Optimization of a Carbon Capture and Storage Infrastructure Model Using Genetic Algorithm

이서영, 이재욱, 이인범[†]

포항공과대학교

(iblee@postech.ac.kr[†])

We propose a technique based on genetic algorithm to optimize cost in the carbon capture and storage (CCS) infrastructure network. We focus on to specifically determine to determine source plant for capture, sequestration area, CO_2 capture amount, CO_2 sequestration amount, transport amount in the supply chain network such that the total supply chain cost is minimized. The complexity of the problem increases when more source plants and multiple sequestration areas are involved in CCS infrastructure that has been resolved in this work. The case study based on power−plant CO_2 emission in Korea is presented to illustrate the application of the proposed modeling and solution method. The proposed method is implemented and its performance is evaluated using MATLAB.