

Green Growth:
What does China do – and what
can the Nordic countries do?

Haakon Vennemo
Nordic Conference on Green Economic Growth,
March 1, 2012

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Content

Things we should not even try

What does China do?

How do they do it?

What can we learn?

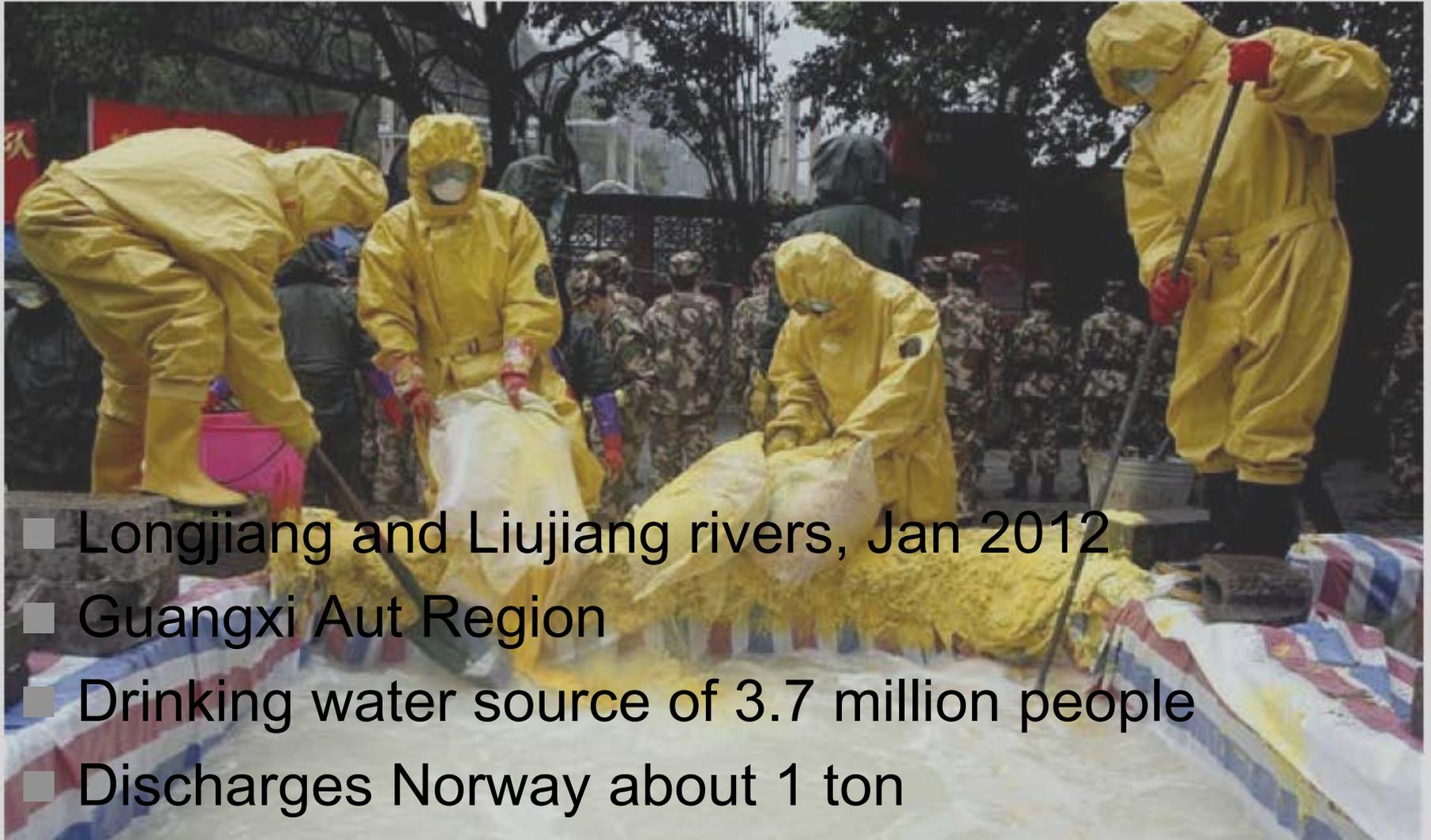
20 tons of cadmium poisoning vital Chinese river

Twenty tons of the cancer-causing metal cadmium have been discharged into a river in southern China in one of the worst chemical spills of its kind that could affect up to 4 million people.



