Updated extract of the project data from the LIFE KPI webtool

Deliverable D.1.4

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GeoBOOST

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Contents

Introduction

The overall performance and impact indicators of the project include the general impacts that will result from the implementation of the project's recommendations and findings. Although the project is specifically focused on 8 target countries where consortium partners operate (Belgium, Germany, Ireland, Spain, Netherlands, Austria, Poland, Sweden), it has a European wide focus, and its results will be promoted to European policy makers and made easily applicable at the local or national level when and where relevant. This means that the project impacts can be measured at the European scale as well as within the 8 target countries.

Assumptions behind project impacts

- Improve statistical and market data for geothermal heat pump investments.
  Activities in WP2 and WP5 supported this objective for better statistical data.
  WP2/5 web meetings had the goal to define the market topologies with the set-up of the technological portfolio.

- Business models and financing: practical aids to establish business models for suppliers as well as access to public/private capital for consumers and project developers.
  GEOBOOST project is in the phase of data collection by mapping the business models recently and currently used to install geothermal heat pumps.
  Deliverable D4.2 "Report on the financial framework including a catalogue of strategies and measures for fostering future investments" provided a comprehensive summary of the current financial market conditions with regard to existing gaps and good practice examples. Moreover, it offered policy recommendations linked to incentive strategies to foster future investments.

- Regulatory framework toolkit that can be replicated across the EU.
  There are two dimensions:

- The EU frame which recently adopted new regulations and provisions on geothermal heat pump. They are still in the implementation phase[1].
- National legislation and regulations on geothermal HP.

The mapping of these regulations was completed by a survey.

- Raising awareness of geothermal heat pumps.

  Increase awareness about this technology is an overall objective. The strategy in WP6 defined the target groups, the channels to reach them and the messages to deliver. All this information has been collected in D6.3.

- Growing and upskilling the workforce: uniform skilling provision for GHP consumers and service providers.

  The Free Online Course on Geothermal Heat Pump (GHP) Technologies has been launched in September 2025. It delivered standardized, high-quality training on Geothermal Heat Pump (GHP) technologies to support the wider adoption of sustainable energy across the EU. Designed for drillers, planners, policy-makers, installers, designers and energy consultants, the course combined videos, readings, and interactive exercises in a step-by-step format. It aimed to build capacity, align qualifications and strengthen the geothermal market.

Indicators value

Methodology for the recalculation of final and primary energy saving

The initial expectations for the GeoBOOST project assumed a strong growth trajectory for geothermal heat pumps (GHPs), with an additional 2 million units deployed by 2025 and a total of around 4 million units installed under a business-as-usual (BAU) scenario. However,

[1] See the preparatory letters of formal notice and the final warnings that the EU executive sent in 2025 to 26 member states over permitting rules (including permitting rules for geothermal heat pumps): https://ec.europa.eu/commission/presscorner/detail/en/inf_25_2481.

market developments in 2024 have significantly diverged from these assumptions. While more than 2 million GHP units are currently installed across Europe, sales in 2024 dropped sharply to approximately 111,000 units across the EU-27, representing a 29% decline compared to 2023. This downturn has affected virtually all European markets and building segments.

The contraction of the GHP market in 2024 can be attributed to a combination of macroeconomic, regulatory, and technical factors. High interest rates between 2022 and mid-2024 slowed construction and renovation activity, directly impacting demand for heating technologies. Although interest rates began to decline in 2024, their positive effect on construction had not yet materialised by year-end. In parallel, falling and subsidised gas prices, combined with an unfavourable electricity-to-gas price ratio in many Member States, have reduced the economic attractiveness of heat pumps despite their high efficiency. Additional uncertainty surrounding electrification strategies, grid capacity, and long-term political support has further weakened consumer confidence. Finally, persistent permitting delays and inconsistent financial support schemes continue to hinder GHP deployment.

