Opportunities for Australian CBM Companies in China

4 December 2003

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Health, safety, environment and community

Can Australian companies operate to satisfactory standards?

The answer is YES.

- Production Sharing Contracts require
  - Operations to be conducted according to International practice
  - Best efforts to protect the environment
  - Securing of health and safety of personnel
  - Joint venturers to be liable for economic losses caused by pollution
  - Regular auditing
  - Rehabilitation
- However there are cultural issues to address
  - Large numbers of people employed by contractors
  - Potential for economic imperatives to outweigh focus on HSEC
- Given its inherently low HSEC impact, CBM is considered manageable

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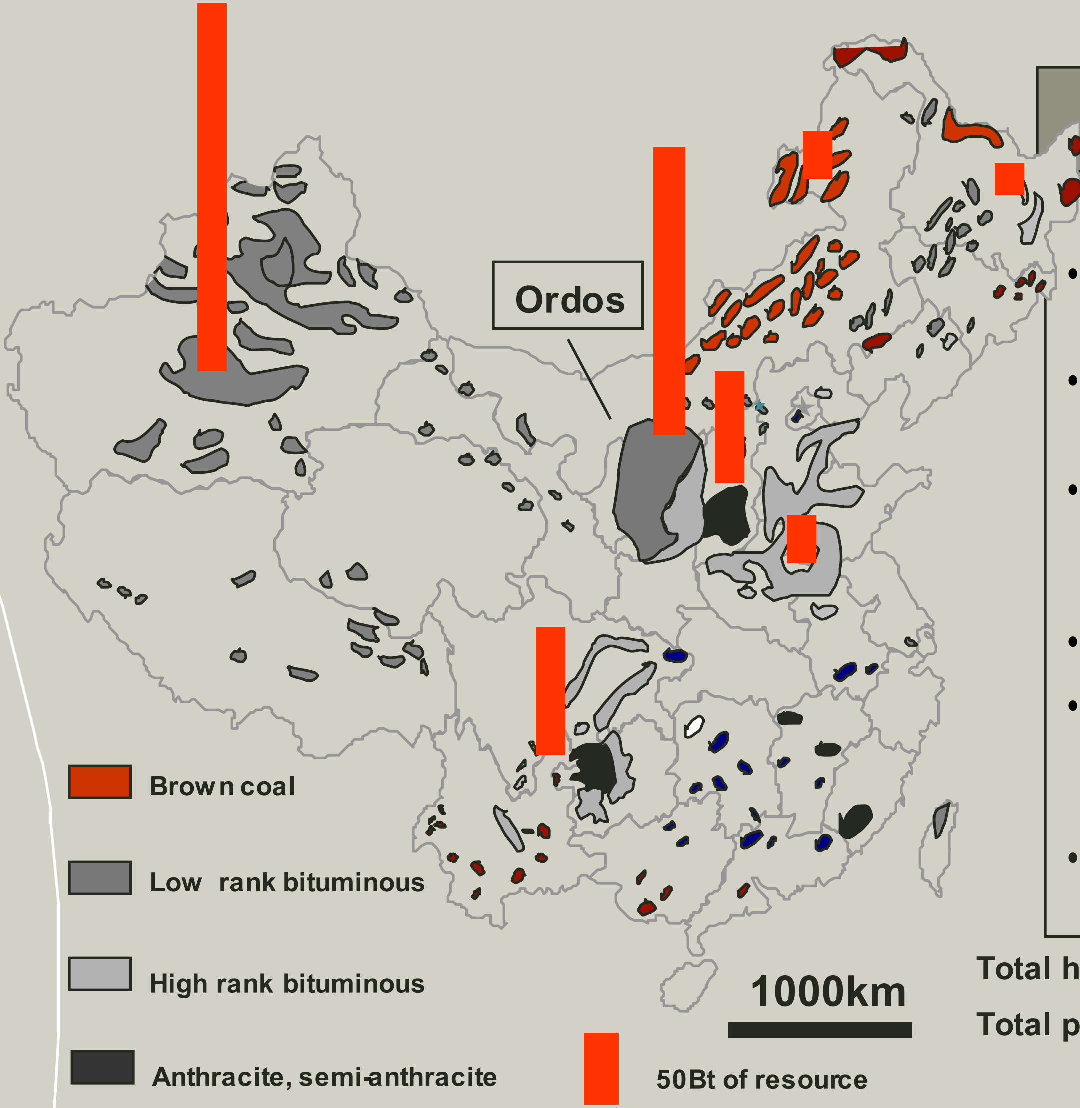
China's coal sector



