

**The 6<sup>th</sup> Annual World Conference on  
CHP and Decentralized Energy**

**Latest Development of Gas-fired  
CCHP in China**

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**Beijing Energy-Net DE, Ltd.**

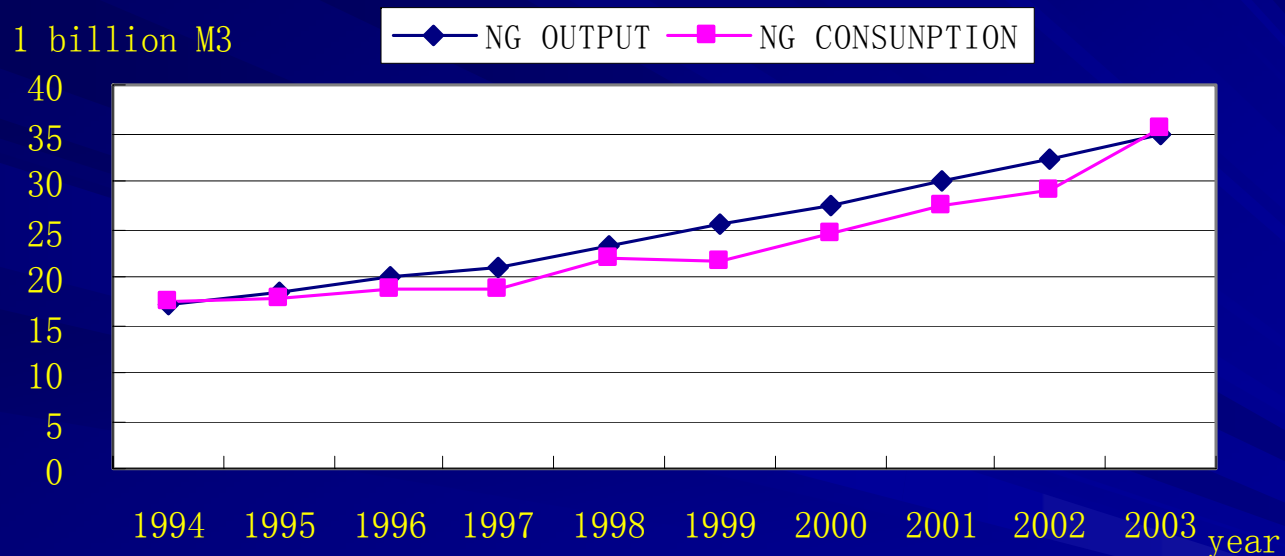
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# Status of Gas-Fueled CCHP in China

## Natural Gas Production and Consumption in China



In 2002, NG output is only 3.2% of China's overall energy output and consumption 2.7%. It is far below the standard of developed countries.

# Status of China's CCHP Development

- In 2003, 2121 sets of coal-fired cogen units (per unit capacity of 6 Mw and above) and total capacity reached 43.6 Gw.
- In 2004, the total capacity of coal-fired, oil-fired and gas-fired CCHP units reached 56 Gw.
- Currently, capacity of gas-fired units under operation in China totals 30.1 Gw. In the future, units with total capacity of 32.3 Gw will be put into operation.

- **Beijing:**

2 CCHP projects with capacity of 1.28 Mw are under operating, other 13 projects with total capacity of 92.8 Mw will be put into operation in next two years.

- **Shanghai:**

4 CCHP projects with total capacity of 5.7 Mw are under operating, other 9 projects with capacity of 11.6 Mw will be put into operation.

- **Guangzhou:**

2 CCHP projects with capacity of 1.8 Mw are under operation, other 11 projects with total capacity of 53.5 Mw will be put into operation.

# Profile of Beijing Energy-Net DE, Ltd.

- The 1st professional JV company providing CCHP technology in China.
- Majority share holder: Beijing Gas Group.
- Established in 2002 and gathers engineers of various CCHP-related majors, market and business development team as well.
- Business scope:
  - CCHP project development, investment, construction and O&M.
  - CCHP technology research and CCHP system integration.
  - Developing CCHP projects with overall investment - RMB 1 billion.
  - In charge of O&M for the CCHP project of Beijing Gas Building.

