

China's Challenges

Energy, Environment and Development



aq-ppt2-07

Photo: Sunset Noir (Flickr)

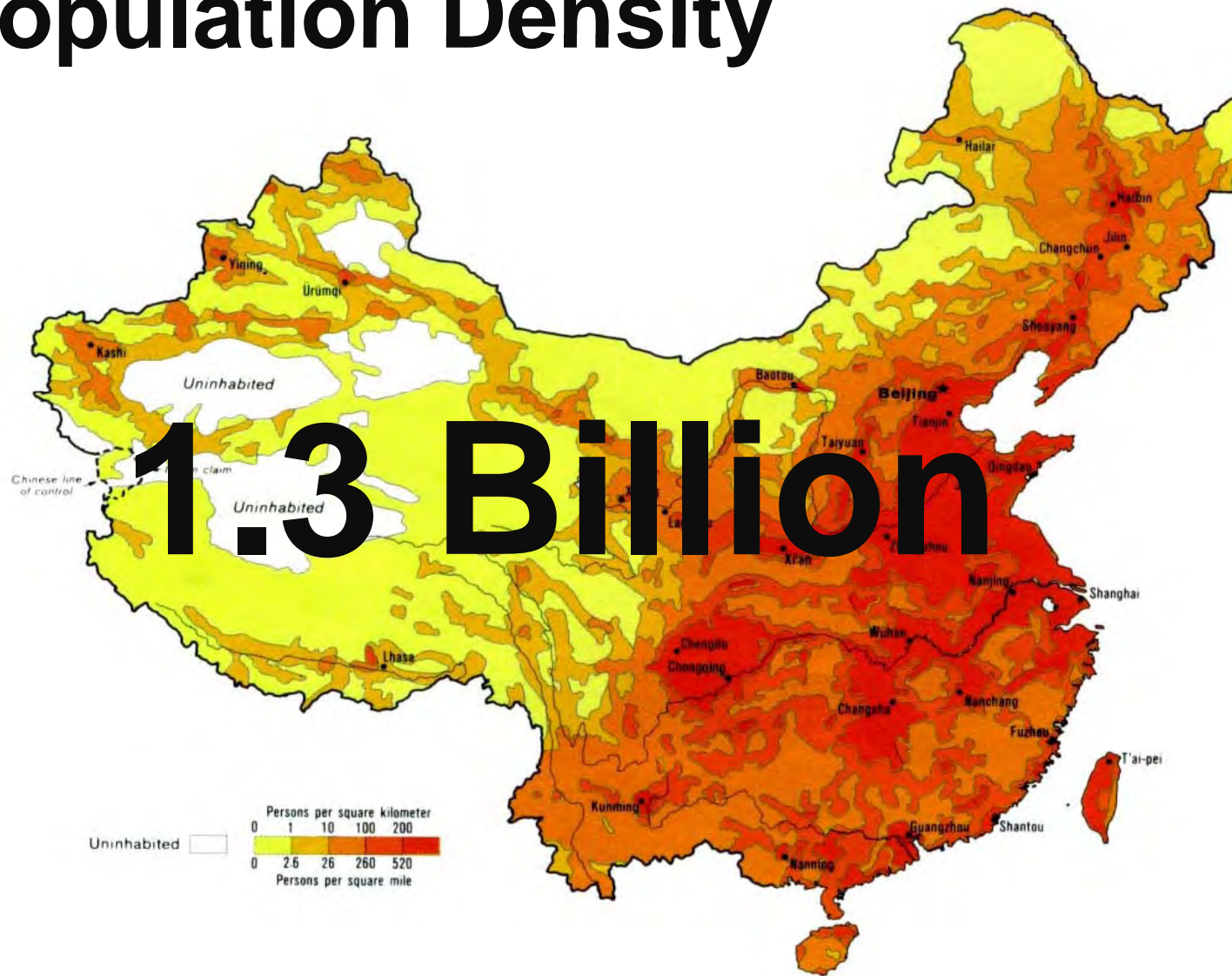
“We will make China
a country of
innovation”

China's Premier Wen Jiabao, September 10, 2009
Speaking at the World Economic Forum



