

Session Title:

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Abstract title:

An LCA of a DAC assisted by cold energy stored in liquefied natural gas

Abstract text (within 100 words):

We are developing the Cryo-DAC that uses cold energy stored in liquefied natural gas (LNG). In the Cryo-DAC, CO₂ is captured with a liquid sorbent, and the sorbent is regenerated not by heating but at ambient temperature and reduced pressure. The pressure drop can be realized by cooling CO₂ released from the sorbent into dry ice by utilizing LNG coldness and can pull more CO₂ out of the sorbent. The process simulation was performed and the amount of life cycle CO₂ emission was estimated based on both equipment and energy required to capture 200,000 ton CO₂ per year.