Simulation and optimization of an integrated CO_2 capture and storage system

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Carbon dioxide capture and storage (CCS) system has been developed during several decades. However, most of studies about CCS system focus on a specific process, while a few does on the integrated CCS system. Further study about process design and optimization for the integrated CCS system is needed to deal with process consistency and decision making about choosing optimal design option of overall system.
This study presents a bottom-up approach for designing an integrated CCS system. In first step, optimal design of each CCS unit process is proposed using previous researches and power plant operation data. Then all of designed process models are unified to construct a model of an integrated CCS system. Based on this model, proper integration and optimization study for designing whole CCS system is shown. Additionally, this study describes a list of design variables that have much influence on designing the integrated CCS process.