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Summary of EGC 2025 Country Update Reports on Geothermal Energy in Europe

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ABSTRACT

The European status of geothermal energy use by the year 2024 is presented. 34 countries have reported for EGC 2025, from a total of about 40 with known geothermal activities in Europe. The situation varies from country to country according to the geothermal technology that best suits the available natural resource. The opportunities include power generation from high enthalpy resources, binary power production and/or direct use of hydrothermal resources in sedimentary basins, and shallow geothermal applications available everywhere, the latter mostly harnessed by ground source heat pump installations. New developments waiting to gain a foothold on the market are joint mineral and energy extraction (in particular for lithium) and closed, deep systems to harness heat from impermeable hot rock.

Geothermal power generation in Europe currently stands at 7002 MW_{el} installed capacity. The installed capacity of geothermal heating from medium to low temperature sources exceeds 15'300 MW_{th}, of which almost 40% is used in district heating. Concerning shallow geothermal energy (ground source heat pumps – GSHP and Underground Thermal Energy Storage – UTES), the growth is continuing, with different velocity and details among the countries, and a capacity of about 33'350 MW_{th} was achieved by the end of 2024, distributed over more than 2.4 million GSHP installations.

The future perspectives for geothermal energy use in Europe are excellent. A "Geothermal Action Plan" of the EU is planned for early 2026, and several national schemes to support geothermal energy deployment are either in force already or under preparation. After decades of work, full political support finally is here!

1. INTRODUCTION

In most countries in Europe, geothermal energy is firmly established on the heat market, with shallow geothermal energy (GSHP) used in virtually all of Europe. Direct use of deep geothermal resources is more regionally concentrated, due to its dependence upon suitable geological settings, and is mainly used in the East/South-East of Europe, France, Germany, and some more. Recent development in Belgium and the Netherlands is very encouraging for increased direct use of geothermal energy. Geothermal power generation still is centred in few countries, with only Iceland, Italy and Türkiye having substantial shares of geothermal power in the national electricity mix.

The share the different sectors have in installed capacity in Europe does show a shift in direction. As can be seen in Figure 1, the share of power generation capacity (6.0% at EGC 2016) increased from 7.3% at EGC 2019 to 7.7% at EGC 2022, but this relative increase came to an end for EGC 2025 with the electric power share dropping back to just 6.8%. The main reason is the recent end of the exceptional growth in geothermal power plant capacity in Türkiye. On the other hand, direct heat use of deep geothermal energy grew its share from 25.6% at the time of EGC 2022 to 29.2% at EGC 2025. Shallow geothermal plants still make up the largest share of almost 2/3 of all capacity installed. The growth in the geothermal direct use happened in particular in the agricultural and industrial sector. The respective installed capacity rose from 2110 MW_{th} reported for EGC 2022 to 4120 MW_{th} at EGC 2025, increasing the share of agriculture and industry in all direct heat use from 18,1% to 26.9%. The share of DH in all direct heat use fell accordingly from 48.0% to 38.3% (Figure 2).

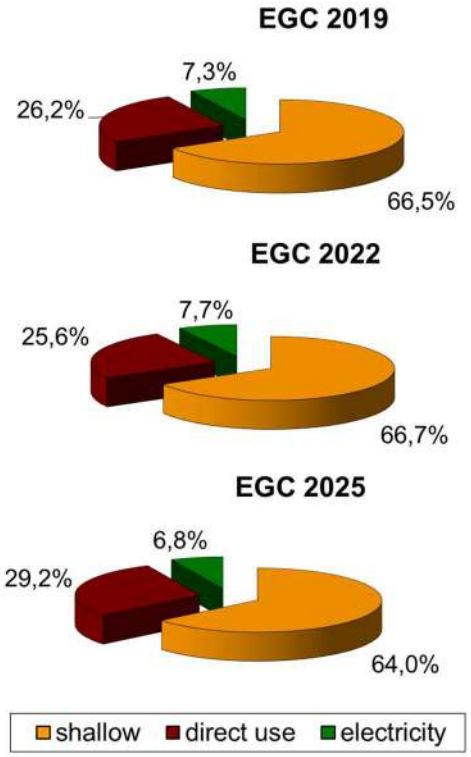

Figure 1: Share of installed capacity in the three geothermal sub-sectors in Europe as reported at EGC 2019, EGC 2022 and EGC 2025.

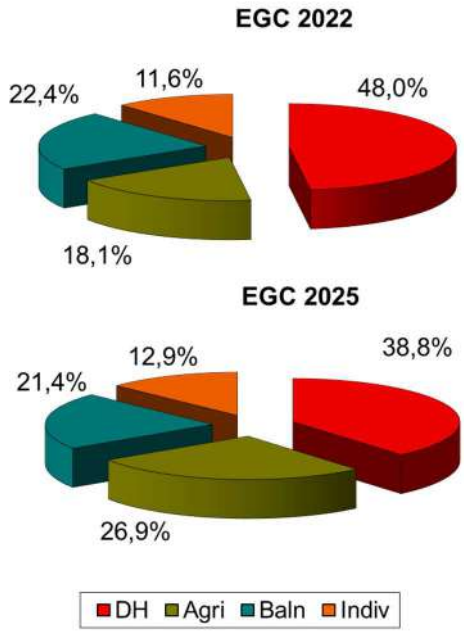

Figure 2: Share of geothermal heat production in district heating, agricultural and industrial uses, balneology and individual buildings in deep geothermal direct use in Europe.

The coverage of the European situation by the country update reports is rather complete. 34 countries have reported for EGC 2025, from a total of about 40 with known geothermal activities in Europe (see table 1 at the end of this paper). For missing countries or data, information was taken from previous WGC and EGC editions, where available. The EGC country update reports complement nicely the annual EGEC Market report (EGEC, 2025), which offers more details on individual installations, but is only available to EGEC members.

2. GEOTHERMAL POWER PRODUCTION

The implementation of geothermal power in Europe at the end of 2024 is listed in table 2, at the end of this paper. Figure 3 shows the development as reported at the various WGC and EGC events since 1995, and the forecast to 2032. The average load factor is at ca. 78% and can be expected to rise further once all new plants are in full, routine operation with start-up problems fixed. Iceland achieved an excellent average load factor of 87%, while the load factor of the geothermal power plants in Italy varied from 68-77% over the past decade (cf. Figure 5).

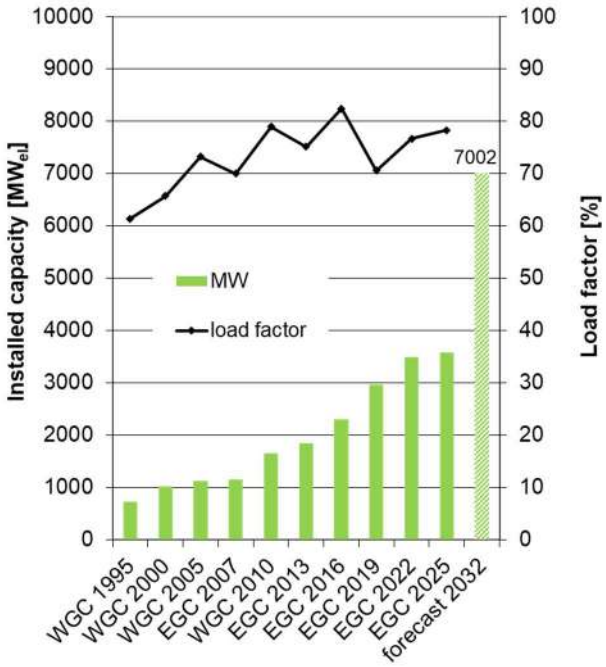

Figure 3: Installed capacity and average load factor for geothermal electricity in Europe as reported at various events, and forecast of installed capacity to 2032.

The combined forecasts for 2032 as shown in Figure 3 promise almost a doubling of installed capacity by that year. The main driver here is Türkiye, with an intended increase of about 3 GW_{el}. The geothermal potential is clearly there, and a power purchase guarantee by the state shall unlock that tremendous growth. Other countries expecting further growth of installed capacity in the coming years include Croatia, France, Hungary and Iceland, and also in Italy renewed growth is expected after a longer period of stagnation.

