

**Carbon Sequestration Leadership Forum
Policy Group Workshop Panel
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Commercialization
Clearing the Hurdles

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ENERGY WHITE PAPER

Our energy future - creating a low carbon economy

6.63 Given the potentially significant strategic role that might be played by CCS in longer-term energy security, we believe there is a strong case to examine more closely what might be done to help stimulate the take-up of EOR in the North Sea. **We will therefore set up an urgent detailed implementation plan with the developers, generators and the oil companies to establish what needs to be done to get a demonstration project off the ground.**

Bankability – *The projects' banker will need to be convinced that his money is paid back with an adequate return. That will depend on due diligence.*

Project risks will have to be:

- **Minimized**
- **Contracted away**
- **Insured**

The cost of borrowing will be in proportion to the degree of residual risk.

Project risk – *additional to power plant*

- **Political** **++**
- **Construction** **++**
- **Technology** **++**
- **Operating** **++**
- **Input**
- **Market** **+++**
- **Interest rate**
- **Exchange rate**
- **Counterparty** **++**

Political risk – *Probably the most important issue is that policies tailored to capture and storage need to be clear and have a definite longevity.*

Construction risk – *To ensure that cost or time overruns do not occur and to guard against contractor counterparty risk there will need to be precautions.*

- **Experienced and substantial contractors**
- **Due diligence**
- **Substantial project equity**

There will inevitably be certain additional costs built into early projects to cover for additional construction risk.

Technology risk – *This technology has been proven but not on anything like the scale that is envisaged for the future.*

- Legal instruments
- Technology partnerships
- R&D support

Very careful management of technology risks will be needed to ensure successes in early projects translate into confidence in future projects.

Operating risk – *Some special issues of due diligence will need to be addressed in this context.*

- **Health & safety**
- **Performance efficiency**
- **Leakage**
- **Audit provisions**

It will be extremely important to ensure that these issues are thought out in advance of commercial project proposals, otherwise expect inevitable delays

Market risk, Valuing CO₂ - *To be able to write revenue from CO₂ stored into a business plan requires a robust and guaranteed trading contract*

- **EU Emissions Trading Scheme**
- **ERUPT, PCF, etc.**
- **Clean Development Mechanism**
- **Joint Implementation**
- **State wise US trading schemes**

These disparate and non fungible instruments will not at present deliver either on price or on risk. There needs to be work put in to develop a regime that values stored carbon.

Counterparty risk – *There are a number of new counterparty risks relating to capture & storage over and above the well understood risks for power plants.*

- **Monitoring & Verification**
- **Government – who owns the stored CO₂?**
- **Government – granting of credits**
- **Pipeline operator**

There will be legal issues to be addressed in all of these cases above before contractual issues are understood and commonplace

EOR, EGR, ECBM – *Early projects are likely to be in this category and there are associated risks.*

- **What is additional recovery**
- **Timing of increased flow – cash flow**
- **EGR not yet demonstrated**
- **Offshore risks**
- **Linking CO₂ supply and demand**

These projects provide an addition revenue stream but this can only be written in at the maximum value if these uncertainties are reduced by international experience and collaboration.

Monitoring & Verification – *For credits to have a legally valuable status there needs to be an agreed protocol for verification.*

- **CO₂ abated – not CO₂ stored**
- **IPCC are working on this**

The business community should not wait for International institutions to decide on verification criteria. It is in the interests of business to develop criteria working with the international institutions and host governments to agree audit standards.

Environmental regulations –

Application of due diligence will require that there is no threat to the project from environmental regulations.

- **Offshore, North Sea – OSPAR & London Conventions**
- **Onshore – Many local environmental and planning regulations**

A good deal of effort will need to be applied to reduce regulatory risk to a minimum.

Public Perception – *‘What have you done to ensure the project is not stalled under the influence of an enormous public outcry?’*

- **Raising awareness**
- **Research**
- **Debate (energy options)**
- **Consistent message**
- **Reassurance**

There will be a need to focus a great deal of effort on perception at a global as well as a very local level. This will benefit from concerted international cooperation.

Conclusion

We welcome the Carbon Sequestration Leadership Forum.

We see the CSLF as an opportunity to pool knowledge and experience

This will lead to better understanding and management of project risk

Then we can make projects bankable