Given these developments, the calculation of expected primary and final energy savings has been recalculated using a more conservative projection of GHP sales for the period 2025–2030. This revised approach reflects current market realities while still anticipating a gradual recovery from 2025 onwards, driven by improving financial conditions and a rebound in construction and renovation activity. In this context, and given the prevailing market uncertainty, **the actual primary and final energy savings triggered by the Geoboost project were assumed to correspond to 10% of those initially estimated on the basis of the original sales forecasts**.

1. Primary energy savings

The methodology used to calculate the energy indicators is based on the conversion of final energy consumption into primary energy consumption. This is carried out by multiplying the final energy demand (see the KPI below) by the applicable Primary Energy Factor (PEF). In this analysis, a Primary Energy Factor of 1.9 is applied to electricity consumption. This value corresponds to the default coefficient established in the recast Energy Efficiency Directive

(EED), which defines the standard factor for converting final electricity use into primary energy. The use of this PEF ensures methodological consistency with the current EU regulatory framework and reflects the average efficiency of electricity generation and supply within the European energy system. As further shwon below regarding the final energy savings, both indicators are based on the aggregated number of the GHP sales in the period 2023-2025 (projects ends) and 2023-2030 (5 years after project ends) in the 8 project countries, divided by 10 (considering that the project would directly impact on 10% of those sales).

To convert the Final Energy to Primary Energy, the GeoBOOST methodology does it by multiplying it with the relevant Primary Energy Factor (PEF) for electricity.
Primary Energy Factor of 1.9

Table 1: primary energy savings per country based on their GHP sales (GWh/year)

Country	Percentage of GSHP units sales	Primary Energy Savings (project ends)	Primary Energy Savings (5y after)
Belgium	1.89%	7.11257699	25.469367
Germany	31.17%	117.301071	420.042418
Ireland	0.42%	1.58057267	5.65985933
Spain	0.29%	1.09134779	3.90799811
Netherlands	8.54%	32.1383109	115.083806
Austria	8.24%	31.0093304	111.04105
Poland	5.28%	19.8700564	71.1525173
Sweden	44.17%	166.223559	595.22854
aggregated	100%	376.326825	1347.58556

2. Final energy savings

The methodology used to calculate final energy savings is based on estimating the useful heat delivered by geothermal heat pump (GHP) installations supported during the project period and converting this into avoided final energy consumption. The calculation assumes an average installed capacity of 15 kW_{th} per geothermal heat pump system, representative of

small-scale units. This capacity is multiplied by the total number of heat pump sales recorded in the 8 project countries over the project duration and 5 years after, corresponding to the aggregated GHP sales for the period 2023–2025 and 2025-2030, divided by 10 (considering that the project would directly impact on 10% of those sales).

To estimate annual heat production, the installed capacity is further multiplied by the average number of heating and cooling hours across Europe, assumed to be 2,500 hours per year. The resulting figure is then divided by the average coefficient of performance (COP) of 5, reflecting the high efficiency of geothermal heat pump systems and allowing the conversion from useful heat output to final electricity consumption. Finally, the result is converted to a GWh per year (GWh/y) scale.

To determine the Final Energy, the GeoBOOST methodology starts by calculating the total electricity consumed (Final Energy = Heat Output / SPF).

Heat output= unit capacity of 15 kWth * number of units * hours of operation converted in GW/h by dividing by 1,000,000.

SPF = 5

Based on these assumptions, the final energy savings achieved by the end of the project are calculated as follows:

(15 × 26409 × 2,500 ÷ 1,000,000) ÷ 5 = 198.06 GWh/year (Final energy savings -project ends)

(15 × 94567 × 2,500 ÷ 1,000,000) ÷ 5 = 709.25 GWh/year (Final energy savings - 5y after)

Table 2: final energy savings per country based on their GSHP sales (GWh/year)

Country	Percentage of GSHP units stock	Final energy savings (project ends)	Final energy savings (5y after)
Belgium	1.89%	3.743461575	13.40493
Germany	31.17%	61.73740598	221.0749566
Ireland	0.42%	0.83188035	2.978873333
Spain	0.29%	0.574393575	2.056841111
Netherlands	8.54%	16.91490045	60.57042443
Austria	8.24%	16.3207002	58.44265777
Poland	5.28%	10.4579244	37.44869333
Sweden	44.17%	87.48608348	313.2781788
aggregated	100%	198.06675	709.2555554