Source: <http://www.panasianbiz.com/india/map-of-china-the-15-most-useful/>

Population Density



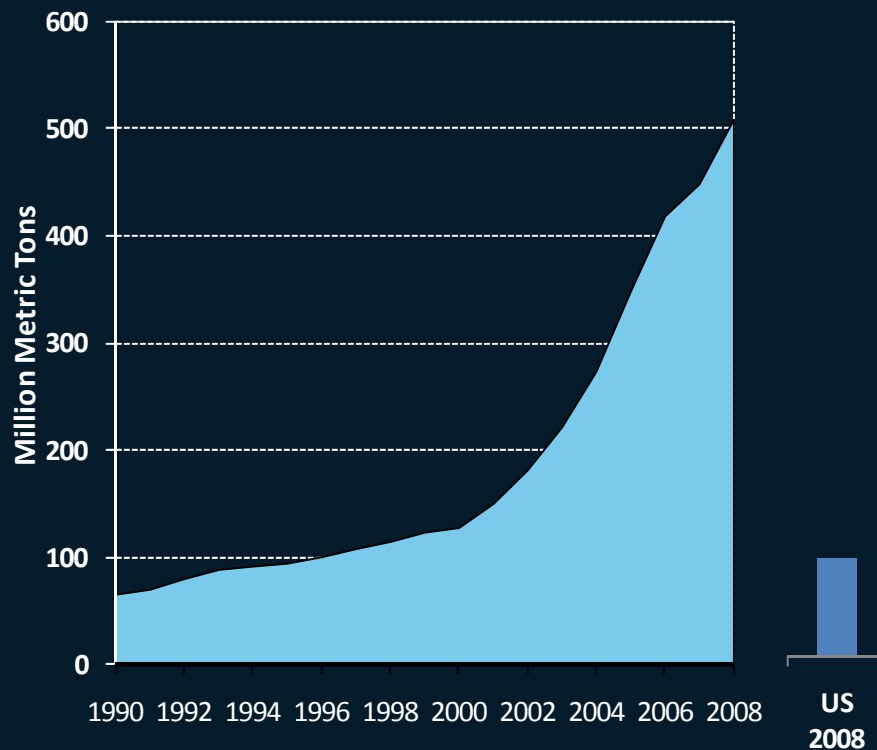
Boundary representation is not necessarily authoritative.

Source: http://www.lib.utexas.edu/maps/middle_east_and_asia/china_population_83.jpg

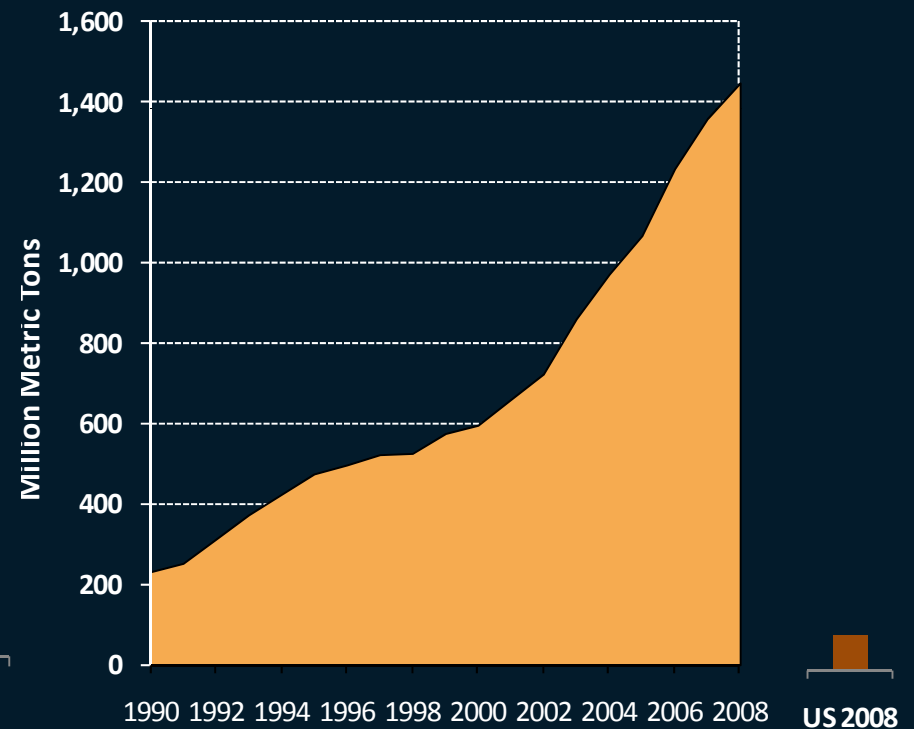
中国和美国钢铁和水泥产量

China and U.S. Steel and Cement Production

中国的钢铁产量
China's Steel Production
1990-2008



中国的水泥产量
China's Cement Production
1990-2008





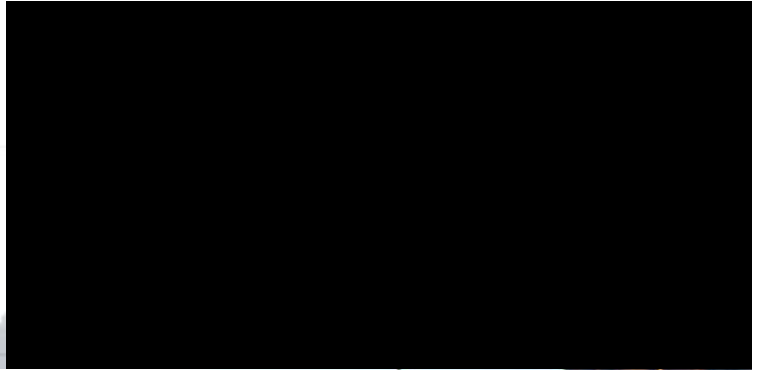
700 million people in
120 cities **over 1 million**

