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Climate Change, Low Carbon Economy and New Energy Development

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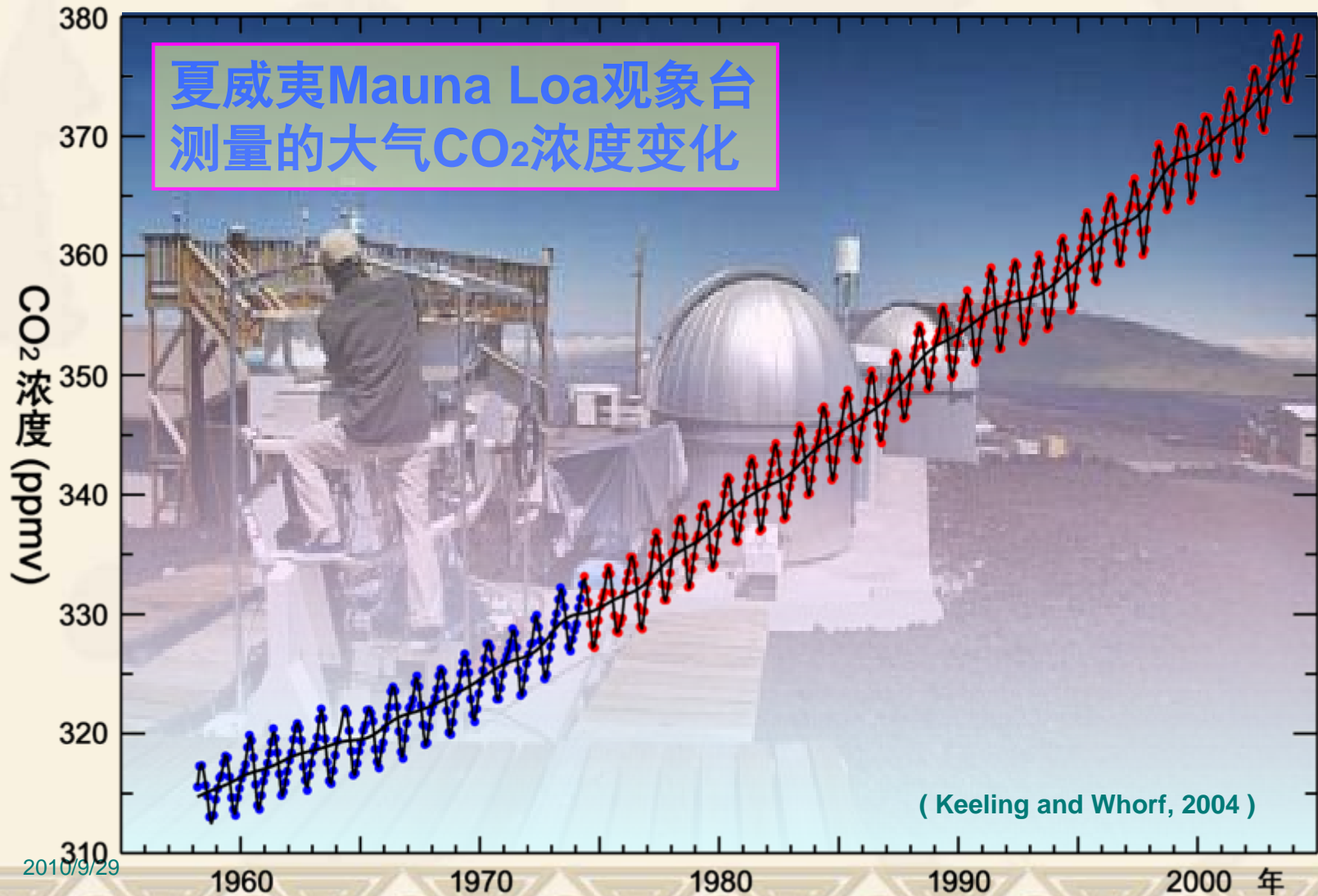
- ❖ I. Climate Change and Low Carbon Economy
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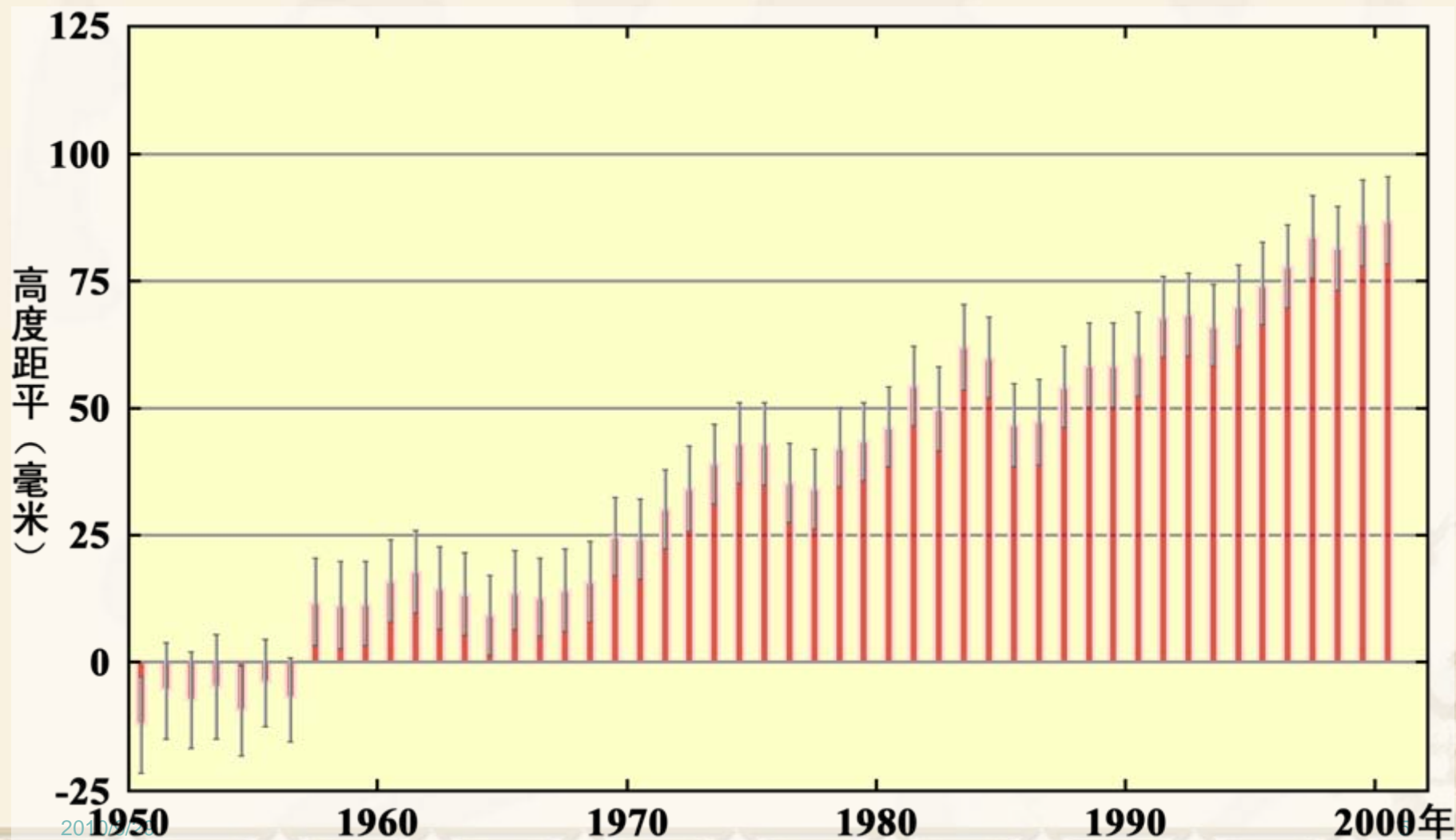
I. Climate Change and Low Carbon Economy

