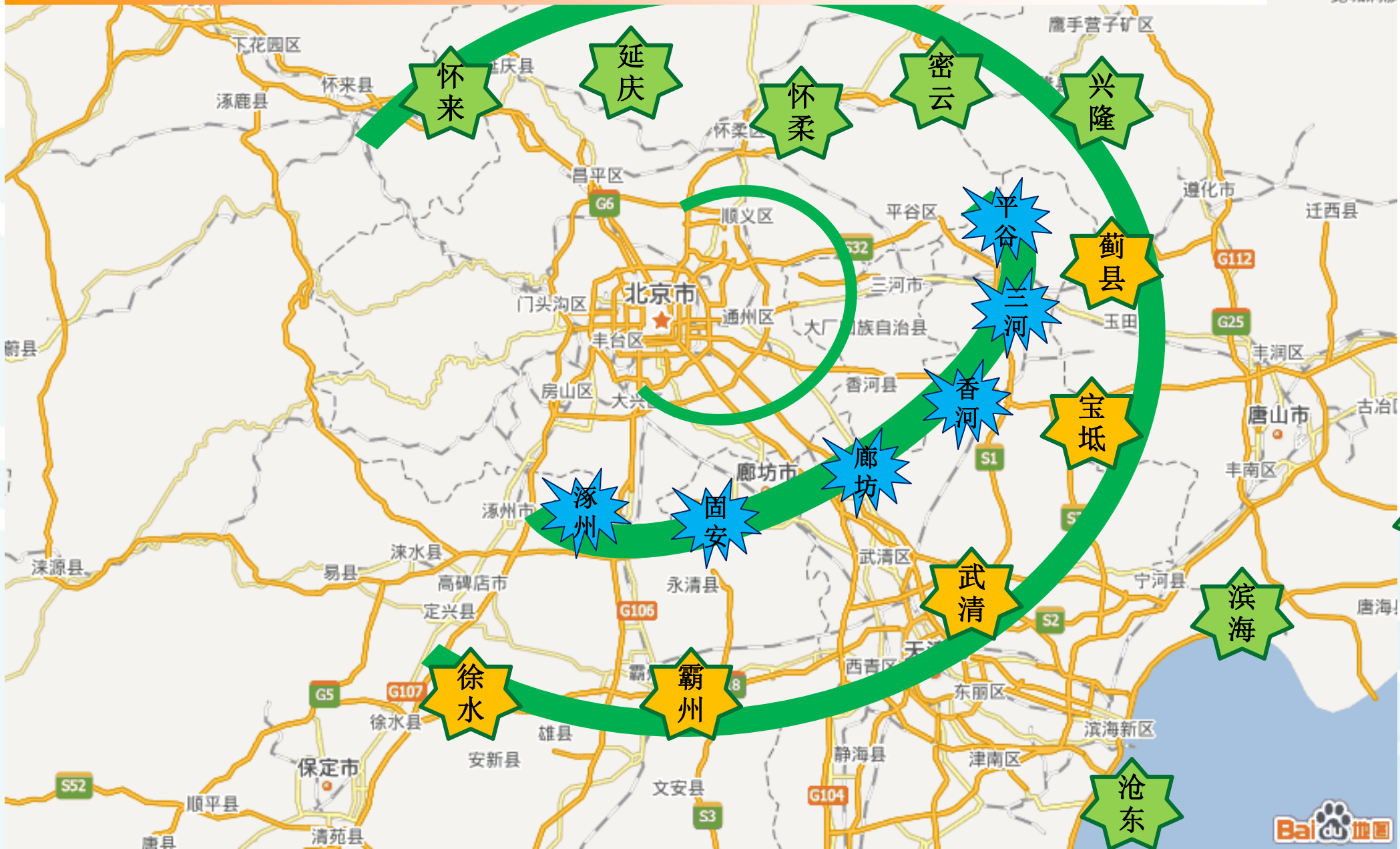
Primary system: 125°C/50°C

Secondary system: 75°C/50°C

45°C/30°C

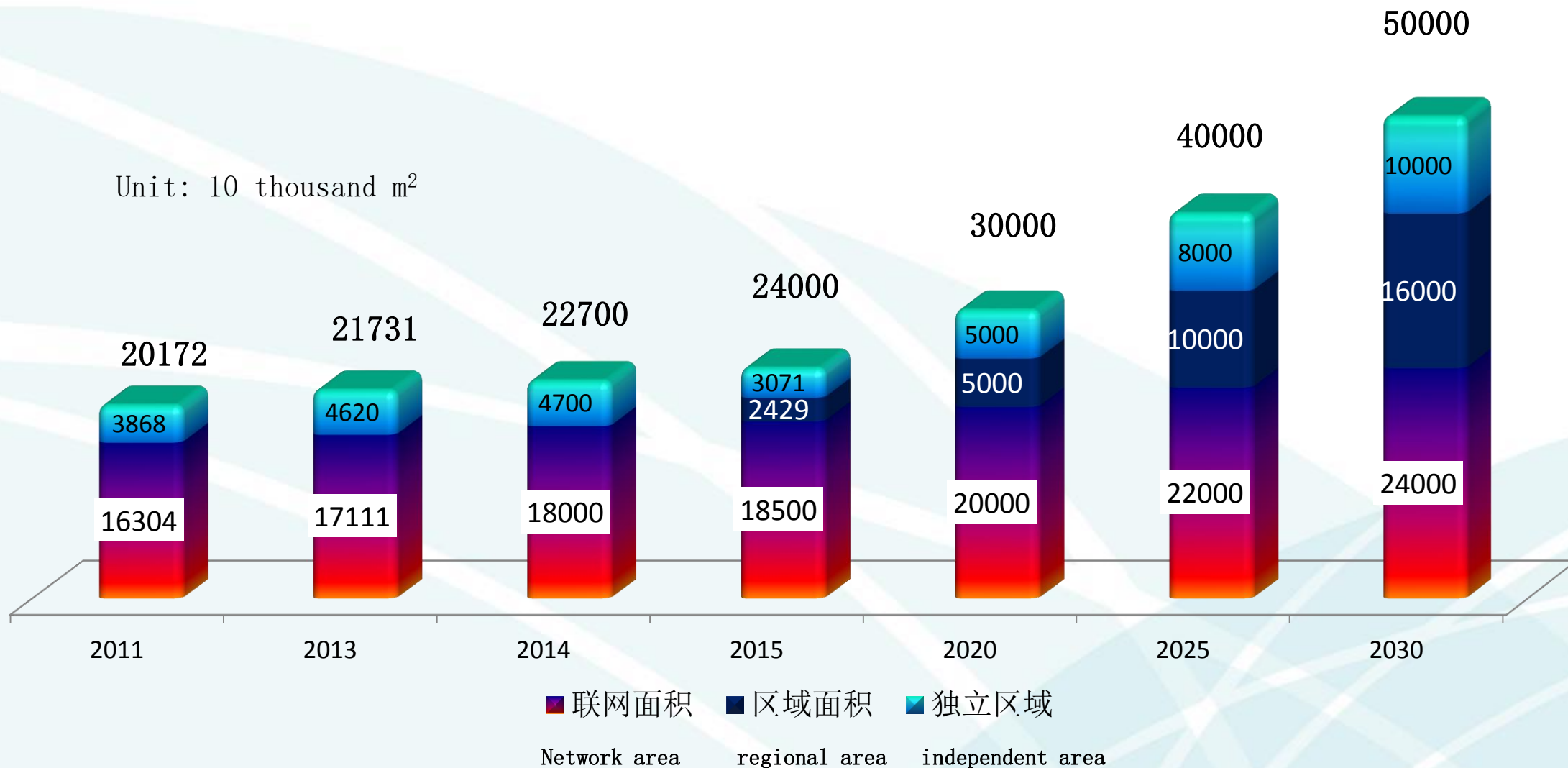


Long-distance transportation pipelines



Development target (2016-2030)

Unit: 10 thousand m²



Strengthen International Cooperation

CDHA has maintained long-term partnership with:

DBDH (the Danish Board of District Heating)

ISH(International Sanitation Heating)

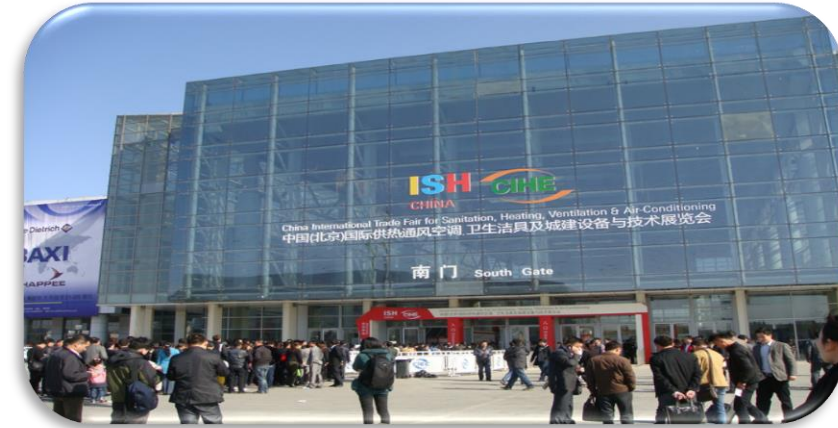
SDHA(Swedish District Heating Association)

EHI(European Heating Industry

FDA(French Development Agency)

KDHC(Korea District Heating Cooperation)

IREN(Italian Heating Association)



Strengthen International Cooperation

In the past few decades, BDHG has established the cooperation and friendship with the European well-known enterprises, especially in Denmark, Sweden, Finland, Germany, Holland, the partner including: OILON, VEXVE, SAMSON, KAMSTRUP, COWI, DANFOSS, BETTER START, ALFA-LAVAL, THERMAFLEX....and so on.





送京城温暖 还首都蓝天

Intelligent green

Interconnected energy

Efficient service

Creating a better future!