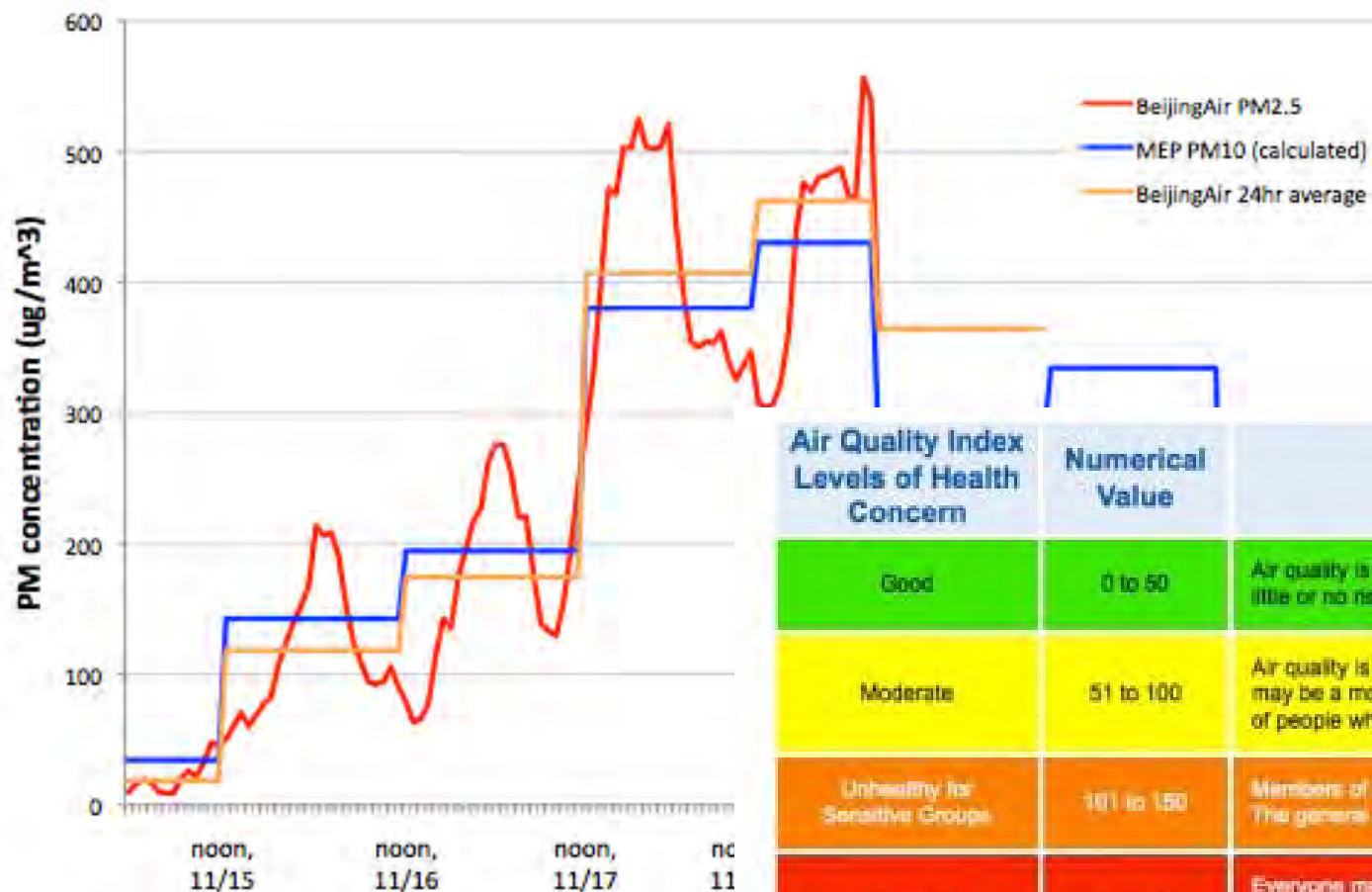


50 new cities over 1 million by 2035









Air Quality Index Levels of Health Concern	Numerical Value	Meaning
Good	0 to 50	Air quality is considered satisfactory, and air pollution poses little or no risk.
Moderate	51 to 100	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.
Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is not likely to be affected.
Unhealthy	151 to 200	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.
Very Unhealthy	201 to 300	Health alert: everyone may experience more serious health effects.
Hazardous	301 to 500	Health warnings of emergency conditions. The entire population is more likely to be affected.
Crazy Bad	500+	Um, are you still convinced that the benefits of living in Beijing outweigh the risks?

