Global Energy Security

Lessons From China

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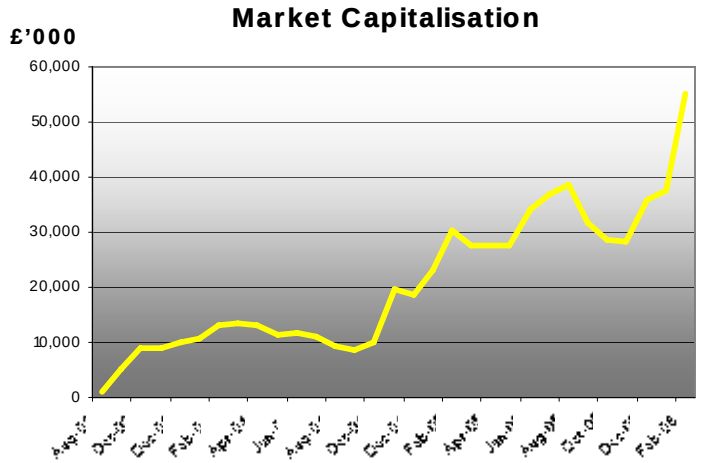
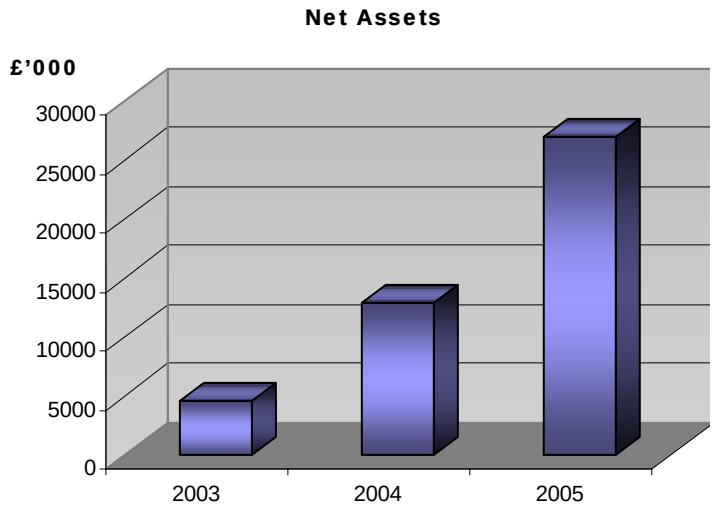
About London Asia

- Asian focused merchant banking group
  - Later stage private equity investment of own funds in SMEs
  - Fund management
  - Corporate finance services
- Listed on AIM since 2002
  - Market capitalisation €65 million
  - Over 50% owned by UK institutional shareholders
- International network of over 90 staff:
  - China London New York
  - Germany S'pore Mongolia
  - Malaysia HK Vietnam
- Industry Focus
  - Financial Services
  - IT / Telecommunication
  - Education
  - Energy and Environment





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Fund Management

- London Asia raised a first £50 million Private Equity Fund
  - Closed March 2006
  - Geographically limited on China
  - Funded by UK institutional investors
  - AIM listed
  - Over half invested to date

- €500 million Energy & Environment Fund
  - Industry focus on clean energy and environment
  - No geographic restriction, but major focus on China and Europe
  - Launching 2007

- €20 million Mongolia Fund
  - Focused on Mongolia's rich natural resources
  - Launching 2007

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Track Record

- London Asia made over 35 China investments since September 2002
- Management team did first energy transaction in China in 1996
- German management team did development and financing of renewable energy projects (wind and solar) with €400m transaction volume since 1995
- Strong Partners in China

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Existing E&E Investments

- China New Energy (UK PLUS listed)
  - Ethanol production equipment manufacturer
  - Exporting to Eastern Europe, Indonesia & Philippines
- Asia Water (S'pore listed) – water supply & treatment
- China Solar - solar thermal systems (vacuum tubes)
- Devotion Ecothermal Technology (S'pore listed)
  - Energy efficient heating equipment
  - Green Coke & other clean coal/oil technology
- Asia Power (S'pore listed) – renewable power generation in China
- China Climate Exchange – leading Chinese CDM consulting business
- Coal mines & coal bed methane

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China and the Carbon Challenge

- For most industrialised countries development of renewable energy is in line with the national interest of independence from imported fossil fuels
- China has abundant domestic coal reserves (>200 years)
- Cheap power generation (2-4 €Cent/kwh)
- China is net importer of crude oil, but could replace oil by liquefied coal
- The immediate environmental problems caused by the use of coal (air pollution) can be solved by end of pipe solutions at reasonable cost
  But this will NOT resolve the CO2 and related climate issue
- → China has no substantial energy problem, but the Chinese coal economy causes a severe threat for the global carbon mitigation efforts
- China faces national challenges which are more immediately pressing than climate change (e.g. poverty, demography)

→ International policy is required to bring China to the table of Kyoto, and reach substantial commitments about carbon emission reduction / limitation

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Feasibility of Carbon Mitigation

Is a substantial shift in Chinese energy policy from coal to clean energy 1) feasible and 2) realistic?