CO₂ Concentration

379 ppmv

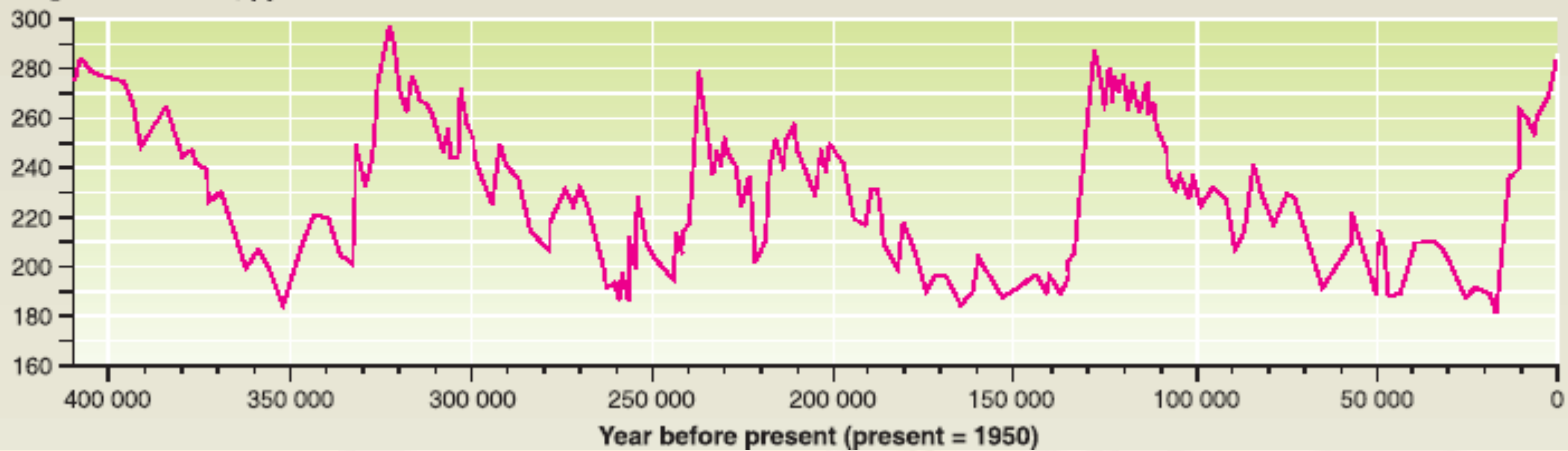


Sea Level Rising in recent 50 years

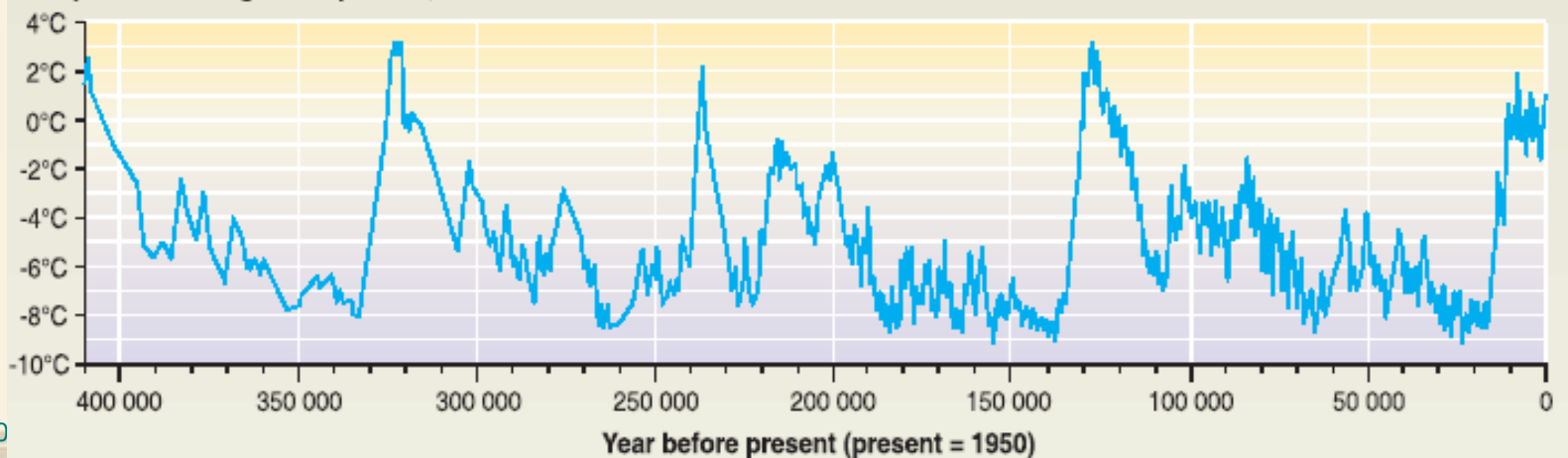


Temperature and CO₂ concentration in the atmosphere over the past 400 000 years (from the Vostok ice core)

