

NetZero CO₂ target and understanding the potential role of gas hydrates in carbon capture and sequestration at scale

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Global CO₂ emission has touched ~40 billion tons of carbon dioxide per year; electricity generation using renewables like solar, wind, hydro would be essential for reduction in anthropogenic CO₂ emission, and sustaining NetZero. However, Carbon Dioxide Capture and Sequestration (CCS) would bridge this transition for next couple of decades. CCS allows one to use the conventional energy sources in hard to abate sector like steel and cement manufacturing without rocking the boat. CCS is essentially a three-step process, i) Capturing or separating the CO₂ from its associated gases coming out of stacks, ii) Transporting the captured, relatively purer CO₂ (from step-i) to the sequestration site, and iii) Injecting the CO₂ in geological formations for sequestration and monitoring of sequestered CO₂ for next 30 years or so. This presentation would briefly explain the challenges in adaptation of CCS at larger scale while ensuring a NetZero process. Further, use of gas hydrates for CO₂ capture and sequestration would be discussed where water is the only working fluid which makes this approach relatively better than other similar processes.



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