The number of countries having operational geothermal power plants remained at 10, [1] a number expected to

[1] Russia has reported geothermal power production in the national report, however, this is not considered in this European summary, as the respective plants in the far east of Russia belong to the Circum-Pacific geothermal realm.

rise to about 18-19 by 2032, as the data given in the reports suggest. In most of the countries considered, geothermal electricity production was growing slowly, but steadily (Figure 4). The exception is Türkiye, where a spectacular growth of about 1060 MW_{el} in installed capacity was reported from EGC 2016 to EGC 2022; such growth did, however, not continue for the current period (cf. Figure 5), but is expected to resume in future, as mentioned above. Growth can be seen both in the traditional high-enthalpy areas within Europe, and also with the low-to-medium temperature resources through the extensive utilization of binary plant technologies (e.g. in Germany).

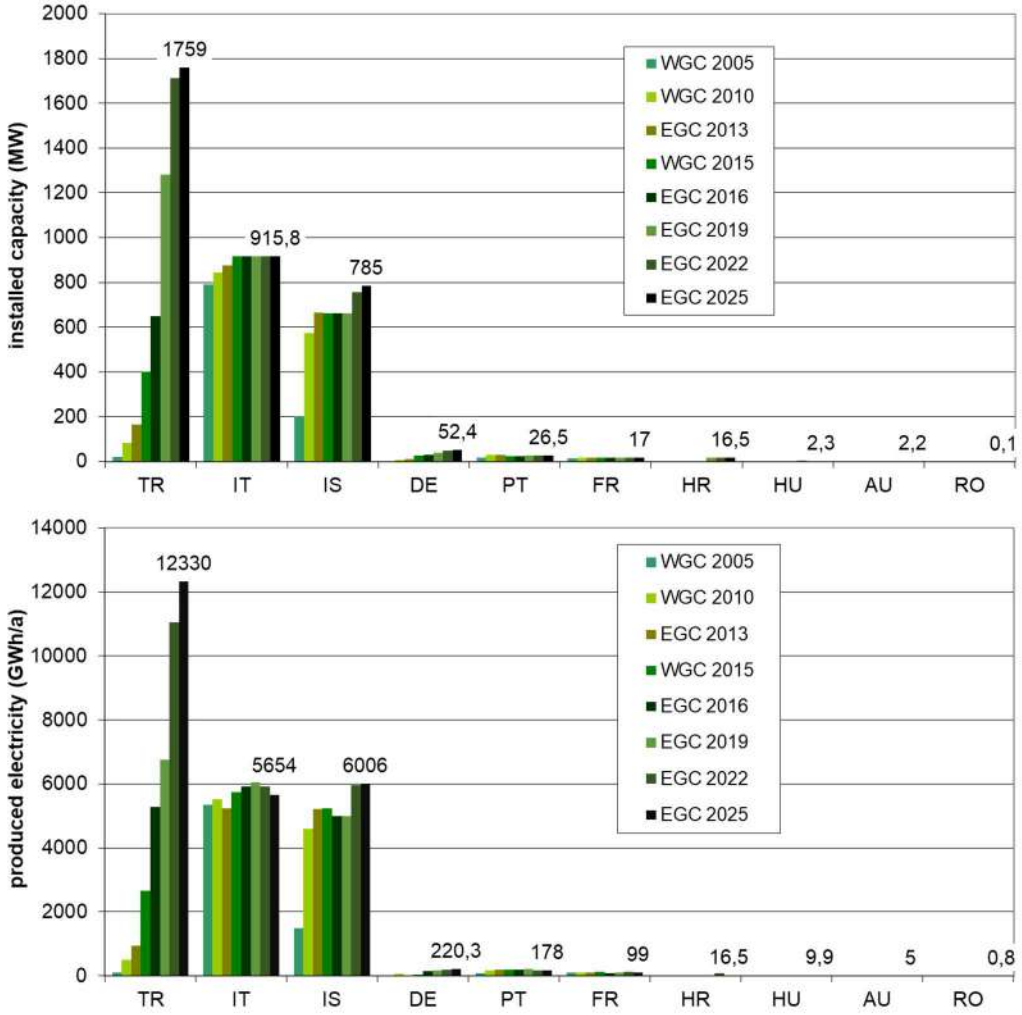

Figure 4: Installed geothermal power (top) and annual production (bottom) in Europe after country update reports since WGC 2005.

The development in Iceland, Italy, Türkiye and Germany over the last 20 years is shown separately in Figure 5. In Iceland, there was a dynamic development in the first decade of the Millennium, followed by a certain consolidation; the increase in installed capacity resumed in the last years. The average load factor was close to 90% in most years, an excellent value and the proof of good design and hardware both on the geothermal side and the energy conversion technology. Italy has the longest geothermal power tradition world-wide spanning more than 100 years, and the installed capacity today is in a similar range to Iceland. There was little to no increase in installed capacity over the last 20 years, with most of the work dedicated to keep the geothermal supply sustained, to make operation more efficient, and to develop technology to mitigate environmental impacts. The average load factor hovered above 70% to about 75%.

The strongest increase in geothermal power production could be seen in Türkiye, growing from a few MW_{el} to almost 1.8 GW_{el} in a span of 20 years. Power production reached more than 1.2 TWh_{el}/yr in 2024, with an average load factor of about 80 %. The growth of installed capacity in Germany is on a similar trend, albeit on a much lower level; the increase in electricity production, however, lags behind. One reason is that some of the ORC-plants also provide district heating, with a higher share of the geothermal heat going into heating in wintertime. Contrary to high-enthalpy power plants, where heat is a kind of residual product, lower-temperature resources often need to divide the geothermal heat for either heating or power production. This is reflected in the relatively modest load factor of about 23 % on average for Germany in 2024, and the wildly swinging values for load factor over the years.

