



CHINA'S TAKE ON URANIUM

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Mining Investment Fundamentals 2011

CHINA'S URBAN BILLION



350 million

will be added to China's urban population by 2025more than the population of today's United States



people who will live in China's cities by 2030



Chinese cities will have one million + people living in them— Europe has 35 today



Source: McKinsey 2009

170

mass-transit systems could be built



square meters of floor space will be built-in five million buildings

50,000

of these buildings could be skyscrapers—the equivalent to constructing up to ten New York cities



-the number by which GDP will have multiplied by 2025

.....We've all seen this before!

CHINA'S POWER MIX





CHINA'S 12TH FIVE YEAR PLAN



Emissions goals



Targets for limiting greenhouse gas emissions compared with 2005 emission levels:

China

• Reduction by 2020

40-45%

83%

U.S.

• Reduction by 2020

17%

Reduction by 2050

EU

Reduction by 2020

20%

Source: Reuters Graphic: Jutta Scheibe, Eeli Polli © 2009 MCT

CARBON REDUCTION

- "Non-fossil fuel" energy production to reach and stay above 11% of total energy production by 2015 ("non fossil fuel energy" include the energy sources of hydropower, wind power, solar power, biogas and nuclear)
- Aims for a 17% reduction in carbon dioxide emissions by 2015
- China will spend an estimated US\$1.54 trillion on clean energy projects in the next 15 years
- Focused on Health & Safety

 GDP growth no longer the performance yard stick

2020 CARBON REDUCTION



COAL REDUCTION IN ENERGY MIX FROM 73% IN 2010 TO 55% BY 2020



Nuclear to increase to 4% by 2020 in China

PELLET PRODUCTION





17,000 cubic feet natural gas



1780 pounds coal



149 gallons oil



To power ONE average household for FOUR months





Green energy – carbon free emission

ONE pellet uranium fuel

CHINA'S NUCLEAR COSTS?



Source: China Newenergy Net, Sci-Technology and Management, USB Research

Renewable energy	Power generation cost (Rmb/KWh)	Power generation cost to thermal generation cost
Nuclear energy	0.20-0.29	0.9-1.3
Biomass energy	0.30-0.73	1.3-3.2
Wind energy	0.55-0.64	2.4-2.8
Small hydropower	0.31-0.44	1.3-1.9
Solar energy	2.01-2.98	8.9-13.0

Note: Nuclear power investment and cost calculation is based on LinAo nuclear plant (China's first 100WKw class Nuclear plant), assuming 70% and 30% localisation rates for the low end and the high end, respectively.

Wind energy Solar energy Biofuel 770 square km 150 square km 2,500 square km

FUKUSHIMA INCIDENT



Did Fukushima really deserve such bad press?

INCOMPARABLE TO CHERNOBYL:

- Japan has 56 nuclear power plants of which ALL felt the earthquakes
- 10 automatically shut down
- It took 2 RECORD magnitude earthquakes along with multiple earthquakes one after the other to affect 2 power plants

Both reactors are FORTY YEAR OLD Generation II models!

CHINA TO CONTINUE AHEAD



"Fukushima has made us pause and rethink some of our projects," Xu Yuming, vice secretary general of the Nuclear Energy Association, said in a May 12 interview in Beijing. "Of course, the overall plan won't be changed. China faces power shortages and we need to change our energy mix. To resolve these issues, we must develop nuclear."

In China, Wen Jinbao's post Fukushima State Council conference set up four requirements:

- 1. Check and upgrade safety of existing plants
- 2. Review existing safety rules
- **3.** Check on safety of existing projects under construction
- 4. Upgrade safety requirements under which permission to build

HEALTH & SAFETY



Wang Yuiren, Head of China Atomic Energy Authority said in an IAEA conference in June: "It is **important and urgent mission before us to draw lessons from Japan's Fukushima Daiichi nuclear accident** and strengthen international cooperation in nuclear safety to jointly promote safe development of nuclear energy."

- Generation III plus reactors
- 13 reactors have passed safety inspection
- Safety reviews of 27 reactors now under construction and should be completed by October 2011
- Permits issuing for new plants will be lifted in 2 years

What about skill set??