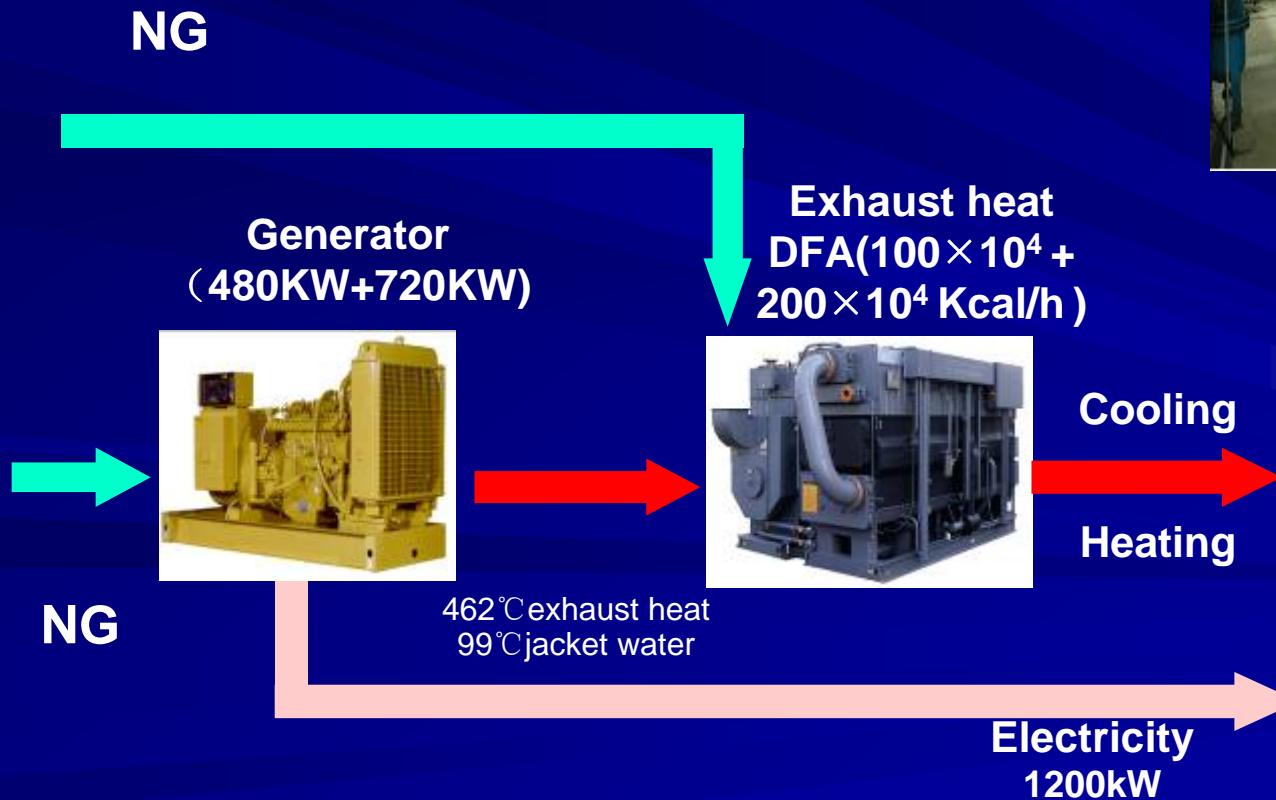
## Introduction of Beijing Gas Group Co. , Ltd.

- Asset above RMB 20 billion and revenue 4.9 billion.
- Owns all the NG pipelines and facilities in Beijing.
- The exclusive NG supplier in Beijing
- The largest NG company in China.
- Its businesses include NG distribution, sales, engineering design, construction and research.
- Wholly owned by Beijing Municipal Government.

