

## Research and development

We conduct applied research into safe and environmentally friendly supply of energy from natural gas and crude oil, underground storage of large volumes of renewable energy using PtG and hydrogen UGS, and deep geothermal energy.

- Suitability tests of reservoir fluids, storage and overburden rock for natural gas, H<sub>2</sub> and CO<sub>2</sub> underground gas storage facilities
- Laboratory investigations and model adaptations for multiphase flow gas/water/oil, CO<sub>2</sub>/water as well as for gas mixing (H<sub>2</sub>/natural gas, L-gas/H-gas)
- Development of thermo- and fluid dynamic models for underground storage of special gases such as H<sub>2</sub> and CO<sub>2</sub>
- Material selection for special hole completions (H<sub>2</sub>, CO<sub>2</sub>)
- Technology development and optimization for low-permeable reservoirs
- Risk reduction for fracing operations
- Effects of gas-accompanying substances on subsurface and surface installations



Oil field in production

## Our business areas

- Exploration, construction and optimization of underground storage facilities for natural gas/hydrogen
- Geological exploration, field development and reservoir engineering of natural gas and oil reservoirs
- Geological and reservoir mechanical 3D modelling and 3D-simulation
- Engineering and application of EOR / EGR
- Potential and feasibility studies, development of operating plans and approval procedures
- Research and development in the field of gas and oil production, gas storage, H<sub>2</sub>-UGS, CO<sub>2</sub> sequestration and geothermal energy (hydrothermal, petrothermal)

## Contact

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## GAS PRODUCTION / GAS STORAGE

**Construction, operation and decommissioning of underground storage facilities**

**Exploration, development and exploitation gas and oil of reservoirs**

**Development of petrothermal and hydrothermal potentials**

www.dbi-gruppe.de



**DBI**

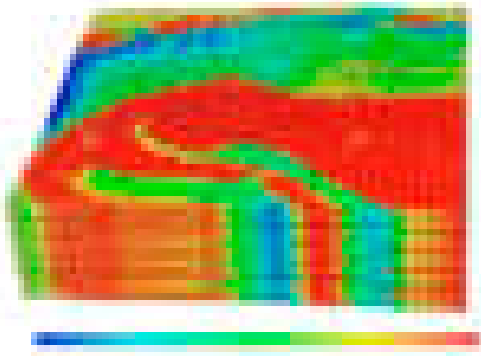
## Engineering services

Our engineering of complete technologies for gas or oil production as well as underground gas storage includes the planning, construction supervision and commissioning, as well as the continuous supervision and optimization of the operation.

### Underground facilities

The service spectrum of our company ranges from the design of individual boreholes to the development of entire reservoirs/UGS.

- Well treatments for water blockage, stimulation (frac, acids, polymer plugs)
- Bore standards and completion designs for special cases: sour gas, CO<sub>2</sub>-UGS, H<sub>2</sub>-UGS
- Ensuring well integrity including design, support and evaluation of tightness tests as well as measurement and monitoring programs, life-time analyses and due-dilligence testing
- Design, supervision and evaluation of tightness tests

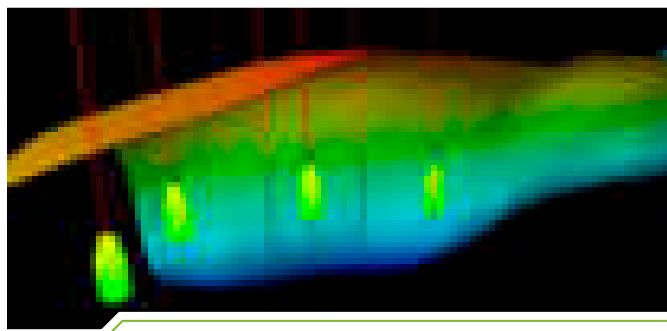


3D-simulation model of an oil field for optimization of the production capacity by water flooding

### Underground storage

We offer engineering services for the construction and optimization of cavern and porous storage facilities including also decommissioning, have extensive experience in town gas and natural gas storage as well as geological hydrogen storage and CCS.

- Exploration and selection of suitable locations including structural analysis
- Laboratory storage and cap rock parameterization, determination of effective storage pressures and volumes
- Analysis and modelling of gas mixture:
  - Storage gas / inert reservoir gas
  - Storage conversion: L/H gas; H<sub>2</sub>/natural gas
- Engineering and consulting for storage construction
- Storage Operation Optimization
  - Reduction of gas-water mixing and gas losses
  - Working gas maximization and cushion gas minimization
- Design and supervision of leaching and first-gas-filling
- Storage decommissioning with maximum WGV and CGV withdrawal as well as planning for subsequent use or abandonment



3D salt dome model with cavern field and wells

### Gas and oil deposits

DBI's services include the development of new fields and the maximization of efficiency of old fields.

- Evaluation of geological and geophysical exploration data
- Laboratory investigations of petrophysics and fluid properties
- Complex 3D Geo Modelling and 3D-reservoir Simulation

### Enhanced recovery methods oil / gas

Our portfolio includes polymer selection studies as well as the design of frac treatments and field-scale flood technologies including their 3D modelling and 3D simulation for EOR and EGR.



Salt core of a storage well

Advantage through technological know-how.