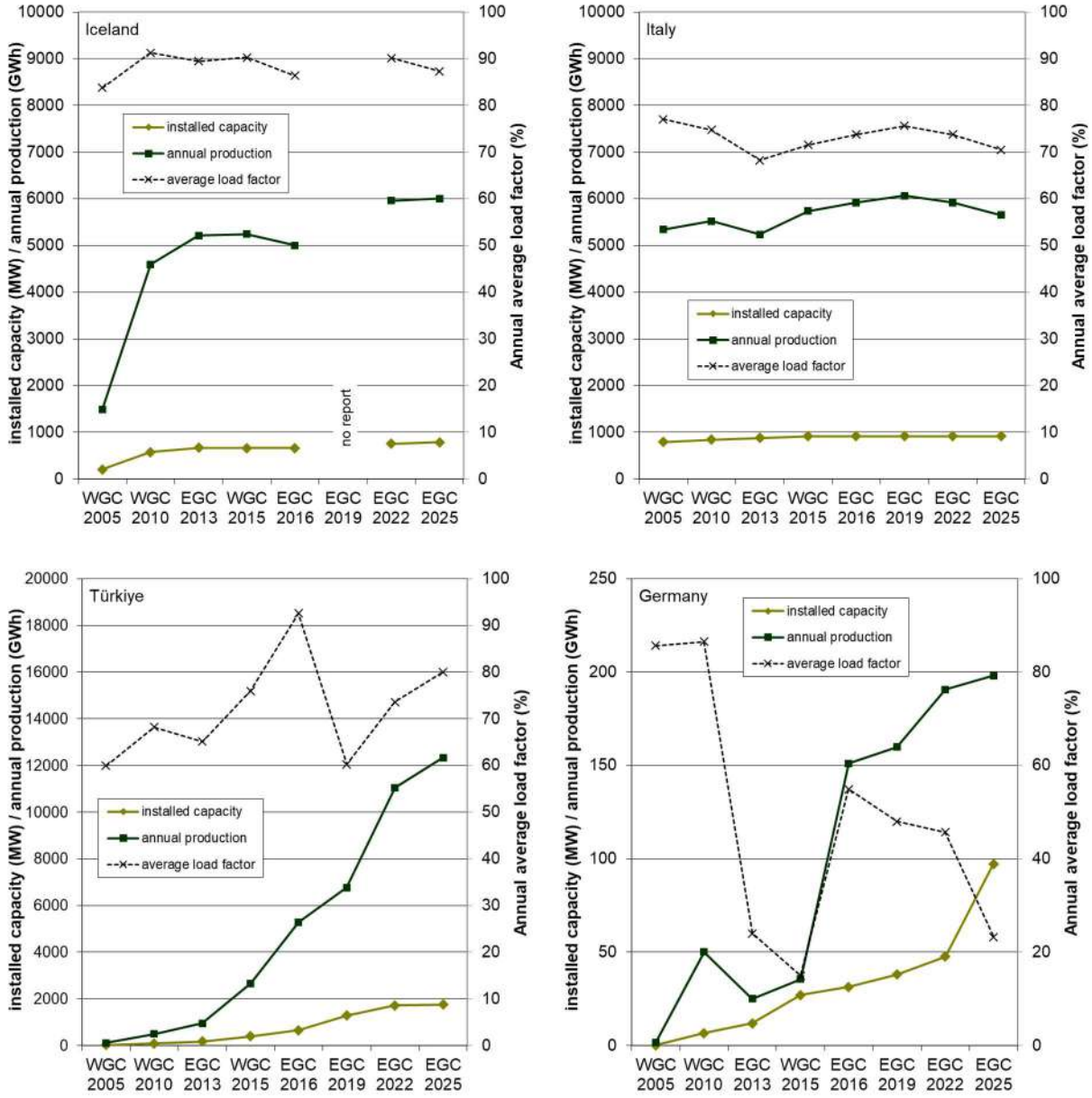

Figure 5: Development of installed geothermal power, annual production and average load factor in Iceland, Italy, Türkiye and Germany, after country update reports since WGC 2005.

Figure 6 shows the installed capacity for the different countries as reported at EGC 2013 to EGC 2025, and the values expected to be reached by 2032. It can be seen from this figure that the huge potential that EGS might offer (cf. Geoelec, 2013) is not reflected in the growth expectations up to 2032. Most reported and expected geothermal power production is based on the currently available high enthalpy resources and low-to-medium-temperature binary power plants. 10 countries currently have geothermal power production, and a total of 16 countries stated expectations for 2032 (Figure 6). Some additional countries have not reported any expectations, albeit conducting experiments in geothermal power, so the actual number of European countries with geothermal power production in the next decade might be beyond 20.

The geothermal contribution to the national electric power production yet is negligible in most European countries, with the exception of Iceland, where more than 30% of electric power stems from geothermal sources. Figure 7 shows the values for the 10 countries with installed geothermal power capacity in 2024. Beside Iceland, only in Türkiye and Italy geothermal power plants supply more than 1% of the national electricity production. In bigger countries like Germany, existing geothermal power production might be substantial, but is hardly visible beside the huge amount of electricity produced and consumed nationally.

Research, exploration and experiments for new technologies are also reported, e.g. for wide use of EGS in Türkiye or closed deep installations like the Eavor concept in Germany. No electricity is produced by such new projects yet, but the impact on geothermal power in Europe might be profound – if the technologies can prove to be technically and economically feasible.

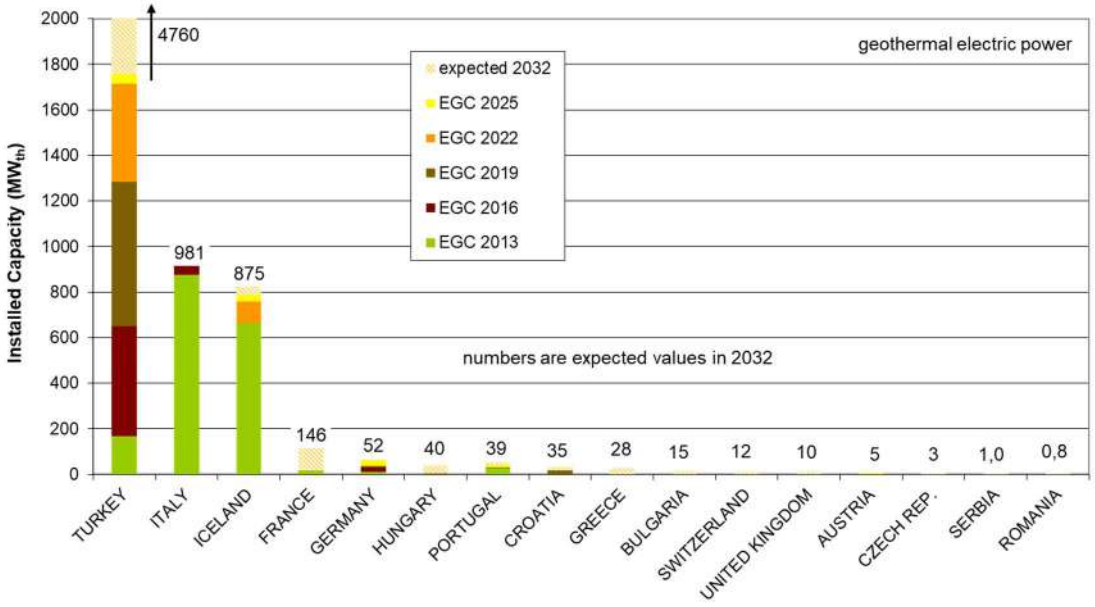

Figure 6: Installed geothermal power in Europe 2012-2024, after EGC 2013, 2016, 2019, 2022 and 2025, and reported expectations towards 2032.

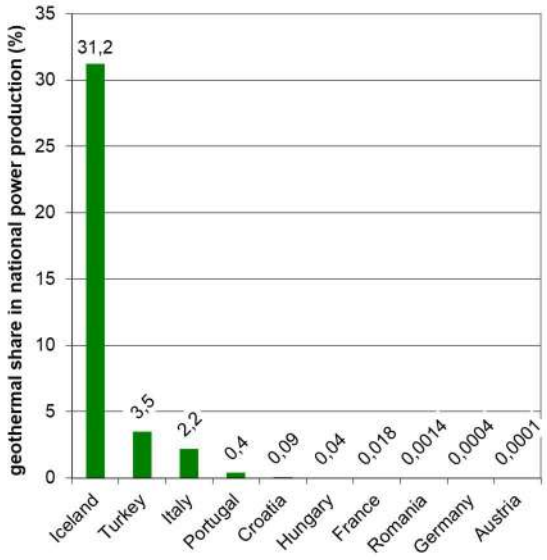

Figure 7: Share of geothermally produced electric power in the national electricity production of European countries in 2023/24.

3. GEOTHERMAL DIRECT USES

The reporting according to different types of direct use of (deep) geothermal resources as attempted since EGC 2013, and adjusted for EGC 2016, is still working well for EGC 2025. A meaningful distinction between district heating and other type of direct use could be made. The amount of geothermal heat used in spas and balneology was mostly reported, albeit values had to be estimated frequently, as exact numbers are often difficult to determine. The reported values for 2024 (or 2023) for each country are listed in Table 3 at the end of this paper. Figure 8 shows the total values for each country and the share of geothermal district heating thereof. In Figure 9 five country-specific examples of the distribution into the different sectors are highlighted, with the European mean distribution already presented in Figure 2.

Some countries like Türkiye, Italy, Hungary, Russia, Slovakia and the Netherlands have a high share of other direct uses (Figure 8) and would be much undervalued if only geothermal district heating is considered. In other countries, e.g. Iceland, France, Germany, Romania and Poland, district heating is the main use of geothermal heat.

