



# **The Challenge of the 21<sup>st</sup> Century: China in Search of Energy Security in a Multipolar World**

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## **I-Emerging multipolar international system**

**A-History:** Bipolarity ended in 1991, unipolarity has been unsuccessful, but multipolarity is taking hold.

**B-Characteristics of the multipolar world:**  
Emerging poles in the process of consolidation

### Emerging poles in the process of consolidation

- **In Asia:** China, India, South Korea, Japan and Iran
- **In Latin America:** Brazil and Venezuela (Argentina, a potential, but not likely pole, in the foreseeable future).
- **In North America:** NAFTA is melting USA, Canada and Mexico into a US-led pole

### Emerging poles in the process of consolidation

- **In Eurasia:** Russia is planning its comeback as a strong pole, requiring its addressing its shortcomings
- **In Europe:** The European Union is striving towards turning itself into a cohesive pole, yet to be achieved due to its internal problems



### Emerging poles in the process of consolidation

- **In Africa:** South Africa and Egypt could potentially be poles if they addressed their shortcomings; unlikely in the foreseeable future.



### II-Rise of Asia: 21<sup>st</sup> century's powerhouse and the largest energy consumer

#### Contributing factors

**A- Rise of Asian economies:** China, India, South Korea and Southeast Asian countries and their growing demand for energy added to Japan

**B- Economic/financial strength of Asia** as an oil and gas exporting continent with its associated political significance



## II-Rise of Asia: 21<sup>st</sup> century's powerhouse and the largest energy consumer

### C- Asia-Pacific: engine of growth

**China:** the major regional powerhouse/fastest growing economy/resilient

**Fast growing energy consumption:** China's world second largest energy consumer soon to be the first surpassing the USA



## China's Energy Demand

	Energy Demand (mtoe)		Share (%)		Annual Growth (%)
	2007	2030	2007	2030	
Coal	1293	2397	66	63	2.7
Oil	358	758	18	20	3.3
Gas	61	202	3	5	5.3
Nuclear	16	127	1	3	9.4
Hydro	42	90	2	2	3.4
Biomass & Waste	195	205	10	5	0.2
Other Renewable	5	47	0	1	10.2
<b>Total</b>	<b>1970</b>	<b>3826</b>	<b>100</b>	<b>100</b>	<b>2.9</b>

Source: World Energy Outlook 2009

## US Energy Demand

	Energy Demand (mtoe)		Share (%)		Annual Growth (%)
	2007	2030	2007	2030	
Coal	554	581	24	24	0.2
Oil	910	772	39	32	-0.7
Gas	538	533	23	22	0.0
Nuclear	218	248	9	10	0.6
Hydro	23	24	1	1	0.5
Biomass & Waste	116	167	4	7	3.1
Other Renewable	14	70	1	3	7.5
<b>Total</b>	<b>2337</b>	<b>2396</b>	100	100	0.1

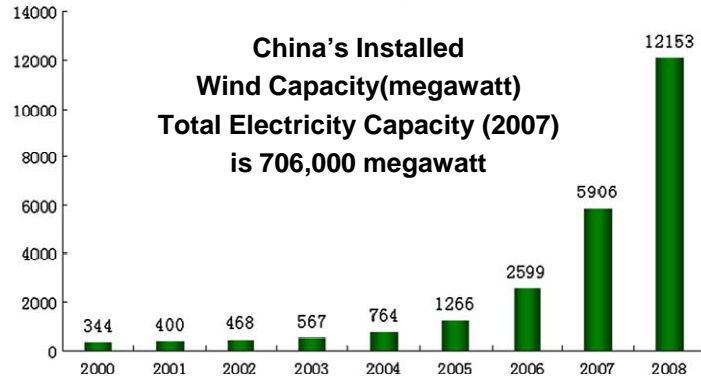
Source: World Energy Outlook 2009

## II-Rise of Asia: 21<sup>st</sup> century's powerhouse and the largest energy consumer

- D- Rise of regional powers and strengthening nationalism in strategically important energy-rich regions
- E- Weakening impact on the "traditional" powers controlling the bulk of oil/gas resources
- F- Weakening of the global influence of the traditional powers and their international institutions, e.g., the United Nations and NATO

### III-China's pattern of energy consumption

A-Renewable and clean energy still insignificant despite efforts



Source: Global Wind Energy Council, Global Wind Report 2008 & World Energy Outlook 2009

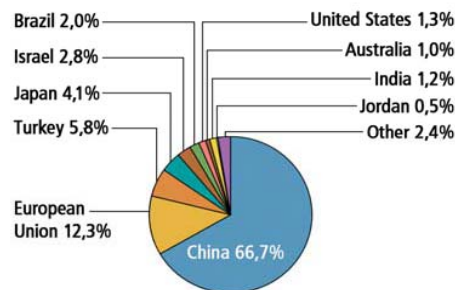
### III-China's pattern of energy consumption

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Total Electricity Capacity (2007) is 706 gigawatt.

