



## CA18219 Geothermal-DHC

*Research network for including geothermal technologies into decarbonized heating and cooling grids*

### The Action in a nutshell

#### Motivation

Geothermal energy covers the heat stored in the Earth's interior in depths ranging from several meters to several kilometers below surface. There are various well proven existing technologies to exchange heat between the subsurface and the application for heating, cooling, production of electricity and underground storage of heat. Currently, geothermal energy only covers less than 5% of the European renewable heat production and needs to be considered as a niche technology. In contrast, recent studies showed that more than 25% of the European population could be supplied by direct use of geothermal heat by the use of conventional heating grids. In addition, geothermal installations at low temperature heating linked either to heat pumps or low temperature direct use (e.g. geothermal cooling) might cover more than 50% of the residential heating demand even in urban areas. **Moreover, geothermal is the only renewable energy source to supply heating, cooling and allow for seasonal heat storage with the same set of technologies!**

#### Objectives

In Europe, geothermal energy is yet not recognized as a key technology to meet the EU's 2030 climate and energy policies. Geothermal-DHC therefore wants to address both, technological- and non-technological barriers to promote the market uptake of geothermal energy for heating and cooling in its full spectrum for supplying conventional (high temperature) as well as non-conventional (low temperature) heating and cooling grids. Our ambition is to identify, evaluate and introduce solutions based on geothermal applications **to increase the share of RES of up to 30% in 2030 and 50% in 2050 in heating and cooling grids across Europe.**

Geothermal-DHC supports this target by aiming at:

- Harvesting and pooling existing knowledge from more than 50 national and international projects linked to the network;
- Evaluating the transferability of experiences and lessons learned of more than 20 case studies covered by Geothermal-DHC;
- Identifying research gaps and measures to enhance the competitiveness of geothermally supported heating and cooling grids and developing proposals for follow up research activities;
- Identifying and characterizing successful solutions for the integration in geothermal technologies in monovalent as well as multivalent heating and cooling grids;
- Compiling the knowledge gained through the case studies to general technological catalogues, guidelines and fact sheets how to realize the inclusion of geothermal applications at its full technological range;
- Creating a strategic roadmap for the decarbonization of heating and cooling grids by integrating geothermal resources towards the proposed 2030 (30%) and 2050 (50%) inclusion targets.



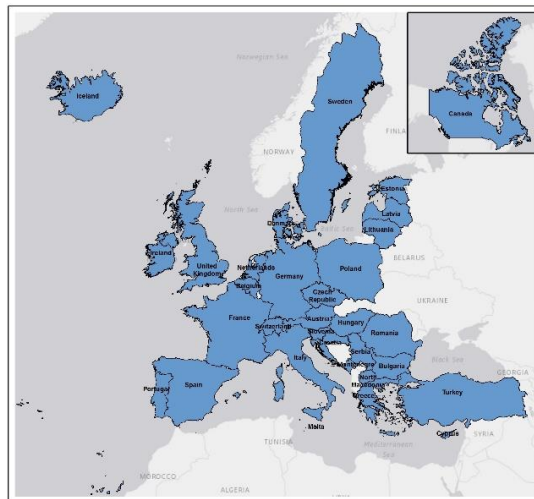
## The Geothermal-DHC approach and planned outputs

Our Action follows an open technologically bottom – up approach including the inclusion of shallow to deep geothermal technologies into heating and cooling networks. Geothermal-DHC covers 4 main (permanent) Working Groups (PWGs) on 1) the different technologies and methodologies from exploring to managing geothermal energy use, 2) communication and outreach, 3) promoting young careers in the field of geothermal heating and cooling as well as 4) capitalization inside the network and uptakes to facilitate the inclusion of geothermal energy in heating and cooling grids. The PWGs will be complemented by so called Ad-Hoc Working Groups addressing specific questions and tasks inside our network in a matrix-based implementation approach.

Geothermal-DHC plans to create web based competence and interest platform on the inclusion of geothermal into heating and cooling grids. It contains among others a knowledge repository, yellow pages for networking, technological catalogues and fact sheets on existing installations across Europe, a tested educational concept for students as well as a roadmap for the inclusion of geothermal into heating and cooling grids.

## Territorial coverage

Geothermal-DHC is currently covering 31 European countries and Canada covering more than 20 different geothermal case studies.



## How can you benefit from Geothermal-DHC?

Our Action offers various networking opportunities in terms of meetings, workshops, training schools and young researchers conferences. Enter our network and participate on the knowledge exchange, joint follow-up activities or joint scientific publications. There are different levels of participating in Geothermal-DHC covering the whole range of being a follower (receive periodic information on the progress and recent outcomes of the Action), participate in one of our Working Groups or join the Management Committee of Geothermal-DHC on behalf of your country (limited to the availability of free slots).

## Contacts

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- *Action website:* will be provided soon.