3. Renewable energy generation

The calculation assumes an average installed capacity of 15 kW_{th} per geothermal heat pump system, representative of small-scale units. This capacity is multiplied by the total number of heat pump sales recorded in the 8 project countries over the project duration and 5 years after, corresponding to the aggregated GHP sales for the period 2023–2025 and 2025-2030, divided by 10 (considering that the project would directly impact on 10% of those sales). To estimate annual heat production, the installed capacity is further multiplied by the average number of heating hours across Europe, assumed to be 2,500 hours per year. The resulting figure is then converted to a GWh per year (GWh/y) scale. Based on these assumptions, the renewable energy generation achieved by the end of the project is calculated as follows:

Renewable Heat output= unit capacity of 15 kWth * number of units * hours of operation converted in GW/h by dividing by 1,000,000.

15 × 26409 × 2,500 ÷ 1,000,000 = 990.33 GWh/year (Renewable energy generation - project ends)

15 × 94567 × 2,500 ÷ 1,000,000 = 3546.27 GWh/year (Renewable energy generation - 5y after)

Table 3: renewable energy generation per country based on their GSHP aggregated sales (GWh/year)

Country	Percentage of GSHP units stock	Renewable energy generation (project ends)	Renewable energy generation (5y after)
Belgium	1.89%	18.71730788	67.02464999
Germany	31.17%	308.6870299	1105.374783
Ireland	0.42%	4.15940175	14.89436666
Spain	0.29%	2.871967875	10.28420555
Netherlands	8.54%	84.57450225	302.8521222
Austria	8.24%	81.603501	292.2132888
Poland	5.28%	52.289622	187.2434666
Sweden	44.17%	437.4304174	1566.390894
aggregated	100%	990.33375	3546.277777

4. GHG emissions

Greenhouse gas emission reductions are calculated by converting the renewable thermal energy produced into avoided emissions from conventional fossil fuel heating systems. This is achieved by multiplying the amount of renewable energy generated (as defined in the corresponding KPI for renewable energy production) by a gas emission factor of 200 tCO_2 per GWh_{th}.

The use of a gas emission factor is justified by the fact that natural gas remains the dominant reference fuel for space heating in Europe, particularly in residential and tertiary buildings where geothermal heat pumps are most commonly deployed. In the absence of geothermal heat pump installations, the counterfactual heating solution in many Member States would therefore be a gas-fired boiler. Applying a gas-based emission factor provides a conservative and realistic estimate of the emissions avoided by replacing fossil gas heating with renewable geothermal heat.

This approach ensures consistency with EU climate and energy assessments, reflects current market conditions, and avoids overestimating emission reductions by assuming displacement of more carbon-intensive fuels. The selected emission factor of 200 tCO_2/GWh_{th} represents an average value for natural gas combustion in heating applications and allows for a transparent and comparable calculation of greenhouse gas savings across countries and building types.

Table 4: final GHG emissions savings per country based on their GSHP aggregated sales (tons of Co2 emissions)

Country	Percentage of GSHP units stock	GHG emissions (project ends)	GHG emissions (5y after)
Belgium	1.89%	3743.461575	13404.93
Germany	31.17%	61737.40598	221074.9566
Ireland	0.42%	831.88035	2978.873333
Spain	0.29%	574.393575	2056.841111
Netherlands	8.54%	16914.90045	60570.42443
Austria	8.24%	16320.7002	58442.65777
Poland	5.28%	10457.9244	37448.69333
Sweden	44.17%	87486.08348	313278.1788
aggregated	100%	198066.75	709255.5554

5. Investments in sustainable energy

Investments in sustainable energy are estimated by calculating the total installed geothermal heat pump (GHP) capacity associated with annual sales and applying an average unit investment cost. The methodology multiplies the number of geothermal heat pump systems sold annually by an average installed thermal capacity of 15 kW_{th} per system, which is considered representative of typical small-scale residential and light tertiary applications across Europe.

