

UNECE Event Kyiv

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Regulatory Regimes and their Implication on Optimization of Safety, Economic Benefit from Coal Production with Beneficial Use of Methane, with Complimentary Reduction of Greenhouse Gas

Barriers to Improving Mine Safety

- All Mines need to improve safety!
- Change management is critical to enabling mines to improve safety
- Prescriptive Safety Regulation can be a barrier to change
- Every Coal Mine is different
- Risk assessment based Regulation drives individuals to take responsibility for their actions, based on what is best for the mine
- Financial incentives drive management and investor behaviour positively towards investment in improved safety infrastructure

Why do we drain methane?

Coal Mined per Face/Annum	1,000,000 tonnes	
Low Market Price per Tonne	40	\$
Low Turnover of Face	40,000,000	\$/annum
High Market Price per Tonne	70	\$
High Turnover of Face	70,000,000	\$/annum
Drainage	30	m ³ /min
Power Generation Capacity	7,000	kW
Hours	6,570	Hrs/annum
Low Market Price of Electricity	0.05	\$/kWhr
Low Revenue from Electricity	2,299,500	\$
% of Low Market Face Turnover	6	%
% of High Market Face Turnover	3	%
High Market Price of Electricity	0.20	\$/kWhr
High Revenue from Electricity	9,198,000	\$
% of Low Market Face Turnover	23	%
% of High Market Face Turnover	13	%

Cost of safe drainage

Opportunity cost of not utilizing gas for heat or power

Cost of loss of production

(\$1 million dollars per week?)

Cost of loss of life

(human cost + reputational loss + cost for each life)

How do we optimize gas drainage?

1

Do what you do already, but do it better!

Improve physical installation of pipework (find leaks and fix them)

Improve sealing at points of connection

Measure suction and concentration at each point of drainage and reduce suction where drainage is effective*

Review mine management

2

Your engineers know their mine's geology and their drainage technique better than anyone – widen their breadth of experience!

Take your internal expertise and allow them to travel and see how other mines using similar techniques control their gas

Take experience from other parts of the world, with incremental improvements to your existing arrangements

3

Systematic fundamental review of gas drainage

New Project

Internal Review team

Change Management

National Academia

Government Regulation

International Experience

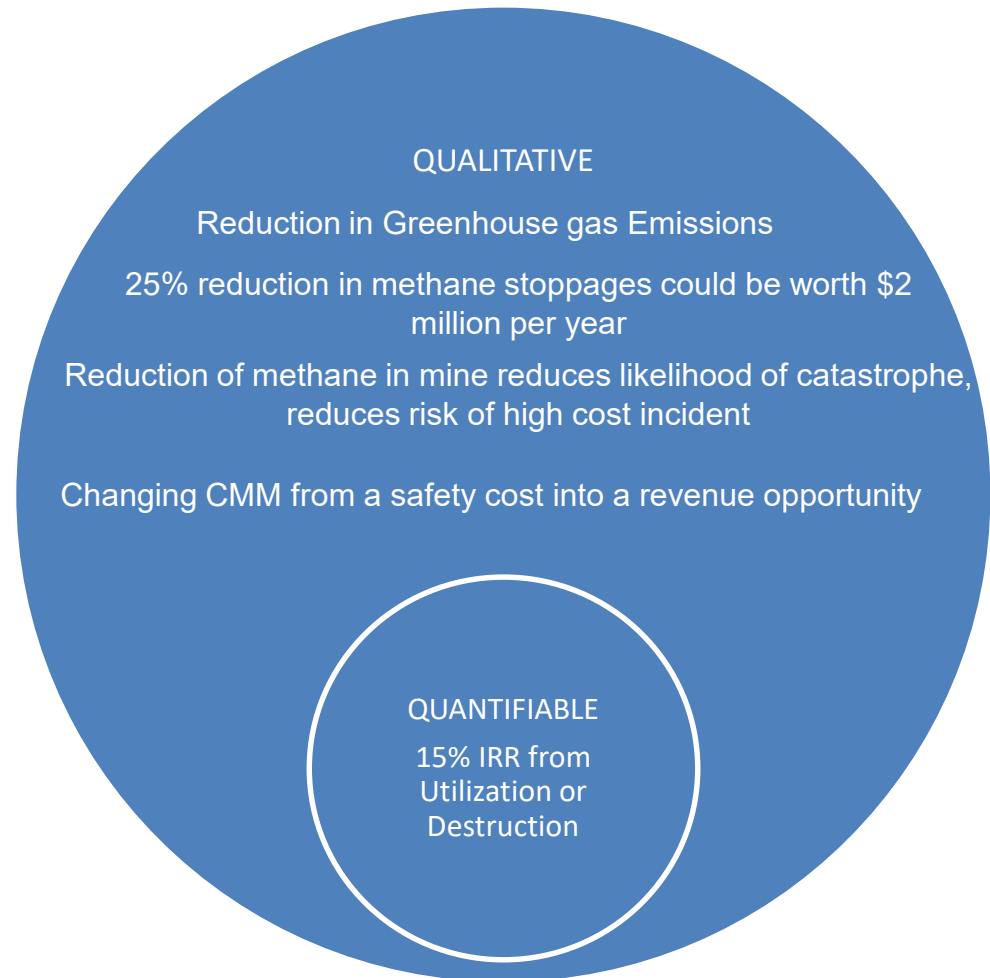
Manufacturers/Drillers

How to Fund?