Source: BHP Billiton

Comments

Economy is very dependent on coal

- Coal is dominant fuel for space heating, cooking and power generation
- Current production in excess of 1.3 billion tonnes each year
- Main fields are in North China - Ordos Basin will be main supply source of the future
- Broad range of coal types/ranks
- No virgin areas – most coal deposits have been worked by majors, regional coal companies and TVE's.
- Around 30% of supply remains from local small scale producers of <100kt/y.

Total hard coal resources 500Bt (to 600m)

Total proven hard coal thermal reserves estimated 44Bt

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One form of coal transportation

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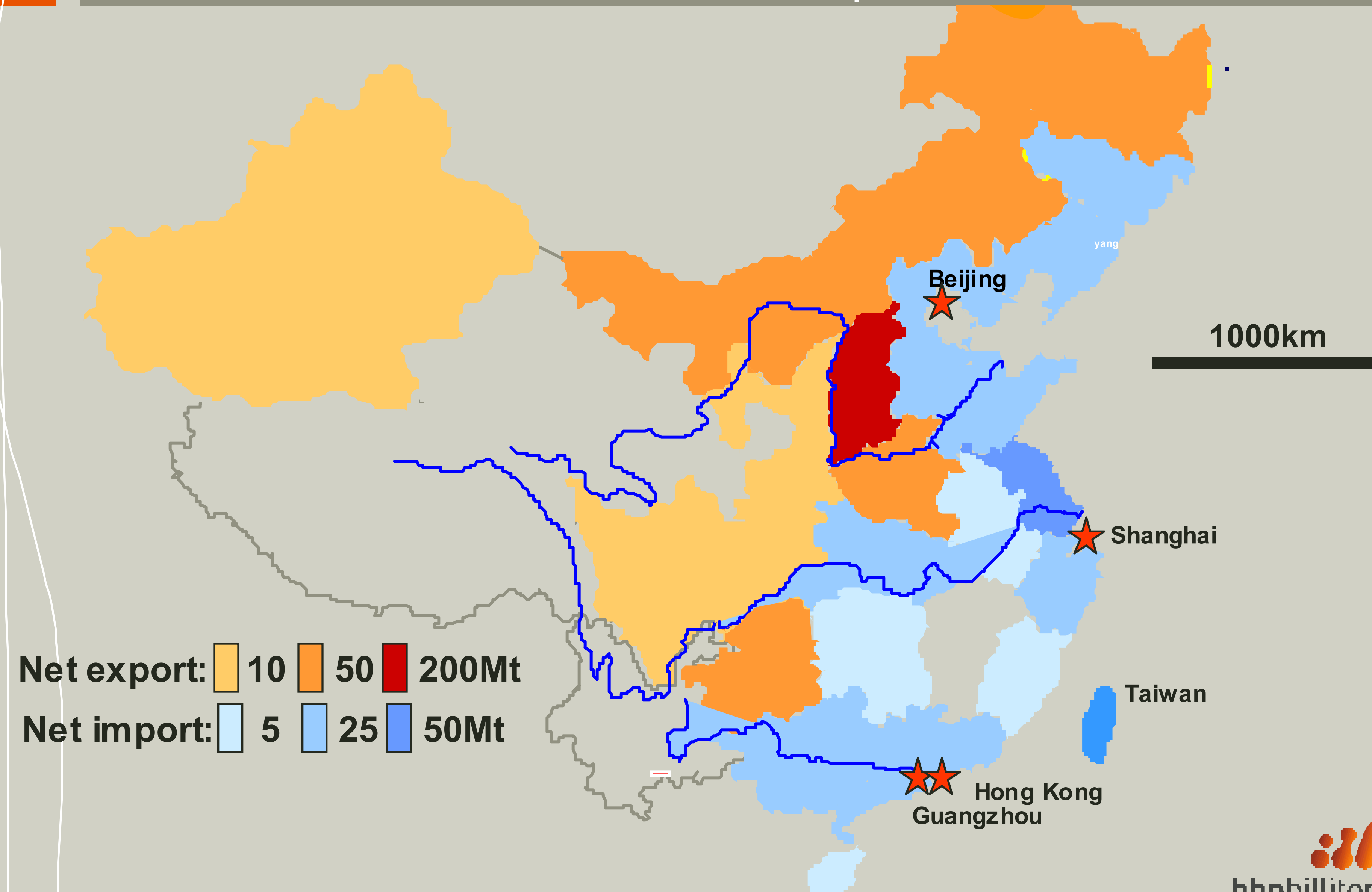
China's inland coal fuels the Eastern provinces



