UNECE Case Studies:
Developing Investment Grade Documents for CMM Projects

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Format

- Background
- Current Status
- Lessons Learned
- Discussion
- Conclusions
What is the UNECE and Why CMM?

• **UNECE**
  - 1 of 5 regional commissions
  - Mission is to foster sustained economic growth among its member countries
  - Based in Geneva with 56 member countries
  - CIS/Europe/North America
  - Works closely with other UN bodies/international orgs

• **Coal is an important resource for ECE member countries**
  - 38% of global coal production
  - 40% of global CMM emissions
  - Many coal industries in the region face significant work-related and public safety risks due to methane
  - Created Ad Hoc Group of Experts on Coal Mine Methane to address key issues among member countries and global coal and CMM industries
UNECE Project on Investment in CMM Sector

- 3-Year project to analyze and address financing issues specific to CMM projects in CIS/CEE region
  - Focus on institutional finance
  - Objectives
    - Develop pipeline of projects
    - Capacity building from lessons learned
    - Catalyze large-scale development
  - Provide “free” consulting services
    - Technical assistance to 3-6 CMM projects in CEE/CIS
    - Project identification, optimization and integration
    - Development of first order pre-feasibility studies and business plan
    - Support interface with investment/financial community
- Mines, not developers, targeted for assistance
Why Focus on Finance?

- Project idea originated in 2003 when GHG markets were progressing slowly and access to capital was very difficult
- Many in coal and CMM industries were then unfamiliar with expectations of international financial community and lacked skill set for effective financial engineering
- ECE has prior experience providing similar technical assistance for energy efficiency projects
  - Belief that we could build on financial network and expertise
- Provide larger-scale carbon mitigation projects into pipeline for UNECE Energy Efficiency 21 technical support and public/private investment funds
• Background
• **Current Status**
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Project Status

• Grant awarded by US EPA in September 2004
• Project start delayed until September 2005 due to staff resource limitations at UNECE
• Active engagement in two countries thus far: Russian Federation and Kazakhstan
• To date, have not proceeded with a specific project
  • Strong initial interest, especially VAM
  • Initial interest from mining sector has not sustained
• Why?
Market Dynamics Have Changed

Project-Based Trading
(CDM/JI/other compliance)

Allowance Markets
(primarily EU ETS)

Investment Capital

*Sources: World Bank Carbon Finance Unit, Point Carbon, Carbon Finance
Other Factors

• Successful privatization of coal industries in Russian Federation and Kazakhstan
  • Well-capitalized vertically and horizontally integrated industries
  • Sophisticated multi-national corporations with experience in financial markets
  • Financial position and high visibility result in direct contact from prospective investors

• Delayed adoption of Kyoto framework
  • Russian Federation - rules adopted May 2007, but JI applications will only be accepted from January 1, 2008
  • Kazakhstan - has not ratified Kyoto Protocol as of September 2007
• Background
• Current Status
• Lessons Learned
  • General
  • Financial
  • Project development
  • Institutional/organizational
• Discussion
• Conclusions
CMM - Attractive Asset Class

- Growing global resource base
  - 450 MtCO2e in 2005 to 530 MtCO2e in 2020 (US EPA)
- Projects
  - Conventional technologies proven, VAM coming on line
  - Mostly additional
  - Low marginal abatement costs
  - Large carbon mitigation potential
- Strong industry players in key markets
- Mine safety benefits address desire for socially beneficial investments
- *Carbon Finance* Survey of Carbon Fund Managers
  - 88% of fund managers expect CMM supply to increase in next year
  - 38% see dramatic increase - highest of among all project-types
CIS/CEE is Growth Area for CMM

- Attention shifting away from CDM to JI markets
- Stabilizing economies attracting foreign and domestic investment
- Substantial opportunity for CMM
  - Long history of mining and degasification
  - Potential markets exist for gas
  - Several projects already operating
- *Carbon Finance* survey: 64% of carbon fund managers responding believe the region will be a significant growth area
Project Development