The resulting installed capacity is then multiplied by an assumed investment cost of 1,150 €/kW_{th}. It represents a balanced and conservative estimate that accounts for cost variations across Member States, geological conditions, and project complexity, while avoiding overestimation of investment volumes.

Using a uniform cost per kW_{th} ensures methodological consistency across countries and enables a transparent comparison of investment impacts over time. This approach also aligns with common practices in EU energy and climate impact assessments, where average unit costs are applied to aggregated capacity figures to estimate total investment levels in sustainable energy technologies.

Table 5: investment triggered per country based on their GSHP stock (EUR)

Country	Percentage of GSHP units stock	Investments in sustainable energy (project ends)	Investments in sustainable energy (5y after)
Belgium	1.89%	2488418.415	6191981.31
Germany	31.17%	41039154.5	102118549
Ireland	0.42%	552981.87	1375995.85
Spain	0.29%	381820.815	950092.37
Netherlands	8.54%	11243964.69	27978582.2
Austria	8.24%	10848977.64	26995728
Poland	5.28%	6951772.08	17298233.5
Sweden	44.17%	58155260	144708897
aggregated	100%	131662350	327618059

6. Legislation and policy:

The main goal of GEOBOOST is to support member states in implementing the provisions related to heating and cooling in the renewal directive and to comply with referred targets. The number of legislation, policies or strategies created/adapted to include geothermal HPs at any governance levels due to the project are 8 within project duration (one per project country) and 50 new regulations within 5 years after the project is achieved. It includes the following policy impacts:

- **On RED:** the revision of the Renewable energy directive includes a simplification of the permitting for geothermal HPs. Each Member States will have to establish a traffic light systems to implement this simplification.
- **REPowerEU:** New support measures are expected following the announcement of tripling geothermal and have 10 millions new HP units installed, including geothermal ones.
- **EPBD:** Providing clear recommendations to greatly increase the quality of reporting of the heating and cooling sector under the EED article 14.
- **NECPS:** GeoBOOST provides a basis for an improved quality of reporting, National Energy and Climate Plans and Long-Term renovation strategies as well as more effective planning, for example of smart Heating and Cooling Networks**.** GeoBOOST supported the inclusion of GHPs in spatial energy plans in the participating 8 target countries. To ensure an impact on capacity building and policy adaptation, the outcomes and hints from the guidelines to integrate GHPs into spatial planning procedures were used to develop 4 policy briefs, targeted to decision makers.

The 8 measures taken during the projects duration are:

- **Belgium — Flanders: "Warmteplan 2025" (Flemish Heat Plan)** — regional heat plan package that mandates local heat planning, supports heat-pump rollout and sets measures to phase out fossil heating in new buildings.
- **Germany — Federal heating/building measures (2023 heating legislation / GEG & follow-up rules)** — 2023 federal legislation to accelerate replacement of fossil heating systems and strengthen renewable share requirements for new systems (measures from 2023–2024 raising the role of heat pumps and renewable heating).

