



*Carbon Capture &  
Storage Association*

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# Cost Reduction Potential in CCS Systems

APGTF Annual Workshop

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**Jeff Chapman**

**The Carbon Capture  
& Storage Association**

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# CCS CRTF Main Conclusion

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**UK gas and coal power stations equipped with carbon capture, transport and storage have clear potential to be cost competitive with other forms of low-carbon power generation, delivering electricity at a levelised cost approaching £100/MWh by the early 2020s, and at a cost significantly below £100/MWh soon thereafter.**

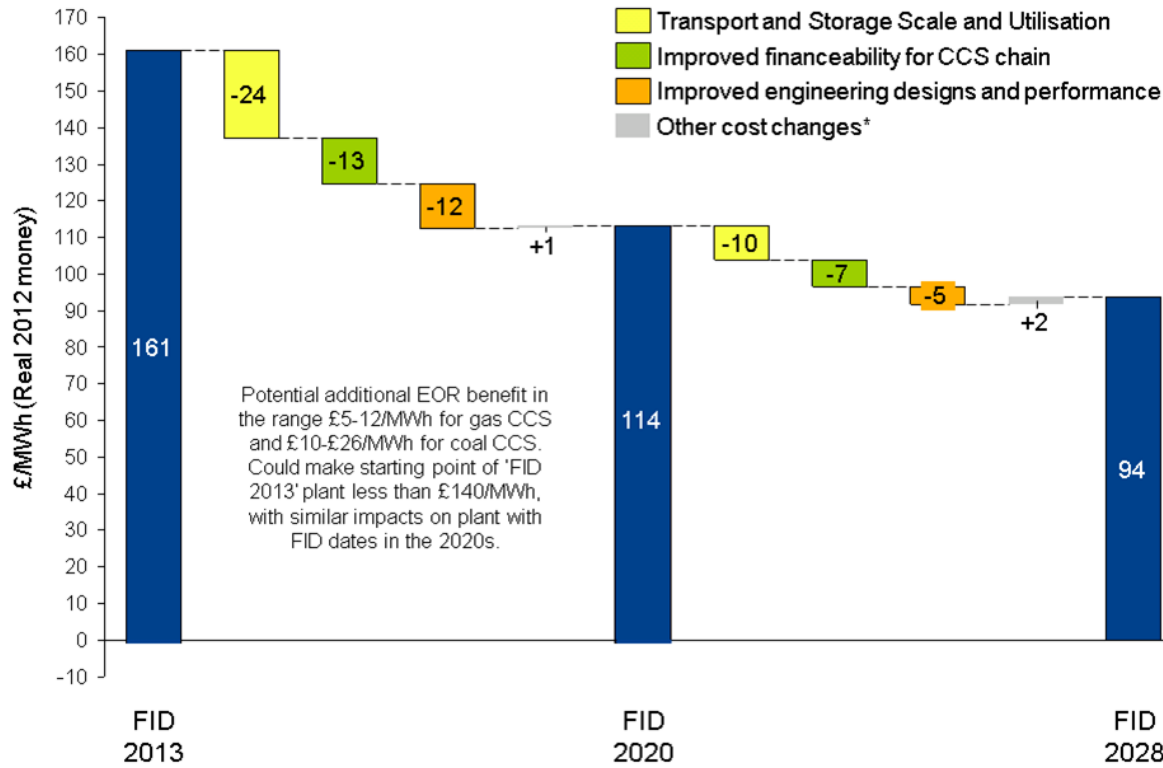


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# CCS Cost Reduction - no surprises

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- **Size matters – a lot!**
- **Planning is a must**
- **Confidence is key**
- **Commitment will deliver and**
- **CCS will be cost-effective but**
- **Not for the feint-hearted**



\*E.G. Increasing CO<sub>2</sub> price, falling storage abandonment costs

# Cost reduction sources - Generation & Capture

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- **Early projects modest size**
- **Generation & Capture technology not fully mature**
- **Supply chain competition**

**Reductions in generation & capture costs from £116/MWh to £96/MWh by early 2020s and more beyond that.**

# Cost reduction sources - Transport

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- **Infrastructure planning**
- **Economies of scale**
- **Capacity utilisation**
- **Reliability**

**Early projects £21/MWh for early pipelines at 1-2 mtpa to £5-10/MWh for well utilised pipelines carrying 5-10 mtpa**

# Cost reduction sources - Storage

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- **Reduce storage risks**
- **Storage hub development**
- **Reservoir development costs**

**Reductions from £25/MWh to £5-10/MWh**

# Cost reduction sources - Cost of capital

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- **Currently, no commercial scale projects exist as basis of confidence**
- **Storage risks**
- **Chain risks**
- **EMR FiT CfD structures**
- **Project structures**
- **Critical mass for financial sector**

**Reduction from <20% for early projects to ~10% by 2020s**





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## Generation and capture

- **Optimal scale of generation and capture unit size**
- **Optimisation of early designs and reducing engineering redundancies**
- **Next generation capture technologies**



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# Transport and storage

- **Optimal scale in transport and storage**
- **Characterisation of storage**



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## Financial and commercial

- **De-risking the CCS chain**
- **Ensuring funding mechanisms are fit for purpose**
- **Continued involvement from financial and insurance sectors**



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# Cross Cutting Issues

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- **Enhanced oil recovery**
- **Industrial applications**
- **Planning and consenting framework**
- **Location of CCS**
- **Wider system benefits**
- **Regulatory framework**



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## Contact

Jeff Chapman

Chief Executive

The Carbon Capture & Storage Association

Tel: +44 (0) 20 3031 8750

Fax: +44 (0) 20 7828 0310

Mob: +44 (0) 7747 761 065

Email: [jeff.chapman@ccsassociation.org](mailto:jeff.chapman@ccsassociation.org)

Website: [www.ccsassociation.org](http://www.ccsassociation.org)