



Alkane Energy plc

Successful CMM Projects in the UK

Presentation to UNECE 4th Session Ad Hoc CMM Group

Dr. Cameron Davies, CEO

October 16-17 2008



UK CMM - Introduction

- Recent rapid development – high power prices
- CMM captured - abandoned and working mines
- Proven technology > 25 operational plants
- Potential - > 30 new developments
- Captures potent greenhouse gas – CH₄
- Used as fuel - power generation and heating
- Secure onshore gas reserve
- Substitutes for imported fossil fuel
- Creates jobs in regeneration areas



UK - Potential for CMM

- More than 1,000 abandoned deep coal mines
- CMM emissions - vents, fractures, fissures
- Potential for > 60 plants averaging 3MW
- Equivalent to 150MW by 2012
- Could capture 2.5 million tpa of CO_{2e}
 - Equivalent to c. 2 million cars off the road
- Should contribute to UK Kyoto reduction target
- Electricity prices at record highs
 - 2003: c. £15/MWh
 - 2008: c. £70/MWh
 - 2010: c. £80/MWh



UK - Barriers

- Almost all licences have been allocated
 - Awards made under petroleum regulations
- No voluntary or other emissions credits available
 - Lack of Government support
- Grid connections – cost, availability, monopoly
- Planning law and regulations
 - Bureaucracy, red tape getting worse
- Volatile electricity prices
- Nimbyism – “Don’t want power plant near me!”

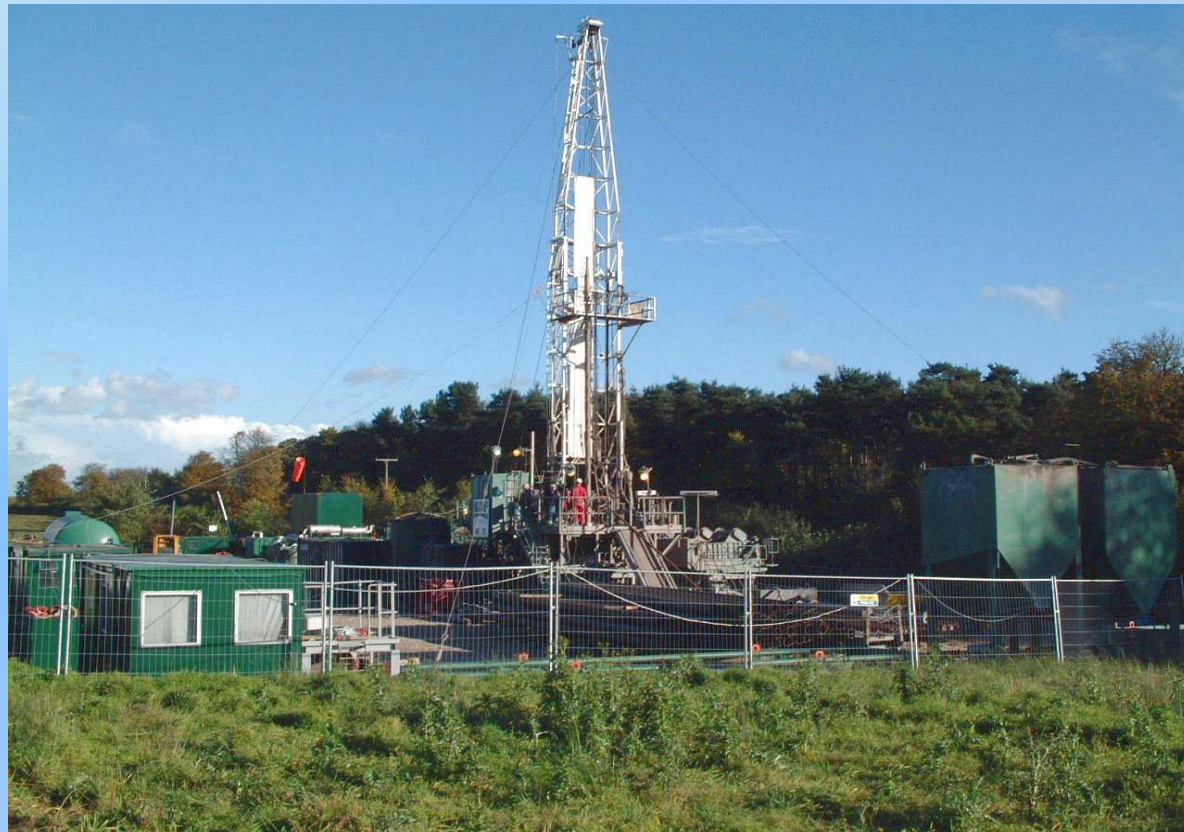


UK CMM – Capture and Use as Fuel

- Reduces greenhouse gas emissions
- Currently c. 500,000 tonnes CO_{2e} pa
- Cleans up pollution from past industry
- Removes surface gas hazard
- Reduces GWP by around 100%
- Decentralised source of green energy
- Substitutes for imported fossil fuels
- Recoverable energy reserve from waste



Drilling into Roadway





UK - CMM Costs and Capacity

- Drill into old underground roadways
- Costs c. Euro: 0.4 million for borehole
- 1MW project total c. Euro 1.2 million
- Installed capacity in c. 80MW
- Potential c.150MW
- UK industry is world leader in CH₄ based
 - Renewable energy systems
 - Climate change reduction technology
- Market currently driven by:
 - High UK energy prices
 - CMM licences awarded by BERR



Containerised Generation Plant Mansfield Mine





UK – Emissions Credits

- EU Renewables Directive:
 - Allows CMM as Renewable Energy
 - France and Germany support CMM industry
 - Both include it in renewable feed-in tariffs
- UK provides no support for CMM so:
 - Most small emitters continue as sub-economic
 - Risks to project profits include rising mine water
- UK industry needs
 - Government recognition for emissions credits
 - Long term finance



Summary – CMM

- Large energy reserves in disused coal mines
- Energy extracted reduces GHG emissions
- Gas reserves and power available 24/7
- Decentralized green energy source
- Waste product substitutes for natural gas
- Capture improves safety levels for miners
- Worldwide potential for technology
- Enormous GHG reductions - 23x CO2 factor



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