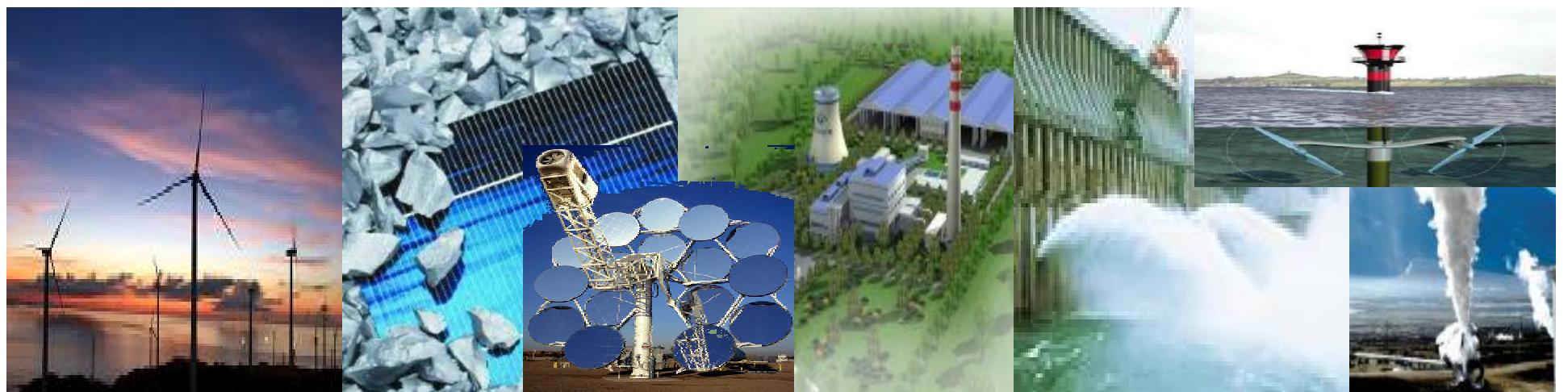


May/2010

# Status and Prospects of China's Clean Energy

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NDRC , China



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# 1. China's development of society and economy is facing the increasing pressure on energy demand