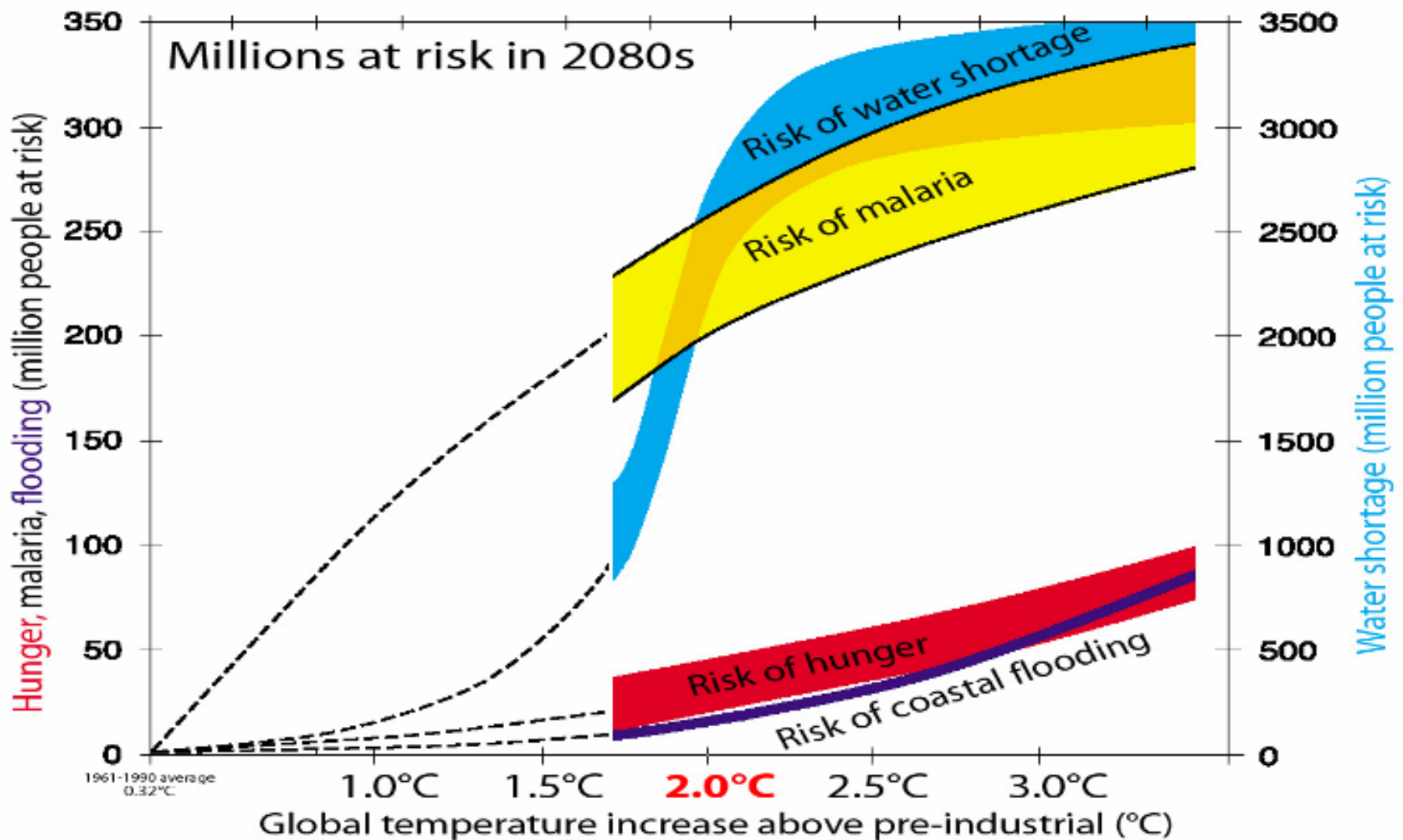
CO₂ concentration, ppmv



Temperature change from present, °C



The possible cost caused by Climate Change



Source: Parag et al. (2001) 'Millions at Risk' *Climate Change*. Graph adapted by W. Merriam, Nov 2004.
 Note: The original graph presented temperature levels above 1961-1990 average base. Hubert Mitchell et al. (1999), not above pre-industrial. The 1961-1990 average is 0.32°C above pre-industrial levels (1861-1890). Thus, a 0.32°C temperature difference has been added to the original scale. Furthermore, the original graph presented temperature levels in 2080 for different CO2 equilibrium (stabilization) scenarios. For a climate sensitivity of 2.5°C (as underlying the work of Parag et al.), the 2080 temperature level for the S200 CO2 equilibrium path has been also at 1.0°C above 1961-1990 (0.32°C above pre-industrial).

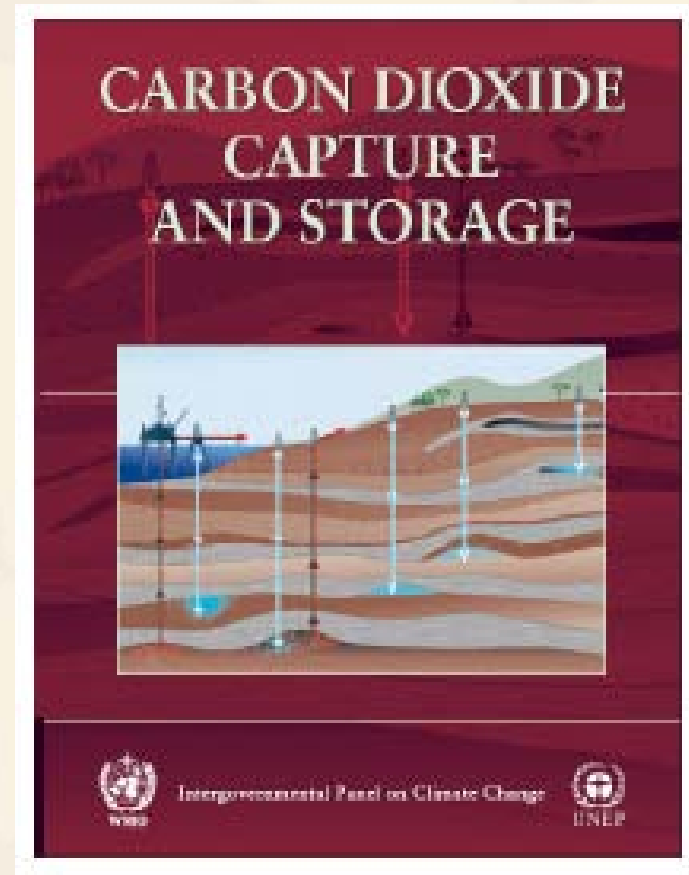
Conclusions made by IPCC

- ❖ Climate change has impacted on the world severely.
- ❖ It has been proofed by most pf data that human activities have caused climate change.
- ❖ Preventing climate change is becoming the biggest challenge for all countries
- ❖ The conclusion made by more than 3750 scientists from 130 countries.



Preventing climate change –Low Carbon Economy

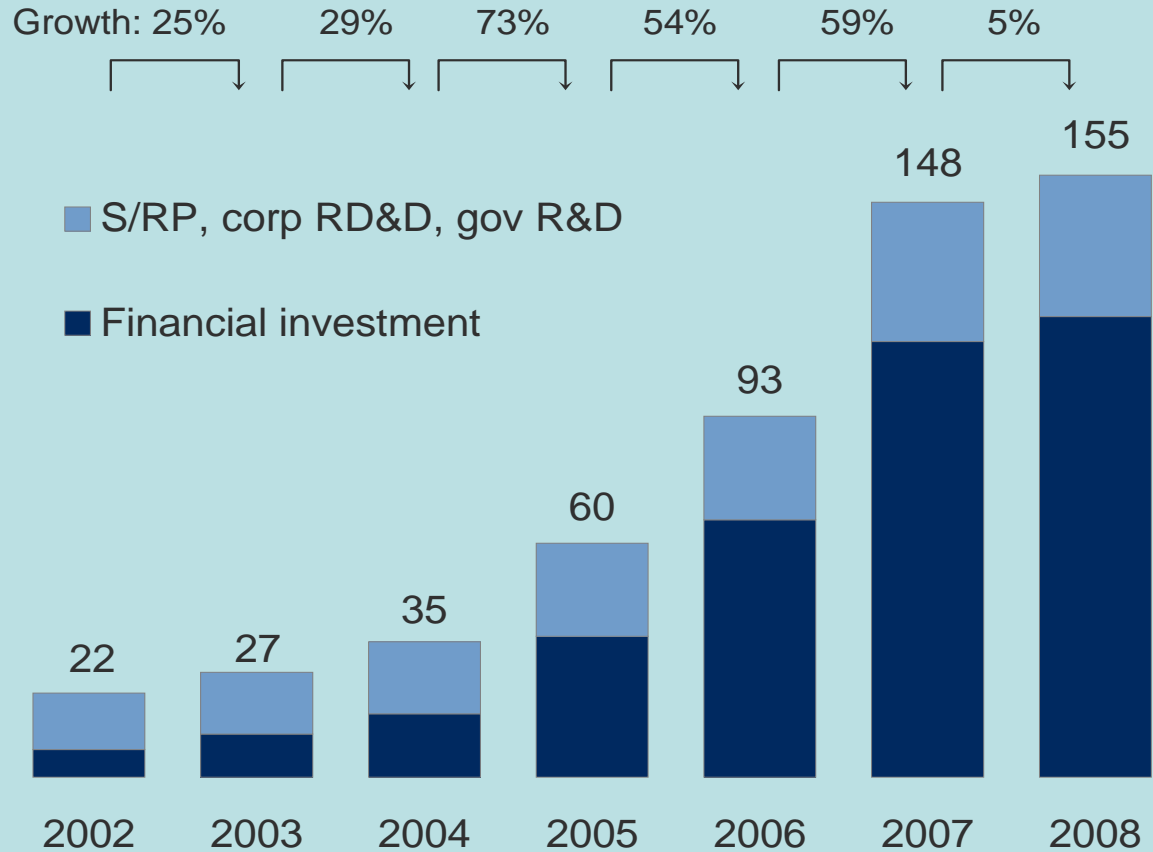
- ❖ Renewable energy
 - Nuclear energy
 - New energy
 - CCS
- ❖ Most of developed countries are ready
 - EU, US and Japan exported low carbon technologies since 1990'
- ❖ All developing countries are facing with challenges