# CCHP Projects under operation in Beijing

## Beijing Gas Building

Construction area: 32,000 m<sup>2</sup>



# Ciqu Gas Pump Station

- Microturbine + DFA
- Microturbine: 80KW
- Exhaust heat DFA:  
200,000Kcal

Building Area: 3,000m<sup>2</sup>



# **Favorable Policies for DE from China Government**

## **State Government**

- **Energy Conservation Law of PRC (1998) ;**
- **Regulation on Development of Cogen (2000);**
- **In Sep. 2004, National Development and Reformation Committee (NDRC) submitted Prime Minister Report upon Issues of Decentralized Energy System.**

# Shanghai Government

- On Sep. 2004, Shanghai DRC issued No. 18 File, encourages CCHP and GHP by
  - equipment subsidy
  - preferential gas rate
  - free duty for imported equipment
  - grid-interconnection support
- In Aug. 2005, Shanghai issued Specification for CCHP Engineering System.

# Beijing Government

- Beijing Government is making related investigation and research, preferential policies for DE projects will be issued soon.

# Market Prospect of DE in China

- **Target: 100 DE demonstration projects by 2010.**
- **Detailed steps**
  - **2004-2005: 15 to 20 projects with total capacity of 50 Mw;**
  - **2005-2007: 35 to 40 projects with total capacity of 150 Mw;**
  - **2007-2010: 35 to 40 projects with total capacity of 300 Mw.**

# Development of CCHP Projects in Beijing

## List of Gas-fueled DE Projects being Underway in Beijing

S/N	Project Name	Heat & Cool supply area (1,000m <sup>2</sup> )	eneration capacity (Kw)	otal Investment (RMB million)	nnual Gas Consumption (1,000,m <sup>3</sup> )
1	Tsinghua Wenjin Apartment	120	2,600	66	10,790
2	Zhongguancun Medical Park	830	12,000	220	49,800
3	Phase-3 Project of China Trade Center	90	9,200	100	38,180
4	Olympic Underground Mall	180	4,200	50.4	17,430
5	Olympic Sci-tech Museum	80	1,800	216	7,470
6	Beijing Automobile Exhibition Center	900	13,000	250	53,950
7	Beijing Wangfu Hospital	37	1,048	10.94	4,350
8	Yongfeng Aviation Material Park	115	2,000	24	8,300
9	Northern Operation Area of Capital Airport	62	22,056	231.59	91,530
10	Cogen Plant of Shangdi Industrial Zone	3,000	127,000	670	190,000
11	Gas Group Training Center	35	800	23	3,320
	<b>Totally</b>	<b>6010</b>	<b>195,704</b>	<b>1,667.53</b>	<b>475,120</b>

# CCHP Projects under Planning in Beijing

## Zhongguancun Medical Park

- A park attracts many hospitals and integrates medical treatment and industry together.
- Planning coverage: 1.2 million m<sup>2</sup>
- Heating & Cooling area: 830,000m<sup>2</sup>;
- Total Design Capacity: 12Mw;
- Prospective Total Investment: RMB 22 million.



# Zhongguancun Software Park

Zhongguancun Software Park is the base and center of software industry in Beijing.