The pie charts in Figure 9 elucidate the big differences that can be found in applications. A remarkable share of 87 % of geothermal heat goes into district heating in Germany, and 79 % in Iceland. Geothermal heat for agriculture etc. has the biggest share in Hungary with 41 % and in Türkiye with 39 %. In Italy, heat for individual buildings and other applications is in the lead with 53 %, with district heating accounting for only 13 %. More than 20 % of the heat is used for balneology and spas in Hungary, Italy and Türkiye. District heating accounts for 39 % and agricultural / industrial uses for 27 % of deep geothermal heat use in Europe on average.

Figure 10 is a synopsis of the values reported at the EGCs since 2013, and the forecast for 2032. Not many countries state high expectations for the future growth, with the notable exceptions of Türkiye and France. As with the target values for geothermal power, also the goal of almost 20 GW_{th} installed capacity in Türkiye in the new decade is very ambitious indeed.

Several new geothermal district heating systems went online in the last years, in particular in France, Germany, and Poland; the national reports provide details of these plants. Deep geothermal heat meanwhile is a standard option for district heating in several regions, and for agricultural uses like greenhouses in countries like the Netherlands, Hungary and Türkiye.

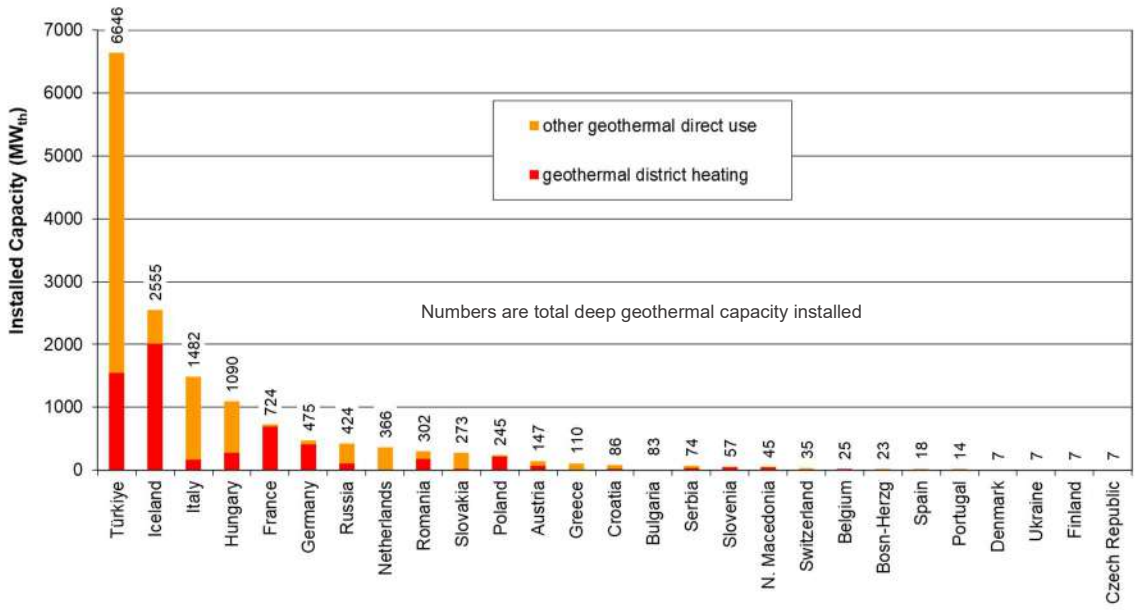

Figure 8: Installed capacity in geothermal direct use in Europe 2024, showing the share of district heating in the total deep geothermal direct use.

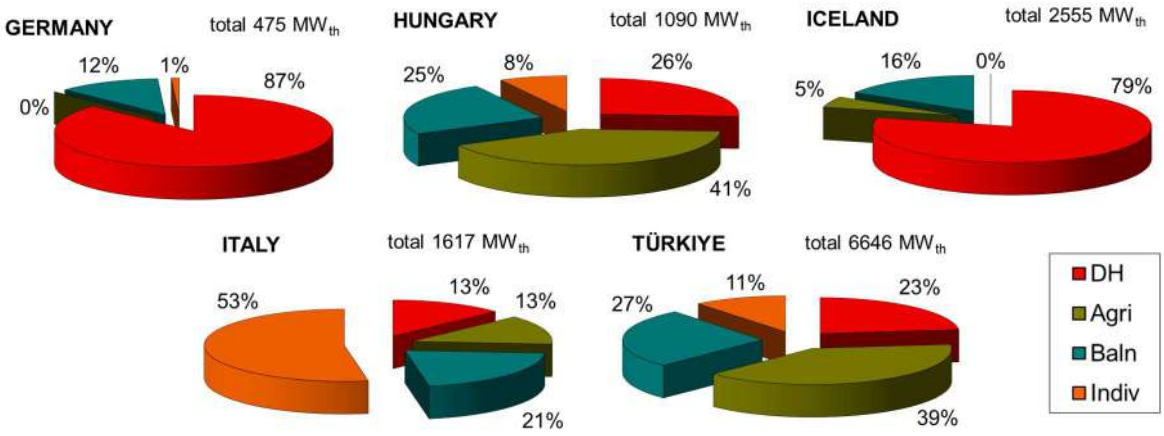

Figure 9: Share of geothermal heat production in district heating, agricultural uses, balneology and individual buildings in deep geothermal direct use in 5 European countries.

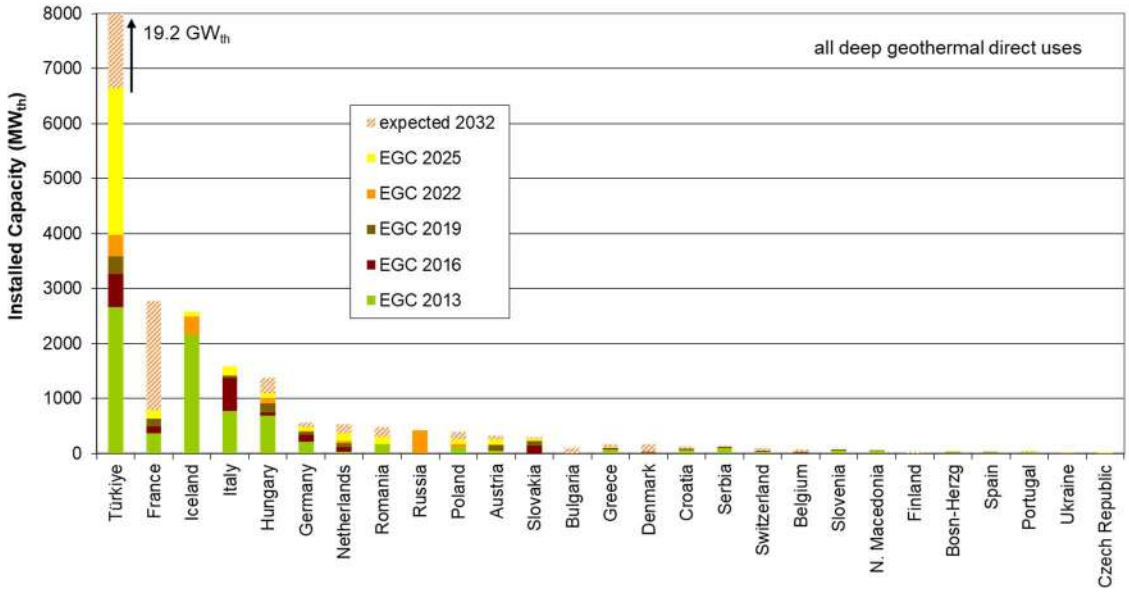

Figure 10: Installed capacity in deep geothermal direct use in Europe 2012-2024, after EGC 2013, 2016, 2019, 2022and 2025, and reported expectations towards 2032.

4. SHALLOW GEOTHERMAL APPLICATIONS

In terms of number of installations, installed capacity and energy produced this is by far the largest sector of geothermal energy use in Europe, with the shallow geothermal share amounting to about 64 % of installed capacity (cf. Figure 1). It enjoys the widest deployment among European countries; the data for 2025 from the individual countries are summarised in Table 4 at the end of this paper.