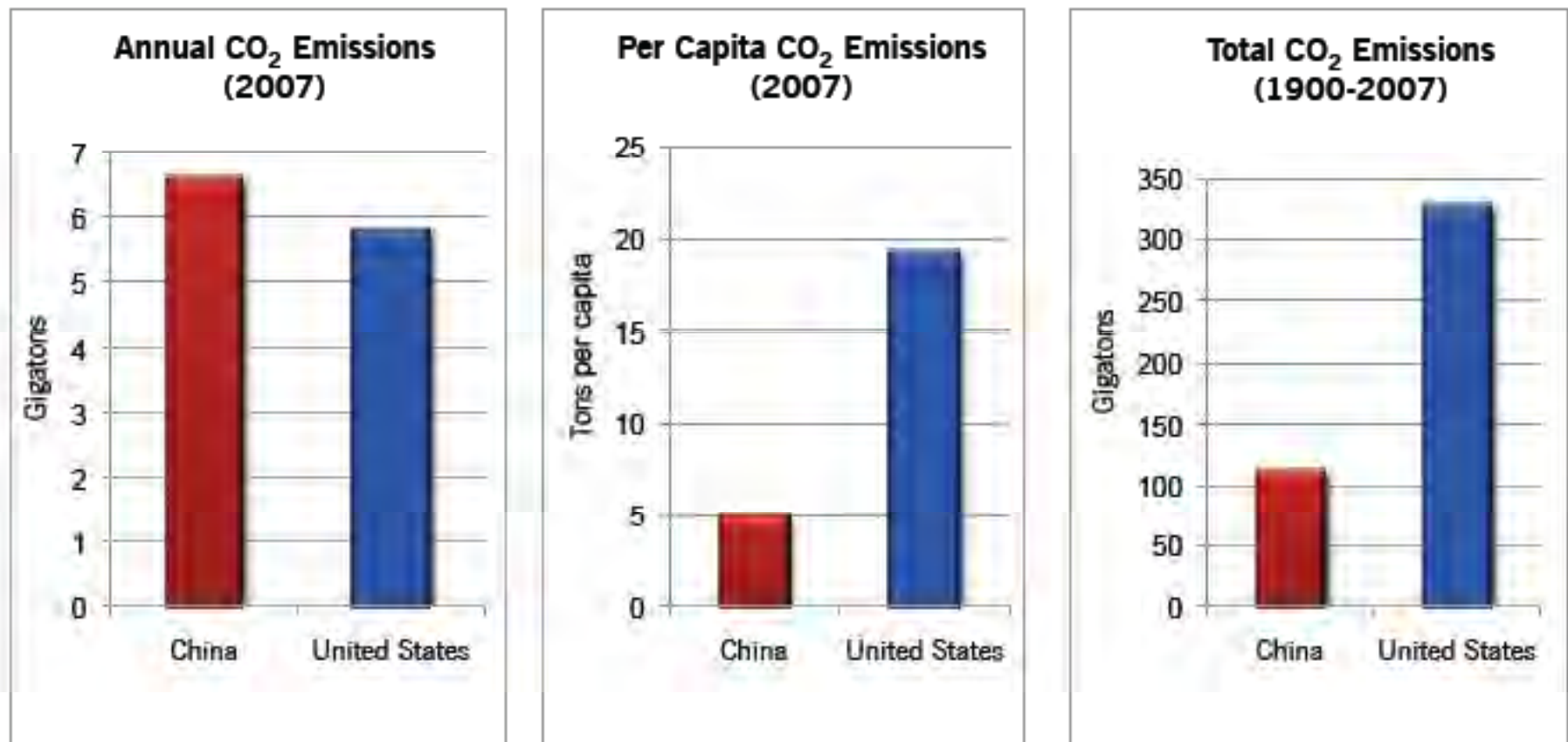


**200,000 to
1 million**

premature
deaths
each year from
fuel smoke



U.S. and China: Annual, Per Capita and Cumulative CO₂ Emissions



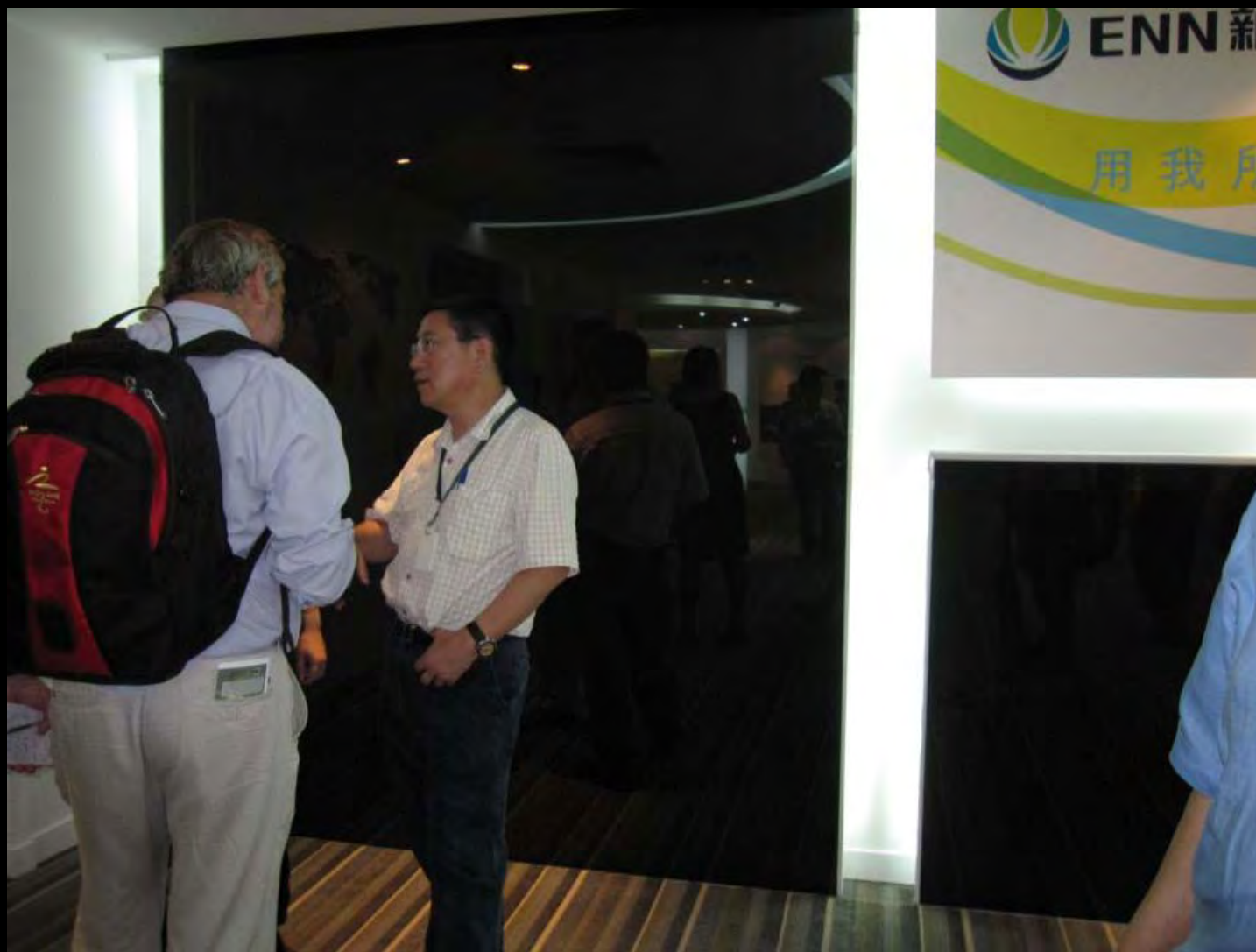
Sources: Oak Ridge National Laboratory, Carbon