**Generation Unit:**  
1210kw gas turbine



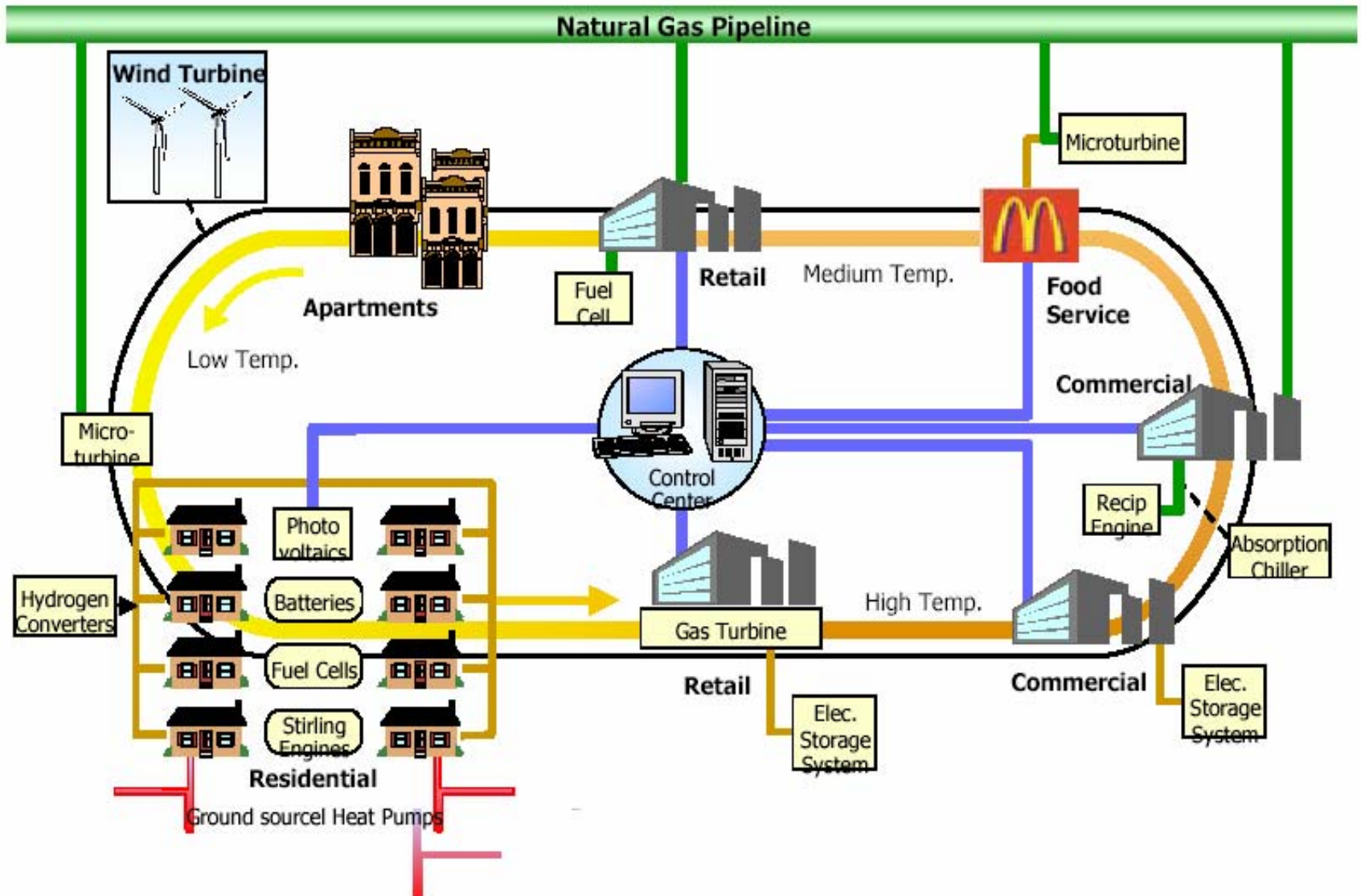
**Air conditioning Unit:**  
3 million Kcal. Exhaust Heat DFA  
3 million Kcal. Standard DFA

