

Underground Gas Storage

Our Capability

The increasing complexity of gas supply across international boundaries is generating a need for gas storage capacity many times greater than that existing at present. The development of storage space in underground facilities such as salt caverns, depleted oil and gas reservoirs and aquifers has the potential not only to meet this need but to do so more safely than in smaller, above-ground facilities.

Atkins offers a specialist Underground Gas Storage (UGS) service, integrating the traditional planning and engineering skills of the Atkins group to provide the capability of investigating and designing storage facilities in all relevant rock types and at all levels of detail.

Our capability also enables us to provide a review and assessment service to funders, regulators and other agencies.

Our services include:

- Feasibility studies
- Technical investigations
- Front-end engineering design
- Environmental assessment
- Risk management
- Permit applications
- Expert witness services
- Procurement
- Construction supervision

Investigation and planning

We undertake feasibility studies (including financial and commercial as well as technical analysis), environmental assessment, health and safety management, social impact studies and regulatory requirements.

In particular, the successful development of a UGS facility is crucially dependent on knowing the geological environment. Salt cavern containment can be compromised by the stresses of pressure and temperature cycling; the integrity of depleted reservoirs can be affected by the hydrocarbon extraction process itself. Understanding possible gas escape routes and migration paths is therefore essential.

We have the capability to plan and supervise all aspects of ground investigations including:

- data search
- geological mapping
- geophysical interpretation
- borehole drilling
- in-situ testing
- laboratory testing
- reservoir modelling
- subsidence prediction

Design and engineering

Our team provides a state-of-the-art analysis and numerical modelling capability and specialises in the use of finite difference and finite element computer packages. Using these techniques we can undertake the design of both surface and underground facilities, including salt caverns, at the most demanding end of the design spectrum. We have substantial experience in the oil and gas industry. This includes design and operational support of all types of petroleum facility including pipeline systems, offshore loading facilities, terminals, refineries, LNG facilities, drilling rigs and production platforms.

We are therefore ideally qualified to design storage facilities that are compatible with the relevant transmission and processing systems, and indeed to provide design support for the whole infrastructure.

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