

Legal and Regulatory Status of CMM Ownership in Key Countries

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*Mongolia Coal Mine Methane
Recovery and Utilization*

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Presentation Outline

- Objective of policy paper
- Background and activities
- International coalbed and coal mine methane resource ownership case studies
- Summary of ownership and policy options and their impacts
- Further reading and references

OBJECTIVE AND BACKGROUND



Objective

- *Legal and Regulatory Status of CMM Ownership in Key Countries: An Overview Provided for Decision Makers in Mongolia* (policy paper) developed in support of the Global Methane Initiative (GMI) by Raven Ridge Resources (RRR) under contract to the United States Environmental Protection Agency's (USEPA) Coalbed Methane Outreach Program (CMOP)
- Provides overview of ownership treatment of CMM and CBM in key-coal producing countries worldwide, addressing overlap in rights to extract coal and gas resources
- Highlights regulation, policies, incentives, and programs that help and hinder CMM recovery and utilization

Background

- USEPA meeting with CBM/CMM Working Group July 2013
 - Discussed goals of working group
 - USEPA introduced idea of CMM policy paper
- Circulation of draft paper February 2014
- Working Group meeting March 2014
 - Question and answer with RRR
- Revised draft to address questions
- Final paper available soon



INTERNATIONAL CBM AND CMM RESOURCE OWNERSHIP CASE STUDIES



United States

CMM Ownership

- Government (primarily in west) and private (in east)
- Leasing CMM on government lands historically done through conventional gas leases

Conflicts and Barriers

- Government did not set clear ownership policies for CMM/CBM specifically prior to resource development
- Legal challenges occurred related to leasing
- Some coal and CMM/CBM leases have overlapped, meaning in some cases mines do not have the right to extract gas for commercial purposes which discourages projects

Solutions

- Recent court case determined CMM is not covered by conventional gas lease on government land, allows mines to recover and utilize
- In cases of overlap, private party settlement agreements have occurred
- Government established Conflict Administration Zones (CAZ) and other area-specific solutions
- Approach to reduce methane from coal mining operations as part of President's Climate Action Plan: Strategy to Reduce Methane Emissions identified both EPA voluntary action, and Bureau of Land Management Advance Notice of Proposed Rulemaking for waste mine methane emissions on federal lands

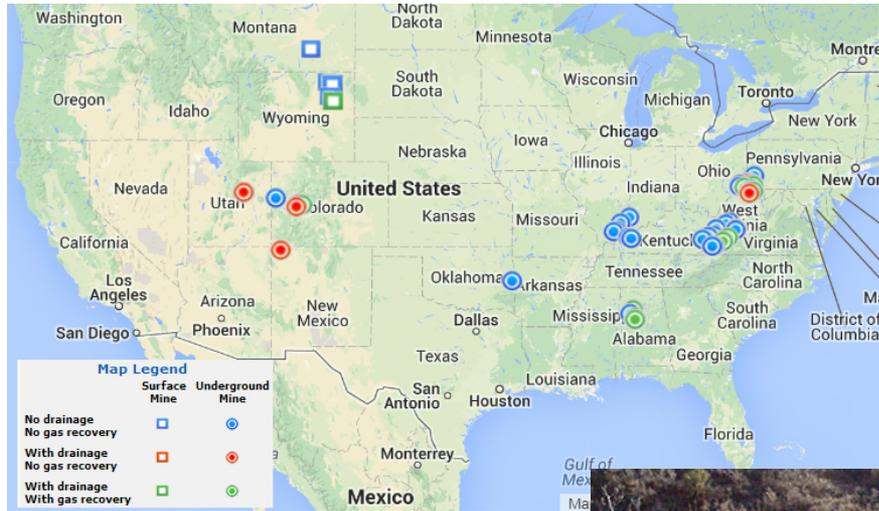
Policies and Incentives

- CMM emissions are not regulated by government, but voluntary programs exist
- California capped GHG emissions, allowing CMM project offsets to meet obligations
- Renewable/alternative portfolio standards