Coal-by-wire

Several coal-by-wire power projects planned and under construction to provide markets for inland coal, to reduce reliance on stretched rail infrastructure and reduce air pollution of Eastern cities

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China's gas market

- Estimated Annual Gas consumption 800-900 PJ/year and is expected to grow at 10-12% per year (cf Eastern Australia gas demand ~ 600 PJ pa)
- Beijing, NE (Liaoning, Heilongiang) and Shanxi Provinces have significant existing gas consumption
- Annual growth rate of ~8% pa over past 5 years
- It is predicted that gas consumption will rise at an annual rate of 7.5 percent by 2020, and the total volume will reach 1960 PJ in 2005 and amount to 3570 PJ in 2010.
- Forecast growth rate driven by air pollution concerns, and Central Government initiatives
- Particular focus is Beijing 2008 Olympics and Shanghai market
- Gas supply all currently domestic, no imports yet
- Estimated natural gas reserves 55-60 Tcf and growing
- Major transmission pipeline projects planned and underway
  - First leg (1250 km) of West to East transmission pipeline linking Shanghai to the Ordos Basin is operational
  - West to East pipeline extension (2400 km) linking Tarim and Qaidam Basins to be operational by 2006
  - Transmission pipeline (1000 km) linking Sichuan Basin to West to East pipeline between Ordos and Shanghai viable post 2010
- LNG import terminals in Guangdong and Fujian to supply 5-7 Mtpa (270-370 PJ pa) by 2008-09
- Ex field (compressed) prices vary from 0.6 to 1.0 Yuan/m3 (US$2.05 to 3.45/GJ), with city gate prices ranging from 1.30 to 1.60 Yuan/m3 (US$4.50 to 5.50/GJ)
- Plenty of room for CBM supply