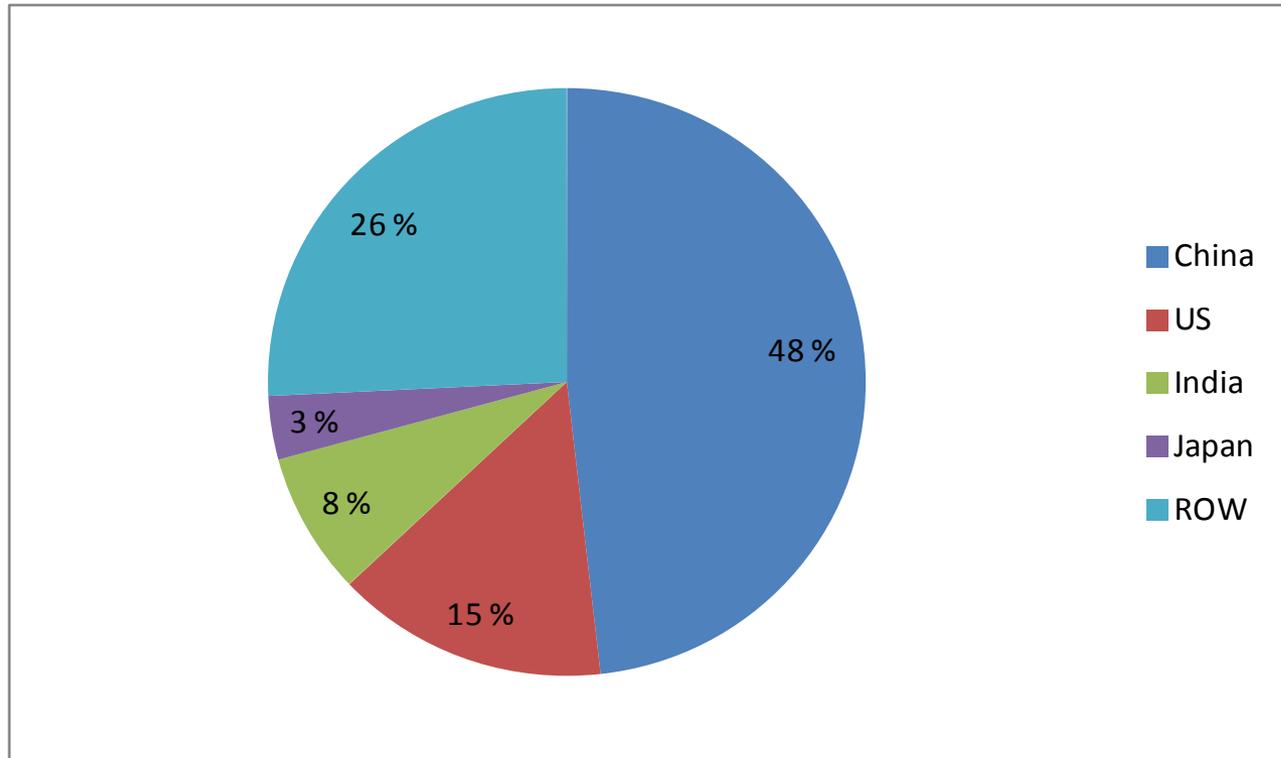
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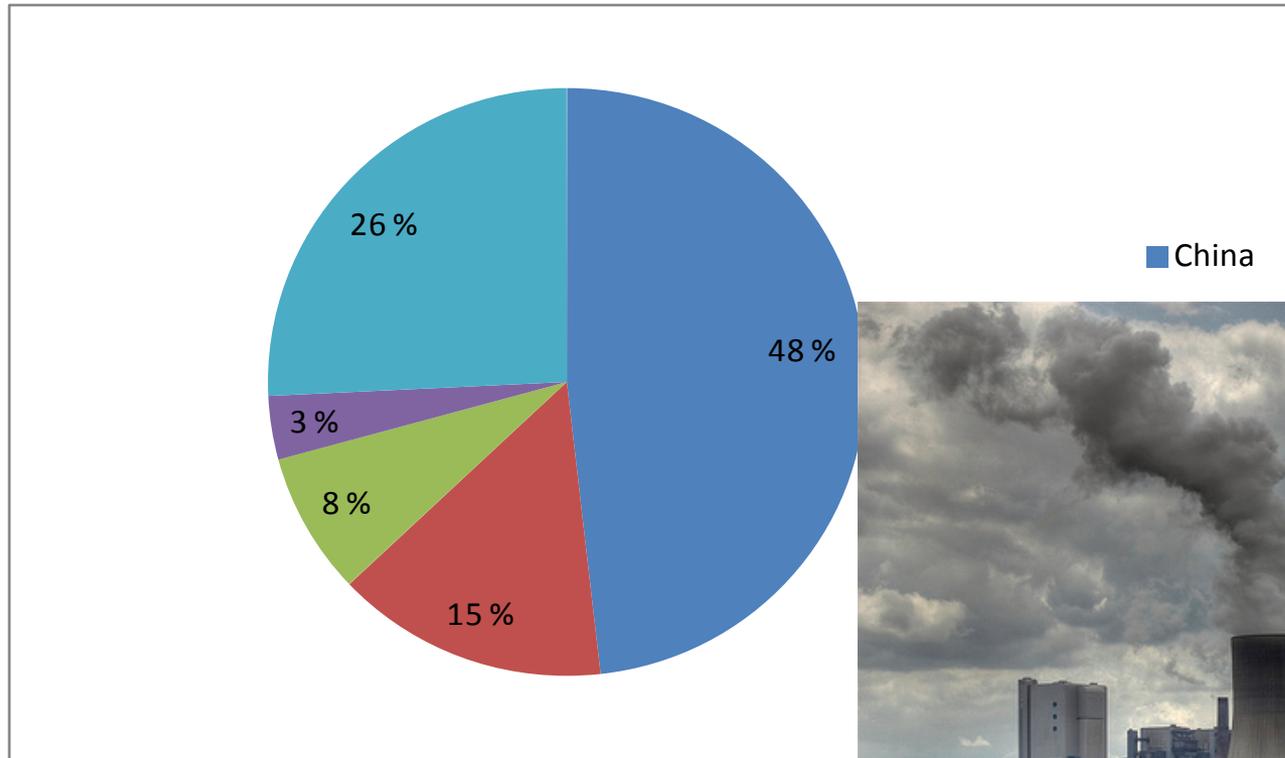
- Longjiang and Liujiang rivers, Jan 2012
- Guangxi Aut Region
- Drinking water source of 3.7 million people
- Discharges Norway about 1 ton

