

Special Issue Reprint

CO₂ Capture and Renewable Energy

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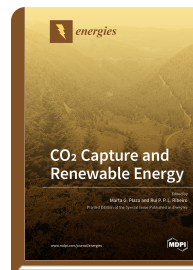
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The urgently needed carbon neutral economy requires a portfolio of strategies, among which, CO₂ capture and renewable energy will need to play a decisive role.

Dispatchable renewables, such as bioenergy, will play an increasing role in maintaining electricity security, in producing heat in the industry and residential sectors, and in reducing the emissions from the transport sector. Biomethane, also known as a renewable natural gas, can be directly blended with or fully replace natural gas in existing pipelines and end-user equipment, with the added advantage of being carbon neutral.

CO₂ capture and storage (CCS) will also be of paramount importance in abating CO₂ emissions from existing infrastructure in the power and industrial sectors. There are many industries that will be difficult or impossible to decarbonize in the short term, such as the cement sector, in which CO₂ emissions are intrinsic to the production process. In such cases, CCS will be mandatory to achieve the goal of net zero emissions. Permanent CO₂ removal technologies, such as bioenergy with carbon capture and storage (BECCS) and direct air capture and storage (DACs), will also be necessary in the medium term to compensate for emissions from the hard-to-abate sectors, and in the long term, even to remove atmospheric CO₂ from past emissions.

This book consists of six peer-reviewed scientific articles that cover a range of high-interest subjects related to the aforementioned hot topics.



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