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*Estimating pressure limited CO₂
storage capacity in the UK North Sea*

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Abstract: Much work has focused on estimating volumetric CO₂ storage capacity in saline aquifers over large regional areas in many different countries. But such estimates are of limited value if not attached to some form of associated economic cost. A major geologically dependent factor in this respect is the number of injection wells needed to utilize the storage capacity within a practical amount of time. This paper presents and discusses the various methods used to estimate number of injection wells needed for to utilize the hundreds of saline aquifer units contained within the recently completed, Energy Technology Institute funded, UK Storage Appraisal Project (UKSAP). A range of issues are covered including: maximum pressure stipulation, injection pressure estimation and how to deal with open and closed aquifers. Finally the paper presents relevant regional scale findings from UKSAP concerning utilization of saline aquifers in the North Sea and their economic implications.

References:

- Mathias, SA, Gluyas, JG, Gonzalez, G & Hosseini, S 2011. Role of partial miscibility on pressure buildup due to constant rate injection of CO₂ into closed and open brine aquifers. *Water Resources Research* 47: W12525.
- Mathias SA, Gonzalez GJ, Thatcher KE & Zimmerman RW 2011. Pressure buildup during CO₂ injection into a closed brine aquifer. *Transport in Porous Media* 89(3): 383-397.