# Beijing Automobile Exhibition Center

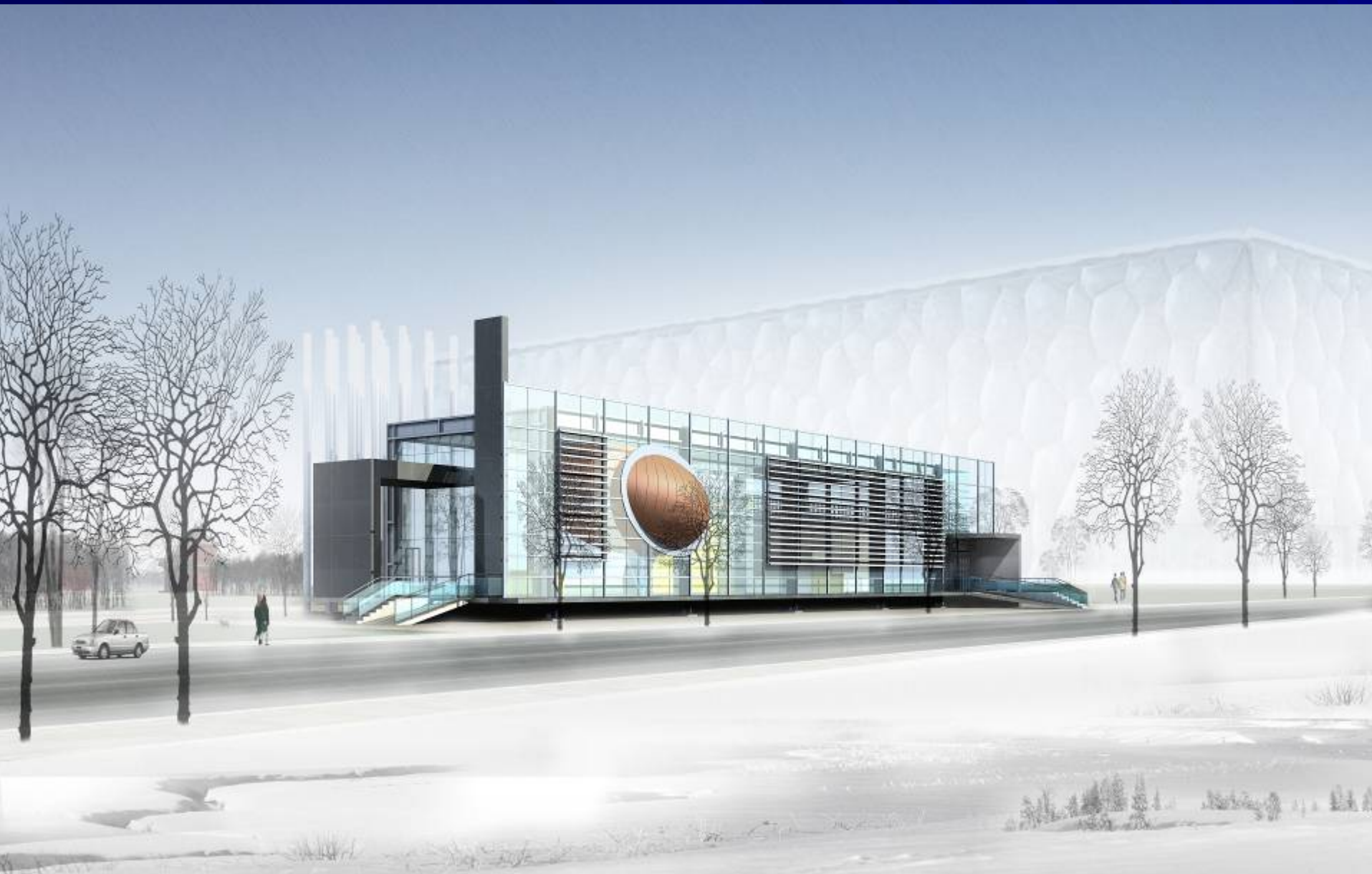
- One of 60 propose projects of Beijing;
- The 1st automobile museum;
- Layout area: 438,000 m<sup>2</sup>,
- Heating & Cooling area: 900,000m<sup>2</sup>;
- Consisted of museum, show hall, sales hall, park, building and information center;
- The CCHP project will become an energy exhibition center.



# Power Park



# Energy Exhibition Center



# Tsinghua Wenjin International Apartment

- Total Construction Area: 200,000 m<sup>2</sup>;
- Total Design Capacity: 2.6 Mw;
- Prospective Total Investment: RMB 66 million;
- Equipment Selection:  
1300Kw Internal combustion engine×2 +  
5 million kcal exhaust heating DFA×2

# Barriers & Problems for CCHP in China

- **Barriers from Policies**

- grid interconnection;
- electricity selling;
- Regulations upon firefighting and environmental protection;
- Duty deduction for imported equipment;
- Other preferential policies in taxation, pricing, etc.

- **Barriers from Technology**

- Localization of equipment manufacturing;
- Experiences in system construction and O&M.

- **Instability of Energy Pricing**

THANKS