# China's Increasing Pressure on Energy Demand

**Development** is a long-lasting mission for China



**2020**

To establish a well-off society



**2035**

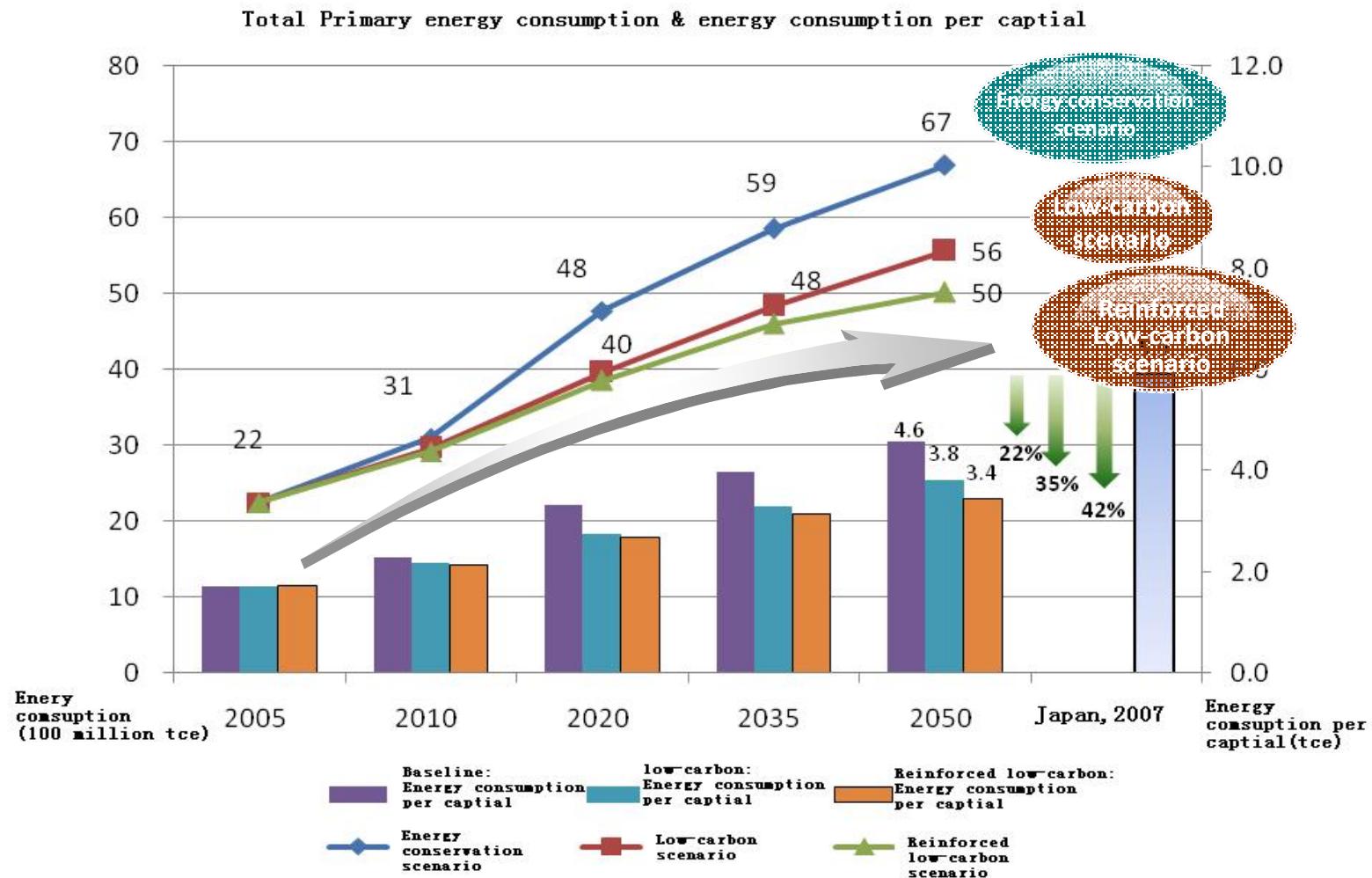
Achieving preliminary industrialization

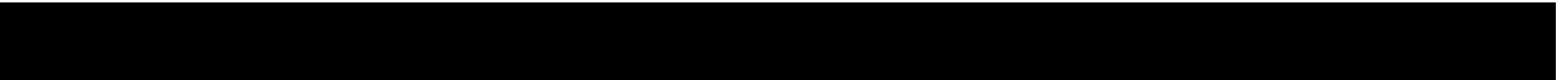


**2050**

A moderately developed country

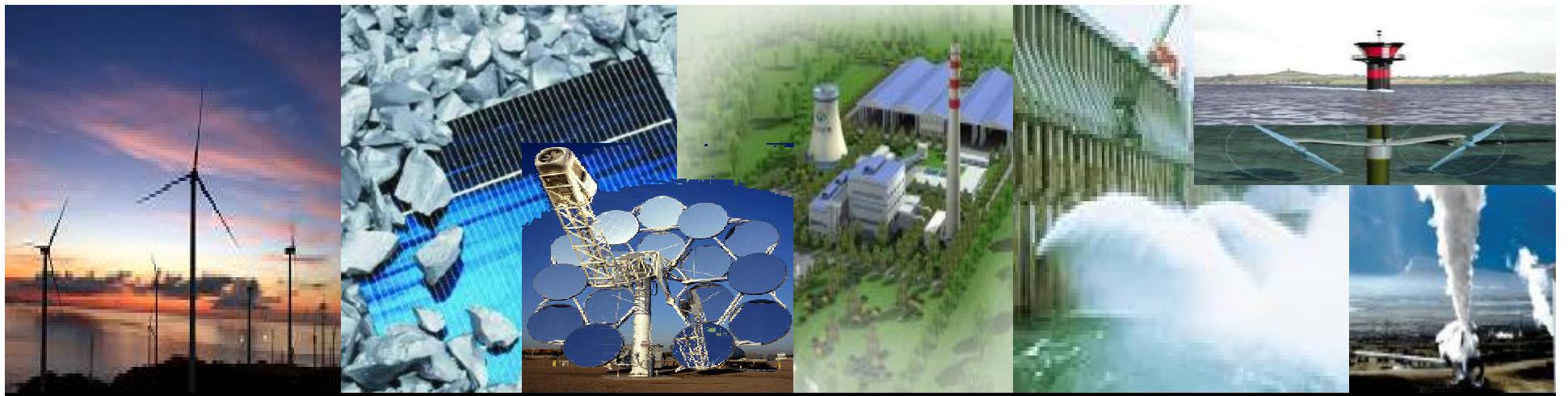
# China's Energy Demand Forecasting



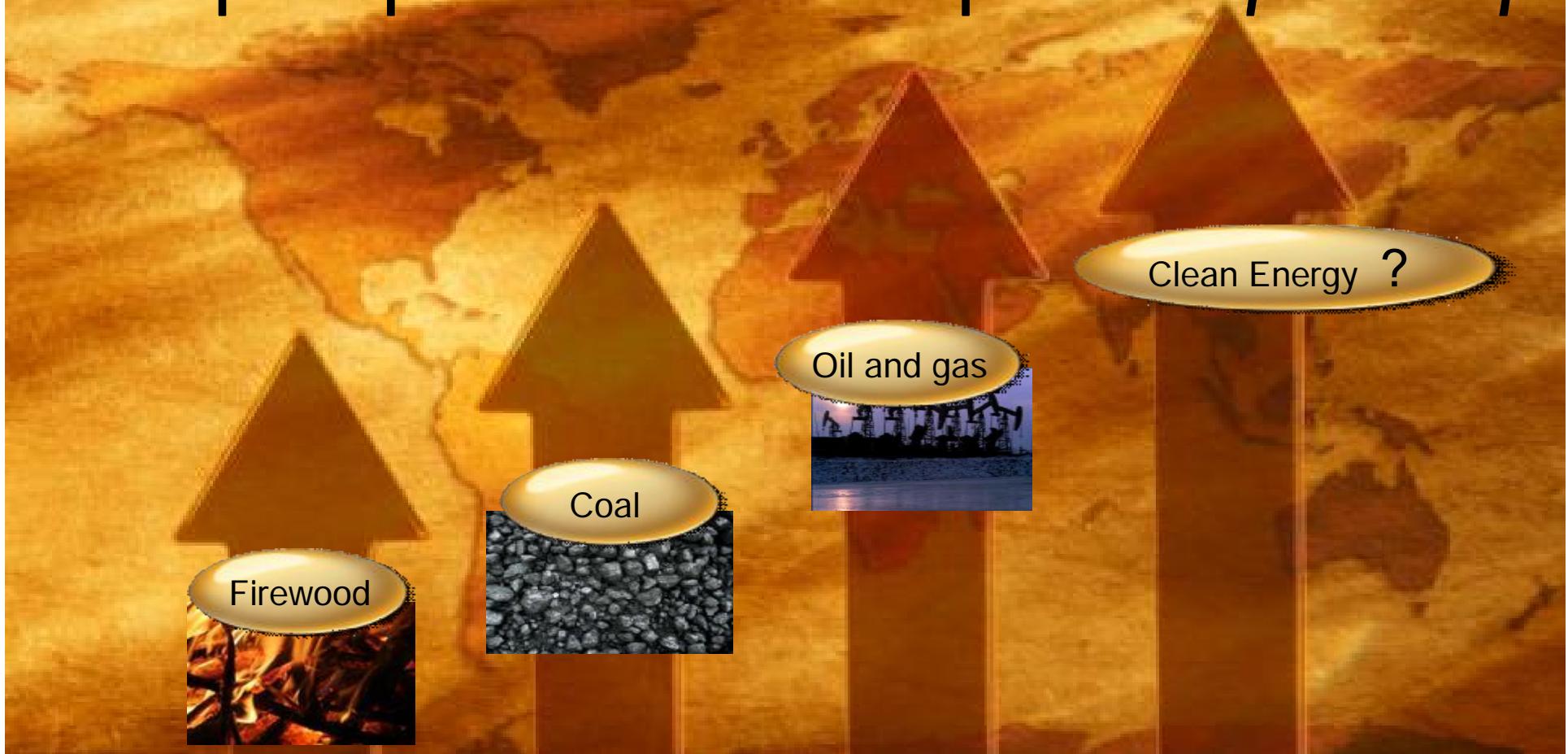


## 2. Developing Clean Energy

is the inevitable choice **in China**



**To develop RE will promote the sustainable development of society and economy**



**In 21 century**, worldwide energy utilization will appear a new transformation , seeing from the current development trade, **Renewable Energy** is the most realistic choice.

**Renewable Energy** has the feature of wide distribution of resources, large potential, small environmental pollution, sustainable use. To develop the renewable energy including **Wind Energy, Solar Energy, Biomass Energy, Hydro Energy, Geothermal Energy, Ocean Energy** is China's **inevitable choice of sustainable energy strategy !**

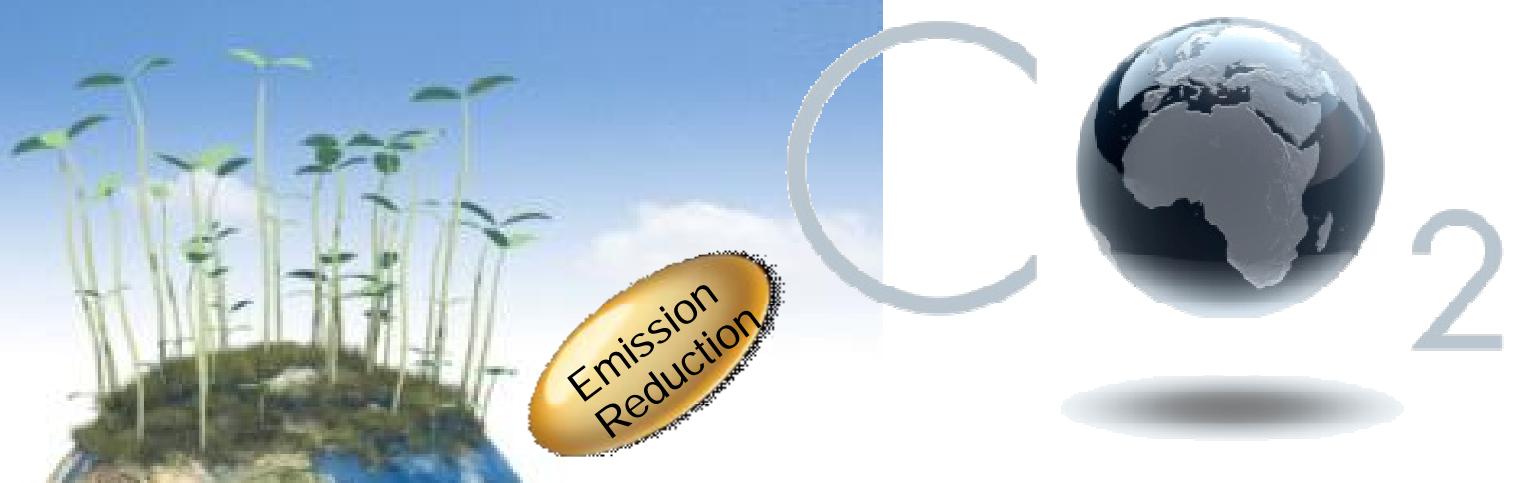


# China's RE Development—Resources

Category	National amount of available resource	( 100million tce )
Solar energy	1700billion tce	17000
Wind energy	1000 GW	8
Hydro energy	Economic available exploit capacity of 400GW/ technical available exploit capacity of 540GW	4.8 ~ 6.4
Biogas	Biomass power	0.3billion tone straw +0.3billion tone forestry waste
	Liquid fuel	50 million tone
	Biogas	80 billion m <sup>3</sup>
	Total	4.6
Geothermal energy	3.3 billion tce	33

*China has abundant RE resources , which can support RE to become into the leading energy*

To develop RE, and to offset the emission from high carbon energy as many as possible, it will effectively reduce greenhouse gas emissions growth.



**Renewable Energy** will contribute **10%** of GHG emissions in 2030.



“The development of **wind, solar, nuclear** and other clean energy and new energy, will become a new growth point of economic development, which is the main direction of **energy restructuring** , and also the important measure to respond climate change, to **ensure** energy security”.

- - - Mr. Wu Bangguo

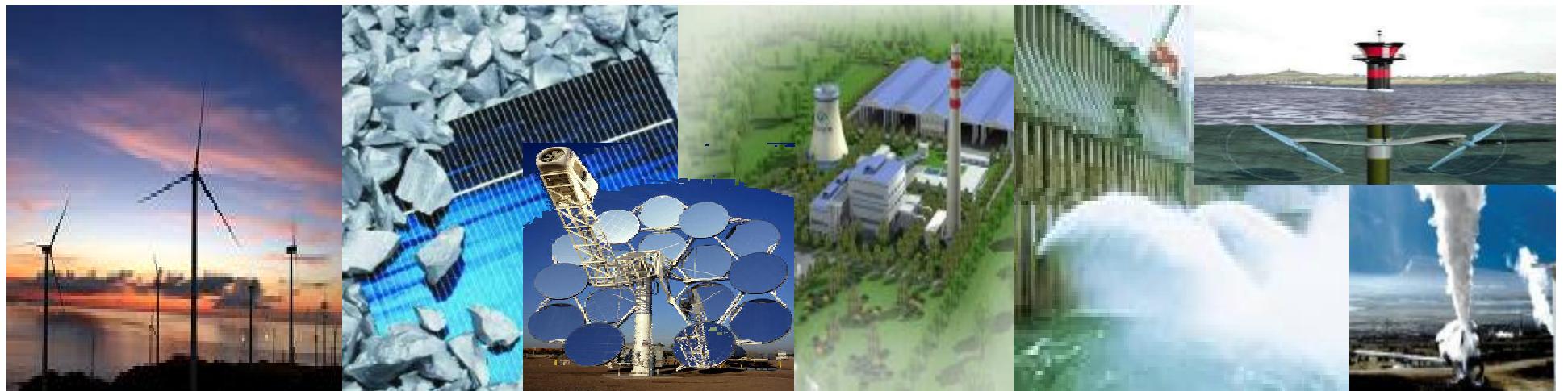


“**China** will develop **Renewable Energy** and **Nuclear Energy** , to achieve non-fossil energy accounting for **15%** of primary energy consumption in **2020**”.

