

Where is H&C moving towards in Europe?

Markus Fritz & Ali Aydemir (Fraunhofer ISI)



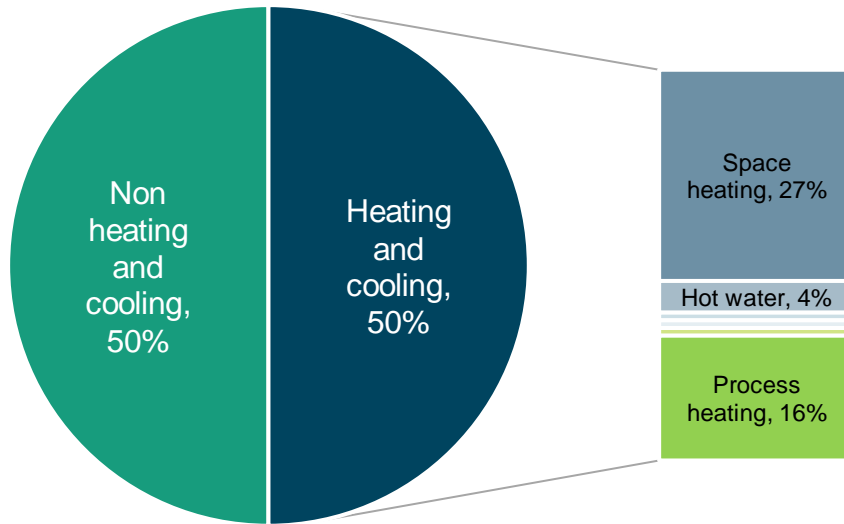
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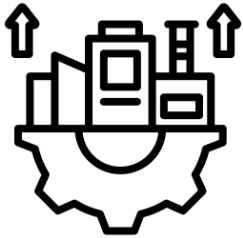
Heating and cooling in Europe



- The European Union aims to be climate-neutral by 2050
- Heating and cooling is the largest energy demand sector in Europe, so rapid progress in this sector is essential



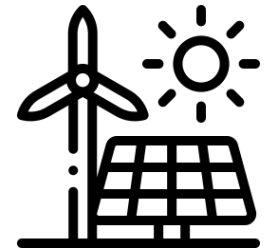
New European Directives



Energy Efficiency
Directive



Energy Performance of
Buildings Directive



Renewable Energy
Directive



Energy Efficiency Directive

- Municipalities with more than 45,000 inhabitants are obliged to carry out heat planning
- New requirements in relation to efficient heating networks

| | Renewable energy | Waste heat | Cogenerated heat | Combination |
|------------|------------------|------------|------------------|-------------------|
| Until 2027 | 50% or | 50% or | 75% or | 50% |
| 2028 | 50% or | 50% or | 80% or | 50% incl. 5% res |
| 2035 | 50% or | 50% or | - | 80% incl. 35% res |
| 2040 | 75% or | 75% or | - | 95% incl. 35% res |
| 2045 | 75% or | 75% | - | - |
| 2050 | 100% or | 100% | - | - |



Status Quo district heating in Europe

- District heating systems are heterogeneous in Europe
- Some countries have a long history of using district heating and their systems already exhibit high shares of renewable and excess heat
- Others have a low deployment of district heating or a heat supply that is still mainly based on fossil fuels or both

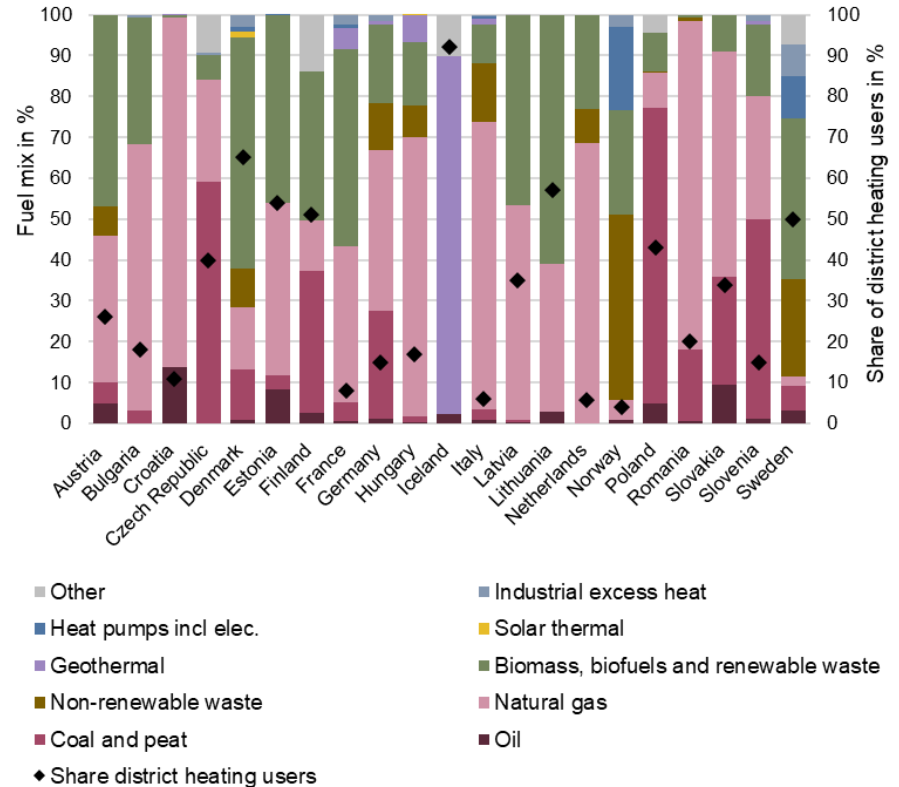


Figure: Share of district heating users and fuel mix (Bacquet et al., 2022)

