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Special Issue Reprint

Carbon Capture and Storage

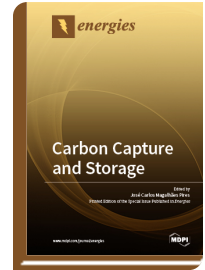
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Climate change is one of the main threats to modern society. This phenomenon is associated with an increase in greenhouse gas (GHGs, mainly carbon dioxide—CO₂) emissions due to anthropogenic activities. The main causes are the burning of fossil fuels and land use change (deforestation). Climate change impacts are associated with risks to basic needs (health, food security, and clean water), as well as risks to development (jobs, economic growth, and the cost of living). The processes involving CO₂ capture and storage are gaining attention in the scientific community as an alternative for decreasing CO₂ emissions, reducing its concentration in ambient air. The carbon capture and storage (CCS) methodologies comprise three steps: CO₂ capture, CO₂ transportation, and CO₂ storage. Despite the high research activity within this topic, several technological, economic, and environmental issues as well as safety problems remain to be solved, such as the following needs: increase of CO₂ capture efficiency, reduction of process costs, and verification of the environmental sustainability of CO₂ storage.



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