- - Chairman Hu Jintao

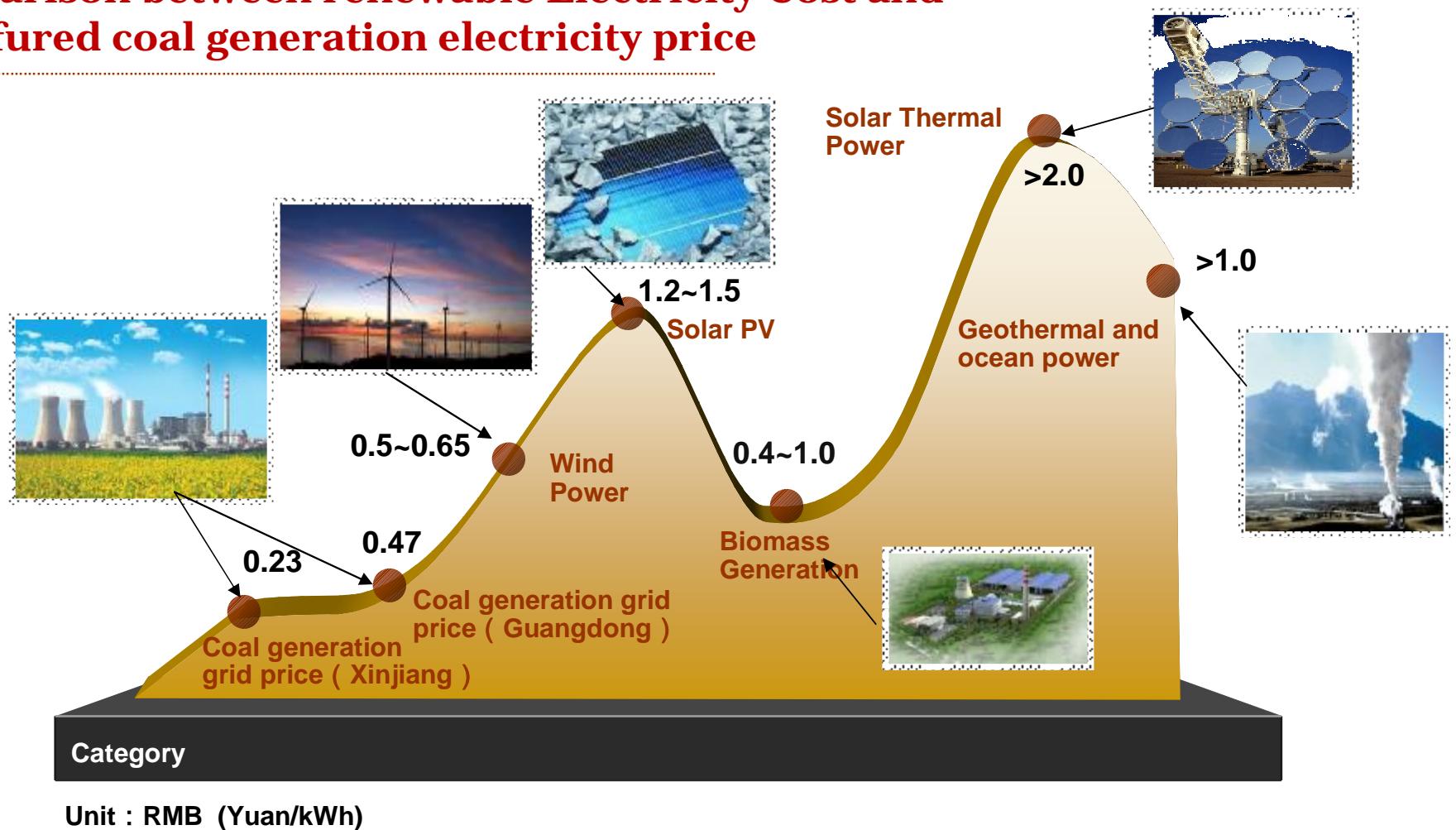
### 3. China's Target

of “Non-Fossil Energy Accounting for 15%  
of Primary Energy Consumption in 2020”

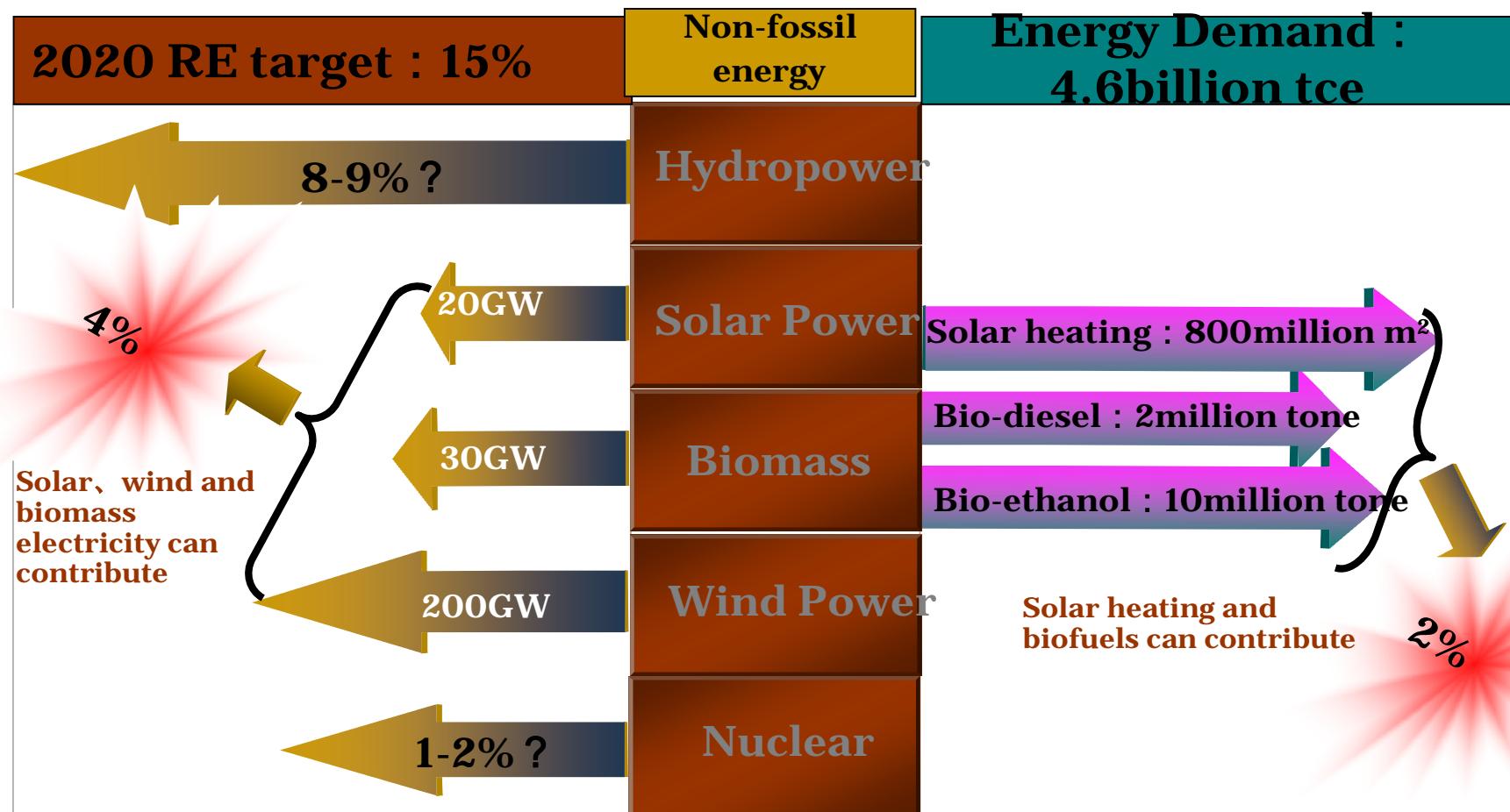


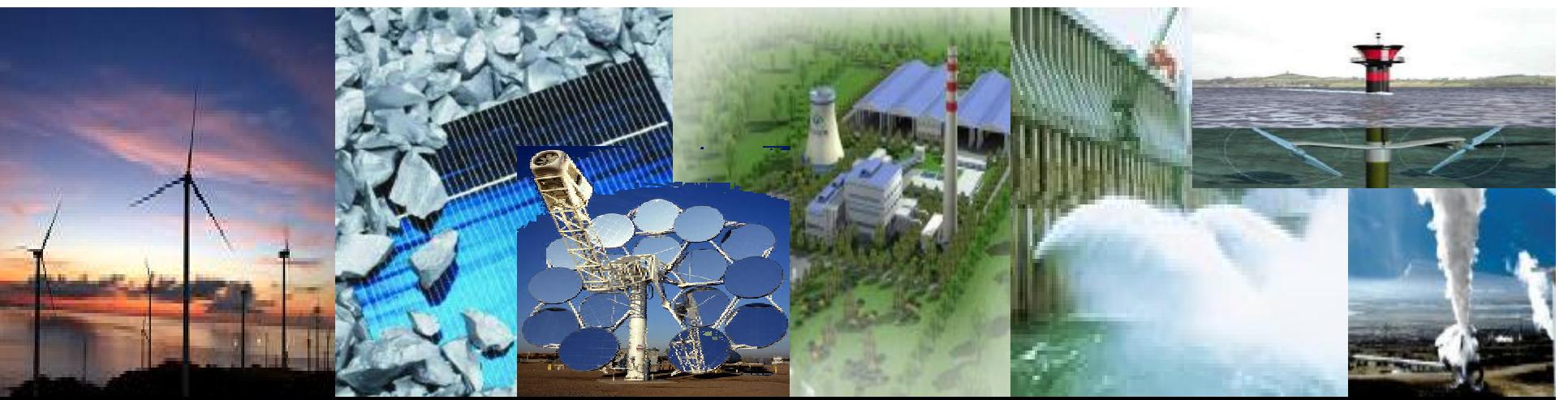
# Renewable Electricity Cost in China

Comparison between renewable Electricity Cost and desulfured coal generation electricity price



# Non-fossil energy accounting for 15% of primary energy consumption in 2020





## 4. China's

# Current Situation of RE Development

# Sustainable development of China's RE

《The People's Republic of China  
Renewable Energy Law amendment》

26/12/2009

In 2008, Annual utilization of renewable  
energy consumption totaled 250 million tce,  
accounting for about 8.6% of total energy  
consumption.

