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Multicriteria analysis of various CCS Technologies

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Carbon Capture and Storage Technology (CCS) is considered one of the most promising approaches for reducing CO₂ emissions produced by industry. There are numerous technologies available for CO₂ capture. Mostly used amine absorption, cryogenic separation or membranes that are still under development to be commercially available. Each of those technologies has its own advantages and disadvantages, particularly in terms of heat and electrical energy consumption. The aim of this study is to design CCS system for treating specific flue gas from industrial combustion process, to obtain CO₂ that meets required parameters for geological storage. Subsequently, a multicriteria analysis is applied to determine which technology is the most efficient from various perspectives, including economic, environmental, energy-related, and technological readiness level (TRL).

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