Dioxide Information Analysis Center (CDIAC), 2007; the Netherlands Environmental Assessment Agency (MNP), 2007; Population Reference Bureau 2007 World Population Data Sheet





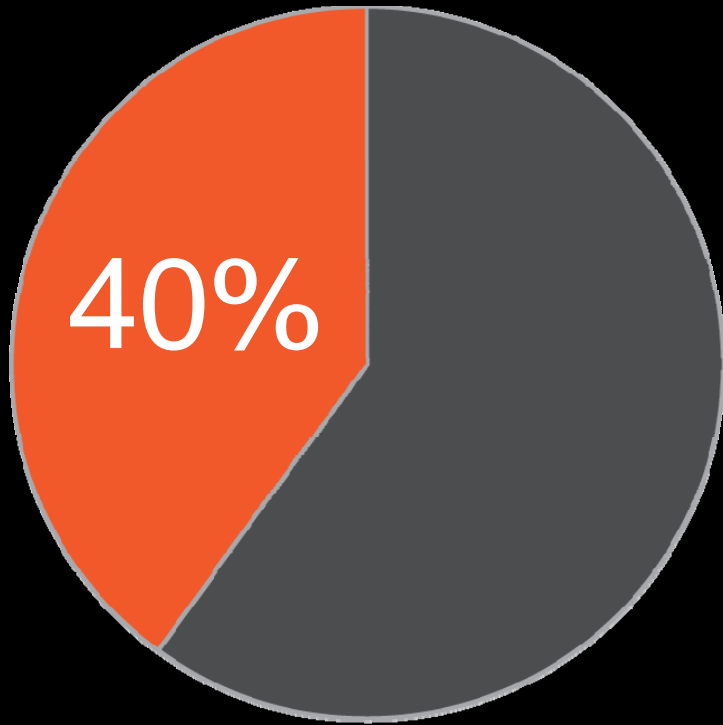


Solar Cells “Like a Barbie doll”