2008

《Mid and long-term  
development plan for RE Law》  
2007



中华人民共和国  
可再生能源法

《Renewable Energy Law》  
went into effect  
Since Jan. 2006

Feb. 2005

Fast growth of  
economy and  
comprehensive  
national strength

Enhanced  
technology and  
equipment  
manufacturing

Opening up and  
development of  
private economy

Policy support

In 2009, Annual utilization of  
renewable energy consumption  
totaled 260 million tce,  
accounting for about 8.3% of  
total energy consumption.

Well-established basic condition of RE development

# Wind Energy

- **Accumulated installed capacity ranks second in the world**

- In 2009, China's increased installed capacity ranks first;

China in 2009 ( exclude Taiwan )

10129 increased installed wind turbines generators , with capacity of 13803.2MW , up 124% over the same period of last year ;

21581 accumulated installed wind turbines generators , with capacity of 25805.3MW , accumulated rise of 114% ;

- About 80 wind turbine manufacture enterprises ,
  - The local manufactoryes of 1.5 MW acco

Into scale-up development phase

Wind turbine manufacturing capacity greatly improved

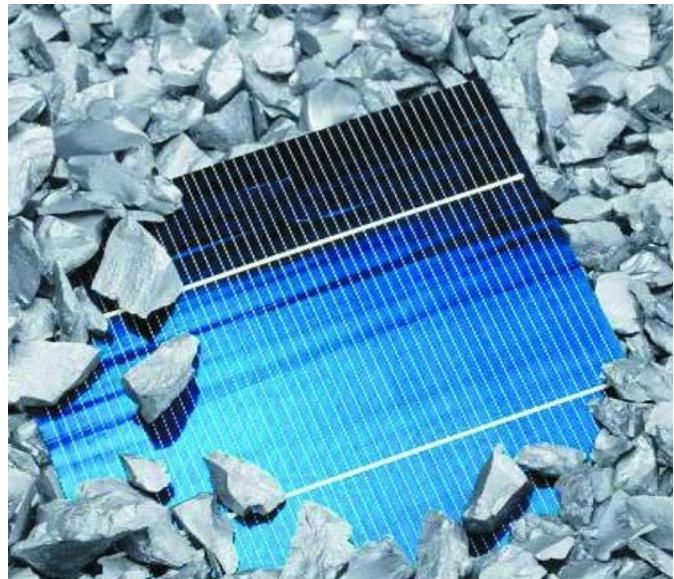
Component matched capacity greatly enhanced

Wind turbine industrial brand appears

Dabancheng Wind Farm, Xinjiang

# Solar Energy

## Solar PV power



§ The production of PV panel ranks first globally

§ total production of 2009 reaches 4 GW

§ 10 manufactoryes from China in the global first 30

§ By 2009 , total national installed PV generation capacity of 300MW.

## Solar thermal power



## Solar thermal utilization



§ The consumer and annual production of Solar water heater all rank first globally

§ The production capacity in 2009 reached 30 million m<sup>2</sup>

§ By 2009 , total amount of national solar water heater with

145 million m<sup>2</sup>

# Biomass

Geothermal power take off scale up development condition  
Ocean power at the laboratory stage



## § Variety of biomass energy resources, technology roadmap, and product forms

§ By the end of 2009, national annual production of biogas over 14 billion m<sup>3</sup>, providing quality living fuel for about 80 million rural people

§ Annual production of bio-ethanol reaches 1.65 million tons

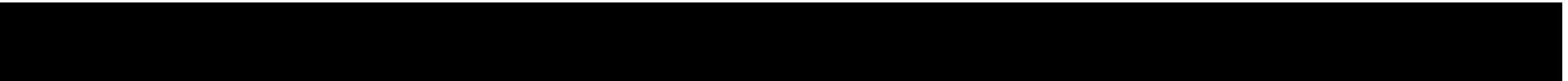
§ National installed capacity of biomass power generation about 3.24 GW

§ Energy production capacity of biodiesel reaches to 0.5 million tons

§ Heat utilization of geothermal energy developed faster, up about 10% yearly

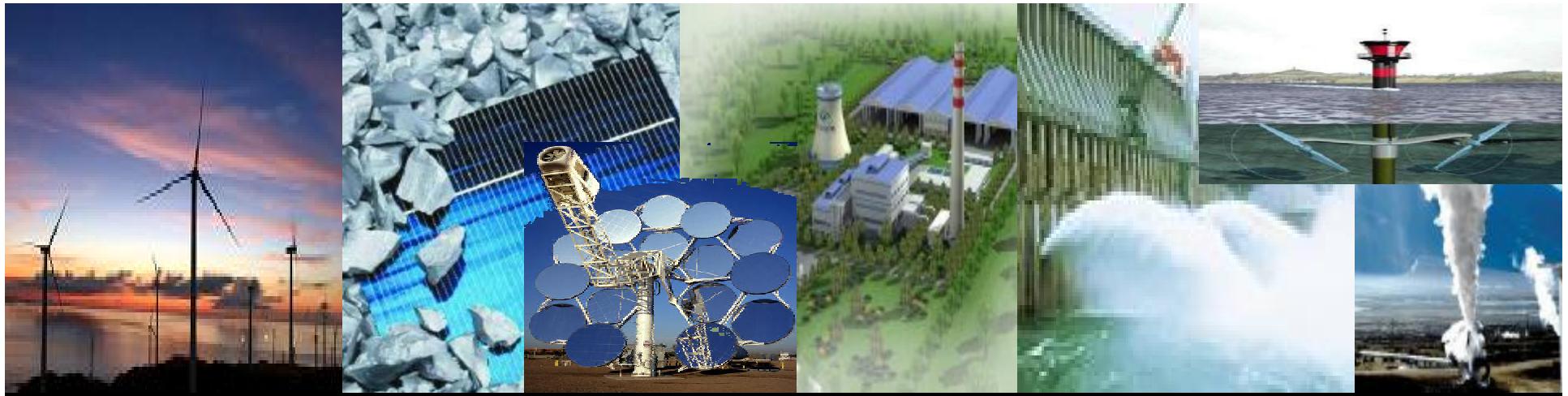
§ By the end of 2008, geothermal heating area of 30 million m<sup>2</sup>, supplying hot water for about 600,000 residents