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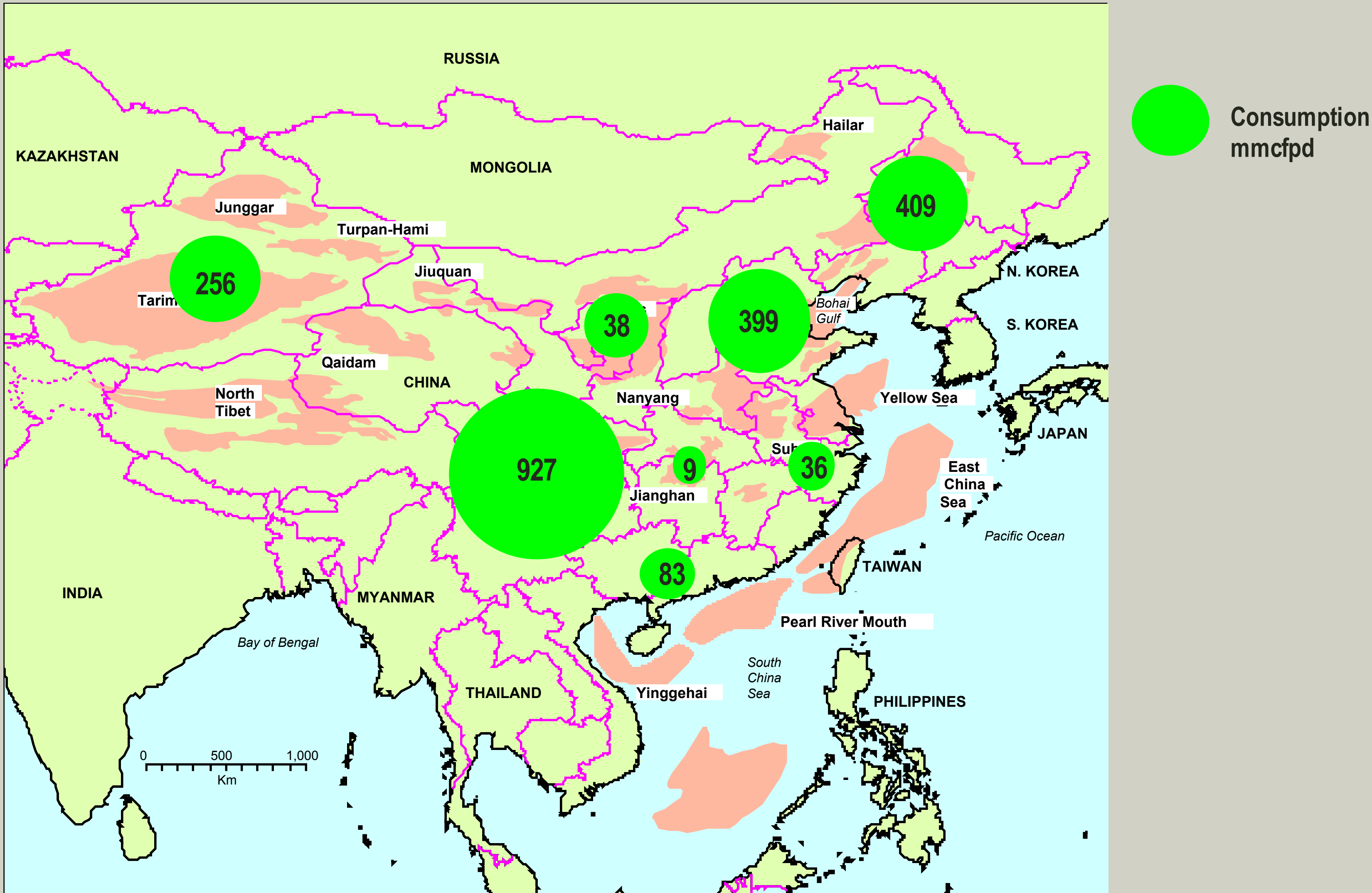
CBM well

1999 Natural Gas Production (mmscf/d)

1999 Natural Gas Consumption (mmcfpd)



CBM blocks (PSCs) in China (as of Nov 2003)

