

# China's Developing Gas Market

*Philip Andrews-Speed*

Centre for Energy, Petroleum and Mineral  
Law and Policy

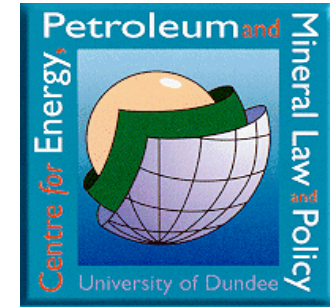
University of Dundee

**Scottish Oil Club**

**20 January 2005**

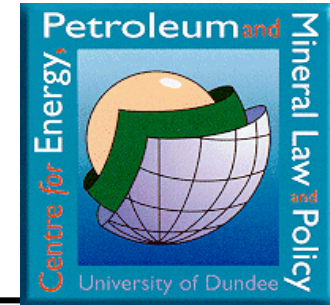


# Why of interest?

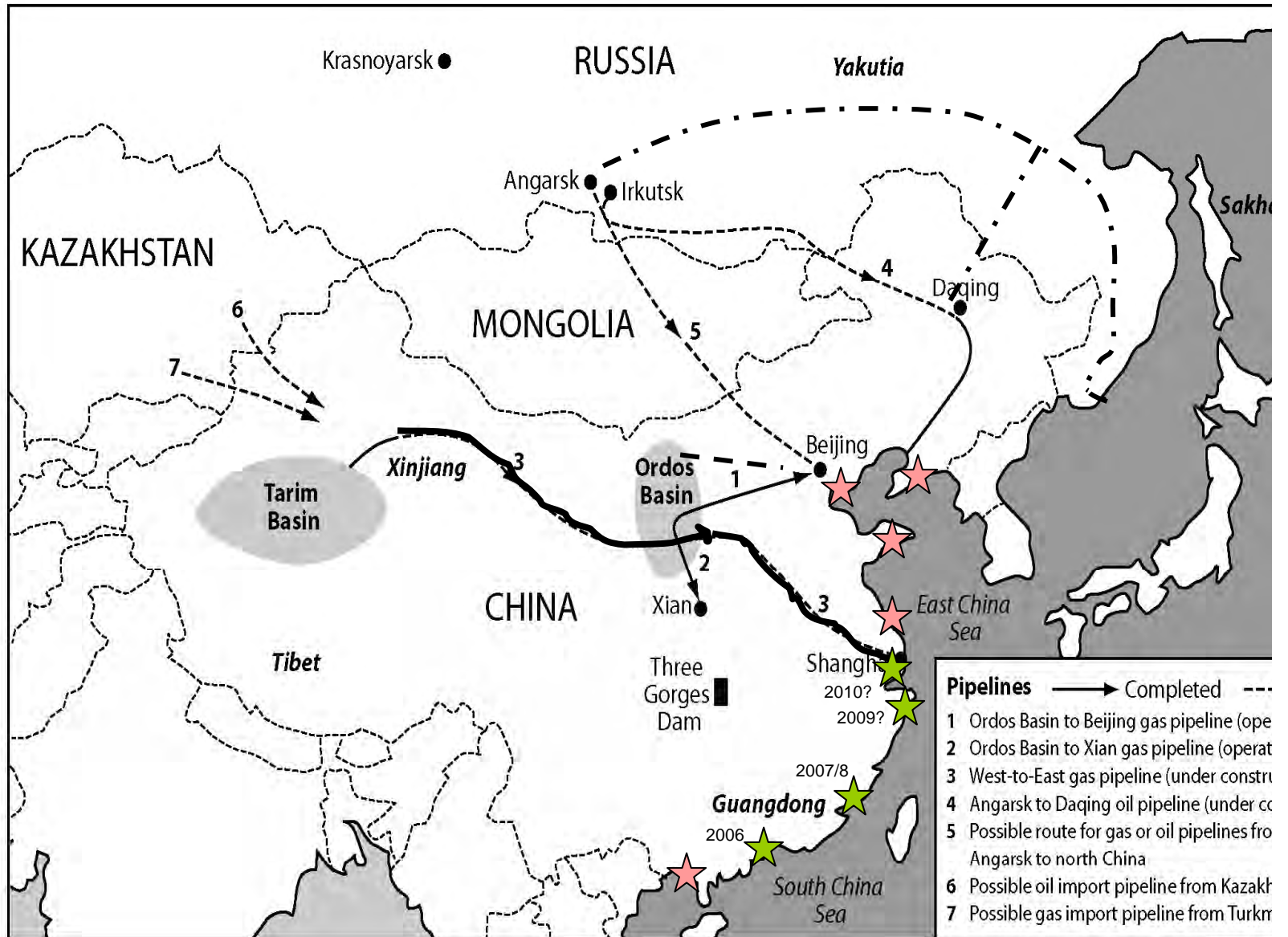


- Scale and rate of growth of China's energy demand
- Substitution of coal by gas >> environment
- Gas imports (Pipe and LNG):
  - Opportunities
  - Implications for LNG market
- Investment in domestic gas market
- Implications for domestic power market
- Regional politics

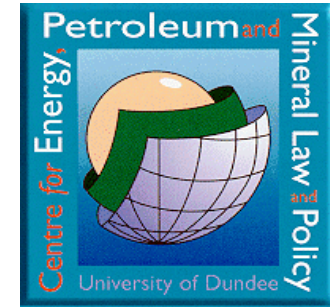
# Gas supply and demand in China



	1985	1990	1995	2000	2003	2010	2020
<b>Cons. Bcm</b>	12.8	14.7	17.7	24.5	32.8	70- 100	150- 250
<b>Prod. Bcm</b>	12.0	14.2	17.6	27.2	34.1	50- 75	100- 150
<b>Import bcm</b>	0	0	0	0	0	20- 40	50- 100
<b>Gas %</b>	2.2%	2.1%	1.8%	2.4%	2.5%	5%	7%

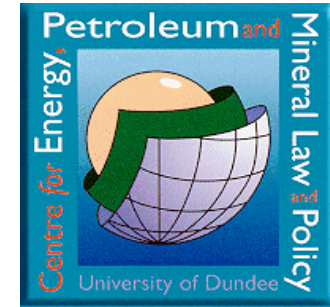


# Policy issues



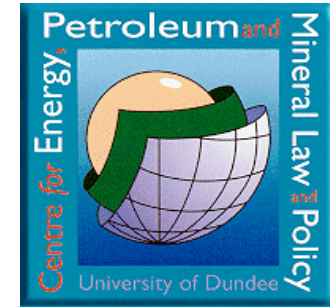
- Absence of explicit, coherent and stated policy for natural gas
