



Coalmine Methane Update and IEA's Strategy and Activities

T Hotel, Cagliari, Sardinia, Italy
29-30 April 2008

Ming.Yang@iea.org
Energy Technology Economist

Copyright © IEA/OECD



Outline

- **Updating Coalmine Methane Resources in China**
- **Policy Supporting Coalmine Methane Capture and Use in China**
- **Coalmine Methane Project Financing in China**
- **Coalmine Methane Technologies in China**
- **IEA's Activities in China and Russia**



China coalmine methane resources & emissions

Chinese Gov Data: 30 bn m3 in 2006, Xie Zhen Hua of NDRC

	2007	2008
Coal production (bn tons)	2.54	2.73
Emission rate in coal production (m3/ton)	20	20
Total resources (bn m3)	50.8	54.6
Shares of production: National	49.1%	49.1%
Provincial	12.8%	12.8%
Township	38.1%	38.1%
Shares methane capture: National	30%	40%
Provincial	20%	30%
Township	0%	0%
Captured methane: National (bn m3)	7.48	10.72
Provincial (bn m3)	1.3	2.1
Township (bn m3)	0	0
Total captured methane (bn m3)	8.78	12.82
Total released methane (bn m3)	42.02	41.78

Keys: (1) CMM increase 8%; (2) released CMM will be stabilized due to CMM activities



Chinese Policy Supporting Coalmine Methane Development

- **National fundamental policy***
 - Save energy, Conserve resources, Protect the environment
 - Strengthen its capability in adapting climate change
 - Make new contribution to climate change mitigation
- **CMM Policy**
 - Compulsory to drain CH₄ in coal production
 - Mandatory to drain CH₄ before coal production (not valid)
 - NDRC policy: Management of CDM in CMM capture and use
 - Large power generation unit: > 500 kW/unit
 - Grid must buy extra CMM power from coalmine operators
 - Tariff subsidy policy: 0.25 Yuan/kWh (0.03 USD/kWh)

**Source: 17th Congress of the Chinese Communist Party*



China Coalmine Methane Project Financing

	Starting year	Equity		Government fund		Commercial loan	
			(M \$)		(M \$)		(M \$)
1. Shui Cheng Coalmine	1992	0%	0	100%	0	0%	0
2. Deng Zhan Pin Coalmine Ltd. Si Chuan Province	2009	0%	0	0%	0	100%	0
3. Si Pin Coalmine No. 1	2008	0%	0	35%	8.141	65%	15.119
4&5. North & South Lu Ban Shan Coalmines Si Chuan	2006	0%	0	50%	2.3	50%	2.3
6. Gu Lin Coalmine Western Area, Lu Zhou City	2005	0%	0	0%	0	100%	0
7. Gu-Lin County Shan He Coalmine Methane to Power Generation	2008	45%	2.115	0%	0	55%	2.585
8. Xu Yong Coalmine No. 2, Si Chuan Coal Group Co. Ltd. China	2009	Unknown		Unknown	0.2	Unknown	

Note: Commercial loan rate 7.5%/Yr for items 2, 3 and 4; and 7.8% for item 7.

**Key messages: (1) Coalmines go to commercial banks
(2) CMM project financing is not a big challenge**



Chinese Coalmine Methane Technologies

- Short of degasification technologies suitable for the Chinese coal seams
- Short of VAM use technologies
- CMM power generation: 500 kW ~ 1.5 MW/unit
- Transmission of gas with 8% concentration



IEA's Strategy and Activities in China (1)

- **Develop an Ally of CMM Stakeholders**
 - ◆ USEPA, UNECE, OECD/IEA Member Countries
 - ◆ National, Provincial, City, & County Governments in China
 - ◆ Coalmine Owners and Operators
 - ◆ Technology Providers
 - ◆ Financial Institutions (World Bank, ADB)
- **Policy Outreach**
 - ◆ Articles and reports publication
- **Facilitate Technology Transfer**
 - ◆ Workshops, meetings and hotline communications
 - ◆ Assist USEPA's feasibility study



IEA's Strategy and Activities in China (2)

- **Provincial Meetings and Coalmine Engagement**
 - ◆ Workshops in Gui Zhou and Si Chuan
 - ◆ Meetings in Paris and Gui Zhou and Si Chuan
 - ◆ Hotline Communications
- **Disseminate Results & Participate M2M activities**
 - ◆ Book Publications: ETP 2008,
 - ◆ Free Papers at the IEA website:
http://www.iea.org/Textbase/publications/free_new_result.asp?title=methane
 - ◆ Review reports and the USEPA's modeling
 - ◆ Make presentations at international forums



IEA's Strategy and Activities in Russia

- **Goal: regulatory analysis and policy outreach**
- **Status of CMM in Russia**
 - ◆ No legal requirements to use CH₄
 - ◆ Fragmented institutional structure
 - ◆ Regional initiatives to capture and use CH₄
- **Activities**
 - ◆ Analysis of policy framework in Russia for CMM
 - ◆ Collection of information on CMM regulation and other requirements in selected IEA countries
 - ◆ Outreach activities in Russia (meetings & discussions)



Conclusions

- China's coalmines provide 30-40 bn m³/Yr clean energy to harness
- Safety production and climate policies facilitated CMM, but policy to ban VAM needs to be active
- CMM project finance changing from government fund, to equity and commercial loans
- Lack of drainage and VAM technologies
- IEA helps in policy dialogue, project financing & technology transfer
- In Russia, IEA starting work on regulation and policy outreach