Item	Project Name	Contract Area km^{2}	Reserve?Bln m^{3}?	Time of Signing	Foreign Partner	Location
1	Huaibei	2663	60	Jan-98		Anhui
2	Sanjiao	448	63.5	Jun-98		Shanxi
3	North Sanjiao	1126	55	Jun-98	ChevronTexaco	
4	Shilou	3602	175	Jun-98		
5	Linxing	3325	300	Jun-98		Shanxi
6	Fengcheng	1541	37	Aug-98	Greka Energy	Jiangxi
7	Liulin	198	30	Nov-99	Lowell	Shanxi
8	Zhungeer	2817	400			Inner Mongolia
9	Baode	1079	120	Nov-00	ChevronTexaco	Shanxi
10	Shenfu	3001	600			Shaanxi
11	Hengshanbao	1807	230	Jan 01	Virgin	Ningxia
12	Qingshui	2317	450	Apr 02	Phillips	Shanxi
13	Shouyang	1963	230	Apr 02		
14	Laochang, Enhong	1072	140	Dec 02	Far-East Energy	Yunnan
15	Qingyuan	3665	550		Greka Energy	Shanxi
16	Panxie	584	20	'Mar 03		Anhui
17	South Shizhuang	455	90			Shanxi
18	North Shizhuang	375	75			
19	Jincheng	151	28	Mar 03	Sino-America Energy	Shanxi
20	Huangshi	305		Oct 03	Gladstone	Hubei
	Total	32187	3654			

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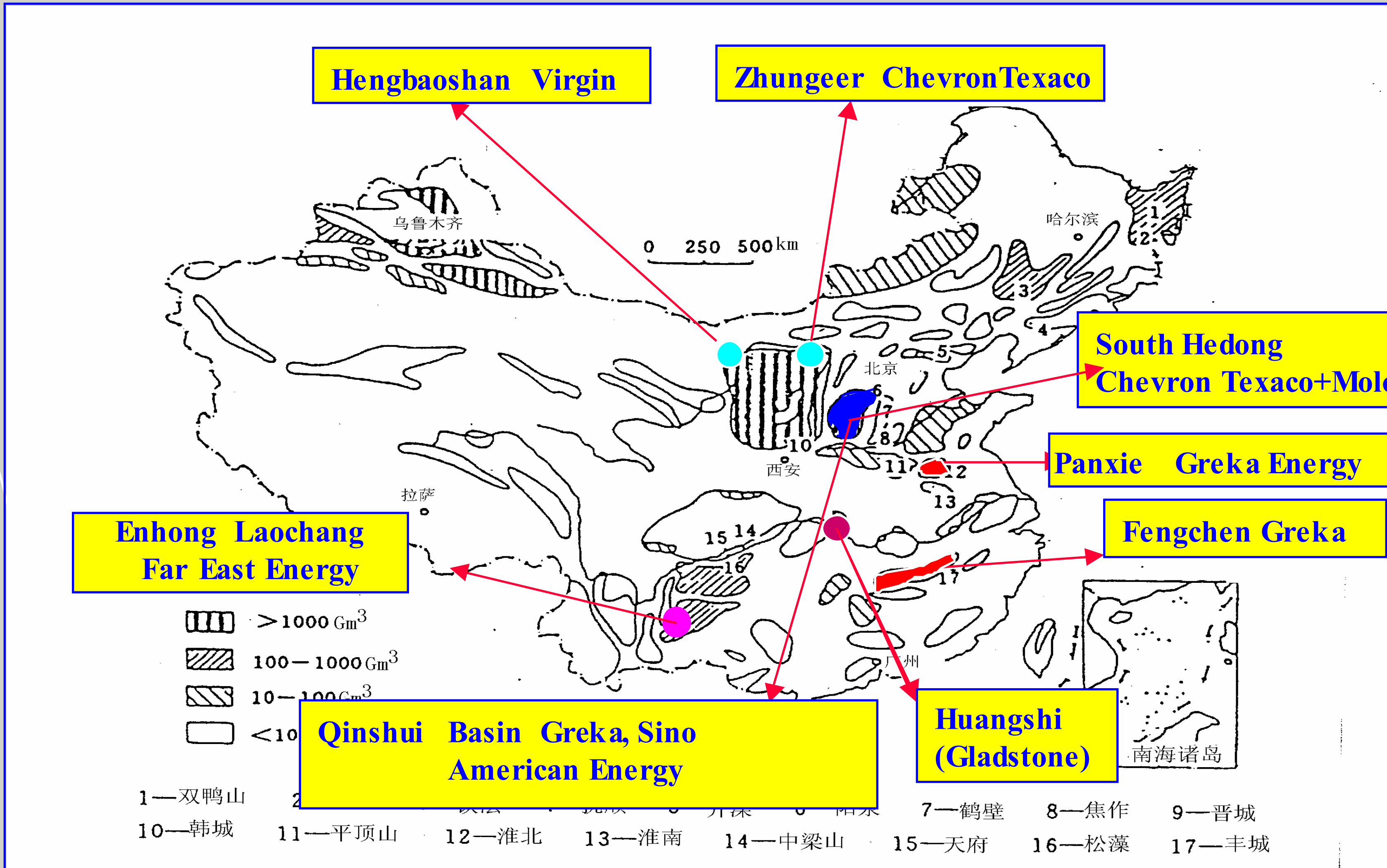
CBM blocks (PSCs) locations