- Absence of government agency responsible for gas development, with staff and authority
- Coal is abundant and cheap, gas is scarce and expensive
- Lack of clear pricing policy
- Links with power sector reform
- Power of incumbents

# Apparent policy for natural gas (1)



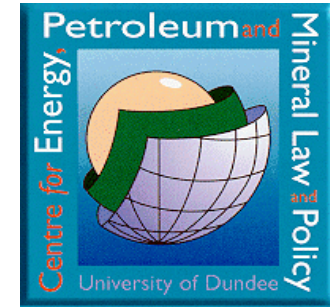
- Identify and develop new gas reserves
- Major domestic gas pipelines
- Approval for foreign involvement in these pipelines and in the markets
- Price for natural gas have been raised
- Gas for power generation approved

# Apparent policy for natural gas (2)



- Approval for LNG projects in E & SE China
- Feasibility studies on import pipelines
- Coal use banned in a few cities
- Testing the viability of coal-bed methane
- *Poor coordination in market development*
- *No framework for decision-making for non-decision incumbents*

# City gate gas prices



	US\$/mmBTU	
<i>Ordos gas 2002</i>		
(Ex-processor	2.2)	
Beijing	3.5	
Shandong	4.9	
<i>West-to-East pipeline</i>		
(Ex-processor	1.6)	
• Henan	3.82	
• Jiangsu	4.25	
• Shanghai	4.42	
• Zhejiang	4.38	ECS gas 3.6
• Guangdong		LNG ?4.0

