**A comparison of various methodologies for calculating CO2 storage potential**

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**Abstract**

Geological sequestration of CO2 is an immediately available way to reduce CO2 emissions into the atmosphere from major point sources. Before geological sequestration of CO2, assessment of storage potential must be calculated first. Multiple methods to estimate CO2 storage and multiple storage estimates for saline formations have been published currently. For United States Department of Energy (US-DOE) methodology, a detailed description of storage terms for saline formations is provided. The saline formations is discussed at the site-specific and formation level in this study.

 The volumetric method is the basis for CO2storage resource calculations. Structural and hydrodynamic trapping are the dominant trapping mechanisms and are the focus of the US-DOE methodology. For CO2 storage resource estimates, the total area (At), gross formation thickness (hg), total porosity (Фtot), CO2 density (ρ) and storage efficiency factor (Esaline) are available. Trap heterogeneity, CO2 buoyancy and microscopic displacement efficiency are considered in storage efficiency factor.

Furthermore, we compared to Carbon Sequestration Leadership Forum (CSLF) and Japan methodology. CSLF’s methodology is under different assumption not suitable for Taishi basin, Taiwan. Japan methodology is suitable to assesse for larger scale (i.e. Country or Region scale) and overestimated owing to assumption of storage efficiency factor. To summarize, US-DOE methodology is most conscientious and suitable for CO2 storage resource estimates in Taishi basin, Taiwan.

**References**

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