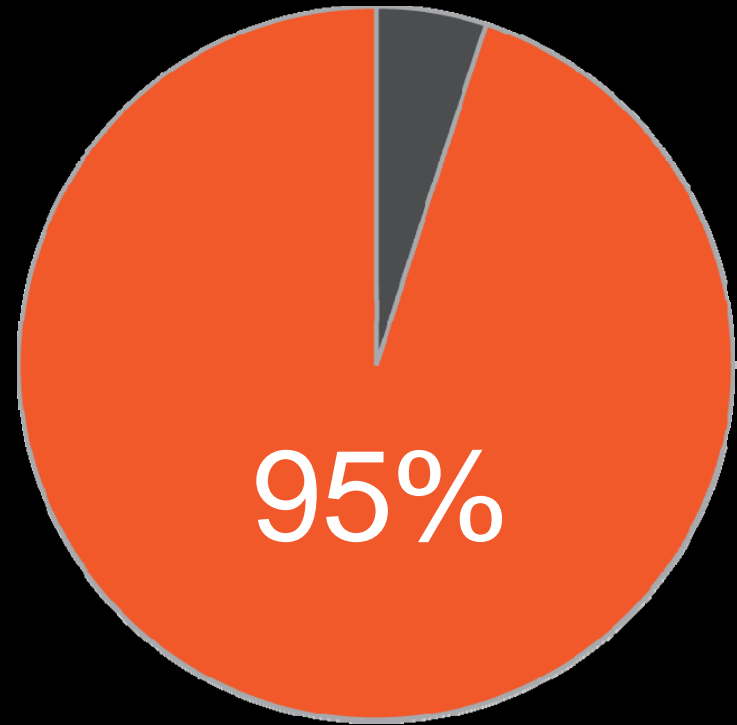


China's 2009 Solar
Production Capacity = 4GW

Nearly one-third of global solar production



Global Solar Market



Global Solar Cell Exports









http://en.wikipedia.org/wiki/File:Wind_Farm_Outside_Urumqi.jpg







严是爱，松是害
搞好安全利三代

安全生产 人人有责
遵章守纪 保障安全

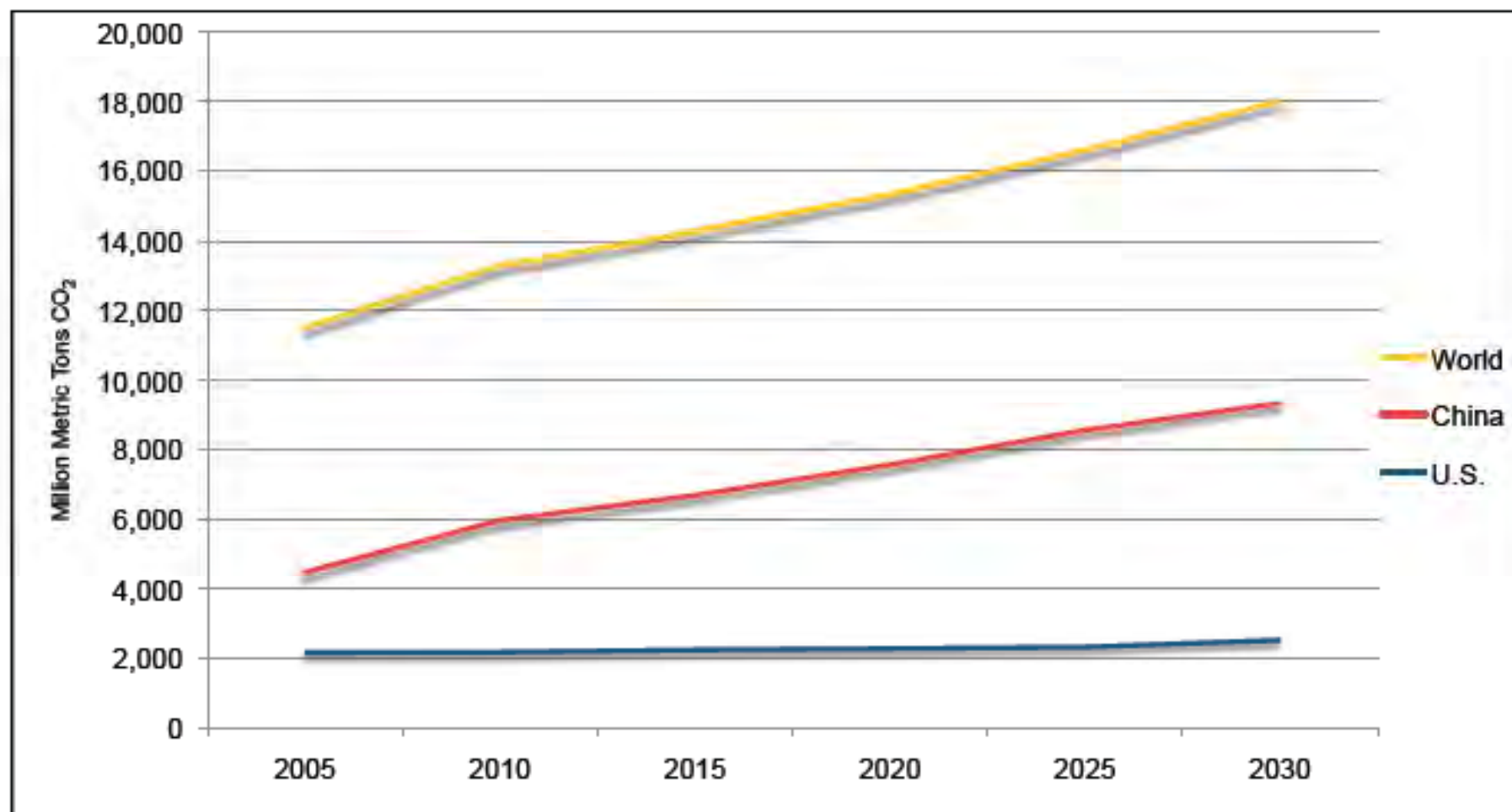


Coal

(still) powers China



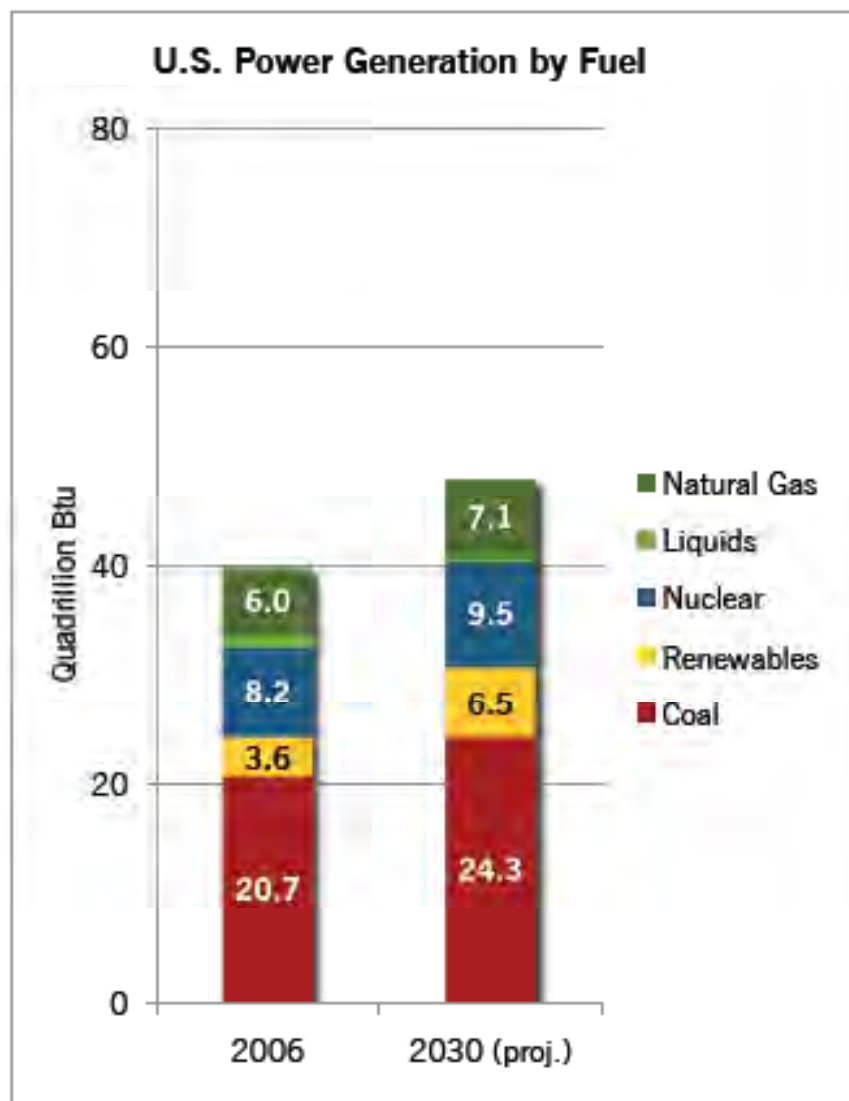
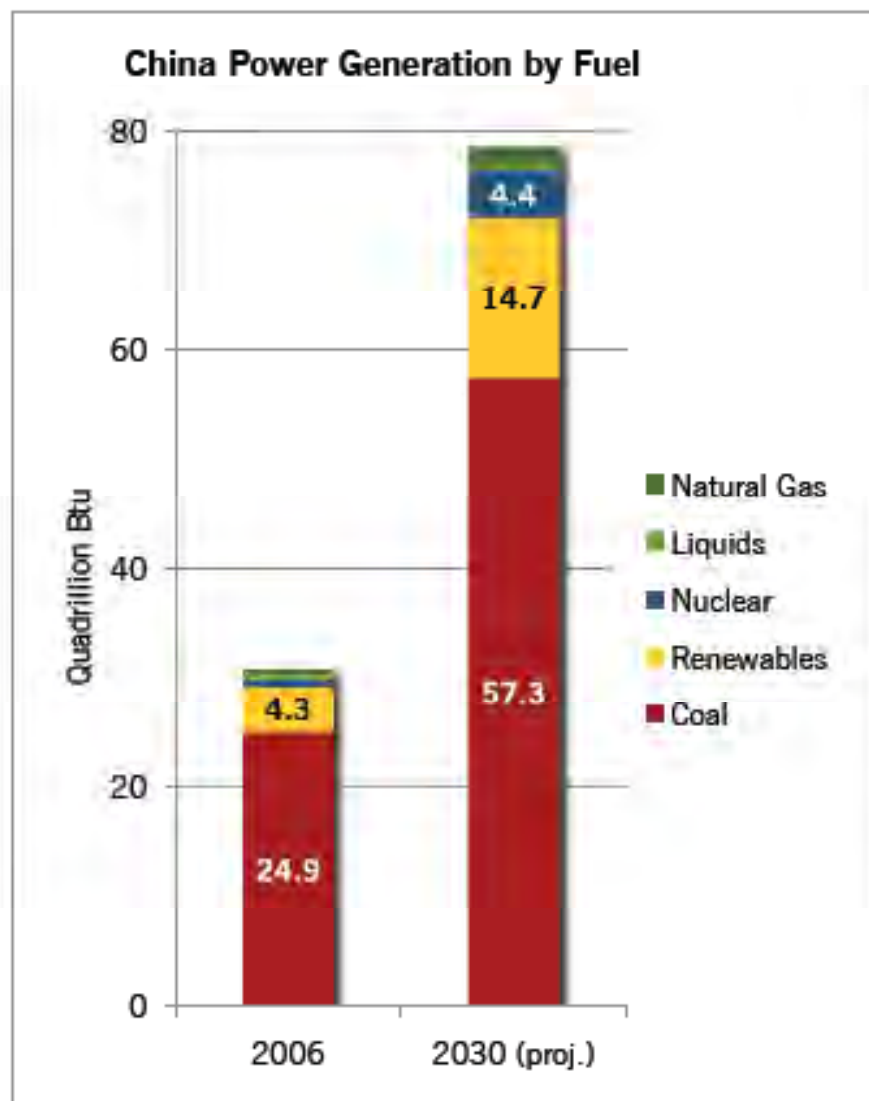
Carbon Dioxide Emissions from Coal Use (2005-2030)



Note: 2005 data is actual; 2010-2030 data is projected

Source: "International Energy Outlook 2009", Energy Information Administration, May 2009

Power Generation by Fuel