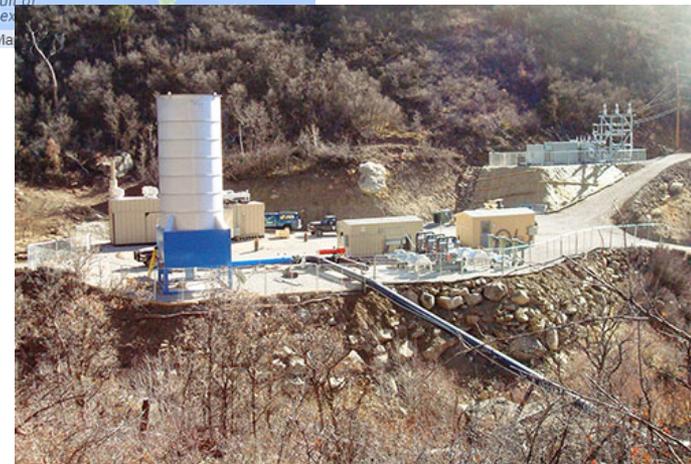


United States - Successes

- CMM recovered and utilized in 2012 – 1 million m³
- Most projects in east on private land
- Former surface mine project in CAZ



North Antelope Rochelle Mine, Wyoming



Elk Creek Mine Power Generation and Flaring Project, Colorado

China

CMM Ownership

- All resources are government-owned
- Different types of CMM are treated differently: Surface pre-mine drainage requires CBM license (administered as oil and gas). Recovery of VAM, in-mine drained, gob drained CMM does not require a CBM license.

Conflicts and Barriers

- In 2007, 86 out of total 98 CBM licenses overlapped with mining licenses
- China introduced policies requiring recovery of CMM over 30% concentration, impacting carbon eligibility and resulting in unsafe dilution

Solutions

- Government issued notice on overlapping licenses which instructs coal and gas operators to negotiate cooperation or production agreements
- Government will conduct mediation if agreement cannot be reached, or make ruling if mediation fails

Policies and Incentives

- Prioritized CBM/CMM in Five-year Plans
- Subsidies for CMM utilization/CMM-generated power
- Tax, fee, and royalty exemptions
- Participation in CDM – 83 registered CDM CMM projects

China - Successes

- Ownership issues do not appear to be a serious barrier to CMM use in China – 3.5 billion m³ utilized in 2012 from 67 projects
- CMM-to-power projects generated a total of more than 1,500 MW of power at 29 projects by the end of 2011
- 4,000 vehicles operating on CMM in 2010



Power Generation using IC Engines, Songzao



CMM Vehicle Fueling Station, Chanzi

Mexico

CMM Ownership

- All resources are government-owned
- Petróleos Mexicanos (PEMEX), the state-owned petroleum company, has historically held exclusive authority over exploration, recovery, processing and sales of oil and gas including CBM and CMM

Conflicts and Barriers

- Mining Law meant that coal mines could not legally sell CMM or use it to generate heat or electricity on site, since exploration, production, processing and sales of all hydrocarbons were the exclusive province of PEMEX
- Effectively prohibited all CMM projects

Solutions

- Following methane-related explosion at the Pasta De Conchos Mine in February, 2006 Mexico's Congress and Senate amended Mining Law, allowing for the recovery and use of CBM/CMM for on-site usage by coal mining concessionaires or for gas sales to PEMEX

Policies and Incentives

- Carbon tax introduced in January which allows use of offsets, including from CMM
- Participation in CDM – 1 registered CDM CMM project



Mexico - Successes

- 5 CMM projects including boiler fuel, power generation, and flaring



Methane Drainage at Minerale Monclova, Coahuila



Bath House Heating at Esmeralda Mine, Coahuila

Ukraine

CMM Ownership

- As of 2012, 110 of 155 coal mines are government-owned
- CMM government-owned

Conflicts and Barriers

- Law on Gas from Coal Beds requires mines to limit CMM emissions, impacted eligibility for JI
- Production tax on unconventional gas makes CMM projects marginally economic