- **Ireland — Policy Statement on Geothermal Energy for a Circular Economy (July 2023)** — formal policy statement (July 2023) to unlock geothermal for heating & cooling, address barriers and embed geothermal in national planning and climate action.
- **Spain — Draft update of the National Energy and Climate Plan (NECP) (2023–2024)** — Spain's NECP updates (2023 draft / 2024 processes) include strengthened measures for renewable heating & cooling and the promotion of heat pumps as part of decarbonisation of heat.
- **Netherlands — "Municipal Instruments for Heat Transition Act" (Wgiw) and related 2023 heat-planning reforms** — national instruments introduced in 2023 to empower municipalities to set local heat plans and manage the gas-phase-out / district-oriented heat transition (plus concurrent Mining Act amendments to streamline geothermal permitting).
- **Austria — Renewable-Heating measures / updated NECP & Renewable Heating Law (2024 actions)** — Austria's updated NECP (submitted 2024) and a Renewable-Heating legal package (measures from 2023–2024) that prohibit fossil boilers in new buildings and prioritise renewable heat sources (including geothermal) in district heating decarbonisation.
- **Poland — Updated NECP submission and related district-heating / H&C measures (2024)** — Poland submitted an updated NECP in 2024 (March 2024 / Commission recommendations in Apr 2024) with measures and planning actions addressing the decarbonisation of district heating and reporting improvements for the H&C sector.
- **Sweden — National climate / heat-sector measures (national plans & subsidies to phase out oil/gas boilers and support heat pumps and district heating decarbonisation)** — Sweden's 2024 national plans and related measures (including subsidy schemes and strong policy support for heat pumps and district heating upgrades) support renewable H&C deployment and improved planning/reporting.

7. Market uptake:

The initial expectations for the GeoBOOST project assumed a strong growth trajectory for geothermal heat pumps (GHPs), with an additional 2 million units deployed by 2025 and a total of around 4 million units installed under a business-as-usual (BAU) scenario. However, market developments in 2024 have significantly diverged from these assumptions. While more than 2 million GHP units are currently installed across Europe, sales in 2024 dropped sharply to approximately 111,000 units across the EU-27, representing a 29% decline compared to 2023. This downturn has affected virtually all European markets and building segments.

The contraction of the GHP market in 2024 can be attributed to a combination of macroeconomic, regulatory, and technical factors. High interest rates between 2022 and mid-2024 slowed construction and renovation activity, directly impacting demand for heating technologies. Although interest rates began to decline in 2024, their positive effect on construction had not yet materialised by year-end. In parallel, falling and subsidised gas prices, combined with an unfavourable electricity-to-gas price ratio in many Member States, have reduced the economic attractiveness of heat pumps despite their high efficiency. Additional uncertainty surrounding electrification strategies, grid capacity, and long-term political support has further weakened consumer confidence. Finally, persistent permitting delays and inconsistent financial support schemes continue to hinder GHP deployment.

Given these developments, the calculation of expected GHP sales have been recalculated using a more conservative projection for the period 2025–2030. This revised approach reflects current market realities while still anticipating a gradual recovery from 2025 onwards, driven by improving financial conditions and a rebound in construction and renovation activity. In this context, and given the current level of uncertainty, **the actual numbers triggered by the Geoboost project were assumed to represent 10% of the originally forecast sales over this period**.

Table 6: GSHP market uptake sales triggered by the project (number of small-scale units)

Country	Number of units sold in 2025 triggered by the project (project ends estimation)	Number of units sold in the period 2025-2030 triggered by the project (5y after forecast)
Belgium	523.3	5196.327136
Germany	1500	14894.88
Ireland	122.5	1216.4152
Spain	81.2	806.309504
Netherlands	1960	19462.6432
Austria	504.6	5010.637632
Poland	600	5957.952
Sweden	2341	23245.94272
aggregated	7632.6	75791.10739
	7632.6	75791.10739

8. Implementation sites

8 real life implementation sites carried out by the project were expected (one per project country), while within 5 years after the end of the project results are expected in all EU countries thanks to the replication of solutions and best practices. As the project has no democases, in the referred countries the impact will result in the spread out of guidelines to integrate GHPs into spatial planning procedures, collections of strategies and measures for fostering future investments and good practise business models to implement geothermal heat pumps systems at different scales.

- **Germany — Heat Planning Act** — since 1 Jan 2024, municipalities are required to prepare local heat plans. The law is supported by detailed "Heat Planning Guidelines" that help local authorities plan a greenhouse-gas-neutral heat supply (renewables, waste heat, heat pumps, district heating, etc.).
- **Sweden — Sweden 2024 National Energy and Climate Plan (NECP)** — submitted June 2024; the updated plan reflects stronger EU targets, ties in building renovation strategies, energy-efficiency measures, and supports heat-pump and district heating expansion, creating an enabling legislative/policy environment for clean heating.