• Early rush to the “best” mines and projects, but now seeing interest in more marginal projects

• Before committing resources to VAM mitigation, many waiting to see success of VAM projects at West Cliff Colliery and CSIRO project in China

• Mines view a “CMM project” as one addressing both upstream methane degasification and downstream utilization
  • Mines demanding full package of services
  • Challenging for investors who generally only want to invest in downstream
    • Utilization is revenue producing
    • Investor/developer has some or all control over utilization of CMM, limited or no control over degasification
    • Few upstream experts available - difficulty providing these services
Big Picture Still Missing for Many

- Need Reliable Gas supply
- Appropriately sized project
- Off-take for product and emission reductions
- Adequate capital to ensure proper construction and start-up
- Adequate revenue stream to support operations and regular maintenance
- Applicable licenses and permits
- Qualified, integrated team
  - Ensure all partners are motivated by mutually beneficial incentives to optimize project design and operations
  - Need an effective, knowledgeable and experienced coordinator of all aspects of projects
- **Effective integration with mining operations**
  - Understand mine plan and degasification operations
  - Coordinate closely with mine management, staff
Project Integration

**Design Chain “Identify and facilitate opportunities”**

- Identify Project and Partners
- Develop, Design and Evaluate
- Financing Equity & Debt
- Contract Negotiation/Setting up Company
- CO2 & Energy Management

**Added Value Chain “Build, own, operate”**

- Purchase of Equipment
- Gas Development
- Gas Purchase
- Electricity, Heat & CO2 Credit Production
- Power & Heat Sales
- CO2 Credit Sales

**Support Chain “Maintaining Satisfaction”**

- Operations & Maintenance
- Commercial Management
- Quality Assurance and Control

(Concept and Design Courtesy Green Gas International)
Project Finance

- Significant capital available for equity investments
  - Investment banks/funds
  - Bilateral/multilateral financial institutions/programs
  - Private equity
  - Corporate buyers
- Debt can be more challenging
  - Risk of non-delivery
  - ERPAs not collateral
- Alternative financing arrangements coming to market
  (derivatives, bridge financing, etc)
- No longer clear demarcation between institutional finance and carbon finance
Financial Expertise of Industry Players

- Project developers growing more sophisticated as customers/clients grow more demanding and competition increases
- Large, privatized mining operations have in-house financial expertise
  - Does not always extend to carbon markets
- State-owned companies and small private mine owners/operator still lack financial skills
Emission Reduction Purchase Agreements (ERPAs)

- Expect that some projects will not be able to deliver contracted quantities
  - Could see similarity to landfill gas (one report - 38% less delivery than promised)

- Early market confusion for some buyers/aggregators - quantity drained does not necessarily equal avoided emissions

- Some buyers still willing to accept risk of non-delivery if seller makes good-faith effort

- Purchasers increasingly open to smaller volumes
  - 100,000 tonnes (2008-2012)
  - 50,000 tonnes for existing suppliers
Institutional/Organizational Issues

• Inconsistent message within mining companies
  • Financial expertise and corporate strategy concentrated at headquarters
  • Technical expertise at mines

• Growing interest in training to educate regional and mine staff to evaluate CMM potential and prepare bankable documents
  • Greater efficiency
  • Buy-in at all levels of corporate hierarchy

• Must acknowledge that some mining operators place low priority on utilizations without high price signal
Stakeholders View of UNECE Involvement

• Investors/Financial community - positive
  • Neutral role in market stimulation
  • Projects vetted by credible organization
  • UN endorsement is positive for public relations

• Mining companies/project sponsors - Ambivalent
  • Public nature of cooperation difficult
  • Large companies do not believe they need assistance
  • Want more engineering support
  • Do see benefit of positive public image associated with UN

• Governments - generally positive
  • Very supportive of training
  • See UN as another vehicle for supporting mine safety and environmental protection
Thank You!

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