II. New Energy Revolution and Development Trend in the World

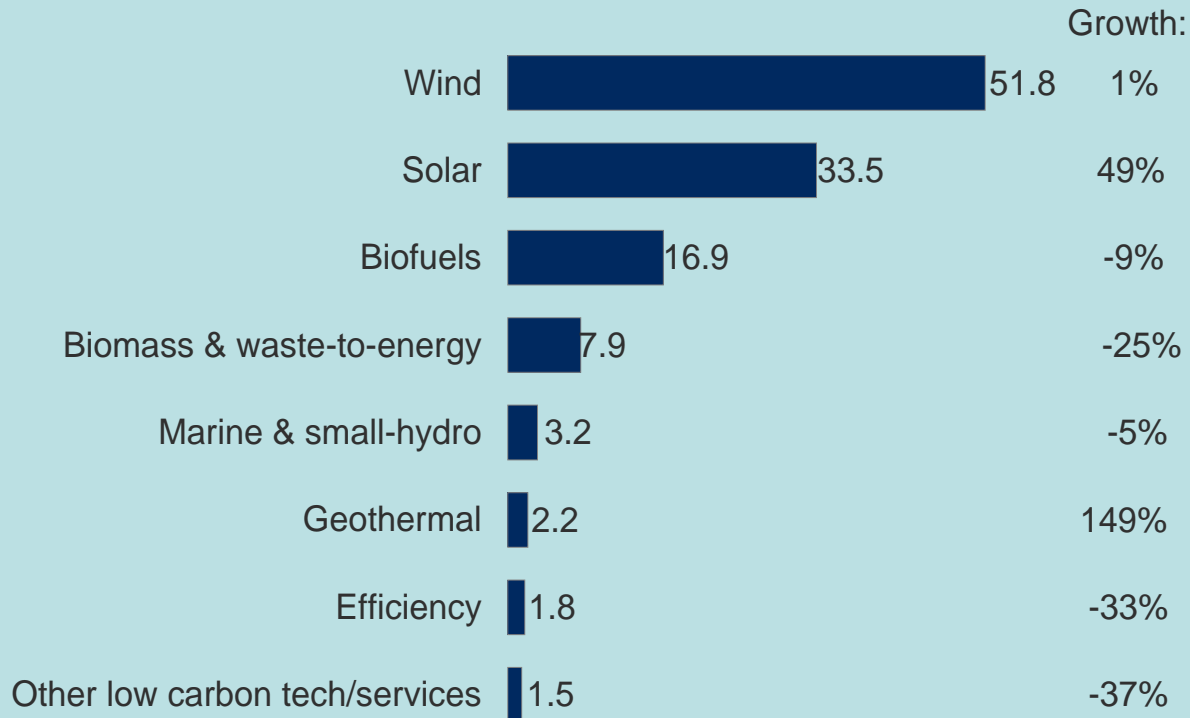
Global Trends in Sustainable Energy Investment 2009



S/RP = small/residential projects. New investment volume adjusts for re-invested equity. Total values include estimates for undisclosed deals

Source: New Energy Finance

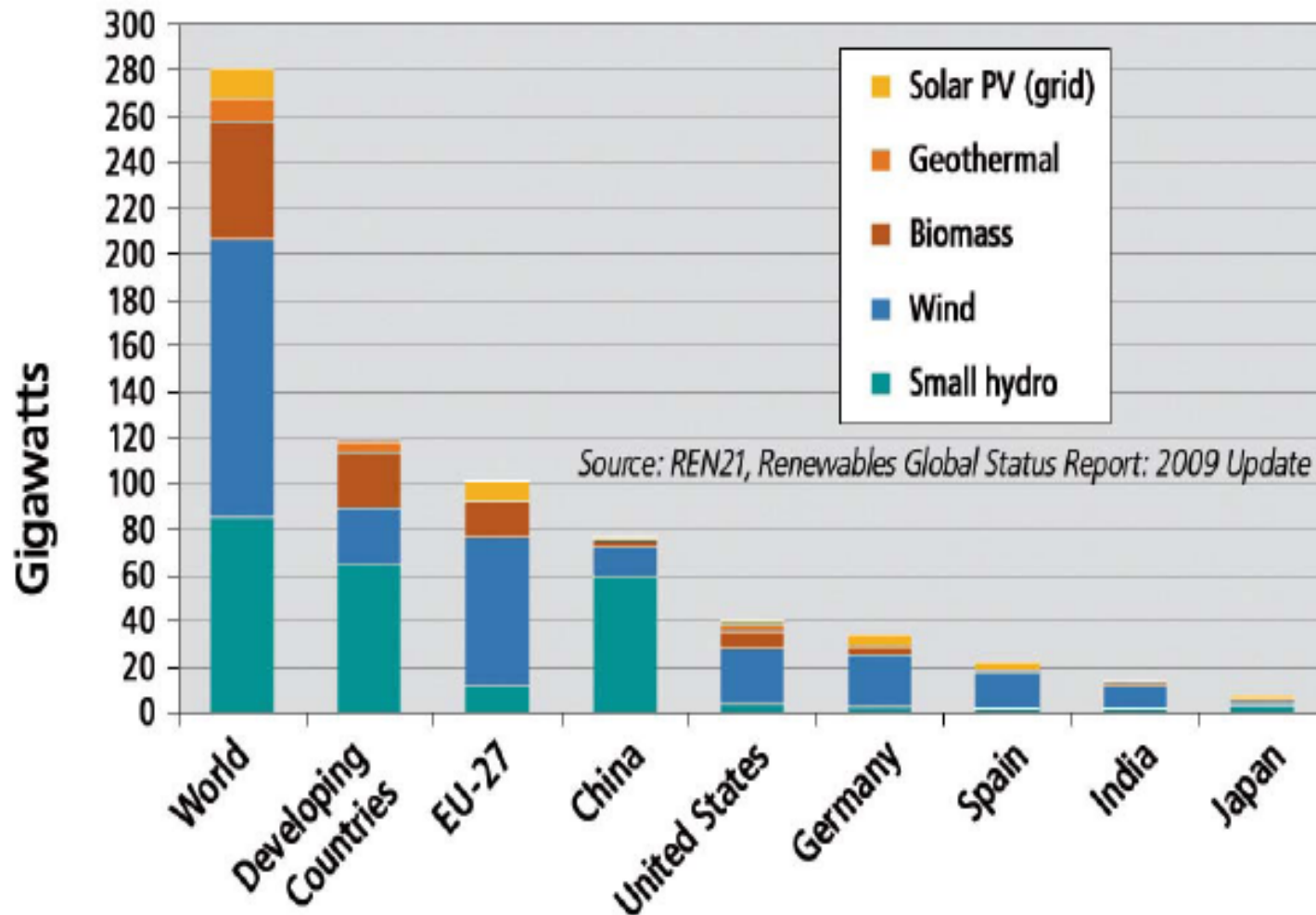
Global Trends in Sustainable Energy Investment 2009