- Inner Mongolia: potential hot spot for renewables in China
  - Huge potential for world class Wind sites (8 m/s)
  - Huge potential for Concentrated Solar Power (CSP)
  - Very low population, much space for large scale renewable power installation

→ Studies about the potential of wind and CSP in North Africa show, that a few percent of the surface of the Sahara would be sufficient to cover Europe´s Power demand.

→ Translation of these results for Inner Mongolia (similar natural conditions) show, that wind and CSP in this province alone could cover a major part of China´s Power demand. (200x200km CSP in the Sahara could cover Europe´s Power demand)

Is a such a move affordable?

- Wind power in Inner Mongolia at ~4-6 €Cent/kWh (coal Power: 2-4 €Cent)
- CSP at ~15 €Cent/kWh, reduction potential down to 6-8 €Cent
- CSP offering option for energy storage and thus base load and peak load power!

→ Large scale substitution of coal by new renewables is economically feasable, but at a significant extra cost

→ China can switch to renewables, but will need a strong incentive for such a move

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Example - China's Wind Sector

- Since 2004 government announced target of 30GW of wind power by 2020
  - But did not specify the regulations
  - Industry expected fixed feed in tariffs ("German model")
  - Created a rush of investment and technology transfer from overseas
    - Manufacturers established local presence, and JVs with Chinese industry
    - Project developers invested in site development
- In early 2006 China released new regulations
  - Competitive tendering procedure instead of the expected fixed tariffs
  - Requirement of 70% local content
- Result:
  - Low cost wind energy (PPA´s concluded for ~5€Cent)
  - Wind farms owned by state utilities
  - Export industry created

→ China´s wind energy engagement so far is rather industry policy than energy- or environment policy

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China´s Wind Sector ct´d

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"30 GW wind by 2020"

- Would represent an investment of ~€20bn
  → enough to incentivise creation of an industry
- Would represent ~ 2-3% of power generation
  → too small for substantial carbon emission reduction
- 30GW is far below of what would be feasible
  - estimated onshore potential of at least 250GW
  - Huge world class wind resource in Inner Mongolia (8m/s, 4-5€Cent/kWh)
  - 18 GW installed in Germany today

- Wind energy taken serious as an option for power supply
  - Target 100 GW until 2020 / 2025
  - Clear, reliable, and economically attractive framework incentivising private investment into wind farms

→ China could replace coal by wind at a significant scale, but needs an incentive to do so, as such a move requires some extra cost

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China – E&E Opportunities

Attractive sectors for European investors and SME´s

- Energy efficiency
  - Cheapest of all clean energy sources (“negative cost” in many cases)
  - Energy efficiency in China 4 times lower than OECD average
  - E.g. efficient power stations, CHP, innovative air conditioning, LED lighting
- Wind energy, turbine manufacturing and project development
- Biomass
  - Only technology subsidised by fixed feed in tariffs for electricity
  - In many cases offers additional benefits, as disposal of harmful waste, production of fertiliser, generation of Carbon Credits (CDM projects)
- Solar heating
  - 75% of all solar thermal systems worldwide are in China
- Cleaning up technologies: treatment of waste, waste water, flue gas
  - Driver: pressing environmental problems and related health problems
  - Opportunity: Transfer of innovative technologies from Europe

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China – Non Opportunities

- Grid connected Photovoltaic in China
  - Booming PV industry, currently attracting massive investment from capital markets
  - But fully dependent on export into subsidised western markets
  - No potential for substantial contribution to Chinese power supply (generation price of 40 – 50 €Cent/kWh)
  - Eventually applicable for rural off grid applications

- "Energy Farming": Power and fuel from agricultural products
  - Biodiesel based on oil seeds
  - Ethanol from sugar cane
  - Power generation based on energy plants as gasified corn
  - → Too expensive,
  - → requires huge amounts of agricultural land, competition with food production (China is a net importer of food)

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Sino-European Synergy Potential

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- China
  - Is a huge market for E&E solutions
  - Provides a highly competitive manufacturing base at increasing quality
- Europe
  - Can provide leading E&E technologies and operational know-how

→ Huge Synergy potential and many business opportunities

→ Challenge: to bridge the gap between two business cultures

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