The total number of geothermal heat pumps installed in Europe is more than 2.4 million units. The leader by far is Sweden. Germany, with a population more than eight times larger, comes in second. On the 3rd rank, France and Finland are about tied; in the past, France had a dynamic development with high numbers, which collapsed over the last years, while the market in Finland grew further steadily. The Netherlands and Switzerland hold the next places. Figure 11 shows the numbers of installed heat pumps per country for countries with at least 1500 existing units reported.

Figure 11 shows also the annual sales numbers (not all countries reported the sales). In countries with an early market uptake in the 1980s like Sweden, Switzerland and Germany, new installations per year typically amount to slightly more than 2% of the existing stock, a sign for a well-developed market. The high percentage of 6.2 % reported at EGC 2022 for Germany, which was driven by favourable economic circumstances for heat pumps and supported by policy measures and incentives, went "back to normal" after economic and political turbulences.

Austria, Finland and Poland show good values for new installations per year between 3 to 7 % of the existing stock. Unfortunately, countries like Spain and the UK did not provide GSHP sales data. The highest numbers of new sales in relation to the installations in place are reported from Belgium, the Netherlands, Denmark and Estonia, all with 9 % or more (cf. Figure 11).

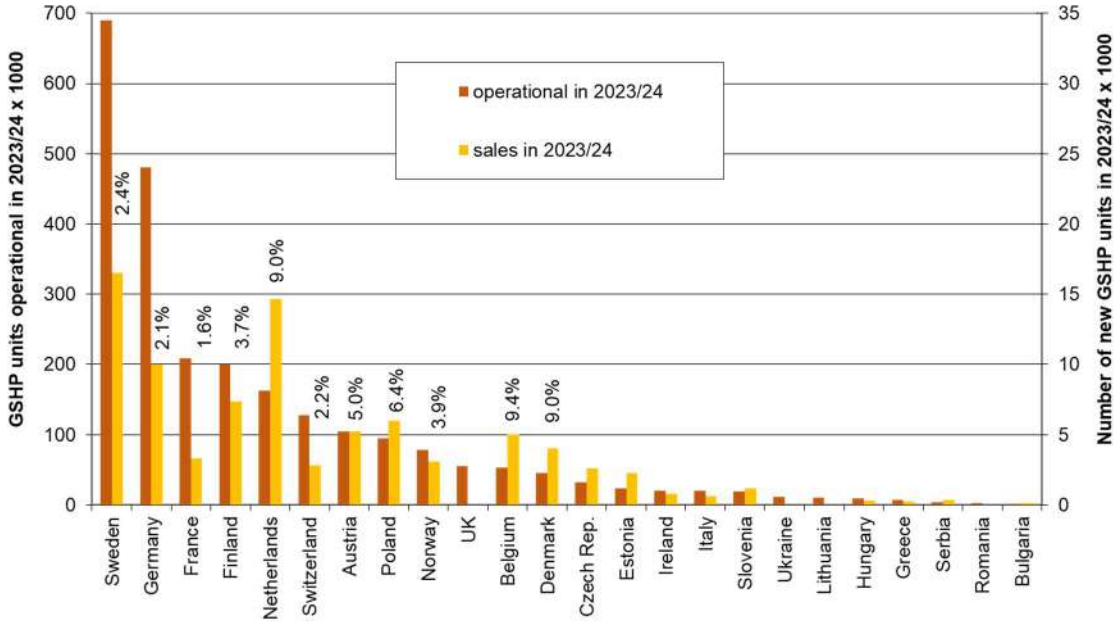

Figure 11: Total number of existing GSHP units and new sales in 2024 (some countries 2023) as stated in EGC 2025 country update reports; only countries reporting at least 1500 existing GSHP units are shown.

Heat pump unit numbers are a way to understand the markets in the individual countries. The reasons for the differences among the countries are manifold and can be attributed to energy prices, incentives, regulation, awareness, knowledge, but also active salesforce and installers. As the average size of heat pumps differ, the sheer number does not say how much capacity is installed in shallow geothermal energy within a country. The recent development of installed capacity of shallow geothermal in Europe can be seen from Figure 12, where data from EGC 2013 to EGC 2025 are shown in comparison. Sweden is again the country leading by installed capacity, followed by Germany, Switzerland, Finland and the Netherlands. France fell back to the 6th rank, followed closely by Austria. With some smaller countries with known GSHP installations not covered by EGC 2025 reports (e.g. Luxembourg, Liechtenstein, Cyprus), we can state that there is virtually no country in Europe without some shallow geothermal installation (cf. Table 4).

The ranking of countries for GSHP unit numbers or installed capacity as seen in Figures 10 and 11 does not in any way take into account the size of the respective country. Ladislaus Rybach started to show numbers corrected for the country area already in the 1990s, at various presentations and in some publications, and the EGC country update summaries continued this approach. To get a sense of the areal density of GSHP in a country and to assess the limits of sustainable use, the areal approach is helpful. To understand the status and limits of a market in a country, a correction of the GSHP numbers by the number of inhabitants can be used.

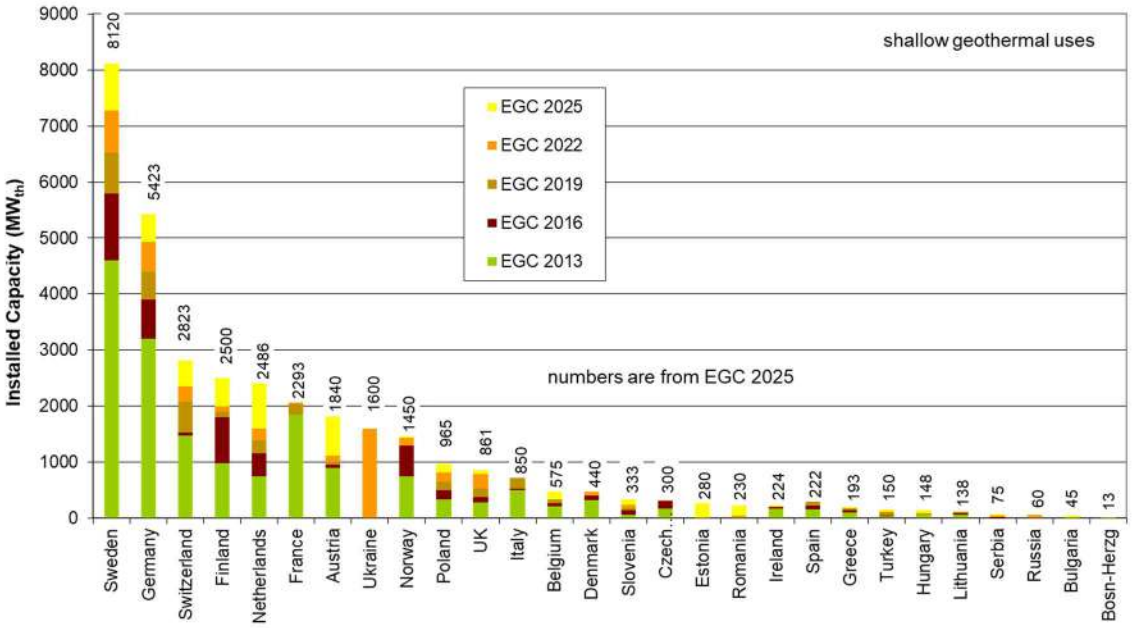

Figure 12: Installed capacity in geothermal heat pumps in Europe after EGC 2013, 2016, 2019, 2022 and 2025; only countries reporting at least 10 MW_{th} are shown.

Both corrections have been applied to the EGC 2025 data on GSHP unit numbers (Figures 13 and 14). Concerning the number per area, the Netherlands have taken the lead now, followed by Switzerland and Belgium. It should be stated here that Switzerland has the disadvantage of being a mountainous country, where large areas are unsuitable to building. Larger countries with a high number of units are on ranks 4 and 5 (Sweden and Germany). The rest of the Top 20 is dominated by smaller countries again (Austria, Denmark, Slovenia etc., cf. Figure 13). From these data it is understandable that Switzerland was the first country to work on the sustainable extraction of heat from the shallow underground and to develop methods and regulations for balancing or recharging the thermally influenced underground volumes.

