

FEEDBACK SEMINAR DTI 15/January/03

CO₂ Capture and Storage DTI Mission to USA and Canada 27/October - 7/November/02

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Director of External Affairs ALSTOM Power
and

Chairman of UK Advanced Power Generation Technology Forum

APG TF

dti

Department of Trade and Industry

WELCOME TO CO₂ MISSION FEEDBACK SEMINAR

- **Invited Attendance from UK Energy Sector**
 - **Industry : Power Generation** including Generators, Equipment Manufacturers and System Developers
: **Fuel Suppliers** including Oil, Gas and Coal
 - **Technology Providers** : Universities, Research Institutes
 - **Governmental Organisations** : DTI, Research Councils
- **Representation from USA, Canada and EU**

Opportunity to hear the current status of the technologies and views on the implications for the UK

STRUCTURE OF SEMINAR

- **Mission Overview and Background**
 - Rationale and relevance to UK
 - Perspectives from Canada and USA
 - UK Perspective on Canada and Canada
- **Views from Mission Team**
 - Technology Status
 - Economics and Risks
 - Social, Environmental, Legal and Research Issues
- **Summary and Outcomes**
 - Key messages for UK
 - Recommendations

Mostly presentational format but some time for discussion

BACKGROUND TO MISSION

- **Increasing concerns of impact of Greenhouse Gases (GHGs) on Global Climate Change**
 - Consensus view (eg IPCC) emerging
 - CO₂ most significant GHG
- **Desire for Sustainable Energy Future**
 - How to meet Kyoto targets and beyond
 - Security of Supply issues
 - Clean Use of Fossil Fuels in the Energy Mix
- **Future UK Energy Policy White Paper**
 - Potential of CO₂ Capture and Storage for Fossil Fuel Plant as part of a set of complementary measures for CO₂ Mitigation
 - Window of Opportunity for Enhanced Oil Recovery in North Sea

Potential importance of CO₂ Capture and Storage identified

OBJECTIVES OF MISSION

- **To provide UK information on status of Technology Options for CO₂ Capture from Power Plant and Geological Sequestration with Enhanced Oil/Coal Bed Methane Recovery Options**
 - improving UK awareness of practices/developments in USA/Canada
 - gaining better understanding of costs, risks and environment impact
 - developing opportunities for collaboration and technology transfer
 - highlighting opportunities for capture and storage in UK

Mission sponsored by DTI International Technology Service
and organised by the UK APGTF

MISSION DELEGATES AND INTERESTS

Energy Systems

- David Hanstock/Progressive Energy
- Brian Ricketts/UK Coal

Power Generator

- Tony Howard/PowerGen

Equipment Suppliers

- Nick Otter/ALSTOM Power
- Andy Timms/Mitsui Babcock

Academia

- Nick Riley/BGS

DTI

- Brian Morris/CFFU
- Philip Sharman/ITP

Oil/Gas Industry

- Chris Freeman/LOGIC



Wide industrial representation ...but unfortunately LOGIC was a late withdrawal

MISSION ROUTE ~ 20,000 miles



TECHNOLOGY COVERAGE

- CO₂ Capture
- CO₂ Transportation
- CO₂ Storage and Use
- CO₂ Infrastructure

- Technologies under research, development, demonstration and deployment
- Experiences gained of engineering challenges and risks
- Techno-economic, environmental, legal, security, social and policy issues

CO₂ CAPTURE

- **Post-combustion Capture**

BP CCP, USDOE, ITC, CCPC, CETC-Ottawa

- **Oxy-fuelling Approach**

BP CCP, USDOE, CCPC, CETC-Ottawa

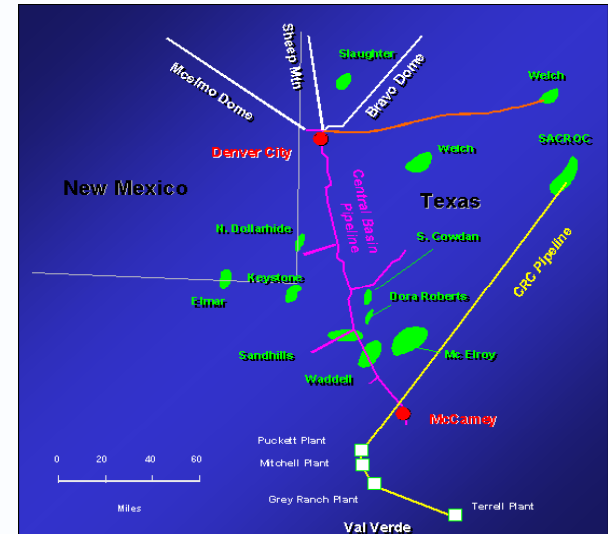
- **Pre-combustion Decarbonisation**

ChevronTexaco, BP CCP, USDOE, DGC,
ZECA Corp., CCPC, CETC-Ottawa

Operation/Systems and Economics/Incentives

CO₂ TRANSPORT

- Pipelines
- Transport Economics



Kinder Morgan, BP CCP, DGC, EnCana, PTRC, CERI, Alberta Research Council, CETC-Devon

Planning Issues/Environmental Risks

CO₂ STORAGE AND USE

- **CO₂ Enhanced Oil Recovery**

Kinder Morgan, BP CCP, EnCana, PTRC
CERI, ARC, Alberta GS, CETC-Devon/Ottawa

- **CO₂ Enhanced CBM Recovery**

CERI, ARC, Alberta GS, CETC-Devon/Ottawa

- **Geological Storage & Leakage Issues**

Kinder Morgan, BP CCP, EnCana, ITC, PTRC
CERI, ARC, Alberta GS, CETC-Devon/Ottawa

Engineering & Environmental Issues
Social, Policy and Legal Issues

CO₂ INFRASTRUCTURE

- **CO₂ Market/Economics**
- **Emission Trading**
- **Integration of Capture, Transport, Storage/Use Systems**

Kinder Morgan, BP CCP, USDOE,
DGC, EnCana, CERI, ARC,
University of Alberta, CETC-Ottawa,
NRCan, Environment Canada

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THANK YOU TO ALL OUR HOSTS AND SPONSORS

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