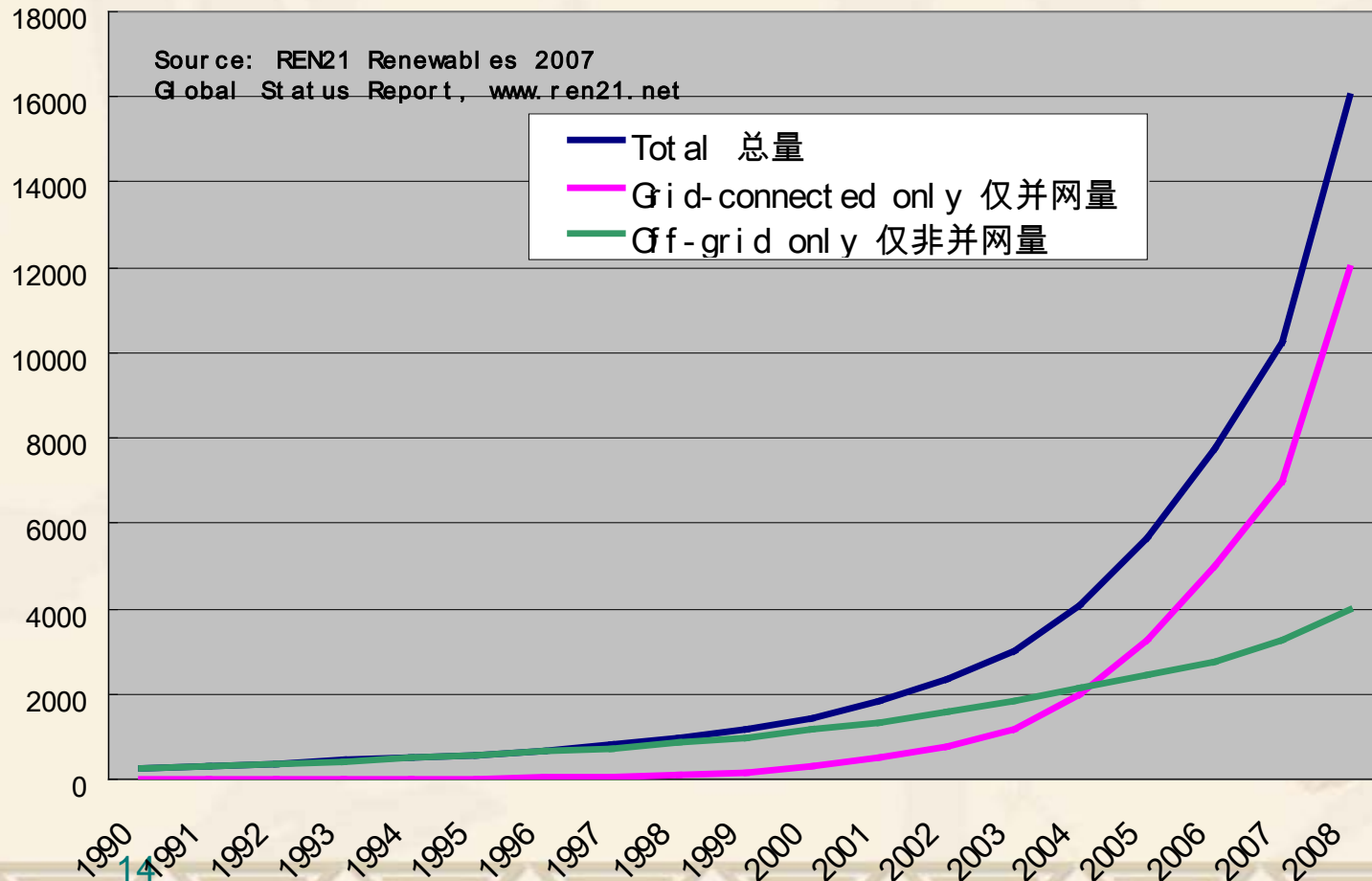
New investment volume adjusts for re-invested equity.
Total values include estimates for undisclosed deals

Source: New Energy Finance, UNEP SEFI

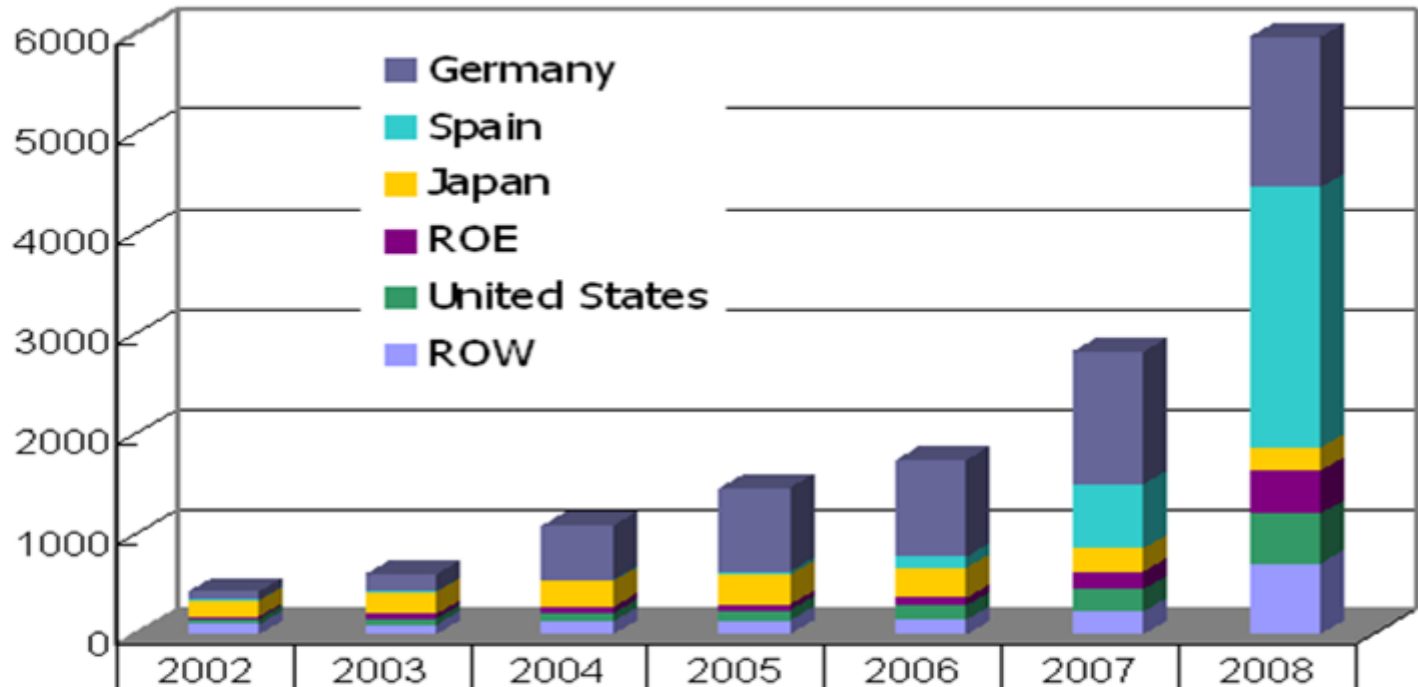
Renewable Power Capacities, Developing World, EU and Top Six Countries, 2008