# Other RE

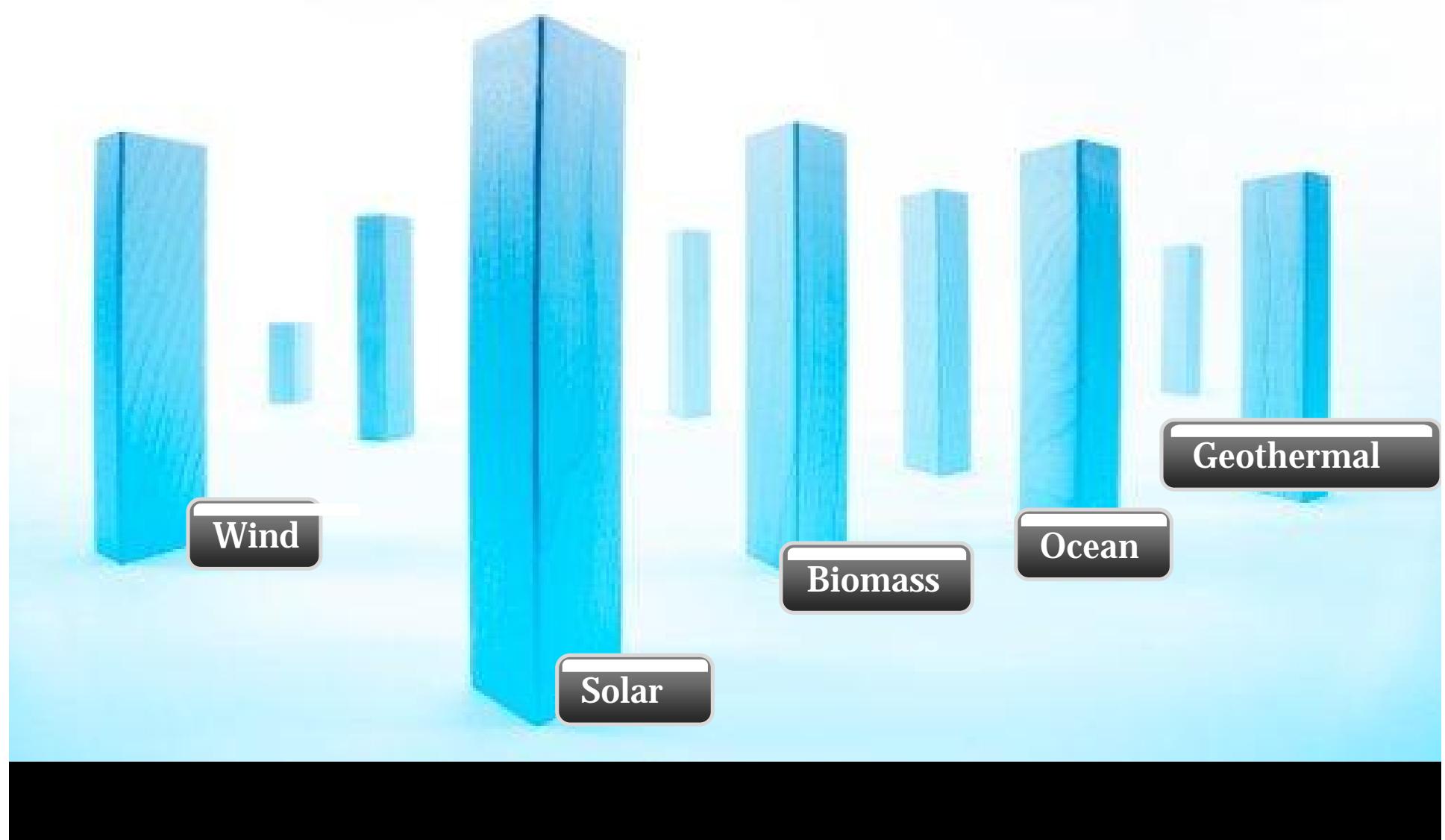


## 5. China's

# Mainly Issues of RE Development

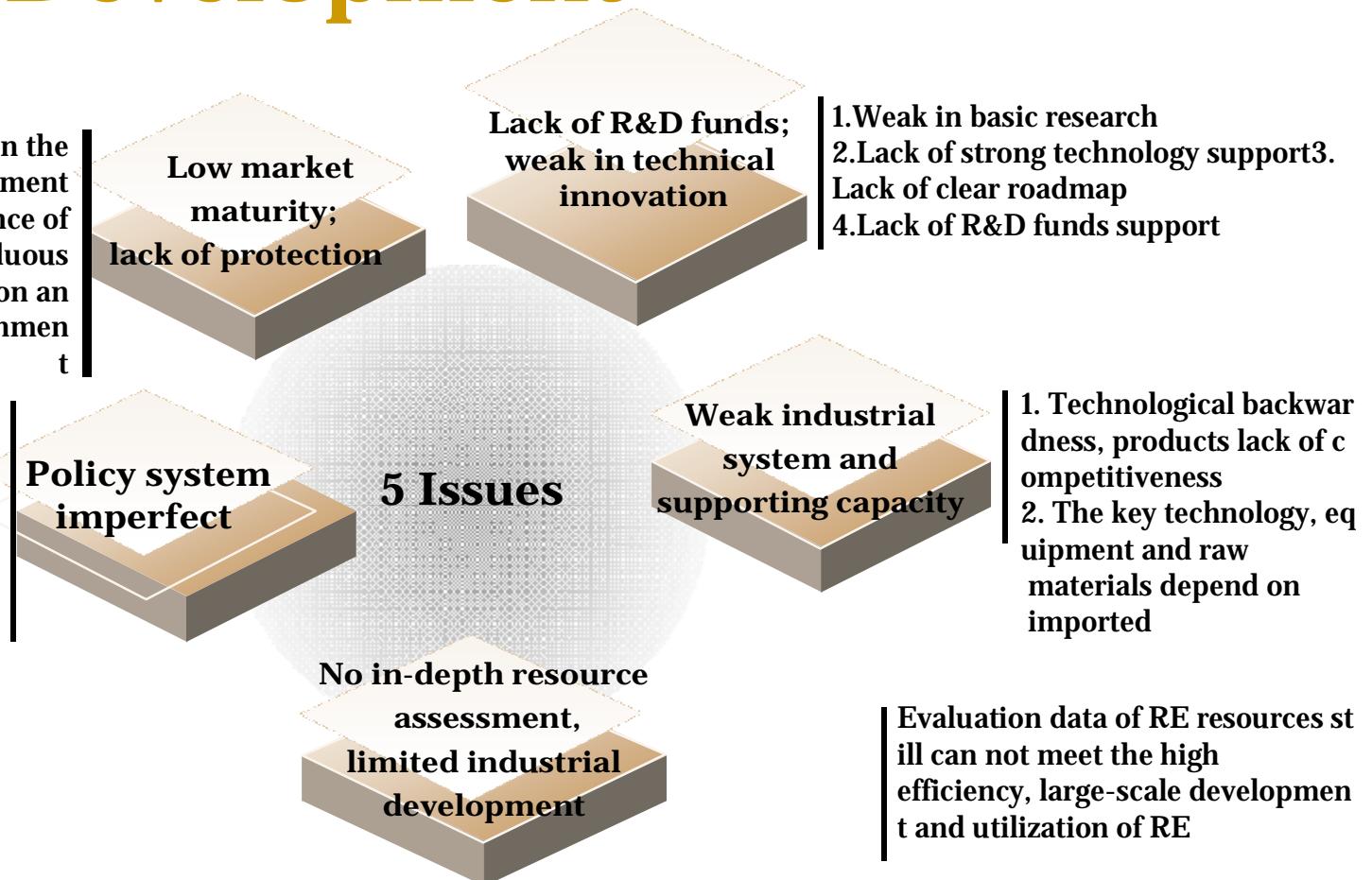


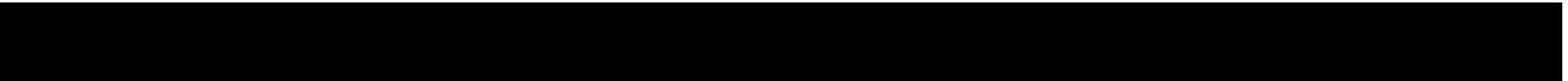
# High Cost, Weak Market Competition – Main Issues



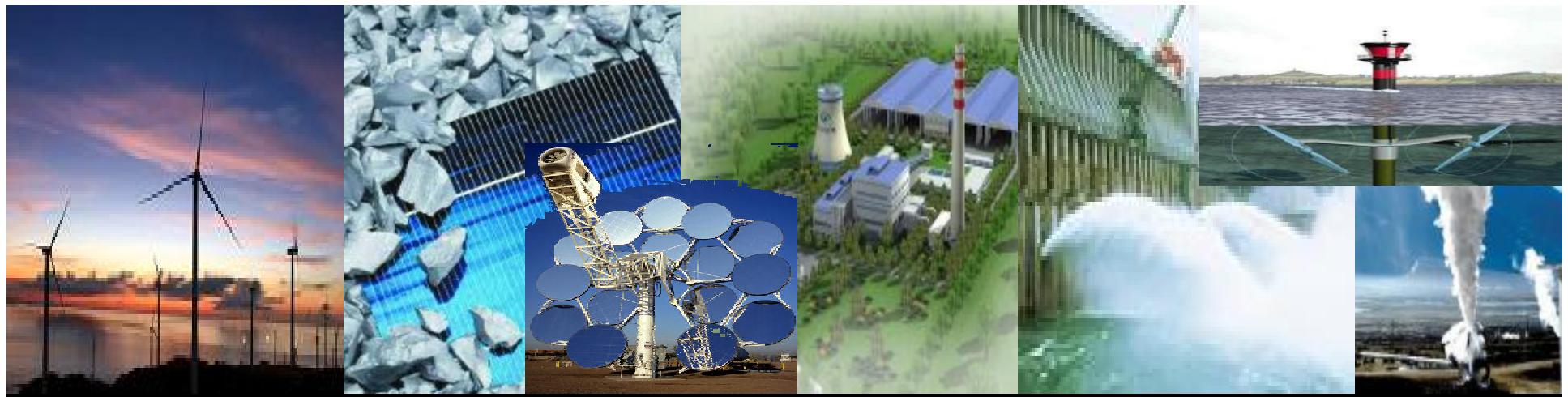
# Five Issues of RE industrialization & Scale-up Development

1. Lack in the knowledge on the establishment and improvement of RE market's performance of strategy, long-term and arduous
2. Lack of broad social recognition and improved market environment
1. Not form a clear mechanism guided by objective
2. Lack of market monitoring mechanism
3. Lack of a unified coordination mechanism
4. Lack of public transparency
5. lack of legal implementation system
6. lack of security mechanisms and policies



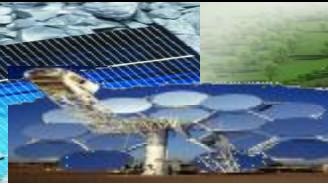
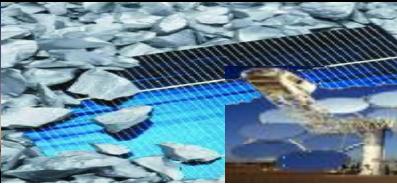


