

Air Capture Mitigation

An IMechE Perspective

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IMechE interest in Air Capture



Removing CO₂ from Air

- **Mitigation opportunities**

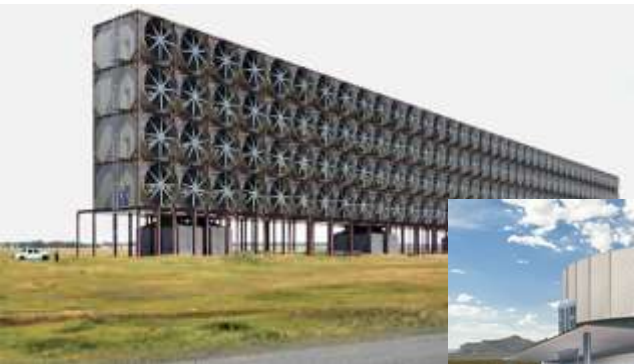
- Removes CO₂ regardless of location
- Tackles difficult sources (transport, domestic, dispersed industry; circa 50% of global emissions)
- Enables 'carbon recycling' through 'closed' carbon loops
- Supports embedded infrastructure use while reducing environmental risk
- Puts a credible 'ceiling price' on CO₂ emissions



Removal techniques

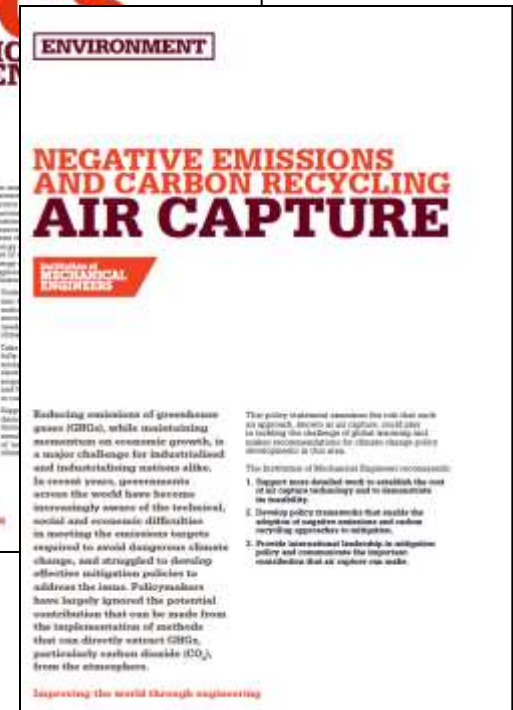
- **Some possible approaches**

- Air capture machines (Direct Air Capture – DAC).
- Bioenergy with Carbon Capture and Storage (BECCS).
- Augmented ocean sequestration.
- Biochar production through pyrolysis.
- Reforestation and afforestation.
- Enhanced weathering.



Direction of travel?

- Several approaches are in commercial development
- Entrepreneurs stepping into niche markets:
 - Enhanced Oil Recovery (EOR)
 - Chemical Processing and Fuel Production
 - Horticulture, Defence and Military
- Negative emissions thinking developing
- Formal recognition of potential need: IPCC, NAS etc.
- Need research to work towards practical, affordable, environmentally benign, low-risk approaches that can be ultimately deployed at scale.



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