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Application of advanced technologies for CO₂ capture from industrial sources

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Abstract

The great majority of the research on CO₂ capture worldwide is today devoted to the integration of new technologies in power plants, which are responsible for about 80% of the worldwide CO₂ emission from large stationary sources. The remaining 20% are emitted from industrial sources, mainly cement production plants (~7% of the total emission), refineries (~6%) and iron and steel industry (~5%). Despite their lower overall contribution, the CO₂ concentration in flue gas and the average emission per source can be higher than in power plants. Therefore, application of CO₂ capture processes on these sources can be more effective and can lead to competitive cost of the CO₂ avoided with respect to power plants. Furthermore, industrial CO₂ capture could be an important early-opportunity application, or a facilitate demonstration of capture technology at a relative small scale or in a side stream.

This paper results from a collaborative activity carried out within the Joint Programme on Carbon Capture and Storage of the European Energy Research Alliance (EERA CCS-JP) and aims at investigating the potentiality of new CO₂ technologies in the application on the major industrial emitters.

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1. Introduction

The great majority of the research on CO₂ capture worldwide is today devoted to the integration of

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