

Impact of retrofitted post-combustion capture on coal-fired power plants

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In this study, the optimum design of power plants with CO<sub>2</sub> capture process is proposed. With CO<sub>2</sub> capture process, a certain amount of steam should be extracted for solvent regeneration, which inevitably causes 20–25% power derate of steam cycle. However, by introducing the new design with the optimal steam extraction position, additional power of extracted steam can be recovered so that the fraction of power derate is compensated. The result shows 4.3% of power derate can be recovered with the optimal steam extraction position, and this value can reach 9.9% with another steam extraction position.

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