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Technological assessment of CO2 capture and EOR/EGR-based storage

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Carbon capture and storage (CCS) is considered a viable way to mitigate CO_2 emissions from fossil fuel use in a carbon-constrained world while not compromising the continued utilization of global carbon reserves. Vital to the long-term economic prosperity and energy security of the world, CCS is technologically ready but has yet to be fully deployed commercially as it is still expensive in its current form. Geo-sequestration of the CO_2 in deep underground geological formations is viewed as the most promising method of storage. It has been practised for decades in the energy industry for enhanced oil and gas recovery (EOR/EGR). However, large stationary sources of CO_2, such as fired power plants mainly located in regions heavily reliant on fossil fuels (e.g., China), have limited access to oil or gas fields. Thus, the theme of this initiative is about how to make up for this geographical gap and to take advantage of the economic incentives for EGR and EOR. This talk will provide an overview of various carbon capture technologies, different mechanisms for trapping CO_2 in geo-sequestration, and the implications for the whole CCS value chain.