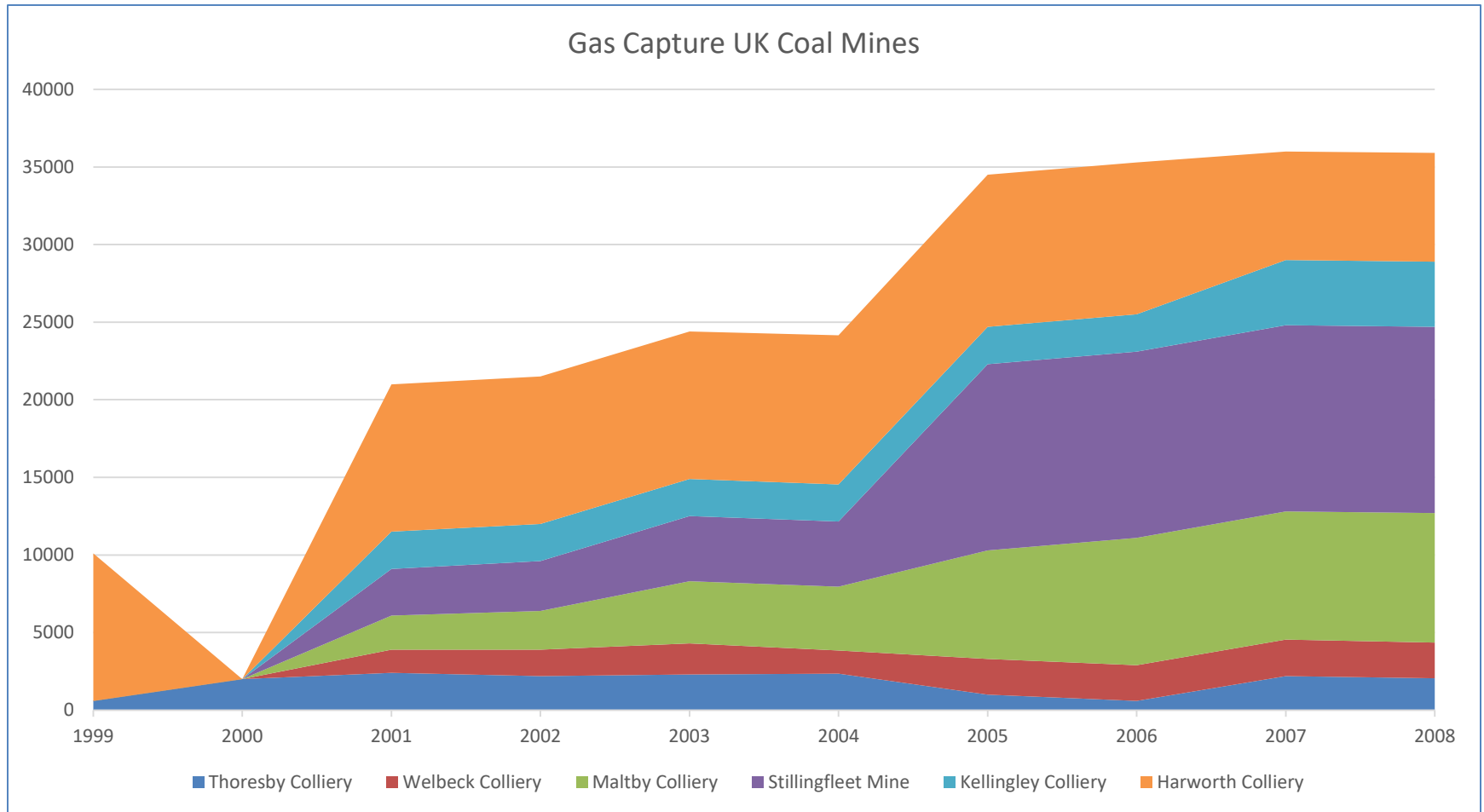
*including sealed waste areas

How do we make a better business case for CMM development?

- It is clear that turning CMM drainage from a cost centre to a revenue centre increases mine focus on drainage
- Increased attention to capture improves the safety of the mine
- Revenue generation enables investment in new safety/drainage infrastructure
- Need for more quantitative methods of coal mining business improvement analysis



Gas Optimization Results – Linear Improvement in Gas Safety, Financial Performance and Reduction in Greenhouse Gases



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