The Economics of Successful Project Development

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Overview

- Overview of CMM project development
- CMM project economics
  - Project financing
  - Project Risks
  - Cash flow of project
CMM Utilization Project Development

CMM Developer
- Investor/Active Participant
- CBM/CMM Dominant Estate
- Motivated by Gas Production
- Borehole Placement to Produce Gas as Long as Possible
- CBM/CMM Development Across Entire Property
- CBM/CMM Development Only if Economically Possible

Coal Operator
- Lessor/Passive Participation
- Coal – Dominant Estate
- Motivated by Improved Coal Production
- Desires Degas Plan with Minimal Impact to Mining Operations
- CMM Drainage May be Required Regardless of Economics of Recovery
- Prefers Surface Drainage
Removal of CMM Longwall Mines
CMM Project Economics

- Project Plan
- Project Financing
- Research and Feasibility
- Risks
- Projected Cash Flow
Sources of CMM Project Finance

- Self-Finance
- Forward Purchase
- Vendor Financing
- Equity
- Debt
Project and Deal Structuring

MineCo Shareholders

Developer

Investors

Supplier

Gas & Site Access
## Project Risks and Risk Assessment Tools

<table>
<thead>
<tr>
<th>Project Development Risks</th>
<th>Construction and Operations Risks</th>
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<tbody>
<tr>
<td>• Inability to obtain agreements with mining company and adjacent land owners. <em>(Legal)</em></td>
<td>• Construction cost overruns or delays in construction completion. <em>(Installation)</em></td>
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<tr>
<td>• Indications of marginal gas resource (such as gas quality, rate of flow, and longevity). <em>(Resource)</em></td>
<td>• Poor gas productivity (such as flow rate, reliability, and quality). <em>(Resource)</em></td>
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<tr>
<td>• Inability to negotiate energy sale agreements. <em>(Commercial)</em></td>
<td>• Technological risk (poor system performance). <em>(Operational)</em></td>
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<td>• Inability to obtain permits. <em>(Legal)</em></td>
<td>• Market risk (drop in revenues due to price changes). <em>(Commercial)</em></td>
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<tr>
<td>• Insufficient development capital. <em>(Financial)</em></td>
<td>• Contractual/legal problems with customers, mine owner/ operator, system suppliers, or regulatory agencies. <em>(Legal)</em></td>
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<tr>
<td>• Inability to secure financing. <em>(Financing)</em></td>
<td>• Mine closing or change in mining plan, causing stranded investment. <em>(Resource)</em></td>
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Projected Cash Flow: CMM Cash Flow Model

- Evaluate the financial viability of recovering and utilizing CMM at a high level
  - gob wells, abandoned mine drainage wells, or mine ventilation air
- Models available for a wide variety of end uses
- [https://www.epa.gov/cmop/cmm-cash-flow-model](https://www.epa.gov/cmop/cmm-cash-flow-model)
Conclusions

- Successful projects typically result from a symbiotic relationship between the developer and the mine operator.
- Financing a CMM project is a crucial aspect of project development. 
  - There are various methods of financing a CMM Project.
- Important to consider unexpected situations and project risk.
- A well-developed financial model assesses the financial viability of the project.
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Thank You!

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