

Interreg North-West Europe DGE-ROLLOUT

WP LT Deliverable DGE Starters
Application (D.LT.3.1)

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Introduction

This report provides a long term view on the DGE Starters Application developed in the framework of the WP T1 (called DGE-ROLLOUT webtool, see report of the D.T1.1.6), aiming to make the main datasets of the WP T1 publically available for stakeholders. This application will significantly contribute to raise knowledge and awareness of Deep Geothermal Energy (DGE) in North-West Europe. The webGIS tool is hosted on the European Geological Data Infrastructure (EGDI) to ensure a high visibility of the project results, the compliance with European standards and the long-term maintenance and updates. EGDI guarantees findable, accessible, interoperable and reusable data, which perfectly corresponds to DGE-ROLLOUT's vision on datasets and tools created during the project.

In the scope of the DGE-ROLLOUT network, regular exchange of knowledge, experience and expertise will take place between geological surveys, research institutions and market players in the fields of exploration, networking and energy on regional activities, harmonization and cross-border collaboration regarding deep geothermal for at least five years after the end of the project.

This deliverable is linked to the workpackage Long Term (WP LT) and explains how the webtool will be maintained and updated in the next five years (2023-2028).

EGDI

EGDI belongs to EuroGeoSurveys (EGS). It provides access to Pan-European and national geological datasets and services from the geological survey organizations of Europe. EGDI is a central element in EGS' ambition to establish a Geological Service for Europe. EGDI gives access to more than 800 map layers as well as a large number of documents (reports, images, spreadsheets, etc.). There is also a database for 3D geological models. The layers can be shown on maps and all the information can be searched in a free text search system. A number of scientific terms are documented in a vocabulary and there is also a multilingual keyword thesaurus which is used in the search system and to find layers in a connected metadata catalogue.

EGDI contains results of projects covering a broad range of geoscientific themes. ***The Geoenergy theme (see Figures 1 and 2) is well represented:*** a number of European and regional projects have been carried out during the last decades in order to address energy-related issues related to fossil fuel resources, Carbon Capture and Storage (CCS) capacity, geothermal energy potential, shale gas and shale oil plays etc.

EGDI: long term maintenance

At an early stage of DGE-ROLLOUT it was decided to use a common platform for harmonizing, disseminating and **safeguarding** the results in terms of geospatial data, reports, background data, models, etc. The existing EGDI (www.europe-geology.eu) was chosen for this. EGDI included facilities for displaying geospatial data and services, storage in a central database, registration of metadata, etc. The GeoERA Information Platform Project (GIP-P) was created to further develop the EGDI with the purpose of supporting the needs of the GSPs, for instance in terms of 3D/4D geological models, digital archives of reports and data, and facilities for searching in all GeoERA metadata.

EGDI was originally established in 2016 by EGS on the basis of recommendations from the EU co-funded project EGDI-Scope. Since the launch, the operation and basic maintenance of EGDI has been carried out by EGS, and the geological surveys have therefore been able to use the platform from day one.

In parallel with the developments mentioned above, some basic maintenance has taken place on EGDI to specifically support the geological surveys, including error corrections, data maintenance, addition of data and services from new projects, etc.

The the basic maintenance and operations of EGDI are primarily being funded by EGS. In addition, EGDI receive a direct funding from DGE-ROLLOUT to ensure the long-term maintenance of the webpage, the webGIS and 3D Viewer.

DGE-ROLLOUT webtool contact point

General contact point of the webtool: dge-rollout@gd.nrw.de

It is hosted by the lead partner GD NRW. More specific questions will be redirected to the respective mapping partners (TNO, BRGM, GSB, VITO), if necessary.

DGE-ROLLOUT webtool/datasets updates

Languages

The webpage is currently available in English. The French, Dutch and German versions are ready to be uploaded in September 2023.

Data

The EGDI DGE-ROLLOUT webpage is accessible through this link: <https://www.europe-geology.eu/scientific-themes/geoenergy/dge-rollout/>

The DGE-ROLLOUT webGIS application combines surface data (e.g. heat demand, socio-economic potential) and subsurface data (boreholes, seismic lines, harmonized top and thickness maps, heat in place) to assess the geothermal potential. The application illustrates the expectedly most promising areas (called hotspots) for launching investigations to build a DGE project in the Dinantian reservoir in Belgium, northern France, the Netherlands, the federal state of North Rhine-Westphalia in Germany (2D maps) or in the northern Upper-Rhine Graben in Germany (3D viewer available).

More layers concerning the surface data will be uploaded in the end of 2023. A few layers linked to the subsurface data listed below will be updated in the future. The top and thickness maps of Dinantian will be updated depending on the new data obtained in the next five years.

Surface data

Currently the heat demand and socio-economic index maps are available. The seven parameters which served as basis to calculate the socio-index maps for the whole NWE area will be uploaded by the end of 2023. They will concern the population density, gross economic product, EU social progress index, greenhouse gas emission per capital, total installed district heating capacity and nature conservation areas.

Existing and Future DGE installations

This layer was produced in the scope of the deliverable T1.1.7 and gathered the DGE installations (district heating and power plants) that are in operation in NWE, as well as the main DGE projects that are under investigation or under development in June 2023. An update of this dataset is scheduled for 2025 and 2027 based on EGE market reports and inputs from the DGE guidance office.

Subsurface data

2D Dinantian

- Seismic lines: The layer displays the public seismic profiles in the DGE-ROLLOUT project area in 2023, several seismic campaigns are scheduled in Flanders, Wallonia, Germany, France and the Netherlands. This dataset will be updated in 2027 with all the new public data acquired from 2023.
- Top and thickness maps: In accordance with the results of the new seismic campaign, drilling exploration and project developments in each country, these maps could be updated in 2025 and 2027: more specifically, some transborder issues could be improved during the bi-annual meetings of the DGE Network. At least between Wallonia and Germany and between Flanders and Netherlands.
- Heat in place (HIP): The heat in place map can be calculated again in 2027, if the top and thickness maps differ significantly from the 2023 version.

Uncertainty maps

Only the distance to data and the depth map of the Dinantian can be improved in the future. The first map shows the areas close to direct observation data (boreholes, seismic lines) and the areas where extrapolation between observation points was made, whereas the second map provides the depth of the Dinantian horizon. The uncertainty increases with depth of the target horizon and can only be reduced by new borehole and seismic data.

Hot spot mapping

If the HIP map is reprocessed, the hotspot 1 and hotspot 2 maps have to be recalculated. This will probably be achieved in 2027.

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