

Bicarbonate or Carbonate Processes for Coupling Carbon Dioxide Capture and Electrochemical Conversion

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Scientific Achievement

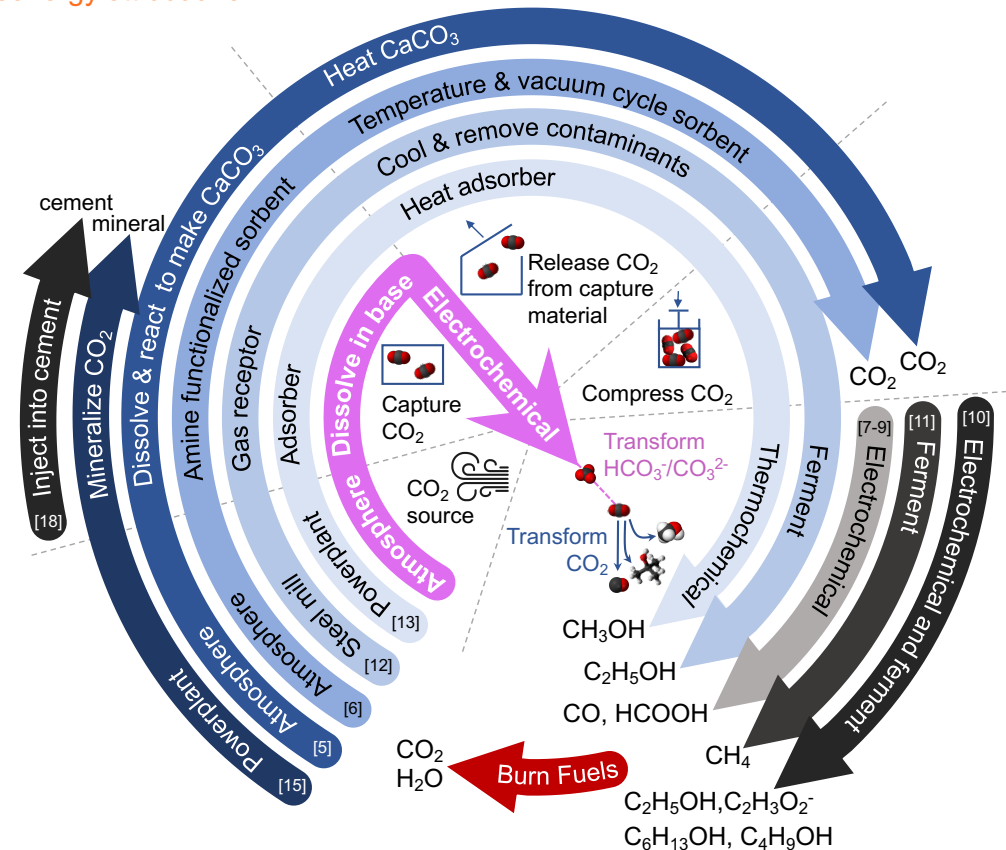
- We outlined energy requirements for CO₂ capture and conversion systems that use bicarbonate or carbonate solutions as the carbon bearing feedstock

Significance and Impact

- We noted increases in the energy efficiency of these CO₂ capture and conversion systems

Technical Details

- To make syngas the system we propose requires 0.7 MJ/mol syngas. While to synthesize syngas from coal or natural gas requires 1.5-3.7 MJ/mol syngas and 0.8 MJ/mol syngas respectively; and these values do not include the energy required to extract the coal or natural gas.



Schematic of steps for various prototype systems which capture and/or convert CO₂. The blue arrows represent processes that capture and convert CO₂, grey arrows represent processes that only convert CO₂, and the pink arrow represents the process that we propose.