# End-user prices

US\$/mmBTU

Beijing Residential

5.0

Shanghai

Residential

7.0

Non-residential

small

7.7-8.7

large

7.7

boilers/furnaces

7.36

Power generation

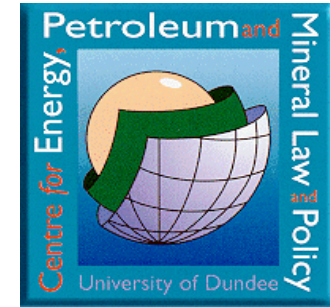
West-to-east pipeline

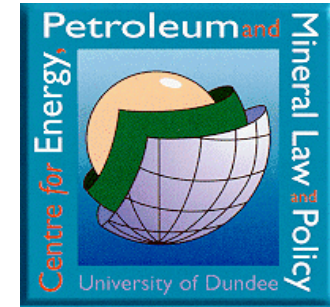
4.3

Hong Kong, Yacheng

4.0

cf end-user prices < US\$1/mmBTU in 1990

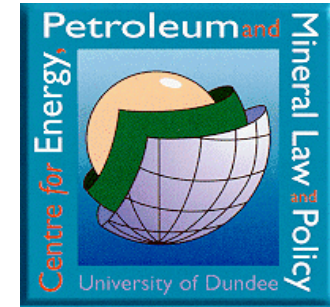




# Symptoms of policy weakness

- **Speed to construct pipelines vs slowness to develop markets**
  - Ordos Basin to Beijing, 1997; Pinghu field to Shanghai, 2000
  - Qaidam Basin to Lanzhou, 2002; West-to-East pipeline, 2004
- **Foreign consortium withdrawal**
  - West-to-east pipeline, 2004; East China Sea, Shell, 2004
  - At risk: Kovytko
- **Link with power sector reform**
  - Guangdong LNG, 2004; West-to-east pipeline, 2004
- **High premium for ‘security of supply’**
  - West-to-east pipeline; Kazakh pipeline

# Sources of policy weaknesses



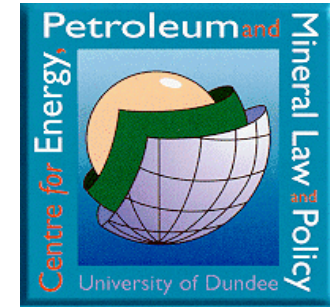
- **Institutional**

- Lack of well-staffed, authoritative government agency for (a) energy policy (b) natural gas
- Power of state petroleum companies & city gas companies (pros and cons)

- **Policy**

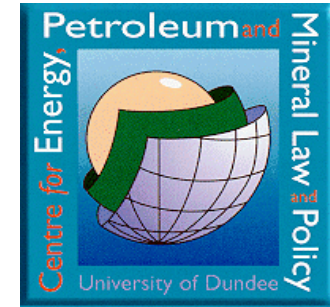
- Haste to develop gas markets
- Lack of coherent energy policy which links gas policy with (a) environmental policy (b) power sector reform
- Unwillingness to raise consumer prices for power

# Policy outlook



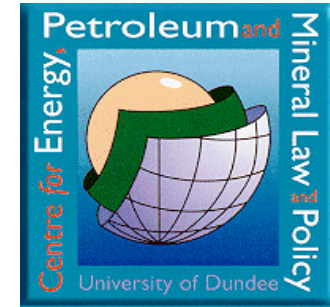
- “New energy policy” announced Nov 2004
  - Emphasises clean energy and efficiency
  - But mechanisms and details not clear
- New government agency?
- New approach to consumer power prices?
- Clear policy for power sector reform?

# Outlook for foreign/private participation



- Gas fields? (Burlington resources)
- Gas pipelines? (West-east pipeline?)
- City gas? (XinAo, Panva)
- LNG: Supply? Projects? (BP, ALNG)
- Pipeline imports? (BP)
- CCGT? (who?)

# Outlook for China's natural gas market



- No sign of change in policy approach
- Likely to be dominated by NOCs and local state companies
- Could raise gas consumption rapidly in absence of clear policy *BUT who pays? Who bears risks?*
- OR may get bogged down in planning, market & political problems; and *gas substitution of coal will be constrained*