Mersey & Dee Basins Carbon Capture Scheme

Inaugural Discussions

Meeting Chaired by
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GASTEC at CRE and c:sense verification
To Re-Cap..technical aspects of the scheme

- Mersey & Dee Basins
- 20mtpa CO2 within a 20 mile radius
- 3 Tiers & 3 operational network pressures
To Re-Cap

- High Pressure – Supercritical Flow 80bar+
- Medium Pressure – 10bar
- Low Pressure – 800mbar

- Considerable cost savings of negative pressure network for small sources

Detailed cost estimates…AMEC

Initial safety cast discussed with UK HSE
Separation & Gas Clean-up

Combustion & Boiler Plant

Drying & Compression

Transmission

Final Compression & Injection

**Co₂ + H₂O**

Oxy Combustion – Mid $30/t (Avoided)
IGCC + CCS – Mid $30/t (Avoided)
Post Combustion – Mid $30/t (Avoided)

$10/t Transmitted

From factory gate to inlet flange of final (prior to injection) compressor

**CO₂ @ 80 Bara**

$1 - $3 Injected

Includes compression to injection pressure and associated infrastructure. Does not include EOR

Costs for CO₂ transmitted are Avoided – 20%

Costs derived from literature review

Study Cost Boundary

Costs derived from literature review
## Estimated Capital Costs

<table>
<thead>
<tr>
<th>Element in Scheme</th>
<th>£ million</th>
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<tbody>
<tr>
<td>Capture (very loose estimate) (all Tiers)</td>
<td>2,800 – 3,000</td>
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<tr>
<td>Transmission</td>
<td></td>
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<tr>
<td>Tier 0 only</td>
<td>580</td>
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<tr>
<td>Tiers 0 &amp; 1</td>
<td>820</td>
</tr>
<tr>
<td>Tiers 0, 1 &amp; 2</td>
<td>1,200</td>
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<tr>
<td>Disposal (platform &amp; well alterations)</td>
<td>40 - 60</td>
</tr>
<tr>
<td>TOTAL SCHEME (all Tiers)</td>
<td>4,040 – 4,260</td>
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IN SUMMARY

Likely cost of CO$_2$ disposal from the M&DCCB scheme:-
$50$/tonne ~ 37euro/tonne

Cf value of CO2 from EUETS (avoided emissions):-
15 to 20 euro/tonne   Difficult
30 to 40 euro/tonne   Possible
>50 euro/tonne       Reasonable to good return

Possibility of extremely good margins if price of carbon rose
to capping price of 100 euro/tonne
OUTSTANDING ISSUES

Value of CO$_2$ against essentially a politically defined price….very different to almost every other market.

Is the risk to the industry of Mersey & Dee basin GREATER by not proceeding ie might CO2 reach 100euro/tonne?

Corporate structure (Drainage board model? Garbage model?)

Gas quality

Sizing of lines vs Timing of start up for collection plant