Solar Hot Water production is 84 gigawatt

Share of Solar Hot Water/Heating Capacity Existing, Top 10 Countries, 2007



Total = 126 gigawatts-thermal

Source: Global Wind Energy Council, Global Wind Report 2008 & World Energy Outlook 2009



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### III-China's pattern of energy consumption

#### B- Fossil energy consumption

		Production	Consumption
<b>Oil( m bpd)</b>	2008	3.8	7.7
	2030	3.2	16.3
<b>Coal(mtce)</b>	2007	1875	1847
	2030	3336	3424
<b>Gas(bcm)</b>	2007	69	73
	2030	125	242

Source: World Energy Outlook 2009



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### III-China's pattern of energy consumption

#### C- Fossil energy production: growing demand for import of oil and gas

		Imports
<b>Oil( m bpd)</b>	2008	3.6
	2030	12
<b>Coal(million tonnes of coal equivalent)</b>	2007	41
	2030	89
<b>Gas(bcm)</b>	2007	4
	2030	117

Source: World Energy Outlook 2009

## IV-China's quest for energy security

- A- Core concepts:

- 1-Heavy reliance on domestically produced fuel
  - increased consumption of coal to continue due to its abundance

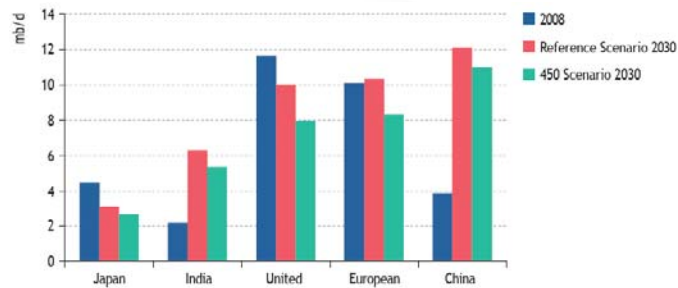
		Production	Consumption
Coal(mtce)	2007	1875	1847
	2030	3336	3424

Source: World Energy Outlook 2009

## IV-China's quest for energy security

- 2- Secured access to the long-term oil and gas suppliers/regions

Net Oil Imports By Region



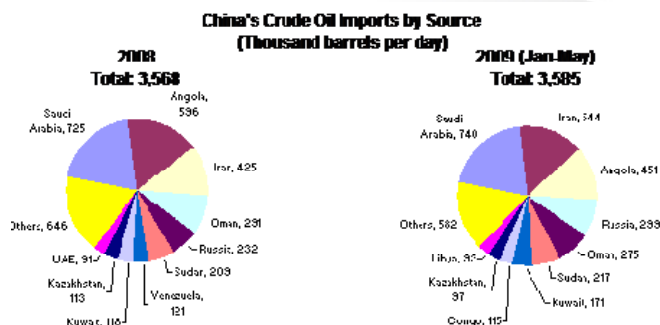
Source: World Energy Outlook 2009

- 3- Supplier/supply route diversification for oil and gas imports

### IV-China's quest for energy security

#### B- How to have secured oil and gas imports

- Looking at all directions from Africa to Latin America, including Central Asia added to the Persian Gulf: main supplier



Source: EIA, China's Energy Profile, July 2009.

### IV-China's quest for energy security

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Natural Gas Imports by Scenario (bcm)

	2007	Reference Scenario 2020	450 Scenario 2020	Reference Scenario 2030	450 Scenario 2030
United States	114	50	78	43	61
European Union	312	425	391	516	428
Japan	97	99	88	106	94
China	4	49	40	117	91
India	10	28	24	52	63

Source: World Energy Outlook 2009



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## IV-China's quest for energy security

- **C- Major oil and gas pipelines added to sea tankers**

- 1- **Under-construction**

- a-Central Asian Gas Pipeline
    - b-Russian-China Oil Pipeline (Skovoridino-Daqing)
    - c-Myanmar China Oil and Gas Pipelines



- 2- **Envisaged**

- Connection to the under-construction Iran-Pakistan Gas pipeline



- 3- **Realized**

- Kazakhstan-China Oil Pipeline



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## V-Emerging rivalry between and among China, North America and the European Union

- **A- Emerging conflict of interest:** China's objective of long-term secured access to the major fossil energy-producing regions of interests to the USA and the EU has initiated rivalry
- **B- Emerging disagreements and conflicts**
  - China expands ties with suppliers, which the Western countries seek to isolate and weaken, e.g., Iran, Venezuela, Sudan and Myanmar
  - Political and economic implications



## VI- Consequences

- As a major factor shaping its foreign policy, China's quest for energy security will likely be translated into tensions and political conflicts in China's bilateral relations with two emerging Western poles in the rising and consolidating multipolar international system, the EU and US-led North America.