Half of global coal consumption



Year 2010. Source BP

Half of global coal consumption



Year 2010. Source BP



American gasoline prices



A staff member of a gas station replaces the gasoline price tag in the Jiangbei District of Chongqing, southwest China, Feb. 8, 2012. China raised the retail prices for gasoline and diesel by 300 yuan (47.53 U.S. dollars) per tonne on Feb. 8, in a swift response to international trends as easing domestic inflation gives way for adjustment. The benchmark retail price of gasoline has been lifted by 0.22 yuan per liter and diesel by 0.26 yuan per liter, according to the National Development and Reform Commission. (Xinhua/Li Jian)

Intense opposition to EU carbon quotas on airplanes

China bans airlines into EU carbon scheme

China's airlines are not allowed to pay a charge on carbon emissions imposed by the Europe Union (EU), and neither to hike freights nor to add other fees accordingly without government permission, the Civil Aviation Administration of China (CAAC) said Monday.

The CAAC said in a statement that it had been authorized by the State Council, China's Cabinet, to notify the ban to all domestic airlines.

The statement said the EU's decision to charge flights into and out of EU airports for carbon emission "runs contrary to relevant principles of the United Nations Framework Convention on Climate Change and the international civil aviation regulations."

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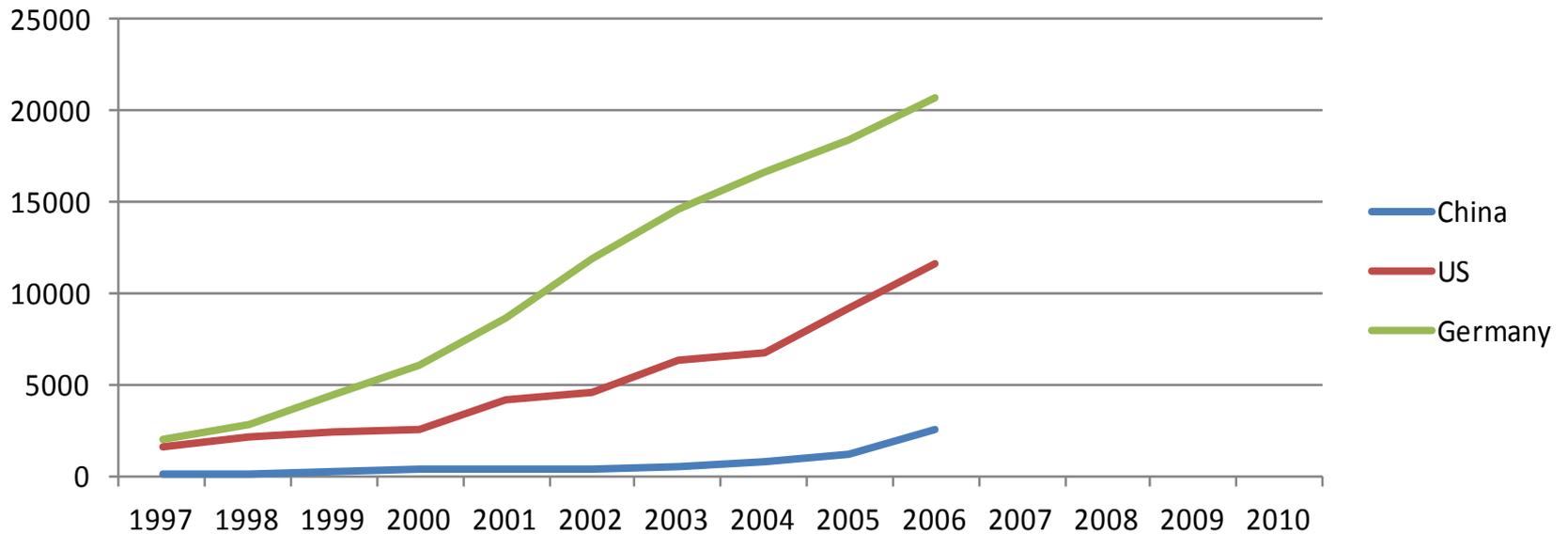
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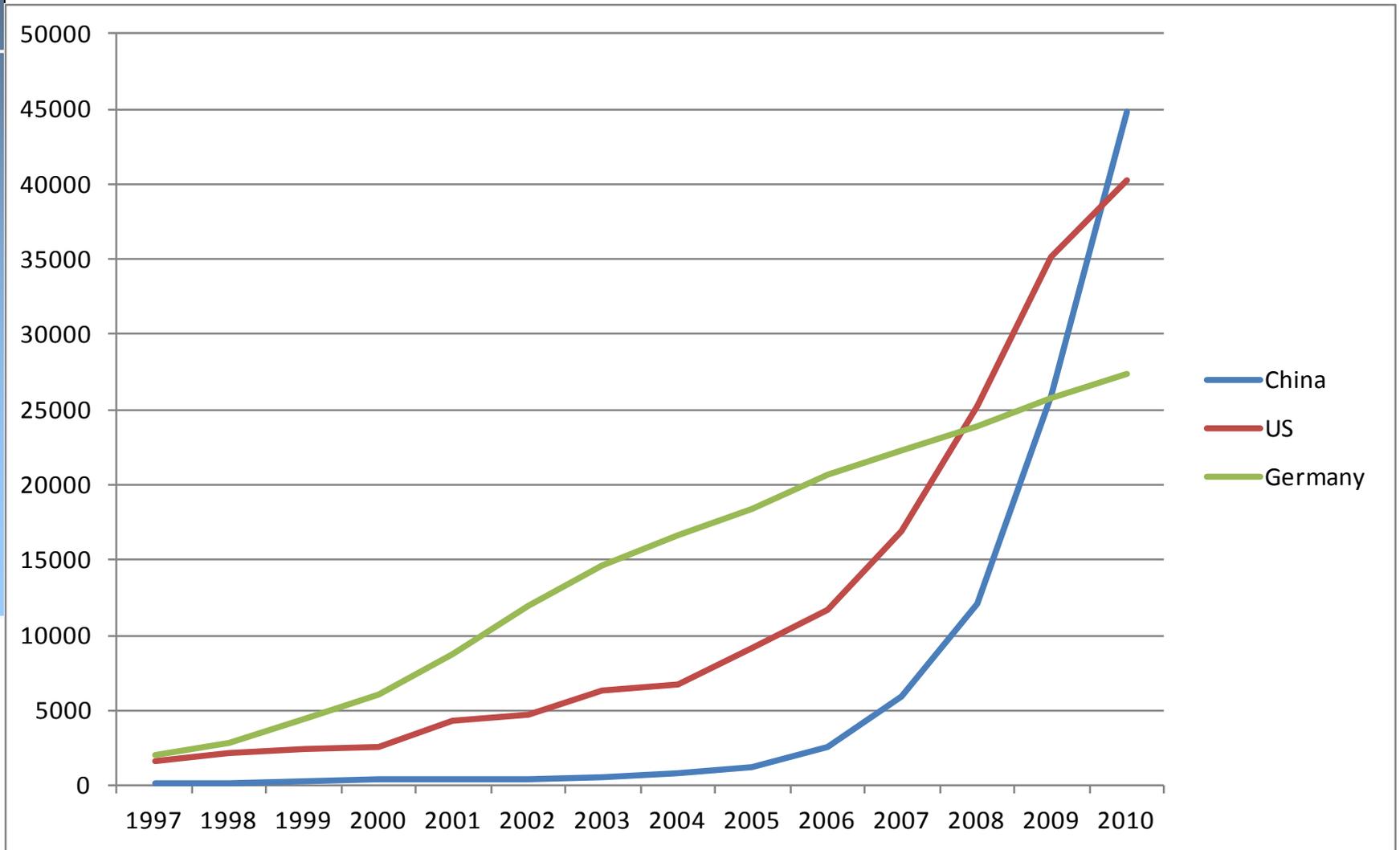
What can we learn?

