



# Coalmine Methane Update and IEA's Strategy and Activities

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Ming.Yang@iea.org  
Energy Technology Economist

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# 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 CH<sub>4</sub> in coal production
  - Mandatory to drain CH<sub>4</sub> 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](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 CH<sub>4</sub>
  - ◆ Fragmented institutional structure
  - ◆ Regional initiatives to capture and use CH<sub>4</sub>
- **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 m<sup>3</sup>/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