Active CBM exploration programs

20 PSC's now in place with China United Coal Bed Methane (CUCBM)

US$80m spent to date

Permeability is low – comparable to Sydney and Bowen Basins

- Main PSC holder currently Chevron Texaco: acquired BP (Arco) and Phillips acreage in E Ordos basin
  - **One 9-well pilot, second 5-well pilot in E Ordos**
  - **One 5-well pilot in Anhui**
- Molopo: **One 3-well pilot in E. Ordos**
- Greka Energy: **Hold 5 PSC's - 3 in Qinshui basin, (1 ex CUCBM) one in Anhui, one in C China**
- Far East Energy**: 3 PSCs in SW China and S Qinshui (latter ex Phillips)**
- Sino American Energy: **One 7-well pilot S. Qinshui**
- CUCBM (State): **various exploration projects**
- Others: **Gladstone Power Energy, Virgin Energy**

Most advanced projects are in Jincheng and Hedong coal fields, Shanxi

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CBM fiscal terms

Production Sharing Contracts (PSC's)

- China United Coal Bed Methane (CUCBM) is mandatory counterparty for foreign investment in China CBM
- CUCBM is owned 50/50 by China National Petroleum Corporation (CNPC) and China Coal Construction Group (CCCG), both wholly owned by Central Government
- Term 20 – 30 years
- 50% plus (negotiable) available to Contractor in each block, with CUCBM retaining remainder
- Modest sign-on fee usually required
- Three phases
  - Exploration, development, production
  - Exploration costs borne solely by Contractor, recovered from cashflow on nominal basis
  - Contractor commits to exploration work program and expenditure over a five year period, to earn interest in block
  - Development costs borne in proportion to ownership, with Contractor preferentially receiving cashflow until 9% rate of return realised
- Contractor is Operator
- CUCBM's role is to facilitate local approvals and liaison with local and Government bodies
- Joint Management Committee with CUCBM is decision making body
- PSC requires commitment to training and technology transfer, at the Contractor's cost
- PSC requires preference to Chinese goods and services where its competitive
- Ownership of data vests with CUCBM