Wind power

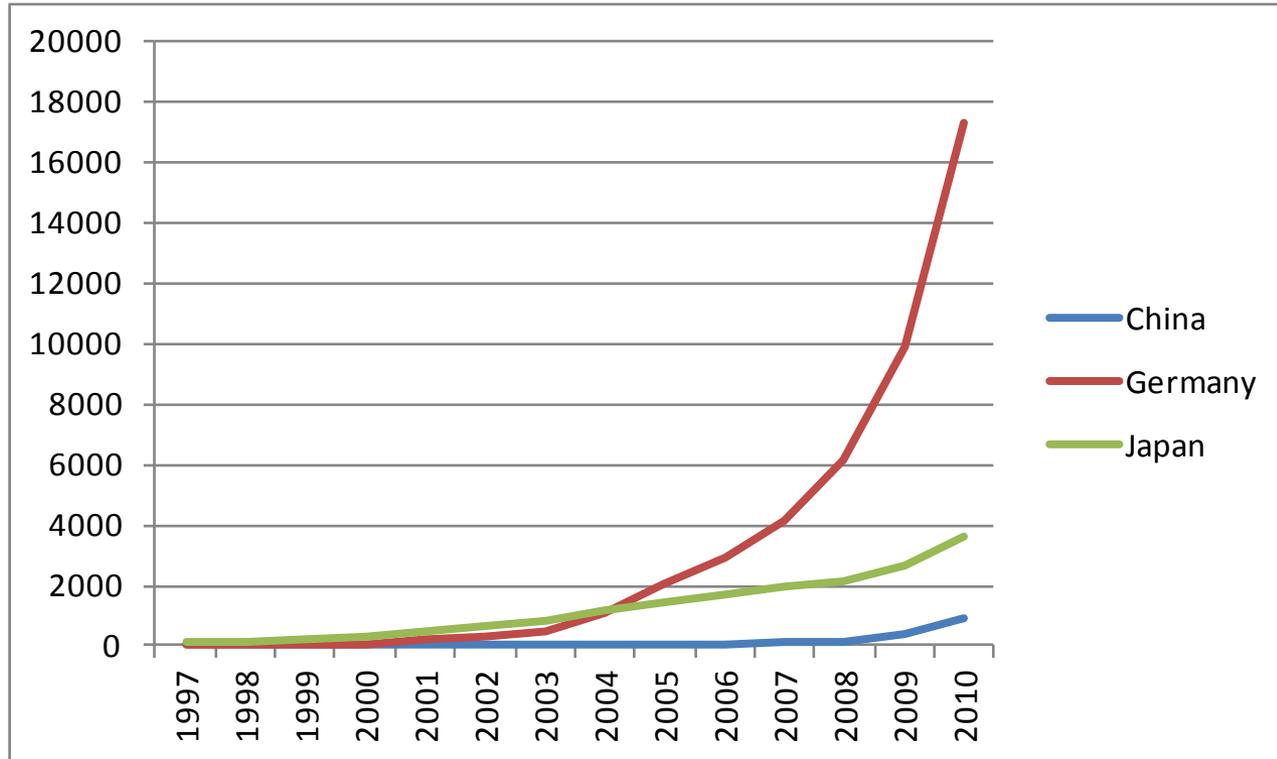


Wind power installed capacity, MW. Source BP

Wind power



Solar PV: ready for take-off



Solar power installed capacity. MW. Source BP

Solar power: Ready for take-off

China solar goes for gold

Giles Parkinson

The scale of ambition in large-scale solar took a quantum leap forward this week when two Chinese companies announced they would soon begin construction on a 1,000MW (1GW) solar PV plant. The solar farm, near the Chinese city of Datong, would be by far the biggest in the world, and is being funded by CGN Solar, an offshoot of the China Guangdong Nuclear Corp, and Hong-Kong based polysilicon supplier GCL-Poly Energy.

- Targets
- 15GW in 2015
- 50GW in 2020

Source: Climate Spectator, Nov 2011

Solar power: Ready for take-off

“China recently more than doubled its target for solar to 50GW by 2020 (but) we believe that like each of China’s wind targets set three to five years ago, China will again blow away this 50GW solar target,” Buckley says. He expects China’s install rate to reach up to 4GW in 2012 and then run at 5-10GW a year thereafter – meaning China could have a solar installed base of 26GW by 2015 and 75-100GW by 2020. By 2013, he says it will overtake Germany, Italy, Spain and the US to become the number one market in the world.

Source: Climate Spectator, Nov 2011

Despite problems railway construction in China is impressive



China will construct 6,366 kilometers of new railways in 2012, including 3,500 kilometers of high-speed lines, People's Daily reported on Thursday.

The year 2012 will be a historic year in China's railway history with the highest number of new lines scheduled to be constructed. Meanwhile, high-speed railway lines will surpass 10,000 kilometers.

Once the new high-speed line is put into service, the travel time from Beijing to Shenzhen in South China's Guangdong province will be reduced to eight hours from the current fastest time of 23 hours.

Confronted with such a massive construction project, the railway ministry expressed its determination to guarantee the construction quality, saying they will solve any hidden quality issues before operation.

The railway ministry has also launched an overhaul over all projects under construction started since 2003.

5,000,000 electric vehicles by 2020



BEIJING: Volkswagen AG's two joint ventures in China plan to start making electric cars in 2014 and to ramp up to mass production by 2018, its China chief said on Tuesday.

Initial EV output at Shanghai Volkswagen and FAW Volkswagen was estimated at a few thousand vehicles, rising to 100,000 by 2018, the president and chief executive of Volkswagen's China operations, Karl-Thomas Neumann, told an EU-China business convention in Beijing.

The central government has declared the electric vehicle industry a top priority, earmarking \$1.5 billion per year for the next 10 years to become one of the leading producers of clean vehicles.

It has named 25 cities including Beijing, Hangzhou, Shanghai and Shenzhen to lead the migration to green vehicles. However, demand for EVs has been held back by a lack of models, limited charging facilities, high sticker prices and safety concerns.