Looking at the GSHP units per inhabitants (Figure 14), the countries with the highest market penetration stand out. The Scandinavian and Baltic countries are high on the list, with Sweden, Finland and Estonia taking the top places. Switzerland and Austria are on rank 4 and 6, resp., while Norway holds on to rank 5. Germany with its population of >83 million just makes it to rank 10, despite being second in total numbers (Figure 11), and the currently slow development in France does not make for more than rank 14.

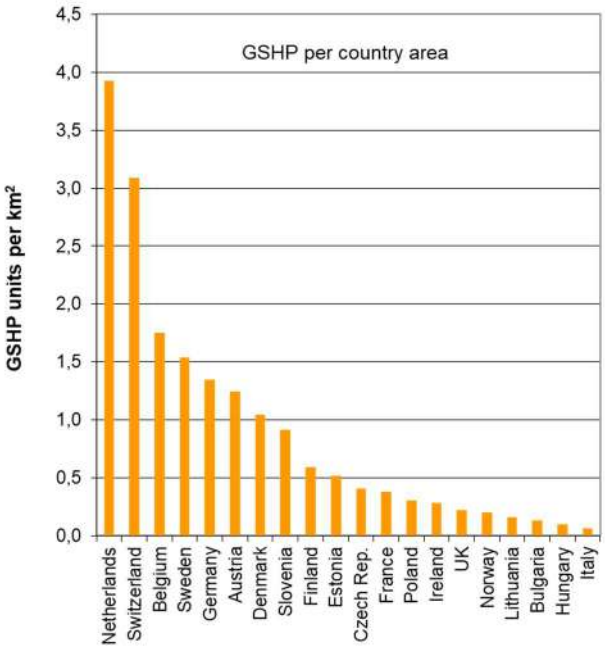

Figure 13: GSHP units per country area in 2023/24, top 20 countries only.

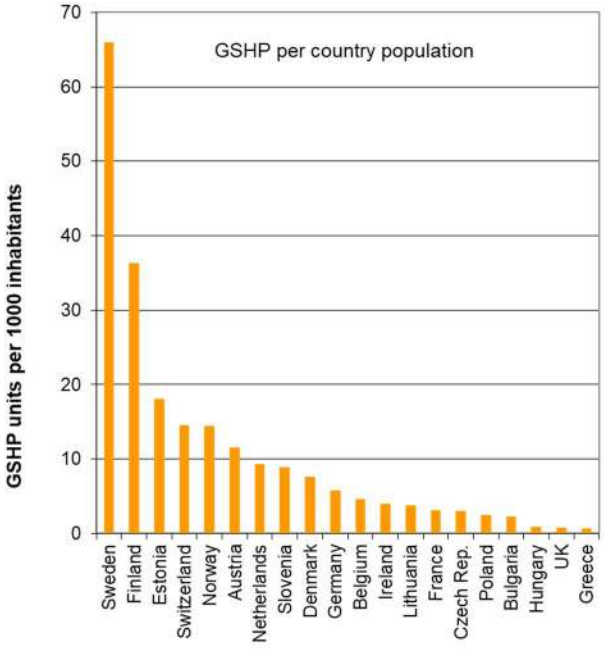

Figure 14: GSHP units per country population in 2023/24, top 20 countries only.

Some further trends in shallow geothermal energy use can be seen in the reports:

- A trend towards larger GSHP installation (>50 kW_{th}) is reported repeatedly, e.g. from Germany, Greece, Hungary and Norway; smaller sizes are increasingly covered by air-source heat pumps (see also below).
- The connection of a number of heat pumps to a single ground source system ("cold district heat", "anergy net", "thermonet", "5th-generation DH") is applied in growing numbers. Installations are known in Austria, Belgium, Denmark, Germany, Italy, Switzerland and the UK. Unfortunately, concrete numbers could not be collected for EGC 2025, despite a respective line in Table E, so more data are expected in future editions.
- In Sweden, a replacement market for heat pumps 20 and more years old in ground-source systems has developed. As the new heat pumps generally have a higher efficiency (and thus higher extraction), the design systems need to be adapted, either by limiting heat pump size or by enlarging the ground system (e.g. by adding new BHE to increase total BHE length).
- From Sweden it is also reported that single-family houses with GSHP are valued at higher prices in the real estate market.
- In Norway, subsidence problems with open, groundwater-filled BHE (the "Fenno-Scandinavian type") have been reported. Overburden and shallow layers are affected here, and as a result deeper casings or cement plugs in the upper part of the holes are deployed.

With heat pumps meanwhile accepted as a key tool to decarbonise house heating, the overall heat pump sales increase in most countries. However, the growth of the market for air-source heat pumps outruns that of the geothermal alternative by far. The ratio of air-HP to Geo-HP in the sales in recent years was about 12:1 in Germany, also 12:1 was reported in the Lithuanian country update report, and 10:1 in the case of Slovenia. From numbers of EurObservER (2024) the value for Sweden can be calculated to about 5:1; France has a catastrophic ratio in the order of 400:1, while the whole of the EU is somewhat above 40:1 (after values from EurObservER 2024). The only bright spot is in Switzerland, where a ratio of just 2.5:1 can be calculated from the statistics of FWS for 2024[2].

5. MARKET SITUATION

Only 15 of the countries covered reported on the financial aspects and workforce requirement of the geothermal market; values are missing in particular from some of the countries with geothermal power production. Hence the numbers given here should be considered as a minimum only, and the distribution among the sectors is biased. Investment in geothermal energy was at least 4.57 billion € in 2024, with the highest share for shallow geothermal energy (Figure 15). This is a substantial decrease from the 12 billion € reported at EGC 2022, even when considering that data from 22 countries were available at that time. This continues the trend seen from EGC 2019 to EGC 2022. Sweden is the country with the highest investment in geothermal energy by far (Figure 17), while values Türkiye and Germany, countries with high investment in the past, have not been reported.

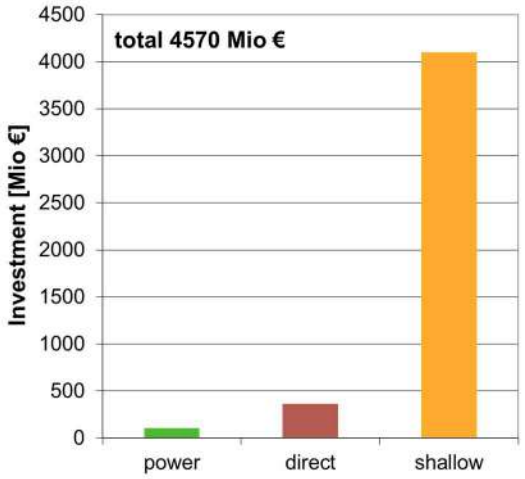

Figure 15: Investment in the different fields of the geothermal sector (only 15 countries reporting).

The numbers for employment are shown in Figure 16. We can state that at least 20'600 persons work in the geothermal sector, also less than reported for EGC 2022 (27'000 persons) and EGC 2019 (34'000 persons). For EGC 2016, an even higher number had been reported (36'000 persons); it is not clear if that is a real trend, or if more accuracy in reporting has replaced overestimation.

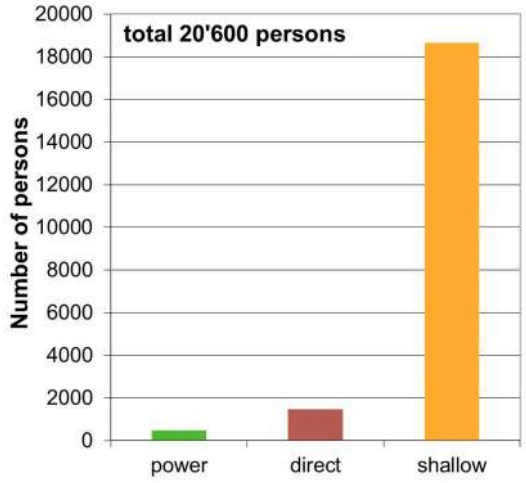

Figure 16: Number of persons working in the different fields of the geothermal sector (only 15 countries reporting).