Complementary regulatory incentives under Swedish building / renovation legislation, encouraging owners to climate-proof buildings, including through heat-pump or district-heating connections.

- **Netherlands — Environment and Planning Act (Omgevingswet) —** came into force 1 January 2024. This law governs spatial planning and the built environment, providing a structural framework under which municipalities' heat-transition plans (e.g. under Wgiw) must be embedded.
- **Austria — Austria's Biennial Transparency Report (BTR 2024) & Geothermal Roadmap references —** national reporting explicitly mentions geothermal and identifies research & permitting needs; the BTR and related geothermal roadmap highlight large-scale district geothermal projects (e.g., Vienna pilot) and call for permitting/RTD improvements — useful evidence when arguing for permitting simplification in spatial plans.
- **Belgium — Regional measures in Wallonia & Brussels —** studies and mapping obligations for district heating potentials Wallonia has required studies on district heating potential and Brussels has advanced mapping of renewable heat potentials by district — both create datasets & spatial outputs that planners can use to identify areas suitable for GHPs or aquathermal solutions.
- **Ireland — Draft Revised National Planning Framework (NPF): stronger integration of climate & energy into planning** — The revised NPF (draft published 2024) explicitly requires integrating climate action into the planning system and supports energy/heat planning at local levels — a framework under which geothermal / ground-source solutions can be mainstreamed in local spatial plans.
- **Spain — Ministry work on a Royal Decree for heating & cooling networks —** The Spanish Ministry for Ecological Transition has been developing regulatory texts (draft Royal Decree on thermal networks / guarantees of thermal origin) to regulate heating networks — these reforms create a framework that will make it easier to integrate renewables (including geothermal) in network planning and procurement. (national public consultation activity documented).

- **Poland — Subsidy schemes for heat pumps in residential buildings via My Heat (Moje Ciepło)** — This is a central-government grant scheme supporting installation of heat pumps (air-water, ground-source, air-air) in new single-family houses. Subsidies: up to ~PLN 21,000 for ground-source HPs; lower amounts for air-source.

9. Skills

GeoBOOST contributed to an improved understanding of consumption trends, potentials, market barriers, impacts and non-energy benefits as well as measurement of impacts and benefits. GeoBOOST facilitated the increase of geothermal energy in the future energy mix by understanding and removing concerns and barriers to the implementation of geothermal projects. The experiences gained and challenges still existing have been pooled from 8 target countries, evaluated and complemented by strategies, measures and instruments for facilitating investment decisions towards geothermal heat pumps.

At the beginning of the project the forecast was that the number of public entities trained with increased skills and competencies on geothermal energy issues due to the project would be at least 100 persons during the project and 1000 persons 5 years after the project ends. This forecast can now be confirmed, especially considering that the MOOC "Specialization in Shallow Geothermal Energy: Skills Development and Training Across the EU", launched on the edX platform on October 1st 2025, has already achieved encouraging participation figures during its first weeks. As of now (November 2025), the course has reached a total enrolment of 365 learners, of which 58 have paid for the verified track to receive a certificate. Participants represent 64 different countries or regions all over the world, reflecting the strong international outreach of the program.

For KPIs calculations purposes, considerations based on the population remain to calculate the number of market stakeholders trained with increased skills and competencies on energy issues due to the project.

Table 7: number of market stakeholders trained with increased skills and competencies on energy issues due to the project

Country	population eurostat 2023	sharing key population	Skills (project end)	Skills (5y after)
Belgium	11742796	5%	2	19
Germany	84358845	38%	31	311
Ireland	5271395	2%	1	4
Spain	48085361	22%	1	3
Netherlands	17811291	8%	8	85
Austria	9104772	4%	8	82
Poland	36753736	16%	5	53
Sweden	10521556	5%	44	443
aggregated	223649752	100%	100	1000
	223649752		100	1000

10. Communication

The potential of replication of the GEOBOOST results is very important, since efficient and renewable heating and cooling solutions are a marginal component of the h&c market in European buildings today, and thanks to this project, solutions will be available to mainstream these solutions from the part of service providers which will be able to adopt relevant business models and implement best practices at the building level, from the part of end users who will be able to access information about technologies and cost-benefit analysis, and from the part of local authorities who will have robust tools to plan and model the uptake of GHPs technologies to decarbonise the supply of heating and cooling to their buildings.

