

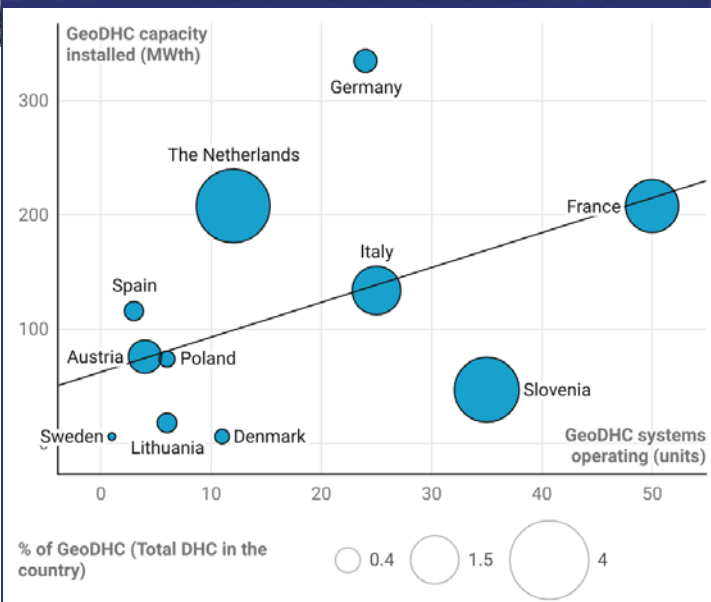
Economic evaluation of geothermal energy in HC networks in a European context

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Towards Decarbonized Heating and Cooling!

www.geothermal-dhc.eu



Resource: Institute for Resource Efficiency and Energy Strategies

- **Netherlands:** High penetration reflects renewable commitment. GeoDHC strong.
- **Sweden:** GeoDHC adoption opportunity with low penetration.
- **Spain:** GeoDHC potential growth, low current implementation.
- **Denmark:** Moderate GeoDHC adoption; room for expansion.
- **Germany:** Substantial GeoDHC capacity; notable renewable energy focus.

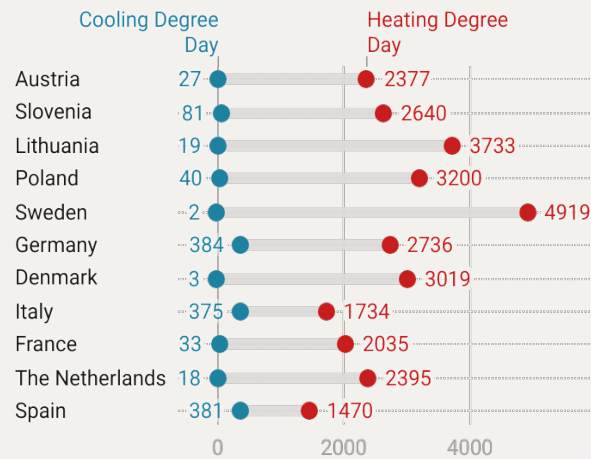
The Geothermal-DHC panorama vs DHC

- Greater adoption > 3.5% of total DHC.
- Low penetration < 2% of DHC
- Negligible or low penetration.

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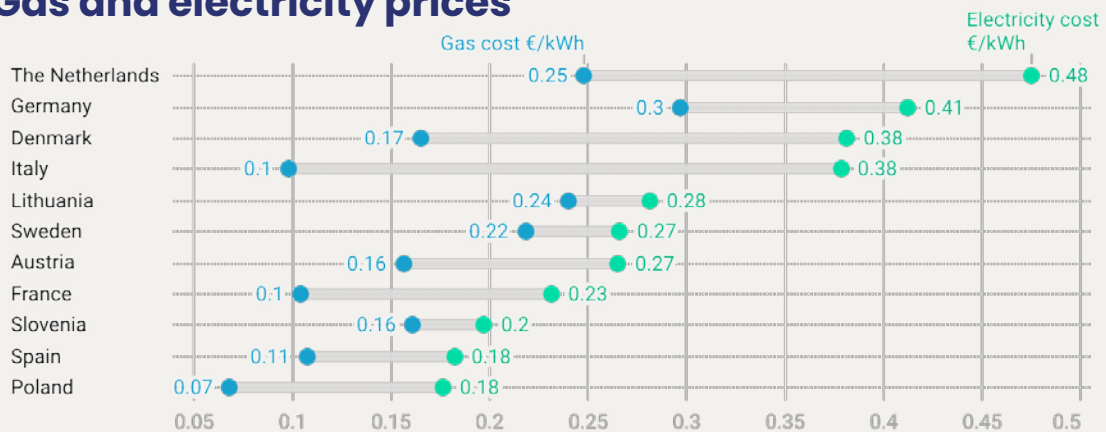
H&C intensity and energy source alternative prices

- Heating and cooling demands shape country priorities.
- Decision-makers in low heating demand countries may prioritize investments in other energy infrastructure or be less urgent to invest in geothermal DHC.