Solutions

- Draft bills (late 2013) circulated within parliament to resolve production tax problem
- Ukraine allows mines to obtain CMM license with coal license and allows mines to sell rights to CMM

Policies and Incentives

- Tax exemptions for income from CMM projects
- Participation in JI – 12 registered JI CMM projects

Ukraine - Successes

- 19 projects at active underground mines
- Zasyadko power generation project registered as JI project



Power Generation Using IC Engines at Zasyadko Mine, Donetsk



Australia

CMM Ownership

- State governments own all on-shore resources within their jurisdiction
- Petroleum/gas lease holders have ownership of CBM except where coal mine operators extract methane as part of their coal mining operations (CMM)
- Queensland: Mine may use CMM for uses related to mining (power, heat); CMM/CMM-fueled power may not be sold without petroleum lease
- NSW: Mine may apply to include CMM in coal mining lease (not CBM)

Conflicts and Barriers

- Overlap of coal and CBM leases may occur

Solutions

- In Queensland, if coal miner does not use CMM in a case of overlap, the petroleum lease holder may use
- Queensland also prohibits flaring and venting if it is technically/commercially feasible to use the CMM

Policies and Incentives

- In NSW, CMM is exempt from royalties
- Carbon tax implemented in 2012 (may be repealed)
- Australian government investing \$39 million AUD over five years on five new CMM projects as part of Direct Action Plan
- Former Greenhouse Gas Abatement Program – grants for CMM power stations



Australia - Successes

- 15 projects at active underground mines
- Long history of success with Appin and Tower CMM power project commissioned in 1996
 - 94 -1MW reciprocating engines consuming 600,000 m³
- BHP Billiton was awarded up to \$6 million from the Australian Greenhouse Office for West Cliff VAM Project (WestVAMP)
 - First to generate commercial power solely from VAM
- Currently 17 CMM recovery and utilization projects in Australia



Appin and Tower CMM Power Project, NSW



WestVAMP VAM Power Generation Project, NSW

SUMMARY OF OWNERSHIP AND POLICY OPTIONS AND THEIR IMPACTS



Ownership

- CMM projects require coal mine cooperation and are often initiated by coal companies
- Giving coal mines first priority for CMM exploration and development activities provides least complex solution
- Should the coal mine decline to explore for and/or develop the CMM resource after a given time period, the coal mining areas could be solicited as potential CBM concessions
- Queensland, Australia provides a good example



Policies

- Ensure that safety regulations take precedence and that unsafe activities are discouraged
 - China's regulation that requires recovery of CMM that contains more than 30% methane might encourage unsafe dilution of CMM
- Incentivize pre-mine drainage through royalty relief (as in Wyoming Conflict Administration Zones)
 - Pre-mine drainage is highest quality = highest value
 - Removal of methane before mining is safest
- Feed-in tariffs for CMM-fueled power
 - Ensures price competitiveness
- Tax exemptions
 - Effective financial incentive
- Alternative portfolio standards and carbon trading schemes that include CMM
 - Effective financial incentives

Outreach

- Engage coal mines through workshops and conferences to connect them with project developers, technology providers, investors
- Disseminate information through clearinghouses and research centers
- Solicit comments from mining industry on ownership and policy issues – US Bureau of Land Management currently soliciting comments related to CMM on Federal lands

FURTHER READING AND REFERENCES



Further Reading

- USEPA Mongolia Webpage:
<http://epa.gov/cmop/international/mongolia.html>
- Coal Mine Methane Recovery: A Primer:
http://epa.gov/cmop/docs/cmm_primer.pdf
- Surface Mine Methane Emissions and Project Opportunities:
https://www.globalmethane.org/documents/events_coal_101411_tech_marshall.pdf
- Best Practice Guidance for Effective Methane Drainage and Use in Coal Mines:
http://www.unece.org/fileadmin/DAM/energy/se/pdfs/cmm/pub/BestPractGuide_MethDrain_es31.pdf
- Proceedings from Mongolia Coal Mine Methane (CMM) Project Development Workshop (2010):
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Thank you!

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