This replication has been favoured by the promotion of the best practices identified as part of GEOBOOST to relevant stakeholders at trade conference, in network of cities in energy transition, to associations of consumers and other end users. This has been facilitated by the involvement of some key stakeholders in the advisory board of the project, especially the EGEC Heat Pump Task force members, and by the work of dissemination undertaken as part of the project's implementation.

The potential users of the results include:

- European local authorities designing their heating and cooling transition plants, for instance the 10,777 cities and town signatories of the Covenant of Mayors.
- European businesses installing efficient and RES HC solutions, for instance the installers of 100,000 geothermal heat pumps annually, or for the 1% of European new buildings or buildings undergoing energy renovation respectively every year (BPIE, EU buildings under microscope; Renovate Europe, Renovation a kick starter for the EU recovery).

The Work Package on communication and dissemination of the project results ensured the information on the findings, recommendations and resources of the GEOBOOST project has been made available to all relevant stakeholders.

Results of the GEOBOOST project will also be disseminated and replicated after the end of the project. This replication will conecrn more European countries, as GEOBOOST has a special focus on 8 countries. The concept of market maturity and the selection of countries to reflect several market readiness levels (MRL), ensures that project results could be replicated to more European countries.

Table 8: number of stakeholders reached through media and events during the project

Country	population eurostat 2023	sharing key population	Communication (project ends)	Communication (5y after)
Belgium	11742796	5%	52	262
Germany	84358845	38%	377	1886
Ireland	5271395	2%	24	118
Spain	48085361	22%	215	1075
Netherlands	17811291	8%	80	398
Austria	9104772	4%	40	204
Poland	36753736	16%	165	822
Sweden (44.17%)	10521556	5%	47	235
aggregated	223649752	100%	1000	5000
	223649752		1000	5000

11. Job creation

Job creation resulting from the deployment of geothermal heat pump (GHP) systems is estimated based on the additional installed thermal capacity associated with projected sales in the project countries. The analysis indicates that 184.9 jobs are created by the end of the project, with employment impacts increasing over time as installations accumulate. 5 years after the end of the project, total job creation is estimated to reach 662 jobs, reflecting continued market uptake and the long-term nature of geothermal heat pump deployment.

The methodology for calculating employment impacts applies an employment intensity factor of 7 jobs per MW_{th} of installed capacity, a commonly used coefficient in renewable energy assessments that captures both direct and indirect employment effects. These include jobs related to manufacturing, installation, drilling, system design, maintenance, and associated supply-chain activities.

This factor is applied to the aggregated installed capacity corresponding to projected geothermal heat pump sales in the 8 project countries, divided by 10 (considering that the project would directly impact on 10% of those sales). For the period 2023–2025, aggregated sales correspond to an installed capacity of 264,089 MW_{th}, which forms the basis for calculating job creation by the end of the project. For the extended period 2023–2030, aggregated installed capacity is projected to reach 945,674 MW_{th}, providing the basis for estimating employment impacts five years after project completion.

Using a capacity-based employment factor ensures a transparent, scalable, and technology-relevant approach to estimating job creation, while reflecting the labour-intensive nature of geothermal heat pump deployment compared to conventional heating technologies.

Table 9: number of jobs created in FTE

Country	Employment (project ends)	Employment (5y after)
Belgium	11.9049	44.61609
Germany	42.49	136.25416
Ireland	2.7867	10.4441064
Spain	1.8473	6.92306653
Netherlands	42.994	165.512502

Austria	11.1314	42.6736634
Poland	14.105	51.610664
Sweden	57.603	203.937599
aggregated	184.8623	661.9718517
	184.8623	661.9718517