Markets for CBM

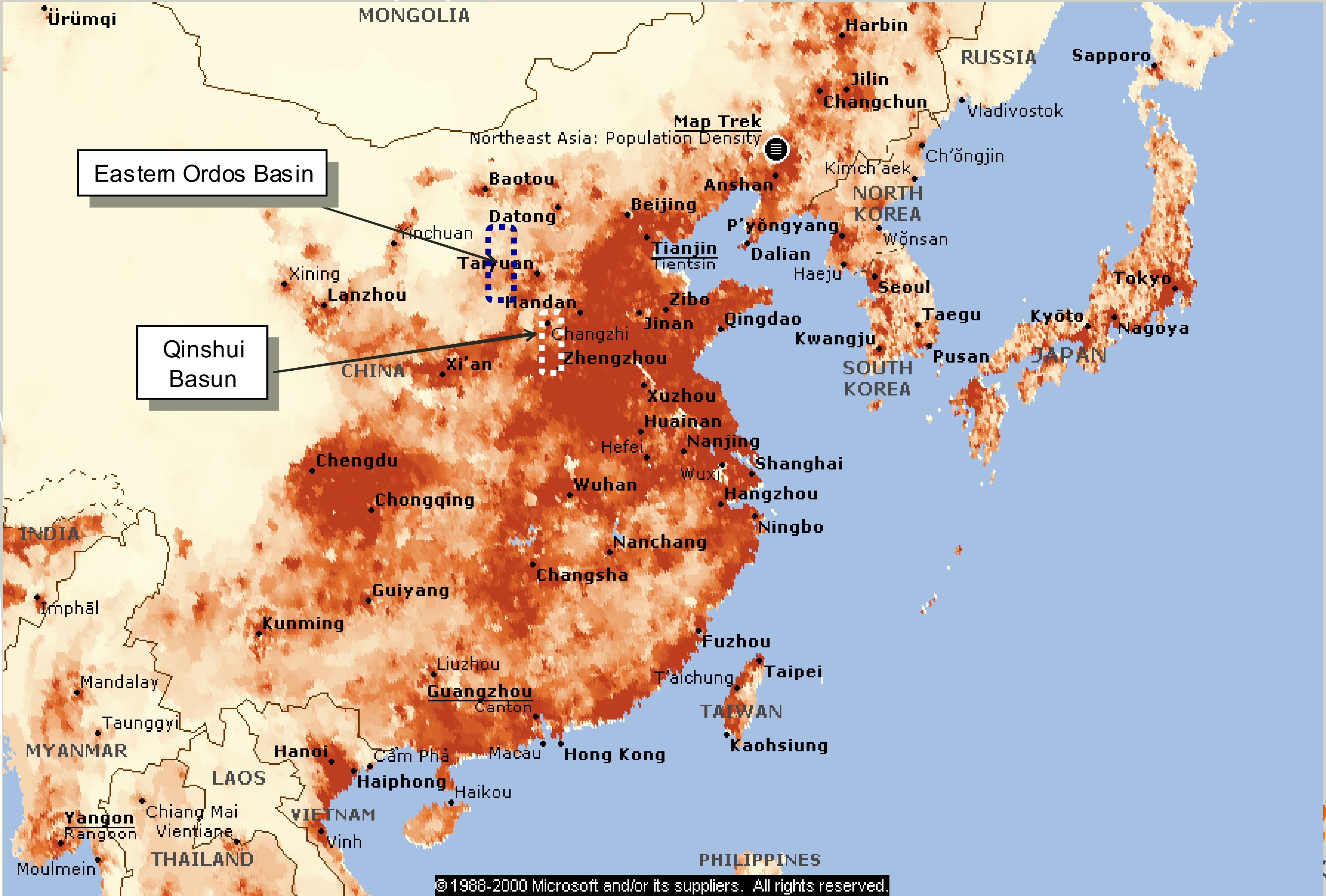
Potential gas markets are:

- Coal gas substitution
  - Town gas
  - Gas chemicals
- Power generation
- Major pipelines

Issues:

- Low cost and abundance of coal
- Creditworthiness of buyers
- Security of supply given immaturity of CBM industry and lack of success to date
- Immaturity of gas market

PSC blocks vs population density



Natural Gas Pipelines

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Opportunities for Australian companies to participate

China CBM is considered reasonably attractive:

- Clear regulatory regime
- Strong willingness to attract foreign investment
  - both small and large companies
  - recent goodwill between China and Australia
- Standard PSC terms
- Extensive coal basins
- Reasonable CBM conditions – seam thicknesses, gas content, permeability,
- High growth gas market, albeit off low base
- Reasonably attractive gas prices
- ……. and same time zone!!

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