

An *In-situ* Design for Carbon Capture and Storage in Process Industries †

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Abstract: The emissions of greenhouse gas component, carbon dioxide, has increased ten times in the past few years, with industrial emissions being the major contributor. Through this study, the existing processes for the capture of industrial emissions of carbon dioxide in its carbon form were explored. Based on the current scenario, the authors aimed to design a carbon capture and storage method applicable to Indian industries. The existing transportation methods for storage of the captured carbon to exclusive locations in India were analyzed. India is an agricultural country with a huge population, and scarcity of land for carbon storage is always an issue, and it isn't easy to find an appropriate and suitable geological location for the storage of the captured carbon. Government support and public opinion matter the most. Non-conventional renewable energy sources cannot accomplish today's energy demands. Energy from coal comes with a price of increased greenhouse gas emissions. Sustainable *in-situ* technology for capture, storage, and reuse will be a promising way for Indian industries like thermal power plants and fertilizer.

Keywords: carbon dioxide; carbon capture; energy sector; thermal power plant; process industries.

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Conflicts of Interest

The authors declare no conflict of interest.