# 6. Main Policy Suggestions of RE Development in China

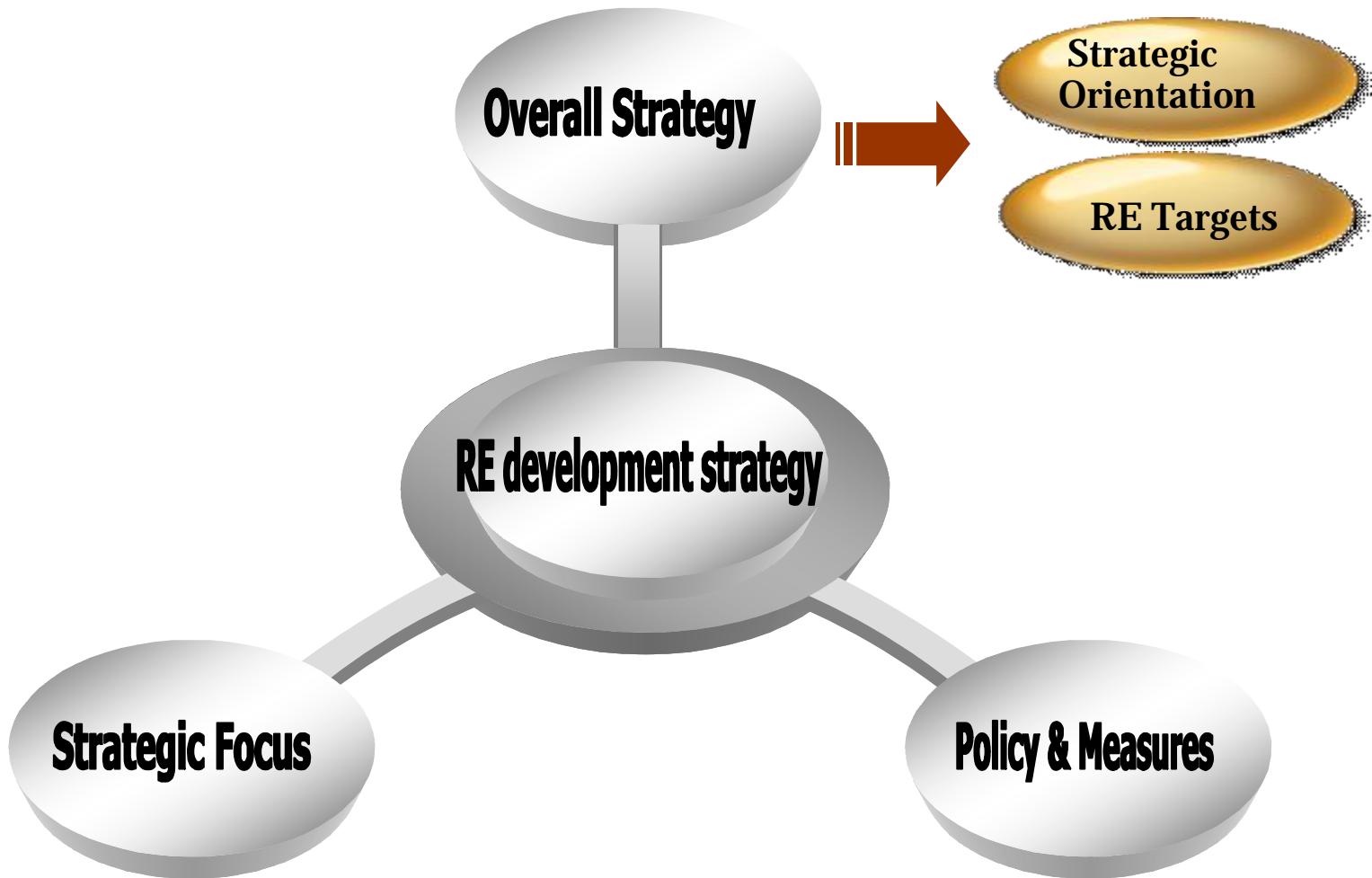


# Global financial crisis brings the opportunity for RE industry's leap-forward development



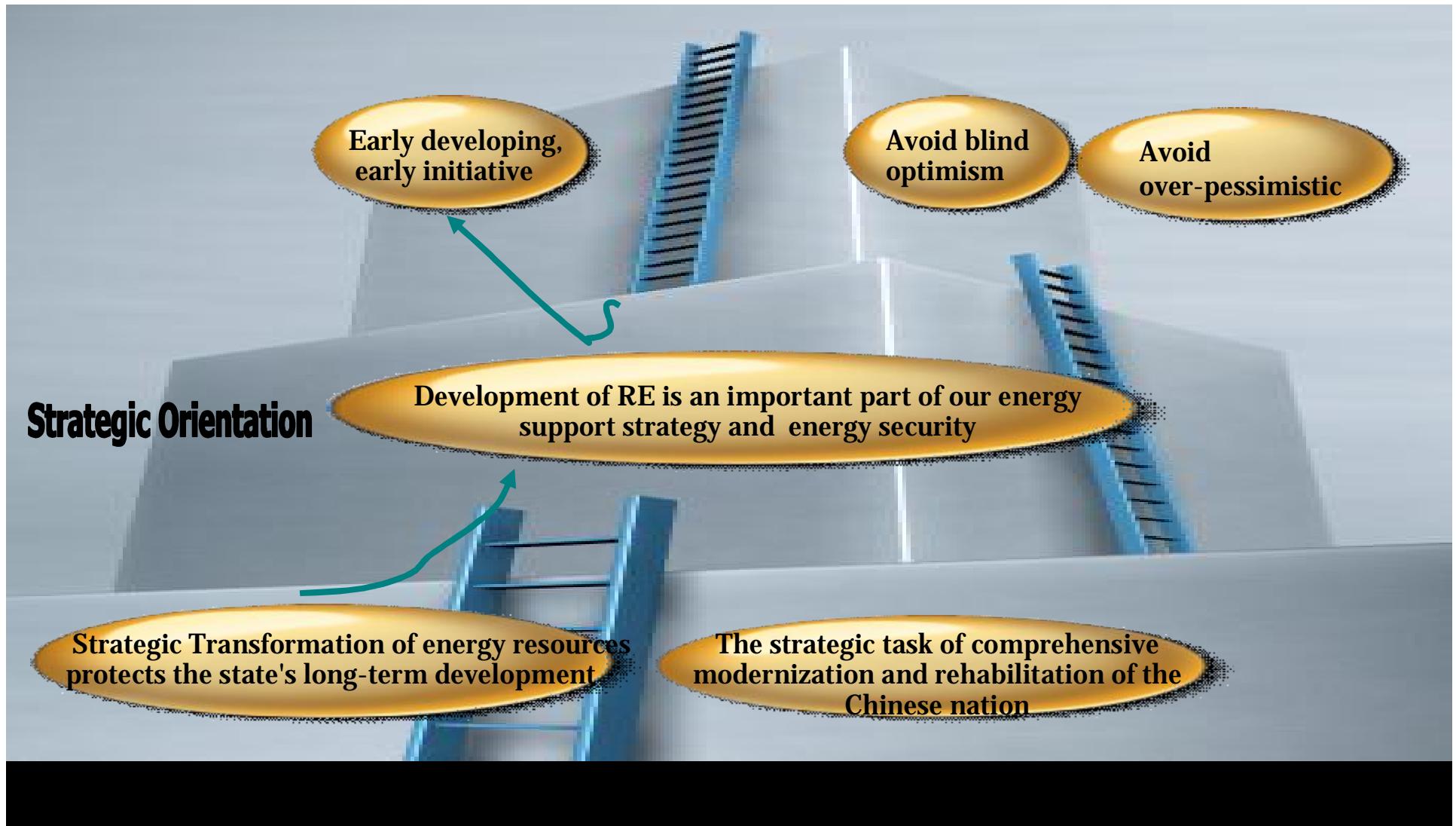


# China's RE Development Strategy

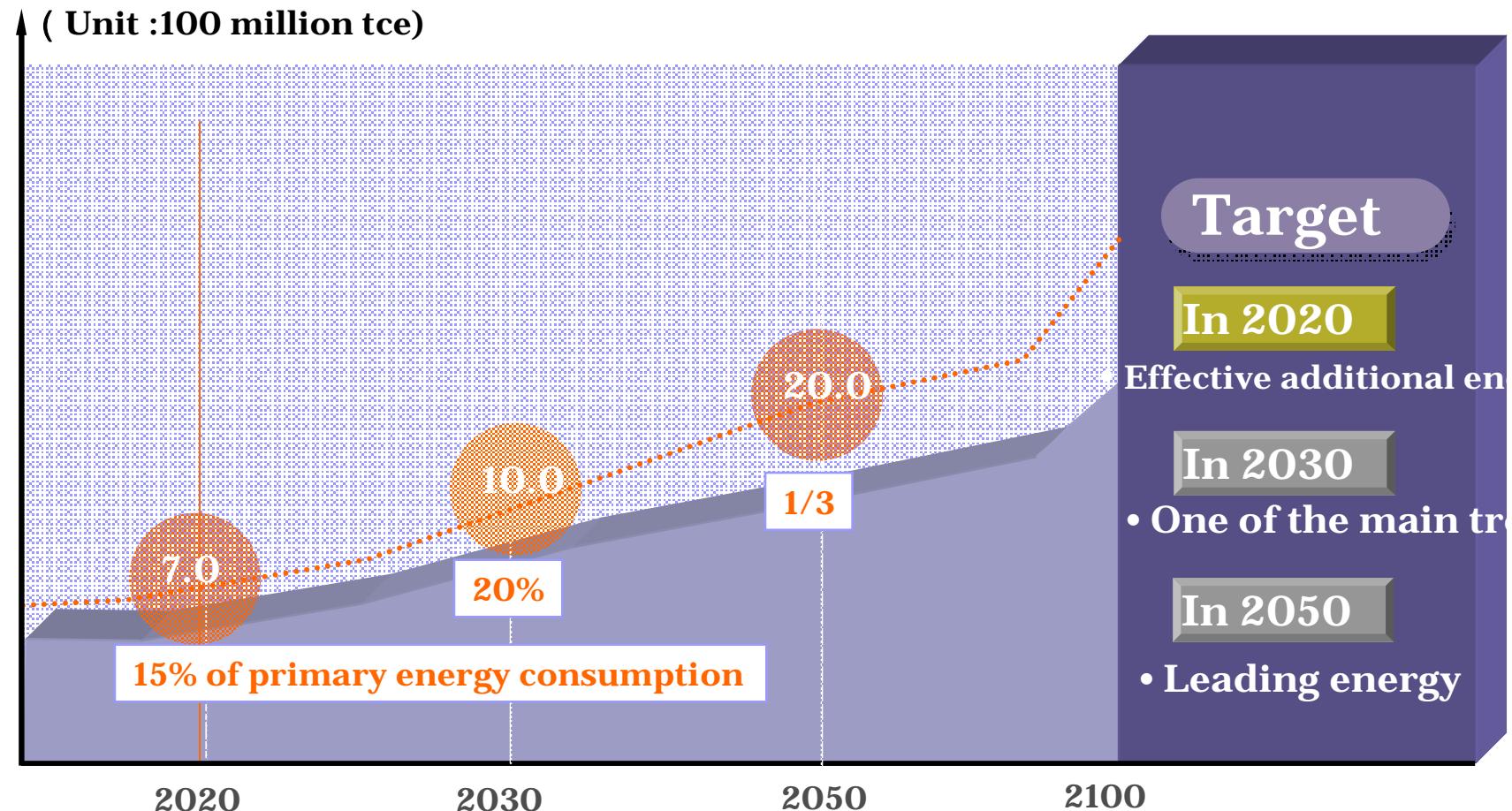


# Overall Strategy of RE Development

## —Strategic