Challenges in service chain for shallow geothermal energy in Europe

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geoENERGIE Konzept - Rüdiger Grimm
Number of GHPs installed in Europe
Growing sales in old and new markets - 2021

- **Germany** sold 27,000 units (10% growth compared to 2020).
- **Sweden** added 25,500 new systems (8% growth).
- **Finland** added 9,500 units (6% growth).
- Strong sales growth in **France** (73%), **Austria** (59%) and **Belgium** (35%).
Heat pumps per 1,000 households
Large-scale heat pumps have continually increased their capacity (BHE length in meters)
Market drivers
The European geothermal HP market

The geothermal market is driven by
• Demand for heating and cooling and urban planning
• Knowledge of resources
• Availability of equipments, esp. rigs and HP
• Skilled workforce
• Policies and regulations, Financing schemes
• Innovation
• and for 2021/2022: electricity and gas prices and taxation!
Electricity prices

Fig. 8 | Electricity prices in selected European countries, 2011 - 2021

Source: Bruegel based on Bloomberg OTC one-year forward power baseload indices
Natural Gas price

Fig. 7 | Natural gas price at Europe's leading benchmark: the Dutch Title Transfer Facility hub, 2011 - 2021

Source: Bruegel based on Bloomberg day-ahead TIF
REPOWREU Plan

Key:

- **Communication**: "The European Union should aim at doubling the current deployment rate of individual heat pumps, resulting in a **cumulative 10 million units over the next 5 years**. Member States can accelerate the deployment and integration of large-scale heat pumps, geothermal and solar thermal energy in a cost-effective way."

- **Communication**: “To address the skills shortages, the Commission encourages stakeholders in renewable energy production (solar, wind, geothermal, biomass, heat pumps etc.) and permitting authorities to establish a **large-scale skills partnership** under the Pact for Skills"

- **Solar strategy**: "Solar energy systems have long been a low-cost and reliable solution for heating in many European countries but overall solar heat accounts for just around 1.5% of heating needs. To reach the EU 2030 targets, **energy demand covered by solar heat and geothermal should at least triple**".
Challenges
Heating and cooling major growth sector

- **COVID rebound** through robust growth in geothermal heat pumps.

- National and supranational **policy** driving change. For example, France updated its building codes to ban the installation of new fossil fuel boilers, promoting investment in geothermal and other renewable heating and cooling technologies, and introducing criteria for things such as "summer thermal comfort (Réglementation environnementale - RE2020)."

- Main **demand** comes from residential and commercial building sector.

- GHP grew and expected to continue exponential growth as heating and cooling gain greater political attention.
Challenges

- Drilling rigs availability: establish a fluid European market
- HP supply: plan the demand for equipments manufacturing
- Skilled workforce: education / re-skilling / upskilling
  - Designers
  - Drillers
This decade will be
#Geothermal!