Source: "International Energy Outlook 2009", Energy Information Administration, May 2009



二氧化碳捕集试验示范装置

Huaneng Post-combustion CO₂ Capture
Experimental Demonstration Plant

精制系统

Refining Unit



GREENGEN

色煤电有限公司











Wood and dung

for heating & cooking
in rural China



“We will accelerate the development of a low-carbon economy and green economy so as to gain an advantageous position in the international industrial competition.”

China's Premier Wen Jiabao
at the World Economic Forum, September 10, 2009

Development is the number one **duty**,
Innovation is the number one **motivation**

Stability is the number one responsibility,
people's livelihood is the number one goal.

Harmony is the number one aspiration,

Honest government is the number one
promise.

<http://www.chinasmack.com/2010/pictures/funny-rural-chinese-advertising-depressing-propaganda.html>



Contact: ewilson@umn.edu

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- China map: <http://www.panasianbiz.com/india/map-of-china-the-15-most-useful/>
- China population map:
http://www.lib.utexas.edu/maps/middle_east_and_asia/china_population_83.jpg
- Beijing air quality graph and EPA remix,
<http://www.livefrombeijing.com/2010/11/crazy-bad-air-quality-in-beijing/>
- Urmuchi Wind:
http://en.wikipedia.org/wiki/File:Wind_Farm_Outside_Urumqi.jpg

Wind Map in China:

http://www.technologyreview.com/files/33101/china_x600.jpg