Orientation



# Overall Strategy of RE Development—Target

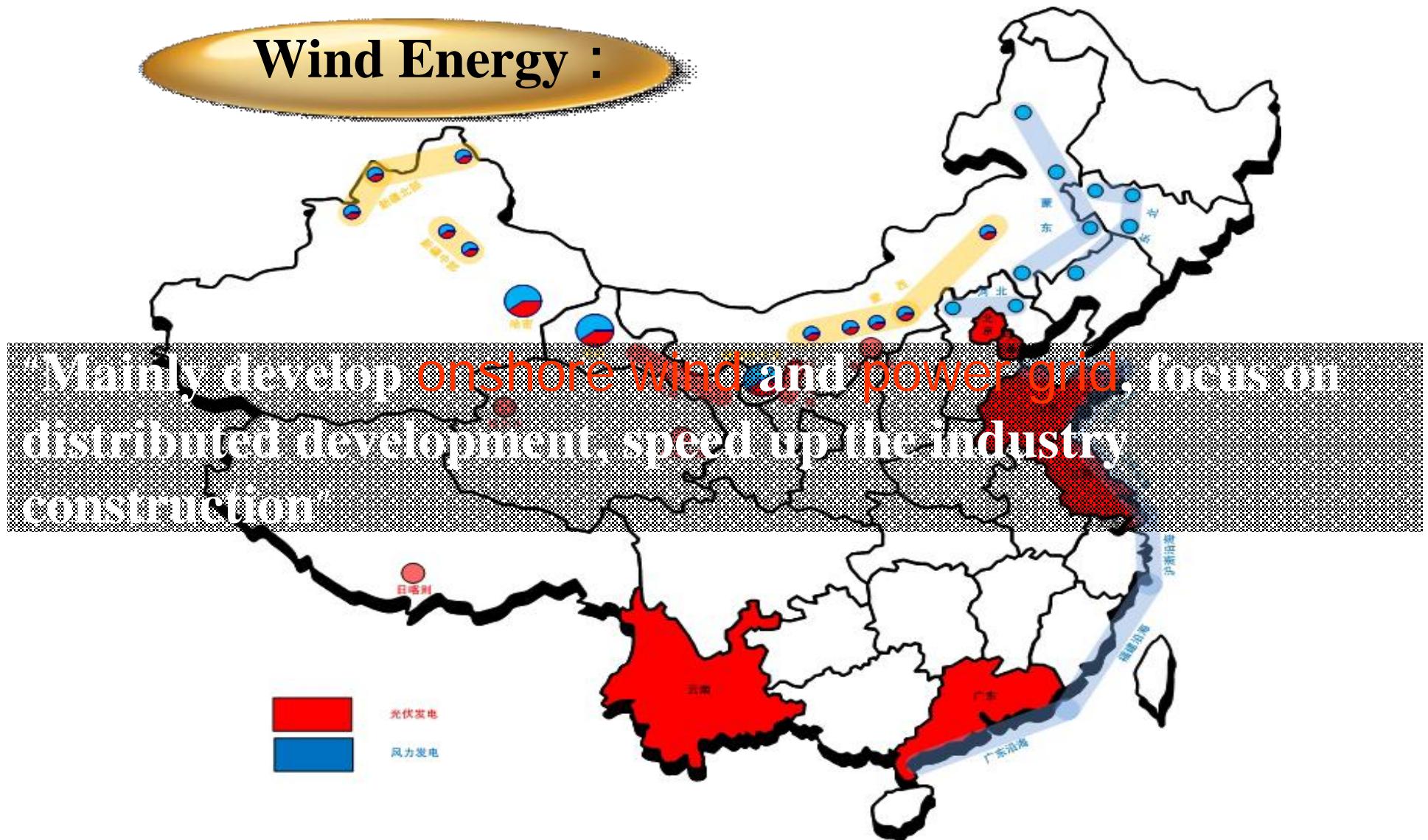




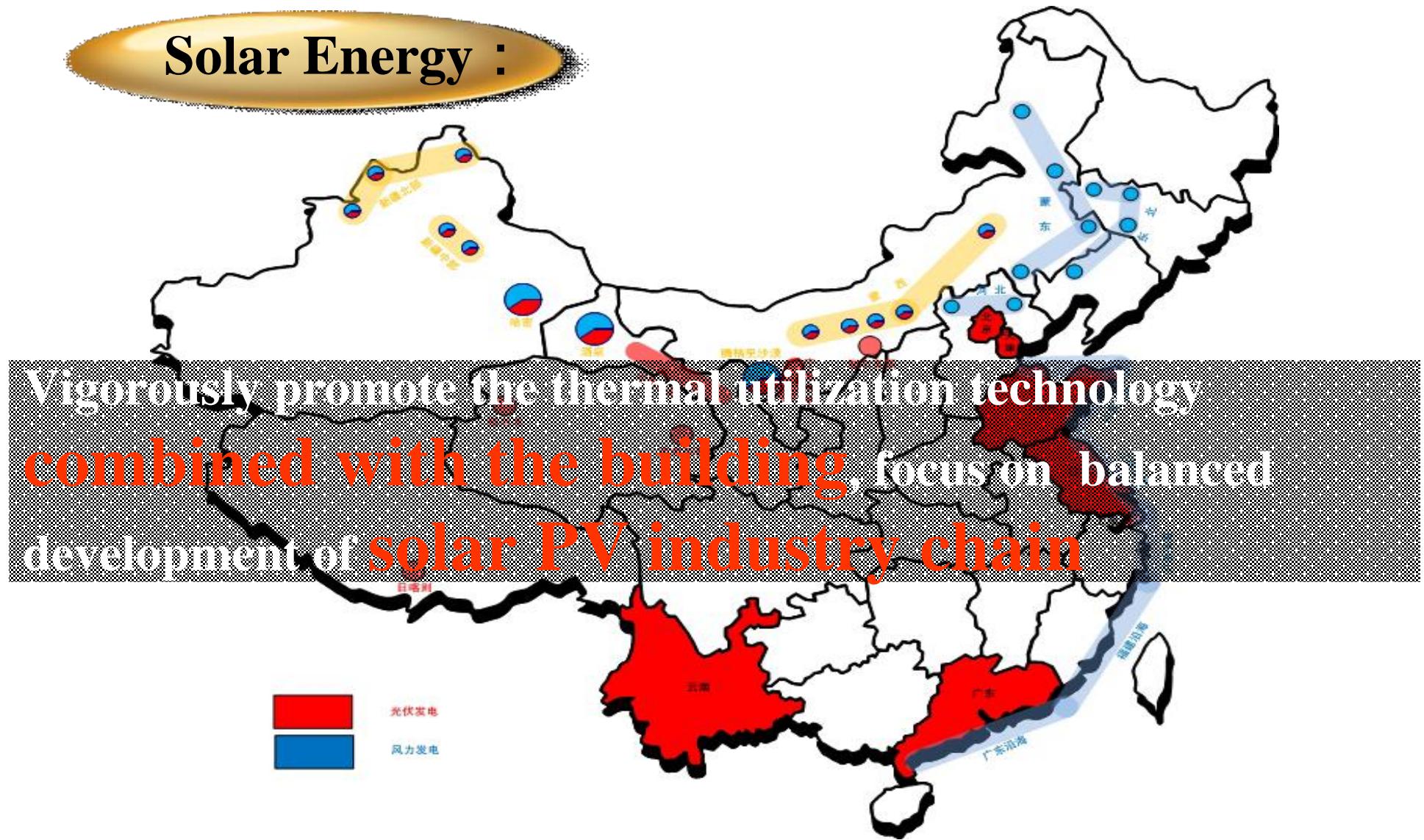
# China's RE Development Strategy

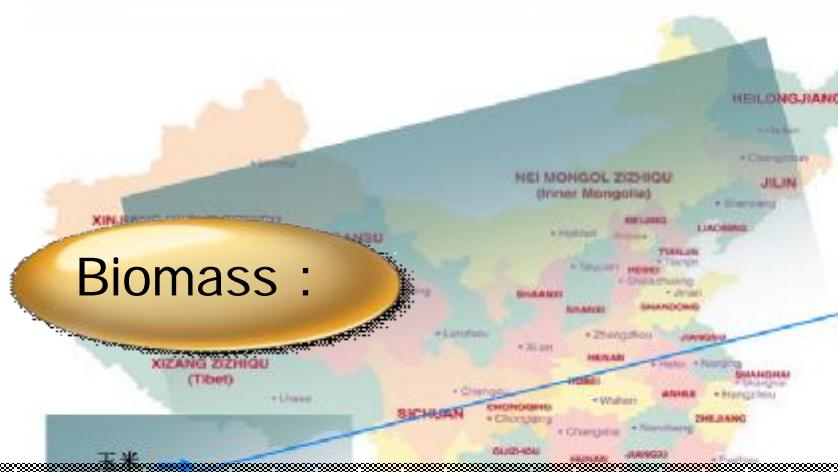


## Wind Energy :



## Solar Energy :





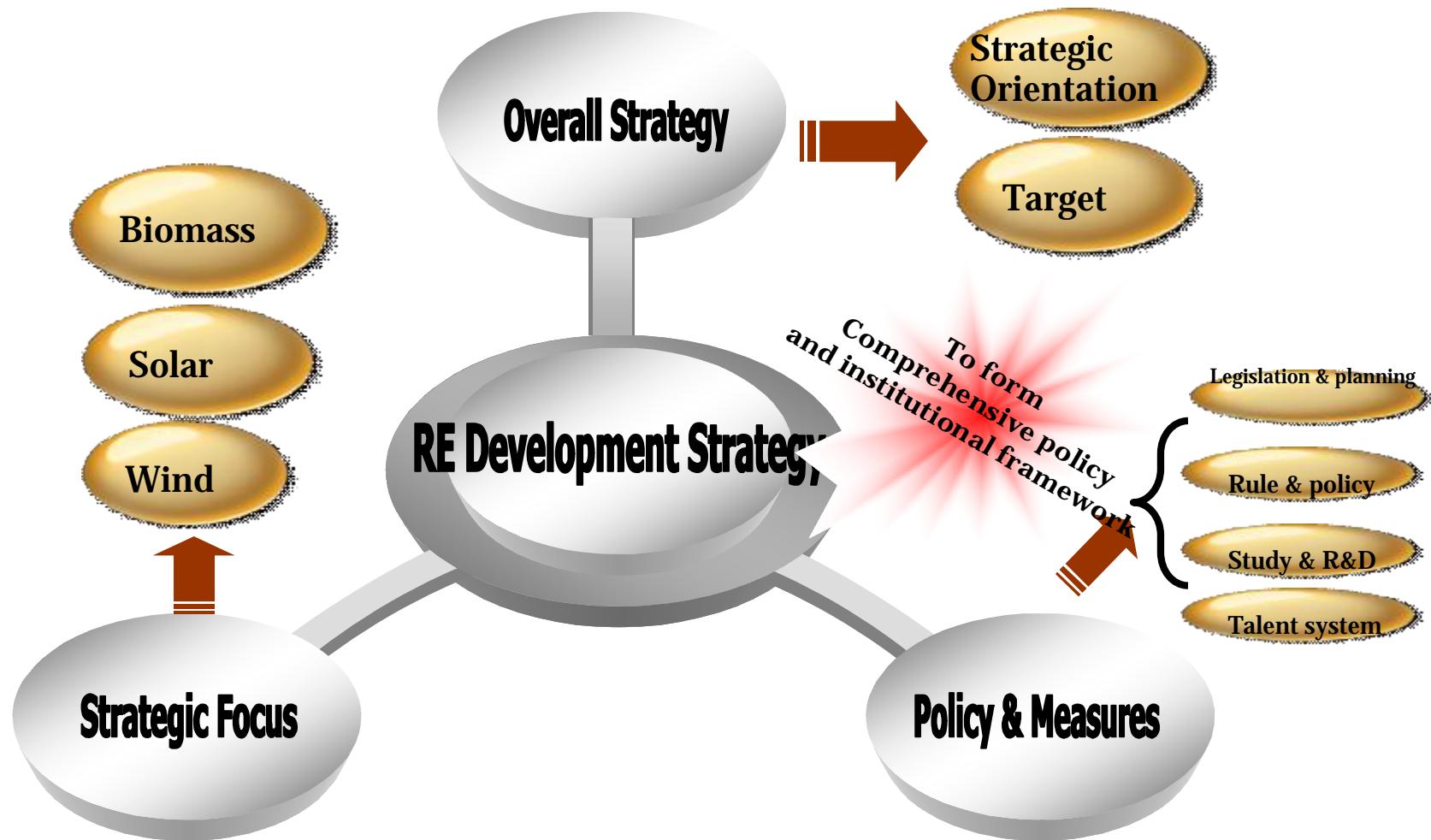
## Non-grain liquid fuels and bio-based products alternative to