SOURCE: Citic Security report; Gaohua report ; interviews; iterature search; McKinsey analysis

CHINESE MANPOWER



Current student enrollment rates by 2020 China will have ~8,000 fully functional nuclear O&M employees



Assumptions: % graduates entering nuclear industry = 70%; % new nuclear hires enter into NPP O&M = 57%; need 8 years lead time to be "fully functional: 4 years in college, 4 years on-job training

Human capital pipeline sufficient to meet 75 GW target

Addressing talent issue:

- CGNPC creation of nuclear-specific programs to target undergrads
- CNNC/CGNPC nuclear-specific 2.5 year MA to enroll general engineering college grads
- CNNC/CGNPC 5-month training program for new hires without nuclear degrees
- CNNC/CGNPC training centers at universities to re-train current employees

NUCLEAR PLANS

"Nuclear plans until 2020"

World

Operable: 443 In construction: 62 Planned: 156 Proposed: 320



China

Operable: 13 In construction: 27 Planned: 50 Proposed: 110



South Korea

Operable: 12 In construction: 2 Planned: 12 Proposed: 1

Japan

Operable: 55 In construction: 2 Planned: 12 Proposed: 1

India

Operable: 20 In construction: 5 Planned: 18 Proposed: 40

2011 Post Fukushima: China continues with Nuclear

	2011 Operating		2020 Operable	
	No.	% World Nuclear	No.	% World Nuclear
China	13	3	200	20
Japan	55	12	70	7
India	20	5	83	8
S Korea	12	3	27	2



DEMAND & SUPPLY - URANIUM





Source: Merrill Lynch estimates

LATEST CONSENSUS ON NUCLEAR



Standard Chartered's **Earth's Resources Conference**



BEFORE NUCLEAR PANEL DISCUSSION

Do you think nuclear is safe?

AFTER NUCLEAR PANEL DISCUSSION

Do you think nuclear is safe? 11% NO 89% YES

Insurer's View Point:

- Questioning the frequency of risk (low)
- What is the payout?
- Nuclear plants are insurable
- ALL plants globally including China are insured

Academic's View Point:

38% NO

62% YES

- We are already too late in the cycle on renewables
- An alternative solution is preferred to nuclear but there isn't one
- Consumers should learn to cut back on power usage if they really want to do something

Miner's View Point:

- There are more deaths in coal mining
- There is less radiation in Tokyo post Fukushima than on an average day in parts of Hong Kong
- Nuclear has the lowest death rate out of all energy sources

CHINA ON URANIUM



The Market

11th July 2011: Chinese bid for Bannerman Resources @ A\$0.612 cash per share making Bannerman Resources worth A\$144 million (Bannerman was trading at around A\$0.38 before the bid)

11th May 2011: China withdrew the GBP2.90 bid due to listing rules which will give them rights to rebid at a lower price?

3rd May 2011: China reduced the bid after Fukushima's incident to GBP2.70 which was declined by Panel of Executives under listing rules

7th March 2011: Chinese bid for Kalahari Minerals @ GBP2.90 cash per share valuing Kalahari at £756 million (Kalahari was trading around GBP2.40 before the bid)

TAKE HOME



Uranium (08 July 2011) Spot price: US\$53.75/lb Long term price: US\$68/lb



- Nuclear demand remains strong due to Asia requirements especially China and India
- Generation 3+ would have most probably prevented Fukushima incident
- Uranium price to increase over next few years due to tight supply in the market
- Nuclear is safe
- Nuclear is the cheapest and most consistent alternative





QUESTIONS?

WITH A BIT OF MARKETING....



ABOUT APAC



Natural Resource Investment and Commodity Business listed on HK Exchange

Stock code: 1104 HK Share price: HK\$0.41 Market Cap: HK\$2.9 billion Last NAV: HK\$0.98 (May 31 2011)



Resource Investment

- 40-50 emerging resource stocks with a view to grow to Primary Strategic
- Eg Kalahari Minerals 14.8% 4th largest uranium resource in the world

BUSINESS MODEL

- **Primary strategic Investment:**
- Mount Gibson 25.6% 4th largest iron ore producer in Australia Metals X 29.1% - largest tin producer in Australia and developing world class laterite nickel

Commodity Business

- 20% uncommitted off-take from Mount Gibson's life of mine
- Back to back physical trading
- Risk management