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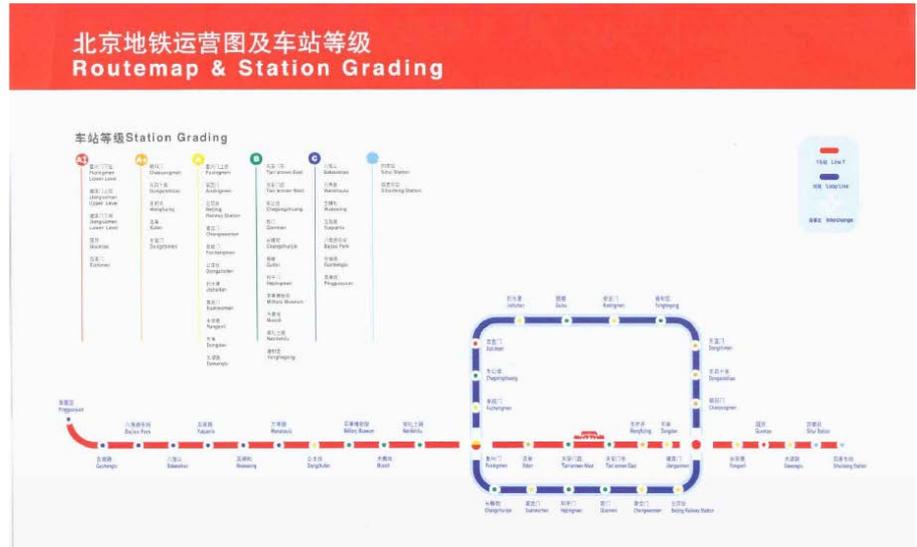
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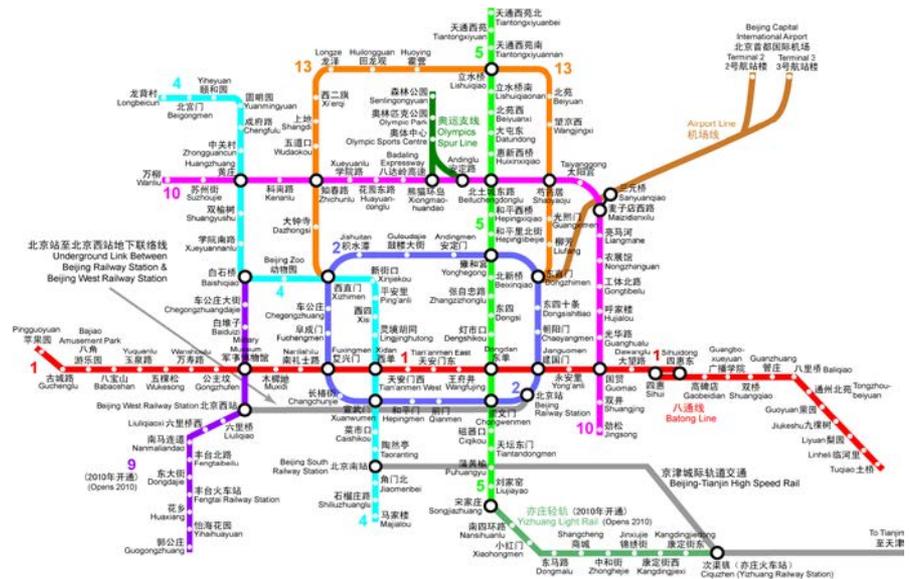
What can we learn?

Public investment

Beijing metro 2002:



Beijing metro 2011:



Public investment

- State owned enterprises obtain cheap credit
- Local government funding
- Low return on equity

Center for American Progress



China Pours Money into Smart Grid Technology

Beijing Upgrades Smart Grid Development to Strategic National Priority, Challenging the United States

Melanie Hart

October 24, 2011

Introduction

There is no way to get around this fact—China aims to modernize its energy infrastructure at home and dominate clean energy technology markets abroad. At the 2011 Smart Grid World Forum in Beijing late last month, China's State Grid Corporation announced plans to invest \$250 billion in electric power infrastructure upgrades over the next five years, of which \$45 billion is earmarked for smart grid technologies.¹ According to its three-stage plan, China will invest another \$240 billion between 2016 and 2020 (including another \$45 billion toward smart grid technologies) to complete the build-out of a “stronger, smarter” Chinese power grid.

Research and development

- GreenGen, Tianjin: The first large scale (400 MW) coal power plant with CCS in China
- Separation of 100 MW from 2015, full scale capture from 2018
- IGCC plant with pre-combustion CCS

Tianjin Integrated Gasification Combined Cycle (IGCC) Power Plant



Public procurement

Shenzhen is planning to have 2,000 more new-energy public vehicles on the road in 2012, according to the southern city's mayor.

Mayor Xu Qin told a municipal people's conference on Sunday that the city government will usher in 1,500 new-energy buses and 500 electric taxis in 2012, bringing the total number of new-energy vehicles in the city to more than 5,000.

Shenzhen in Guangdong province was chosen as one of 25 pilot cities in China for the utilization of new-energy vehicles.

New-energy vehicle buyers in five of these cities, namely Shanghai, Changchun, Shenzhen, Hangzhou and Hefei, will receive subsidies as high as 120,000 yuan (\$18,977) from both the central and local governments.

Source Global Times Jan 2012

Incentives and regulation

- Prices and tariffs
- Command-and-control
 - closure of inefficient industrial facilities, power plants
 - Emission, energy standards
- Career incentives for local and provincial leaders
 - At least in name