[2] Fachvereinigung Wärmepumpen Schweiz FWS, https://www.fws.ch/download/marktentwicklung-q4-2024/#

The shallow geothermal sector definitely dominates the workforce (Figure 16), with about 18'000 persons, half of which in Sweden only (Figure 17). The true number of geothermal personnel in Europe will be definitely higher, considering the limited number of countries reporting, and partial, sectoral reporting only in some cases.

The breakdown of investment and personnel per country is shown in figure 17 for the larger reporting countries.

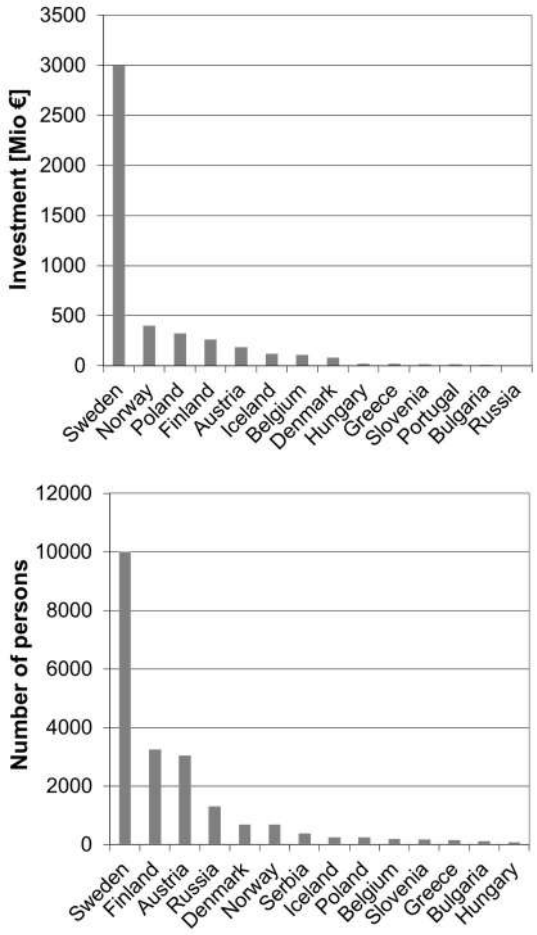

Figure 17: Total geothermal investment for countries with more than 100 million €/a (top) and personnel in countries with more than 500 geothermal workers (bottom).

24 of the countries filled in Table G on Incentives, Information, Education. Figure 18 gives just the number of countries with schemes in the different sectors, while the individual reports list details of the kind of schemes in force. Again, shallow geothermal energy is supported in most of the reporting countries, but also the other sectors are often covered.

6. CONCLUSIONS

In geothermal power, a consolidation occurred in most countries over the last years, in particular in Türkiye after the extremely dynamic development before EGC 2022. New developments are ongoing in Iceland and Italy that promise to increase geothermal power production again after years of slow or no growth, and also for Türkiye another very dynamic geothermal power period is expected.

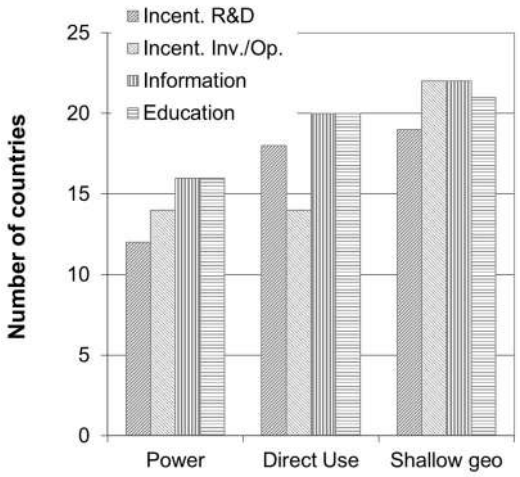

Figure 18: Incentives, promotional and educational support in 2024 (24 countries responding).

After many years of work by dedicated politicians, citizens and associations in convincing governments and policymakers, the need to de-carbonise not only electricity production, but also the heating sector, eventually moved into focus. Support for both geothermal direct use and shallow geothermal applications is growing as a consequence, and in most European countries meanwhile schemes to foster R&D, site reconnaissance and installation are in place. A diversification of technical solutions, sources and applications is taking place and allows for geothermal systems in many different settings. The installed heat capacity in geothermal direct use in Europe in 2024 was at least 15.3 GW_{th}, and for shallow geothermal an impressive 33.6 GW_{th}.

The country update reports for WGC and EGC still serve an important task. Documents like the EGEC Market Report are intended for use in industry (and limited in availability, e.g. for members only). The individual country updates and summary reports are a source open to everybody, and readers are encouraged to study the individual country update reports that form a part of the EGC 2025 proceedings.

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EGEC: 2024 EGEC Geothermal Market Report – Full Report. EGEC, Brussels, restricted to EGEC members. (2025). [3]

EurObserv'ER: Heat Pumps Barometer, 7p. (2024) https://www.eurobserv-er.org/pdf/heat-pumps-barometer-2024/

Geoelec: A prospective study on the geothermal potential in the EU, *D2.5, Geoelec*, Brussels (2013), 1-97

[3] "Key Facts" for download at: https://www.egec.org/wp-content/uploads/2025/07/EGEC-MR2024-Key-Findings.pdf

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The authors of this summary like to sincerely thank all contributors to the country update reports for EGC 2025 (see table 1), who devoted considerable time and effort to research, verify and write the individual country papers. These papers are available in the proceedings of EGC 2025 and give a detailed account of geothermal resources, regulatory framework, actual use and potential future development in the individual countries, and enabled the authors of this summary to once again endeavour to paint the overall picture of the development in Europe.

Table 1: EGC 2025 country update reports.

Author(s)	Country
Polo, N., Vlashi, K., Kodhelaj, N., Gropa, O., Karamani, E., Bozgo, S., Aliko, A. Ismaili, L.	Albania
Goetzl, G., Steiner, C. Kulich, J., Krois, P., Keglovic, P., Haslinger, E., Goldbrunner, J.	Austria
Petitclerc, E., Laenen, B., Broothaers, M, Harcouët-Menou, V., Dupont, N.	Belgium
Samardžić, N., Hrvatović, H.	Bosnia and Herzegovina
Kolev, S., Valtchev, S., Toteva, A., Trayanova-Koleva, M., Ivanov, Y., Berova, A., Apostolova, I.	Bulgaria
Bilić Milinković, T., Živković, S., Kolbah, S., Tumara, D., Škrlec, M.	Croatia
Dědeček, P., Šafanda, J., Tym, A.	Czech Republic
Mathiesen, A., Vosgerau, H., Olivarius, M., Nielsen, L. H., Erbs Poulsen, S., Andersen, T.R., Tordrup, K.W., Røgen, B., Mortensen, M.H., Vangkilde-Pedersen, T.	Denmark
Soesoo, A., Bauert, H.	Estonia
Arola, T., Wiberg, M.	Finland
Pomart, A.	France
Weber, J., Born, H., Schifflechner, C., Moeck, I.	Germany
Papachristou, M., Dalampakis, P., Mendrinos, D., Arvanitis, A., Andritsos, N.	Greece
Nádor, A., Kujbus, A., Pásztor, D..	Hungary
Ragnarsson, Á., Richter, B., Haraldsson, I.G.	Iceland
Blake, S., Pasquali, R., Dunphy, R., Hunter Williams, T., Bourke, P.	Ireland
Della Vedova, B., Cei, M., Conti, P.	Italy
Kaminskaite-Baranauskiene, I., Pal1, M., Makauskas, P., Memon, A.R.A.N., Petrauskas, S., Sliaupa, S., Mažintas, S.	Lithuania
Dević, N., Radojević, D.	Montenegro
Meijerink, T., van Delft, P., Post, F.	Netherlands
Popovska-Vasilevska, S., Stavreva, S.	North Macedonia
Midttømme, K., de Beer, H., Kvalsvik, K.H., Nermoen, A., Mytting Hagemoen, R.-I., Lønøy, B., Ramstad, R.K.	Norway
Kępińska, B., Hajto, M.	Poland
Nunes, J.C., Franco, A., Rangel, G., Martins, R., do Rosário Carvalho, M. Lourenço, C., Coelho, L.	Portugal
Ban, H., Cucueteanu, D.I., Ban, A.	Romania
Svalova, V.	Russia
Oudech, S., Djokic, I.	Serbia
Fričovský, B., Benková, K., Marcin, D., Hotovčin, D., Augustini, K., Fordinál, K., Černák, R.	Slovakia
Rajver, D., Rman, N., Lapanje, A., Božič, M., Pestotnik, S., Adrinek, S.	Slovenia
Arrizabalaga, I., Fernández – Canteli, P., Fernández de Retana, M., García de la Noceda, C., García, A., De Gregorio, M., Herms, I., Mediato, J.F., Pérez, P.	Spain
Gehlin, S., Andersson, O., Rosberg, J.-E.	Sweden
Link, K., Minnig, C., Bégué, F., Christe, P., Faessler, J.	Switzerland
Mertoglu. O., Şimşek, Ş., Başarir, N., Paksoy, H.	Türkiye
Monaghan, A.A., Gonzalez Quiros, A., O'Grady, M., Curtis, R.	United Kingdom
Morozov, Y., Zurian, O., Barylo, A., Lysak, O.	Ukraine