petroleum-based should be the

### Strategic focus

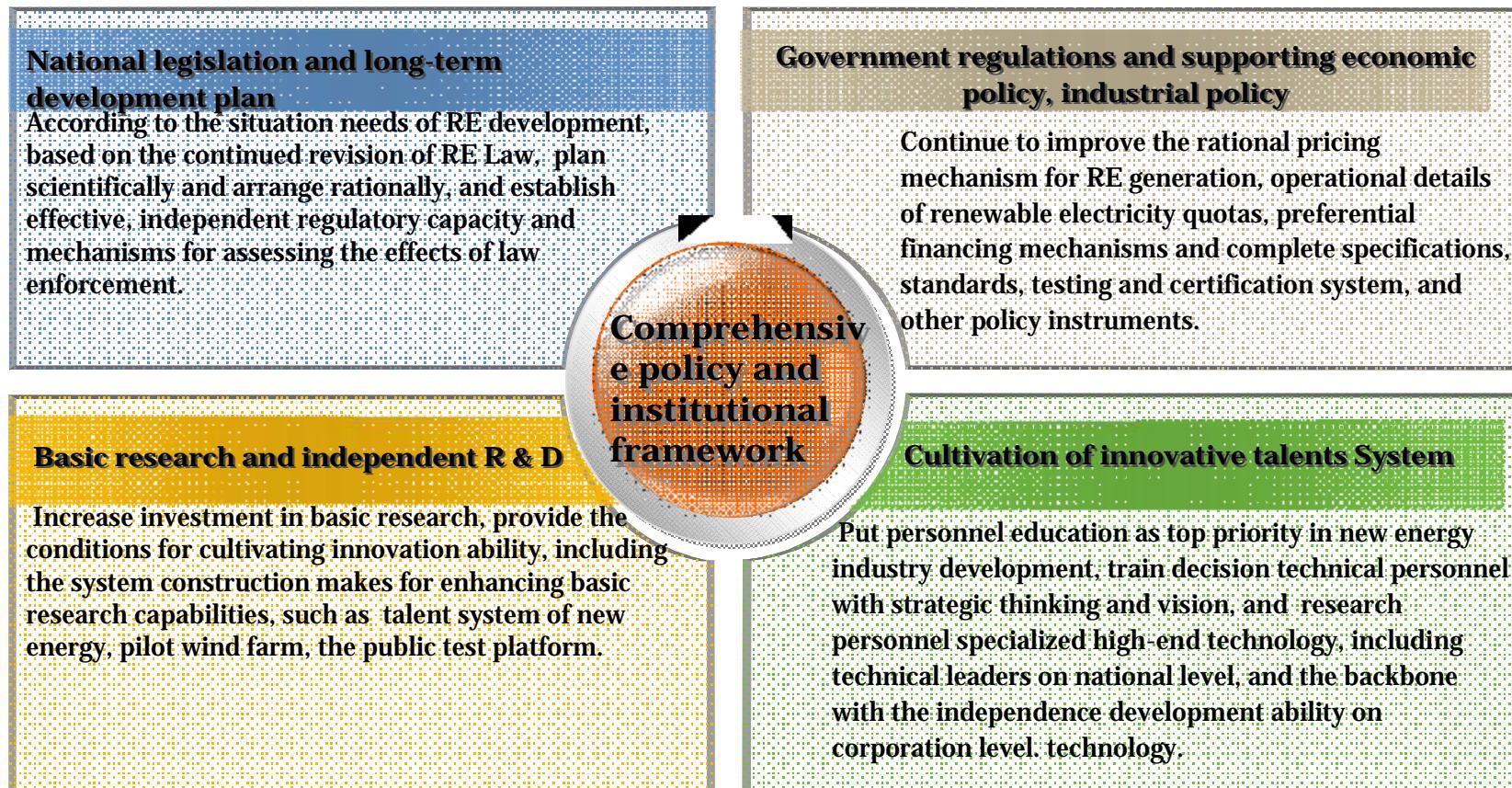




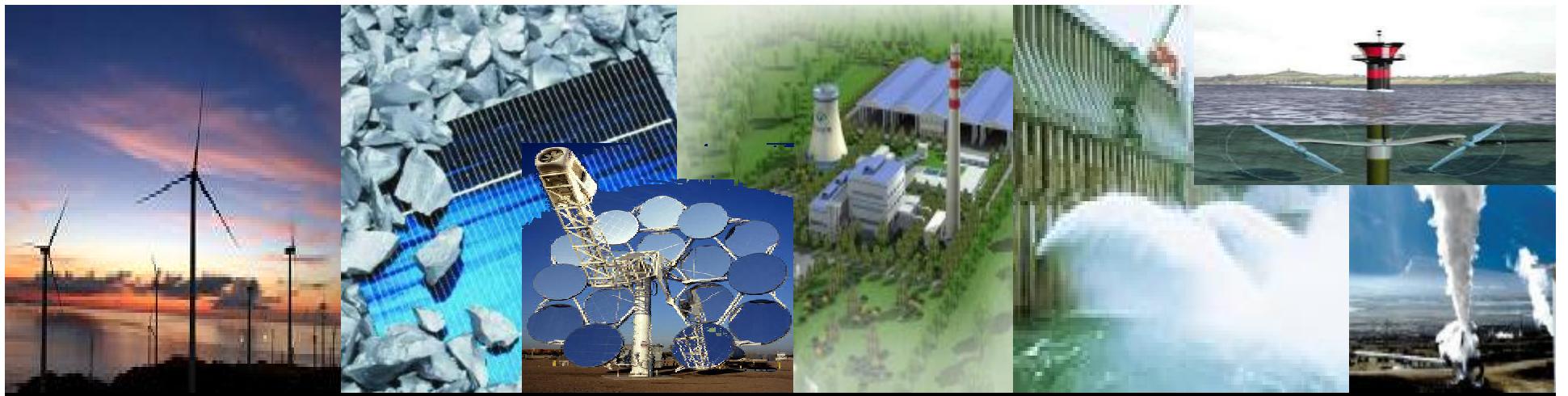
# China's RE Development Strategy



# Overall Strategy of RE Development—Policy



# Thank you!





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May 18, 2010  
Washington, DC

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