Source: ¹

Gas and electricity prices



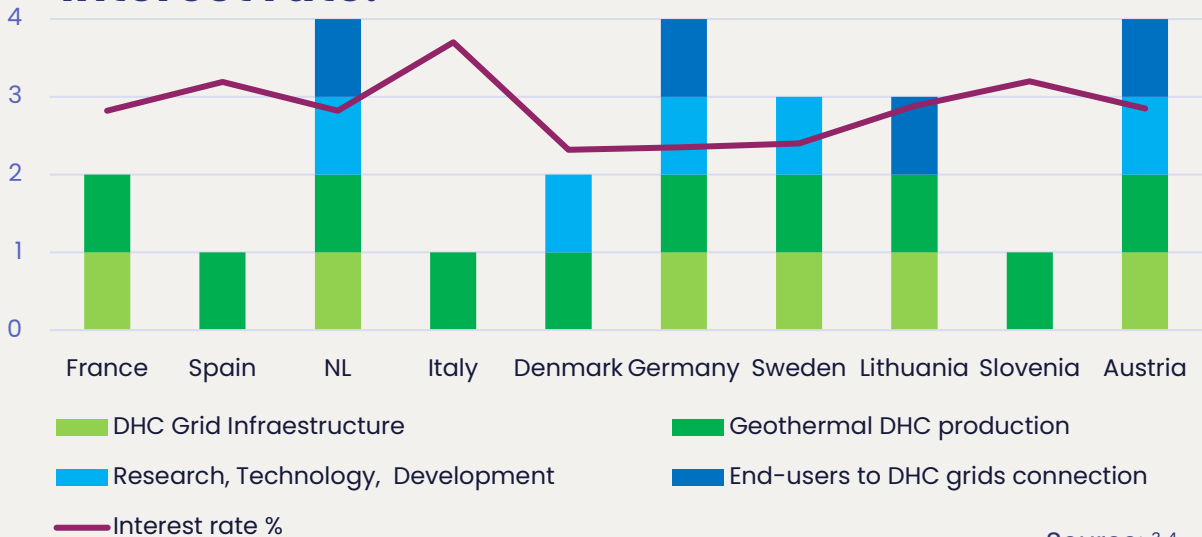
Source: ²

- Geothermal systems use electricity (to power pumps), so the relative cost of electricity compared to gas also determines the economic feasibility of GeoDHC.

Economical attractiveness

- In countries with high energy demand and high electricity and gas costs, GeoDHC becomes economically more attractive, and thus, Levelized cost of heating (LCOH) might be more competitive.

National support: subsidies and long-term interest rate.



Source: ³ ⁴

Geothermal district heating and cooling in Europe – still national support lacking but steady interest rate.

Country-specific LCOH and LCOC for GeoDHC is unavailable for economic boundary conditions.

Levelized cost of Heat (LCOH) and Cooling (LCOC).

Due to diverse technologies, depths, and associated costs, country-specific LCOH and LCOC values are unavailable for economic boundary conditions.

- **Strong support:** subsidies support all the relevant aspects: The Netherlands, Germany, and Austria.
- **Medium support:** subsidies for all aspects except grid connection – France, Denmark, Sweden, and Lithuania.
- **Low support:** subsidies only for geothermal energy production – Spain, Italy, and Slovenia.
- **Steady Interest rate** for long-term government bonds in national currencies alongside EU member states for the production.

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²EUROSTAT. Gas and electricity prices for end-consumers. 2024.

³Interest rate – European Central Band. Subsidies for DHC –.

⁴ Subsidies for the renewable DHC- Overview of DHC Markets and Regulatory Frameworks

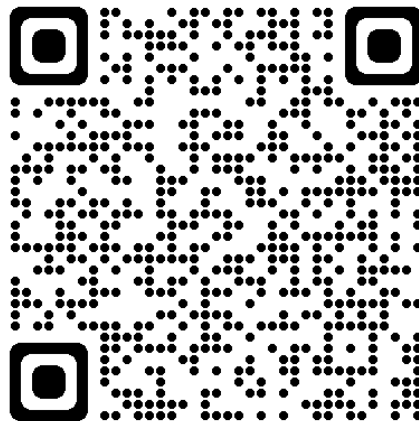
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