



## The answer to carbon storage is here



### Carbon capture and storage

Senergy has rapidly established a reputation as a leading consultancy in the geological storage of carbon dioxide. Driven by the imperative to reduce CO<sub>2</sub> emissions to combat climate change, there is worldwide interest in developing and commercialising this technology. CO<sub>2</sub> is captured either at large industrial sources, such as coal fired power stations, or separated from natural gas. The captured CO<sub>2</sub> is liquefied and either piped or shipped by tanker to the storage location where it is permanently sequestered in either depleted gas fields, deep saline aquifers or used for enhanced oil recovery (EOR).

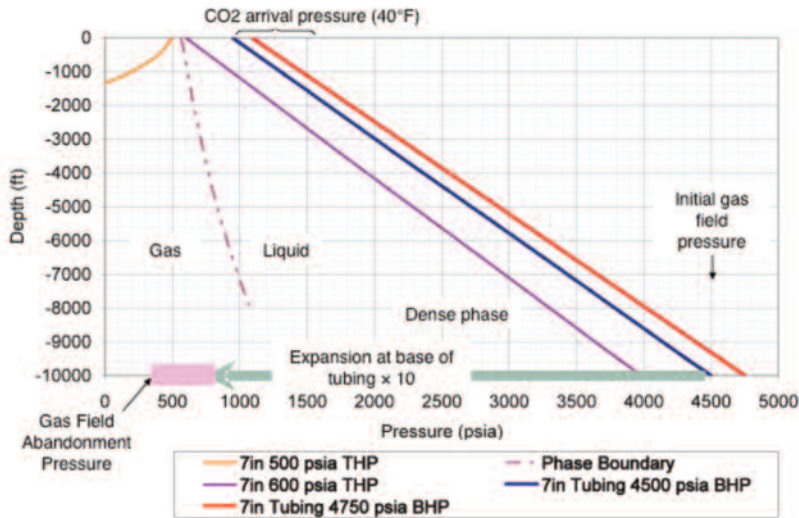
Senergy has been at the vanguard of CO<sub>2</sub> storage technology. Over the past five years, Senergy's carbon storage technical experts have undertaken in excess of 35 projects for clients worldwide, covering the full range of storage options. Our expertise ranges from basin screening, site selection and development through to storage site operation and monitoring, measurement and verification.

Senergy's staff has provided guidance on operational and planned projects to independent and state oil companies, governments and power utilities in the UK and Norwegian North Sea, onshore Europe, Middle East, Africa, Southeast Asia, Australia and North America.

#### Our key areas of expertise are:

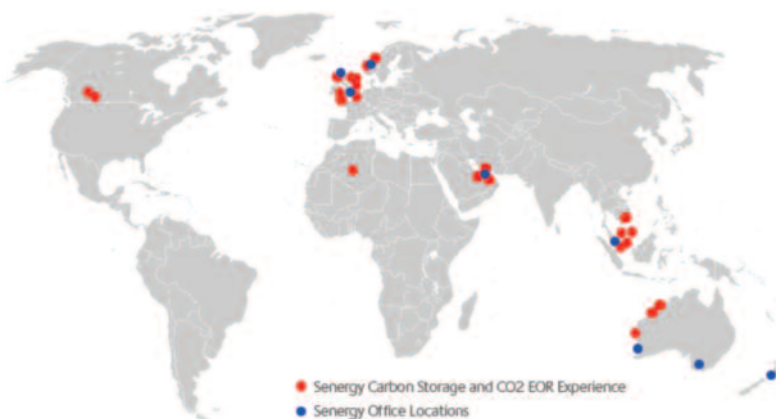
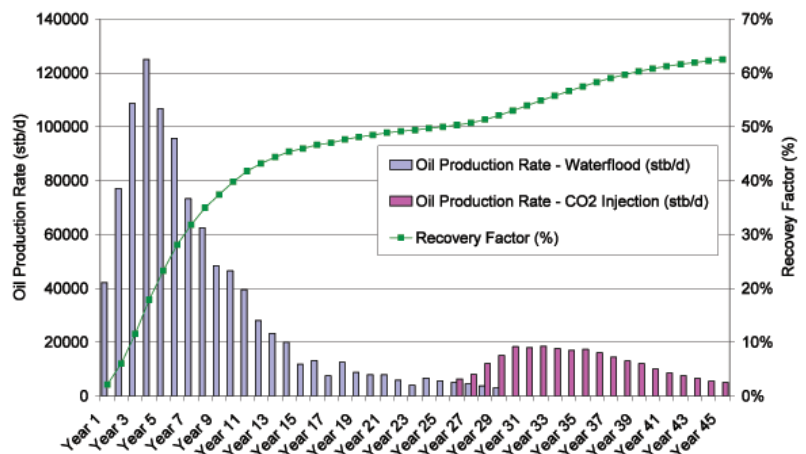
- geological characterisation of reservoir, trap and seal of potential CO<sub>2</sub> storage sites, including evaluation of volumetrics and spill points
- phase behaviour of CO<sub>2</sub> mixed with water and hydrocarbons, and ability of CO<sub>2</sub> to displace hydrocarbons
- full dynamic performance modelling of EOR, gas field and saline aquifer storage schemes to estimate injection rate and storage capacity
- geochemical effects including mineral solution and precipitation
- overburden modelling including appraisal of CO<sub>2</sub> migration pathways
- analysis of stress regimes (including thermal effects) and potential for fault reactivation
- well engineering and completion design
- integrated project CO<sub>2</sub> flow assurance (surface/ subsea network and facilities, wells and reservoirs)
- monitoring and verification programme design and operation

Senergy disseminates its experience to industry through the training course '**Introduction to the geological storage of carbon dioxide**', visit [www.senergyworld.com/training](http://www.senergyworld.com/training)



The disposal of CO2 in highly depleted gas fields is particularly challenging as CO2 is delivered at the surface as a cool liquid but is initially discharged into the reservoir as a gas. Senergy has assisted clients in understanding the flow assurance issues around disposal in low pressure gas fields.

Using CO2 to increase the recovery in oil fields can potentially provide a revenue stream not available with other storage methods. Senergy has undertaken the detailed subsurface design of CO2 enhanced oil recovery projects for clients.



Map of Senergy offices and locations in the world where Senergy has CO2 storage expertise. Office locations include: UK, Middle East, Malaysia, Australia, New Zealand and Norway.