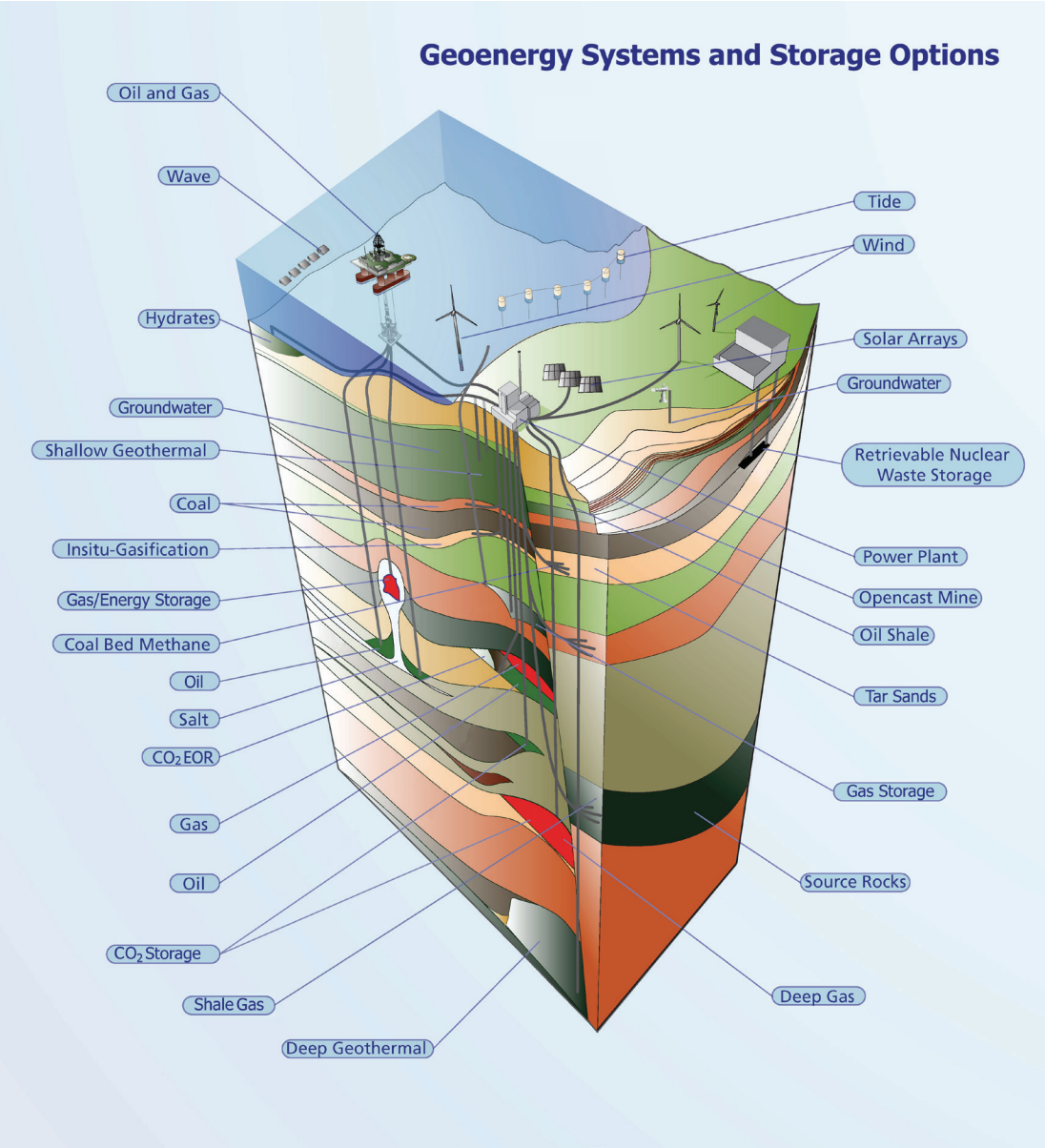
European Network for Research in Geo-Energy

Strategy and Achievements

Who we are

ENeRG, the European Network for Research in Geo-Energy, was created in 1993 by European organisations involved in research and technology development (RTD) focused on fossil energy sources, especially oil and gas. It was formed to promote European RTD capability in the service of Europe's geo-energy exploration and production industry and its associated service and supply sector. **The focus has been evolving towards all subsurface technologies for enabling low carbon energy transition, climate change mitigation and security of supply: geothermal energy, CO_2 geological storage, underground energy storage, etc.**



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Objectives

The main objectives of ENeRG are:

- To inform/advise members on EU's and other international R&D programmes and the possibilities to apply for funding
- To identify and match opportunities and requirements for new RTD projects which will bring benefits to European citizens, industry and public sector
- To promote scientific and technical collaboration between members (to function as "broker" for international consortia)
- To explore and promote, where appropriate, members' coordinated views on RTD, legislation and policy issues
- To foster interaction and exchange of information between members and national/European stakeholders
- To disseminate geo-energy research results and synthesized knowledge Europe-wide
- To promote the transfer of European know-how and technology to third countries

Why geo-energy research is important

The underground offers many possibilities for the exploitation and storage of energy. An integrated, smart and sustainable use of the underground is needed for enabling the energy transition, climate change mitigation and security of supply. Research challenges are:

- The identification and development of innovative subsurface technologies
- The 3D mapping of the subsurface geological composition and structure with potential for application of each technology in Europe, in order to enable an integrated planning and sustainable use of the underground
- The development of synergies between technologies for smart multiple use of the underground
- The minimization of impacts on groundwater resources and other environmental risks
- The appropriate management of operational risks and safety issues

The main research challenges associated with each type of use are the following:

- **Geothermal energy – a non-intermittent renewable energy:** enhance its use from shallow resources, through deep permeable aquifer reservoirs, hot springs, fumaroles, geysers, travertine deposits, chemically altered rocks to hot dry rocks and Enhanced Geothermal Systems (EGS)
- **Fossil fuels:** address sustainability issues for the extraction of coal, oil, natural gas, coal-bed methane (CBM), heavy oil and tar sands, shale oil, shale gas, natural gas hydrates, including possibilities to combine the exploitation of these resources with CO_2 use for their enhanced recovery and CO_2 geological storage
- **CO_2 geological storage:** further develop this technology for storing the CO_2 captured at industrial plants and fossil-fuel power plants, or directly from the atmosphere (carbon-negative solutions), i.e. to make full use of the deep subsurface as one of the decarbonisation options by returning the carbon back to the underground
- **Energy storage:** expand the possibilities of underground storage beyond natural gas storage, by considering options for the storage of heat (Aquifer Thermal Energy Storage – ATES, Bottom-hole Thermal Energy Storage – BTES, etc.) and electricity (Underground Pumped Hydro Storage - UPHS, Compressed Air Energy Storage - CAES, H_2 storage, etc.)
- **Radioactive waste disposal:** further study the safe and long-term disposal of radioactive wastes from various sources in deep geological formations.

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Activities: aims and achievements

- **Projects:**
  - Initiate or co-initiate and/or lead RTD projects
    - **GESTCO** (EU-FP5), **EU GeoCapacity** and **CO_2NET-East** (EU-FP6), **TOGEOS** (Norway Grants), **CO_2StoP**(EU-DG Energy), **CGS Europe** (EU-FP7)
  - Facilitate engagement of Members in EU projects
    - **CASTOR** (EU-FP6), **ECCO** (EU-FP7), **ESTMAP** (EU-H2020)
- **Co-organisation of conferences and events:**
  - European Energy Forum (EEF) Lunch Debate at the European Parliament in Strasbourg, France, in 2009
  - CO_2 Capture and Storage (CCS) session at the 5th Congress of Balkan Geophysical Society in Belgrade, Serbia, in 2009
  - The 3rd International Conference "Geosciences and Environment" in Belgrade, Serbia, in 2012
  - EAGE "Sustainable Earth Science" Conference in Celle, Germany, in 2015 and in Malmö, Sweden, in 2017
- **Capacity building:**
  - In 2002 ENeRG invited RTD institutions from, at that time, EU Candidate Countries of Central & Eastern Europe to participate in the network's activities
    - This enabled them a smooth and quick involvement in European geo-energy research networking, supported by participation in international projects. The associated exchange of knowledge has significantly increased the level of knowledge and skills in geo-energy research of the newly involved partner institutions as well as of the founding members
  - Further efforts are being put on involvement and integration of researchers from current and potential EU Candidate countries and countries associated with EU research programmes that are not yet ENeRG members
- **Educational and awareness-raising activities:**
  - ENeRG Student Prizes worth 1000 Euros were given two times for the Best Student Paper and the Best Student Poster in the field of geo-energy applications: in 2007 at the 69th EAGE Conference & Exhibition in London and in 2008 at the 70th EAGE Conference & Exhibition in Rome
  - ENeRG lecture for students on CO_2 mineral carbonation technology at the 3rd International Geosciences Student Conference in Belgrade, Serbia, in 2012
- **Expert advice:**
  - Input to the European Commission (EC) and other European bodies
    - FP5/6 Work Programme preparation
    - Answer to the EC public consultation on the future of CCS in Europe in June 2013
    - Answer to the EC consultation on the CCUS Issues paper of the SET Plan in April 2016
    - Advice on the Draft H2020 Energy Work Programme 2018-2020 in April 2017
- **Position papers:**
  - ENeRG regularly prepares and publishes position papers on contemporary issues related to geo-energy
  - Five position papers published so far:
    - Energy Is Not for Free (April 2005)
    - Energy from the Earth (June 2006)
    - The Need for a CO_2 Geological Storage European Atlas (September 2012)
    - Integrated and Sustainable Energy Uses of the Underground (September 2014)
    - Energy Storage in the Subsurface (June 2017)

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- **Newsletters:**
  - Biannual newsletter issued since 1996
  - 35 issues published by June 2017
    - 1500-2000 printed copies & online version distributed twice a year to geo-energy stakeholders across Europe, including the European Commission and national governments
- **Website:** www.energnet.eu

Functioning

ENeRG operates as an “informal club”, it does not enter into legal transactions

- **President:** Elected for two years
- **Steering Committee:** One representative per country, each with one voting right. Two meetings per year adjacent to other events
- **Membership:** Open to any organisation within Europe whose main mission is to conduct basic or applied research or technological development which complies with ENeRG objectives
- **Annual fee:** An annual fee is due to cover the normal running costs of ENeRG. The amount is decided by the Steering Committee, considering whether organisations belong to high or low capital income countries
- **Use of the fees:**
  - Secretariat
  - Treasurer
  - Newsletter
  - Website
  - Travel for representing ENeRG at key external events