Global Trends of Solar PV Capacity



Solar PV Grid-connected



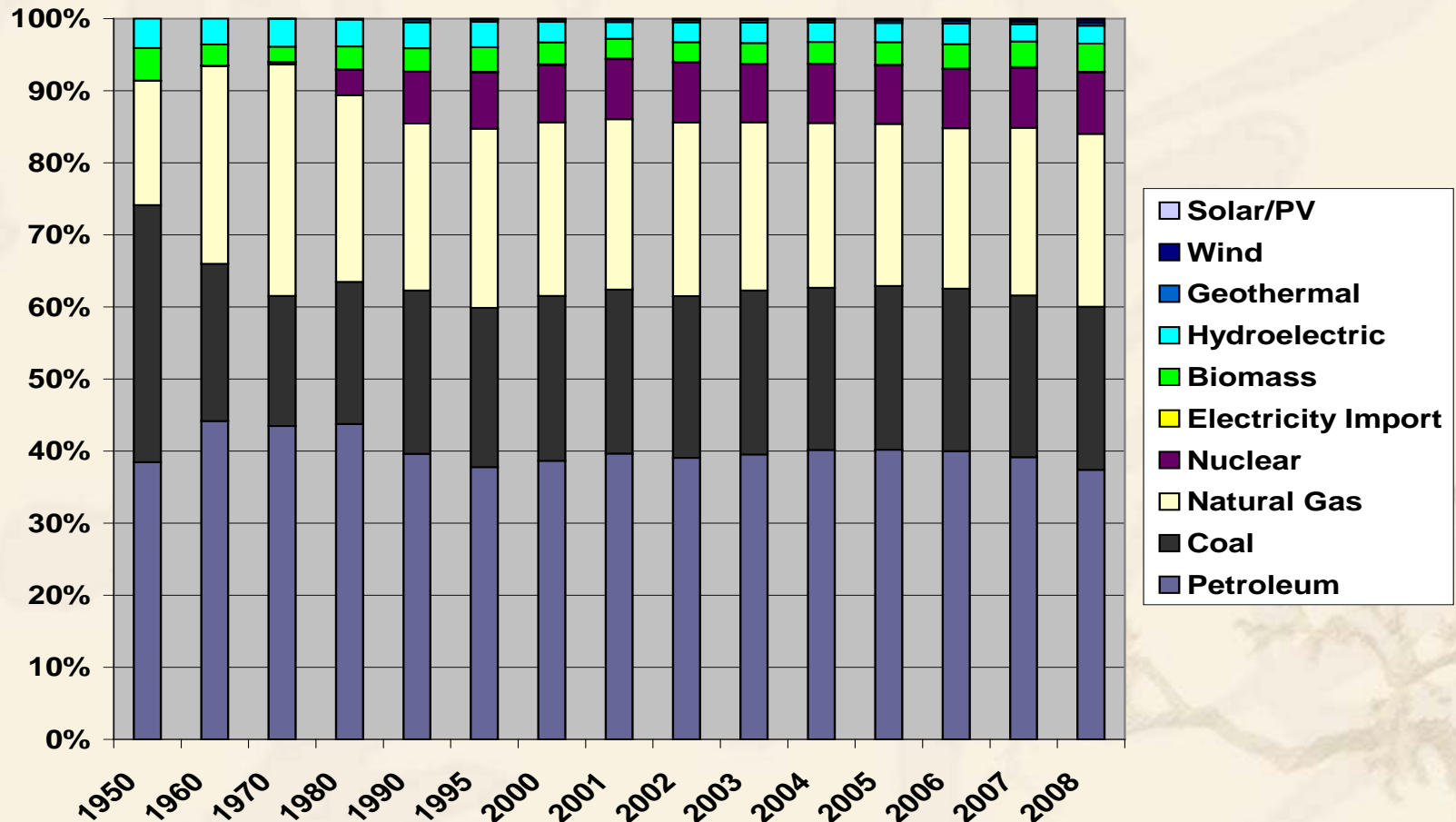
	2002	2003	2004	2005	2006	2007	2008
Germany	83	170	546	837	968	1328	1500
Spain	5	8	13	35	110	640	2600
Japan	161	218	256	292	300	230	230
ROE	20	45	62	54	75	179	430
United States	57	66	84	105	140	220	500
ROW	101	91	125	137	151	229	702

Table R6. Biofuels Production, Top 15 Countries plus EU, 2008

Country	Fuel ethanol	Biodiesel
billion liters		
1. United States	34	2.0
2. Brazil	27	1.2
3. France	1.2	1.6
4. Germany	0.5	2.2
5. China	1.9	0.1
6. Argentina	—	1.2
7. Canada	0.9	0.1
8. Spain	0.40	0.3
9. Thailand	0.3	0.4
10. Colombia	0.3	0.2
11. Italy	0.13	0.3
12. India	0.3	0.02
13. Sweden	0.14	0.1
14. Poland	0.12	0.1
15. United Kingdom	—	0.2
EU Total	2.8	8
World Total	67	12

Source: REN21. Renewables Global Status Report: 2009 Update

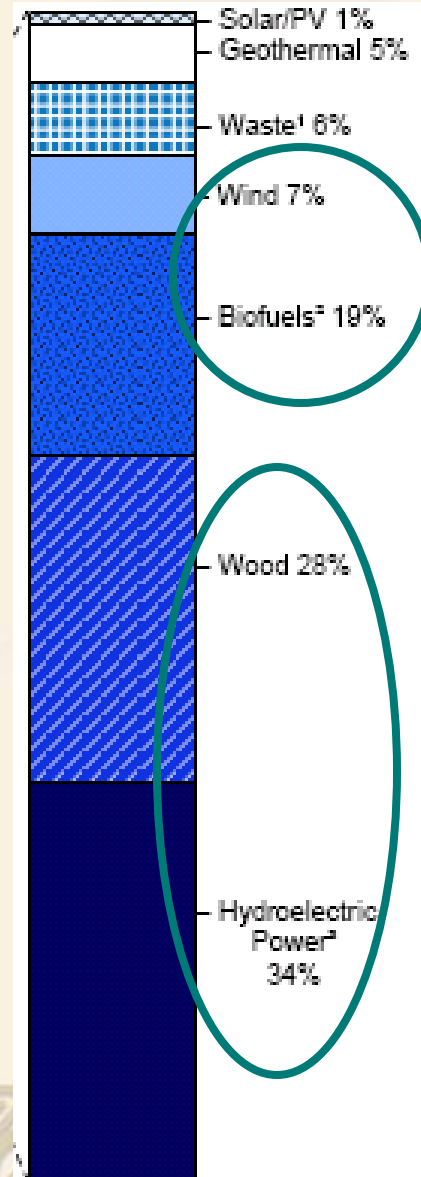
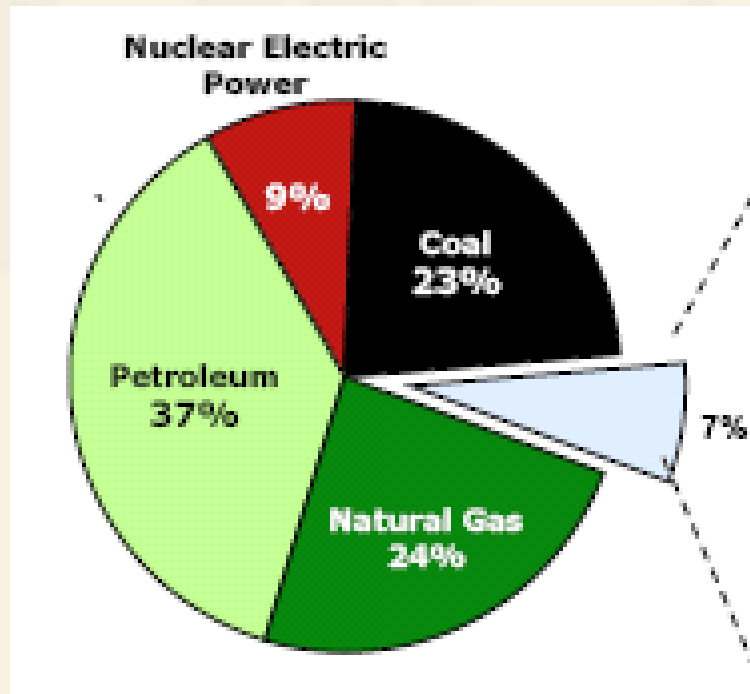
Renewables Consistently < 10% Total US Primary Energy Consumption



