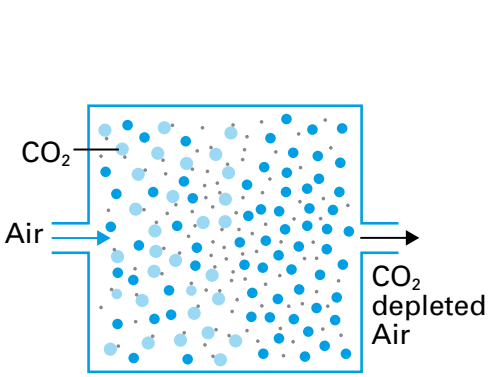
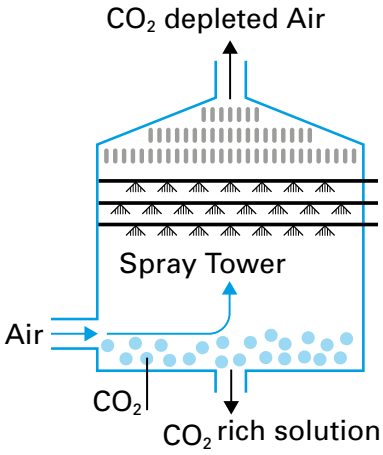
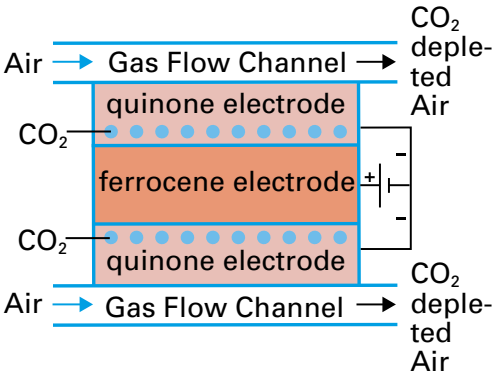
DAC technologies for direct air capture of carbon dioxide

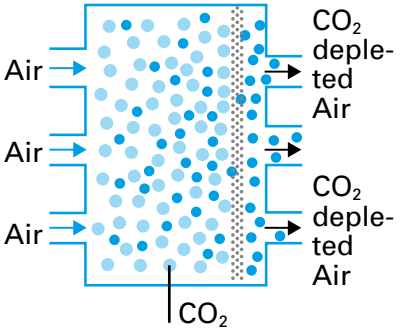
sbh4 consulting

Notes:
Only the CO_2 separation aspect of each DAC process has been shown









	Climeworks	Carbon Engineering	Verdox	Carbyon
System type	Solid Sorbent	Liquid Absorbant	Solid Sorbent	Solid Sorbent
Technology	Amine-functionalised	Potassium Hydroxide solution/ Calcium Carbonation	quinone–carbon nanotube composite	Thin film coated amine- and/or bicarbonate-based porous membrane
Regeneration	Temperature / Vacuum	Temperature	Electro-Swing	Temperature
Specific Energy Demand	Heat: 2,000 kWh / t_{CO2} Electricity: 650 kWh / t_{CO2}	NG: 2,777 kWh/t_{CO2} or Electricity: 1,500 kWh/t_{CO2}	Electricity (only cell, w/o BoP in particular ventilation): 568 kWh/t_{CO2}	TBD
Operating Temperature	80-100°C	900°C	Ambient	60-85°C
Technology maturity level	Commercial	Pilot	Laboratory	Theoretical