China’s Coal Situation

Calvin Quek, Greenpeace
Overview

- 70% of China’s energy consumption comes from coal
- World’s largest coal consumer
- 2011: 3.43 billion tons (equal to rest of world combined)
- Key dynamics
  - Coal in north, water in south = Water constraints
  - Air Pollution
  - Energy Efficiency
Current Installed Capacity

- 2355 coal power plants that exceed 6MW
- Total installed capacity 752 GW (Bigger than US and EU)
Coal Power Bases

• 16 Coal Power Bases:
  600 GW

• Post 2011:
  – 570 coal power plants in development
  – 650GW

• In total
  – 570 + 2355 = 2925
  – 650 + 752 = 1400 GW
New Dynamics

- Increasing installed capacity faces new dynamics
  - Slower energy consumption growth
  - Higher energy efficiency
  - Alternative energy sources
  - Environmental Constraints
Air Pollution

- Greenpeace & Peking University study
  - 8572 deaths in 5 cities in 2012
  - MIT, Tsinghua, Peking: Life expectancy 5.5 years cut in the 1990s
  - Coal burning is the primary source of PM 2.5
Air Pollution Plan

1.) Reduce PM 2.5 levels in the following regions, from 2012 levels by 2017

a.) "Jing-Jin-Ji" region (Beijing, Tianjin, Hebei): - 25% drop
b.) Yangtze River Delta (Shanghai, Jiangsu, Zhejiang) - 20% drop
c.) Pearl River Delta region (Guangdong) - 15% drop

2.) Reduce PM 10 levels in all 286 prefecture-level cities by at least 10% from 2012 levels by 2017

3.) How to do this?
   a.) control of coal consumption
   b.) industrial and vehicular emissions
   c.) increased used of clean energy alternatives.

While the plan outlines the target 2017 PM 2.5 level drops in the key regions, absolute coal consumptions cuts announcements have come from provincial governments in separate documents.
2011 Coal Consumption by Province/City (Million Tons)

*Green indicate provinces/cities that have announced coal consumption caps/cuts
*Orange indicate foreign countries
Air Pollution Plan

Shandong Coal Consumption

Hebei Coal Consumption

Tianjin Coal Consumption
• Major trend change in provinces consuming 1/3 of China’s coal
• Reduction from baseline ~500 Mt by 2020
Global Water Resources

Map II.1. Internal renewable water resources generated within a country on a per capita basis, circa 1995 [m³/cap/annum]

China per capita resources: 1,730m³
Note:
Adequate (>1700)
Water Stressed (1000 – 1700)
Water Scarce (500 – 1000)
Extreme Water Scarce (0 – 500)
• Greenpeace Study
• China Water Risk
2000-2030 Water Demand & Water Caps (billion m³)

RMB 4 trillion to be spent on water infrastructure 2011-2020
2015 coal power bases water consumption will exceed current provincial water consumption severely by more than 100% in these provinces.
Deutsche Bank

Asia Economics Special
China: Big beng measures to fight air pollution

Beijing's clean-air action plan casts shadows to coal market

Industry Update
Metals & Mining Alert

Deutsche Bank AG/Hong Kong

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2 http://finance.ifeng.com/roll/20101224/3105428.shtml
Exhibit 10: FAI in China Coal Mining Sector (2006-1Q:13)

Source: NBS, CEIC and Bloomberg analysis.

China’s largest coal companies are trading near or below book value, signaling concerns among investors about the quality of assets.

China’s CSI 300 Energy Index trades at a record discount to the MSCI All-Country World Energy Index.

Relative of China Coal Stocks relative to index (indexed to 100)

- Shanghai Composite Index
- Shenhua
- China Coal
- Yanzhou Coal
Next Steps

• Feed the Beast
• Track Chinese Money