Table 2: Geothermal Electric Power in Europe in 2024.

	2024 installed capacity	2024 electricity produced	2024 load factor	Inst. capacity expected 2032
	[MW_{el}]	[GWh_{el}/yr]	[%]	[MW_{el}]
Austria	2.2	5	25.9	5
Bulgaria				15
Croatia	16.5	16.49	11.4	34.8
Czech Republic				3
France	17	99	66.5	146
Germany	52.4	220.3	48.0	*52.4*
Greece				28
Hungary	2.3	9.93	49.3	40
Iceland	755	6006	87.3	875
Italy	915.8	5654	70.5	981
Portugal	26.5	177.6	76.5	38.5
Romania	0.1	0.8	91.3	*0.8*
Serbia				1
Slovenia	0.01			*0.01*
Spain				[1)]
Switzerland				12
Türkiye	1759.5	12330	80.0	4759
UK	3			10
Total	3580.26	24519.12	average 76.7	7002

Italics: No expectations for 2032 reported to EGC 2025, hence current values listed in 2032 column.

[1)] Intention to start electric power projects on the Canary Islands.

Table 3: Geothermal Direct Use in Europe in 2024.

	Geothermal DH Plants		Geothermal heat in agriculture		Geothermal heat in balneology		Geothermal heat in other and indiv. Bldg.	
Country	Capacity [MW_{th}]	Production [GWh_{th}/yr]	Capacity [MW_{th}]	Production [GWh_{th}/yr]	Capacity [MW_{th}]	Production [GWh_{th}/yr]	Capacity [MW_{th}]	Production [GWh_{th}/yr]
Albania	1.91						1.91	
Austria	75.10	226.00	18.80	69.00	43.10	350.00	9.80	24.00
Belgium	25.00	19.06						
Bosnia-Herzegovina			0.84	0.27	8.37	17.46	13.93	36.05
Bulgaria	10.00	50.00	5.00	15.00	60.00	300.00	8.00	40.00
Croatia	18.35	9.10	7.20	22.10	41.00	19.70	19.00	16.80
Czech Republic	6.60	20.00	0.07	0.01				
Denmark	7.00	20.00						
Estonia	0.47							
Finland	6.75	18.00						
France	688.00	2020.00	27.00	215.00	6.00	14.00	3.00	16.00
Germany	413.65	1641.23			56.81	474.63	4.28	10.00
Greece	10.46	2.50	56.26	117.28	43.00	72.26	0.50	1.64
Hungary	283.38	785.50	452.50	960.00	268.00	780.50	86.00	163.00
Iceland	2015.00	7620.00	125.00	508.00	415.00	1966.00		
Ireland								
Italy	172.00	274.00	117.00	477.00	340.00	722.00	853.00	1546.00
Lithuania								
Montenegro								
Netherlands	3.80	20.00	363.00	2028.00				
North Macedonia	42.55	106.00	2.80	12.50				
Norway								
Poland	219.30	360.20	4.00	6.00	12.00	35.00	10.00	25.00
Portugal	6.79	19.49			1.85	5.84	4.95	13.61
Romania	175.00	340.00	18.00	45.00	24.00	55.00	85.00	290.00
Russia	110.00	600.00	200.00	1000.00	4.00	18.00	110.00	600.00
Serbia	38.31	62.68	3.15	21.83	25.47	89.55	7.18	16.61
Slovakia	21.00	78.00	86.00	268.00	124.00	413.00	42.00	146.00
Slovenia	45.92	128.31	6.19	27.21	3.90	5.35	0.52	0.73
Spain	2.60	14.60	14.90	26.20				
Sweden								
Switzerland	7.64	29.93	3.36	7.54	20.80	173.30	1.08	2.71
Türkiye	1542.00	5403.00	2609.50	6623.00	1780.00	9356.00	714.00	2501.00
UK	1.40				1.00			
Total	5949.98	19867.59	4120.58	14870.25	3285.26	12448.94	1974.14	5949.98

All deep geothermal direct uses	Capacity [MW_{th}]	Production [GWh_{th}/yr]
	15’330	52’636

Table 4: Ground Source Heat Pump Use in Europe in 2024.

Country	Number of GSHP	Capacity [MW_{th}]	Production [GWh_{th}/year]	kW_{th} per unit	Full-load hours per year
				(calculated from reported data)	
Albania	11	1.9	9.1	173.0	4808
Austria	104’300	1840.0	3050.0	17.6	1658
Belgium	53’270	575.0	865.0	10.8	1504
Bosnia-Herzeg.	800	12.5	18.8	15.6	1500
Bulgaria	1500	45.0	130.0	30.0	2889
Croatia	10	1.0	1.5	100.0	1500
Czech Rep.	32’000	300.0	1200.0	9.4	4000
Denmark	45’000	440.0	770.0	9.8	1750
Estonia	21’260	280.0	420.0	13.2	1500
Finland	200’000	2500.0	12’500.0	12.5	5000
France	209’021	2293.0	4750.0	11.0	2072
Germany	481’000	5423.0	8087.0	11.3	1491
Greece	7000	193.0	478.0	27.6	2477
Hungary	8980	148.0	296.0	16.5	2000
Iceland	10	1.2	5.0	120.0	4167
Ireland	20’128	224.4	291.9	11.1	1301
Italy	16’145	850.0	1449.0	52.6	1705
Lithuania	10’647	138.2	314.3	13.0	2274
Montenegro	10	1.0	1.5	100.0	1500
Netherlands	163’169	2486.0	2722.0	15.2	1095
North Macedonia	1000	2.5	21.0	2.5	(?) 8400
Norway	78’500	1450.0	4300.0	18.5	2966
Poland	94’300	965.0	1378.0	10.2	1428
Portugal	54	0.7	0.9	12.0	1340
Romania	2750	230.0	530.0	83.6	2304
Russia	1200	60.0	270.0	50.0	4500
Serbia	3990	75.0	100.0	18.8	1333
Slovakia	10	1.6	14.2	160.0	(?) 8875
Slovenia	18’588	332.5	470.5	17.9	1415
Spain	296	222.2	388.0	750.5	1747
Sweden	690’000	8120.0	28’400.0	11.8	3498
Switzerland	127’611	2822.8	4502.5	22.1	1595
Türkiye	171	150.0	1305.0	877.2	(?) 8700
UK	55’210	861.0	1430.0	15.6	1661
Ukraine	*11’000*	*600.0*	*1000.0*	54.5	1667
Total	2’458’941	33’646.4	81’416.2	average 13.7	average 2420

Italics: Values from earlier editions.