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Carbon Capture and Storage (CCS) Source-Sink Matching with Consideration of Geographic Earthquake

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ABSTRACT

This study incorporates the damage impact of earthquake in source-sink connections for carbon capture and storage systems. Current models on Carbon Capture and Storage (CCS) matching with temporal considerations do not include the possible disastrous impact in the event of an earthquake, which if not considered will impact the benefits of CCS. Instead of relying solely on path length minimization, the proposed approach considers risks from seismic events along CO_2 transportation pathways.

A case study is used to illustrate the impact of earthquake damage on CCS connection. Results show that the optimized carbon emission is reduced depending on the zoning path of source-sink connection. This model however, is highly dependent on the accuracy of existing earthquake zoning maps.

KEYWORDS: earthquake; carbon capture and storage; source sink