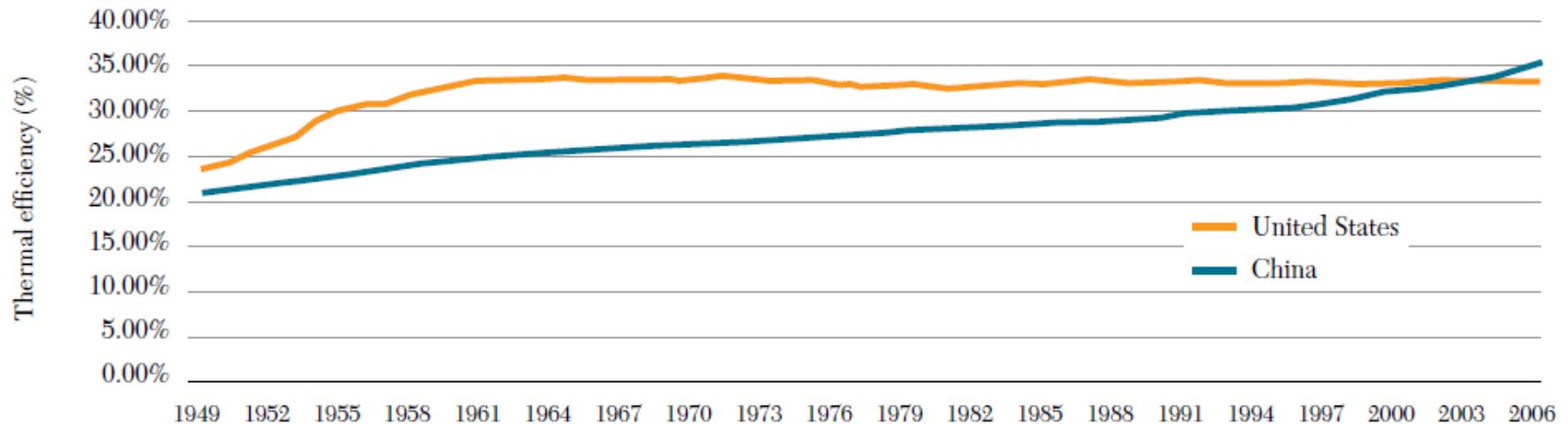
Wind, solar: Price incentives in action

- Phase I: Inverse auctions/concessions
 - Off-shore wind still at this stage
- Phase II: Feed in tariffs
 - 0.51 – 0.61 RMB/kWh for on-shore wind (about the same in Scandinavian kroner)
 - 1.00 RMB/kWh for solar
- Phase III: Renewable portfolio standard
 - Under discussion

Command and control in action

Figure 7

Average Coal-Fired Power Plant Fleet Efficiency in China and the United States



Source: US Energy Information Administration, Annual Energy Review 2008; China Electricity Council Statistical Data

Source WRI (2009)

Career incentives in action

18 Green record now promotion issue

hqsb posted on February 18, 2012 01:05

Beijing government leaders who fail to achieve targets set by the environmental protection index will see proposed promotions vetoed, according to a new regulation released by the Beijing Municipal Government.

The regulation issued on Thursday said governments should take major responsibility for protecting their area's environment quality (EQ) following such factors as controlling total emissions of major pollutants, air pollution index (including the new PM2.5 rating tracking air particulates with a diameter of 2.5 microns or less) and the environment quality improvement index.

The promotion and demotion of officials will partly depend on the EQ index. Prior to this regulation, the "one-veto" policy had only been applied to officials related to the implementation of family planning policy and social security management.

Source Global Times

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What does China do?

How do they do it?

What can we learn?

We are learning already!

BEIJING - China has established its first national think tank on renewable energy to conduct research and develop programs and policies, as part of the country's effort to deal with climate change and carbon emissions.

The China National Renewable Energy Center, launched on Thursday, will also draft industry standards and carry out international cooperation programs.

The center was established by the National Energy Administration with the support of the National Development and Reform Commission.

The center will focus on four major aspects of renewable energy: estimates of the potential for offshore wind power, biomass energy, solar power and the grid integration of renewable energy.

Universities, companies and local governments can seek advice from the center for renewable energy programs, according to Gao Hu, the center's deputy director.

China has signed agreements with Denmark related to the new center, and will also pursue cooperation with the National Renewable Energy Laboratory in the US and energy agencies in Spain.

Friis Arnen Petersen, ambassador of Denmark to China, said the center's opening was a breakthrough in China's road to green growth.

Denmark has donated 100 million krone (\$17.9 million) to support bilateral work in renewable energy, said Sun Yuanjiang, deputy director of the international department of the Ministry of Commerce.

Source China Daily Feb 2012

There's no big secrets

- Public investment
- Research and development
- Green procurement
- Prices and tariffs

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Thanks for your attention!

Haakon.vennemo@vista-analyse.no

Researcher and consultant to China for 15 years