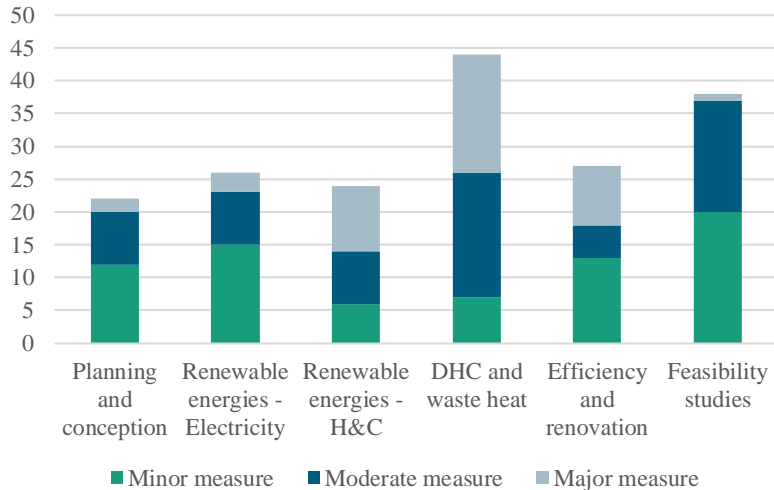


What is the impact of heat planning?

- Mandatory heat planning in Germany since January 2024
- In Baden-Württemberg, heat planning has been mandatory since 2020 until the end of 2023
→ Around 100 conducted Heat Plans
- In addition to the elements of inventory analysis, potential analysis, scenarios, etc., 5 implementation measures also had to be formulated
- We have analyzed and evaluated these measures for 30 plans



Which measures are mentioned most often?

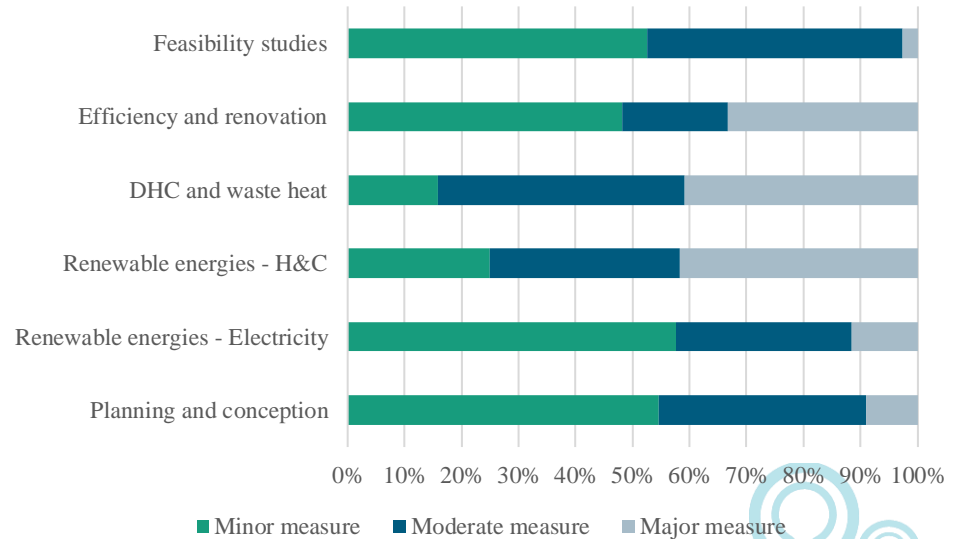


- majority of measures can be attributed to the category of **DHC and waste heat**
- **Feasibility studies** serve as an important basis for further transformation
- More measures for **renewable energy - electricity** than **renewable energy - H&C**



How ambitious are the measures?

- In the areas of **DHC and waste heat** and **Renewable energies - H&C**, a significant portion of the measures are classified as major.
- In the areas of **feasibility studies** and **planning and conception**, predominantly minor measures are proposed
- For **renewable energy - electricity**, the most commonly mentioned measures involve the installation of photovoltaic (PV) systems on rooftops and open spaces



Summary and Conclusion

- Measures in different categories are identified in almost all plans, indicating a understanding of complex interrelationships
- The municipalities surveyed not only selected simple and quick-to-implement measures, but also large, complex measures such as the construction of new district heating networks
- Concrete calculations of energy consumption and greenhouse gas emissions are lacking for most measures, hindering the assessment of their effectiveness
- It is important that municipalities not only draw up a target scenario, but also formulate measures to achieve it



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<https://actionheat.eu/workflow>



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