Source: EIA Annual Energy Review 2008 Table 1.3

Hydro and Biomass Still Majority of Renewable Energy in U.S.

2008 U.S. Primary Energy Consumption



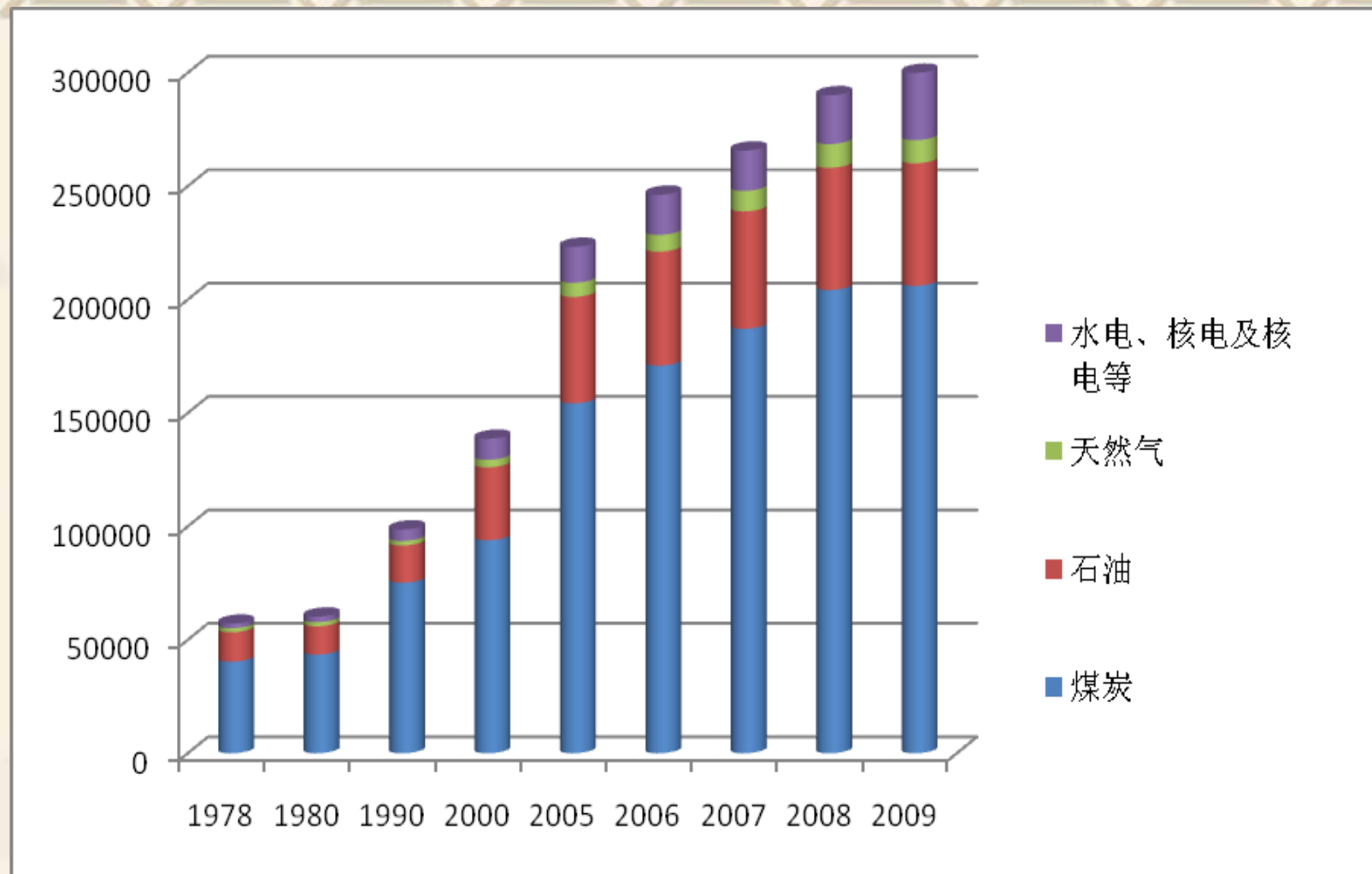
Growing Fast since 2000

Still Majority of Renewables

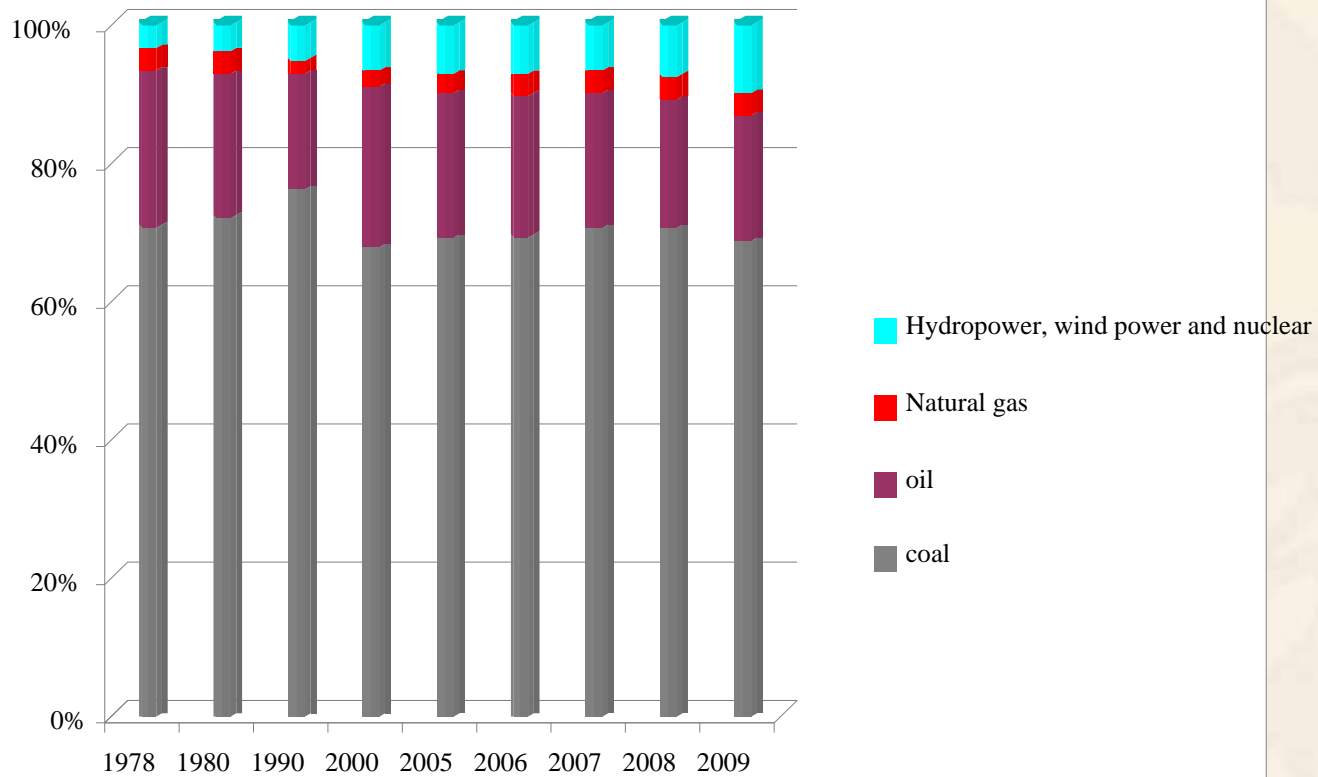
Source: EIA Annual Energy Review 2008 Figure 10.1



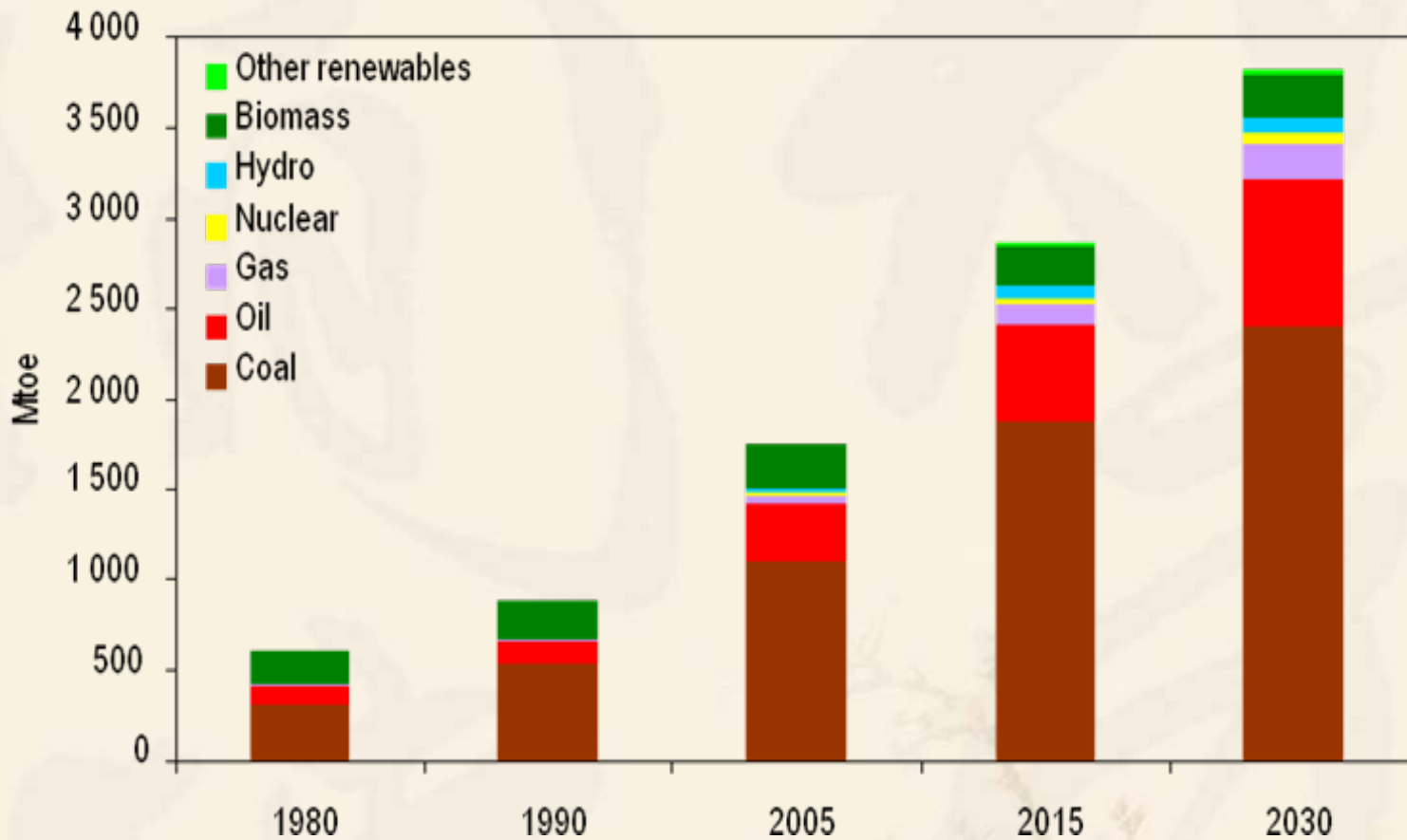
III、New Energy Development in China



**Dynamic comparison of Chinese energy consumption and composition
(unit: ten thousand standard coal)**



Dynamic comparison of consumption proportion of major energies in China



The estimates of IEA on Chinese energy demand

New Energy Development in China : Solar PV burning and Wind Power Crazy

- More than 70 wind power equipment manufacturers, including listed companies more than 10

In the world: only big 10. Danmark has 3 in the global big 5, Vista market share 70% before 2000.

- More than 300 Solar PV equipment manufacturers, including listed companies more than 10

In the world: only big 10

- Biofuels, listed companies more than 10

Arguing for New Energy

- ❖ Grid-connecting difficulties
 - Northeast provinces, Inner Mongolia
- ❖ Over investment and over capacities
 - State Council warning: over-capacity for wind power and Solar PV

How to understand over capacity

- ❖ In 2008, China's new installed power capacity was 0.76 Billion KW, wind power only 12 million KW(1.5%),
Real electricity: 0.5%
In 2020, 15% of new Energy in total Energy
- ❖ In 2008, more than 70 wind power equipment manufacturers just produced 5 million KW equipment, inferior to production of GE or Vista; Solar PV sells production consumed 40 thousand tons polycrystalline silicon, which produced in China just 5000 tons, satisfied 20% demands
- ❖ Slow domestic market development results some of sectors are over relying on international market: in 2008 China produced solar PV cells 2.50 million KW, which domestic consumption was 40 thousand KW(2%), 98% relying on export

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- ❖ More than 20 provinces released New Energy promotion plans
 - ❖ More than 100 cities want to become new energy industries bases, including Shanghai, Shenzhen, Tianjin, Chengdu, Suzhou, Baoding etc.
 - ❖ The goal above 100 billion RMB production value: Shanghai, Shenzhen, Chengdu, Suzhou, Wuxi, Hangzhou, Wuhan
 - ❖ High speed development and repeating Construction

How to solve the problem

- ❖ Policy supporting and leading
 - Prompt warning information provided by the Central Government
 - Making reasonable and responsible objectives and relative countermeasures

- ❖ Mainly relying on market competing
 - Making enterprises self-discipline and preventing hostility competing
 - Preventing low price competing and anti-dumping

- Increasing investment on R&D and making stimulating policies



Thank you!

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