



Supporting Local heating and cooling planning (LHCP) in the EU

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About e-think



Private Research and Consulting Organisation based in Vienna

Spin-off of Technische Universität Wien – Energy Economics Group

Clients / Projects: European Commission, ministries, municipalities, energy suppliers



39
PROJECTS

22
CLIENTS

147
PARTNER

21
PARTNERS'
COUNTRIES

73
PUBLICATIONS

About e-think



DECARBONISING THE BUILT ENVIRONMENT

- Main Focus H&C
- Currently 5 ongoing LHCP projects in DE/AT
- Support in LHCP in course of EU projects (LIFE, Horizon)
- Support to DHC transformation planning
- Policy and financing advice



HEATING AND COOLING NETWORKS



ADVANCING DATA AND MODELLING



LOCAL AND REGIONAL ENERGY PLANNING



CLIMATE POLICY AND FINANCING

Content of the inputs

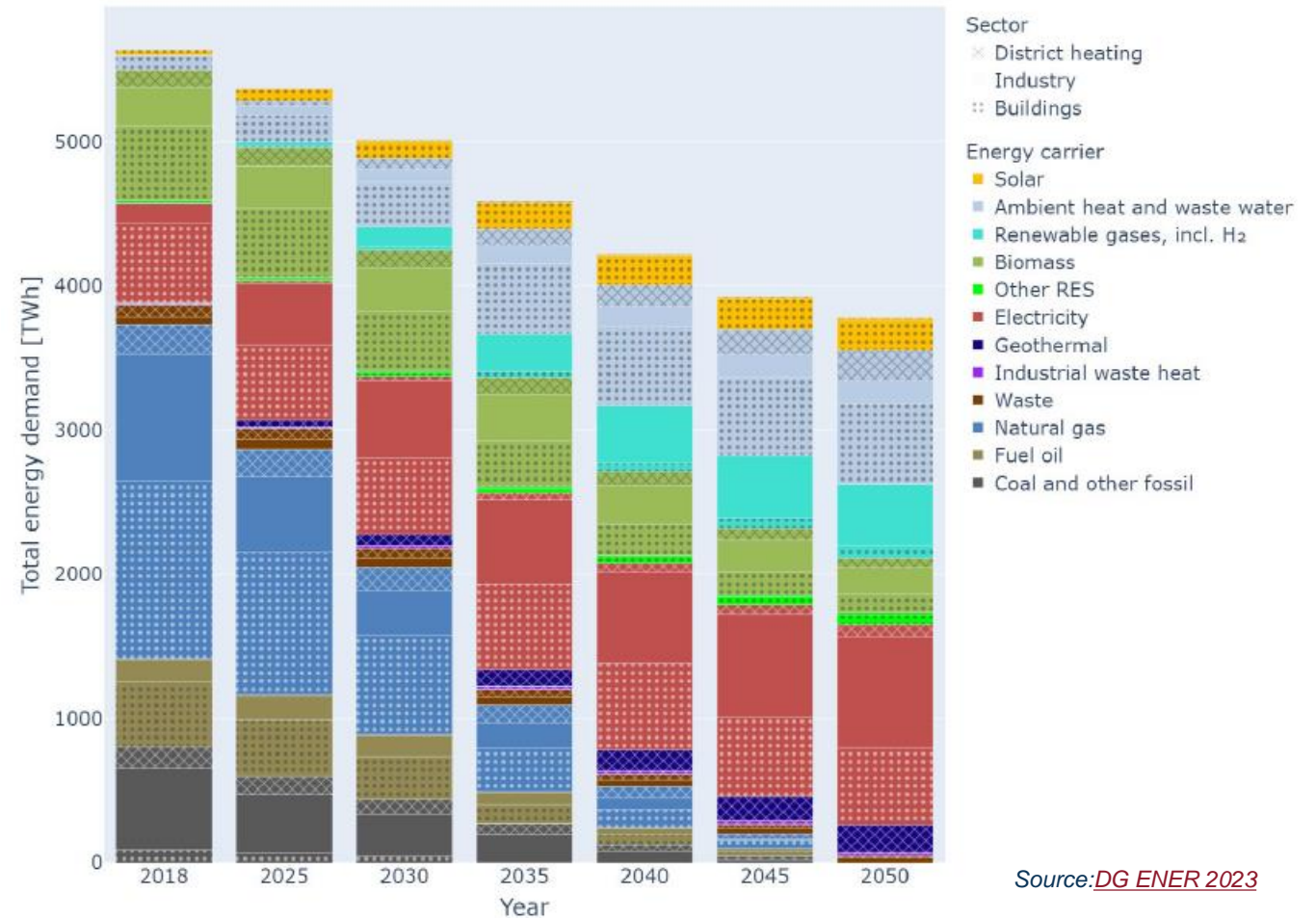
- Setting the scene
- What is current state of LHCP and problems / obstacles?
- What is offered in ESCALATE?
- What else for an effective transposition?

Setting the scene



The overarching target is 0 CO₂ in 2050

- Nearly complete change in technologies and energy carriers
- Remarkable expansion of district heating
- Large shares of heat pumps
- Deep geothermal energy
- Carbon neutral gases



What is needed?

➤ Shift in technologies

- Building renovation
- Change of heating systems in building, potentially also change of heat distribution systems
- Change of infrastructure: heat/cold networks, gas networks, electricity networks
- New heat sources and related plants: large heat pumps, connection to waste heat, geothermal plants

➤ Planning

- PA planning (local, regional?, national, EU)
- Utility planning (DHC transformation plans)

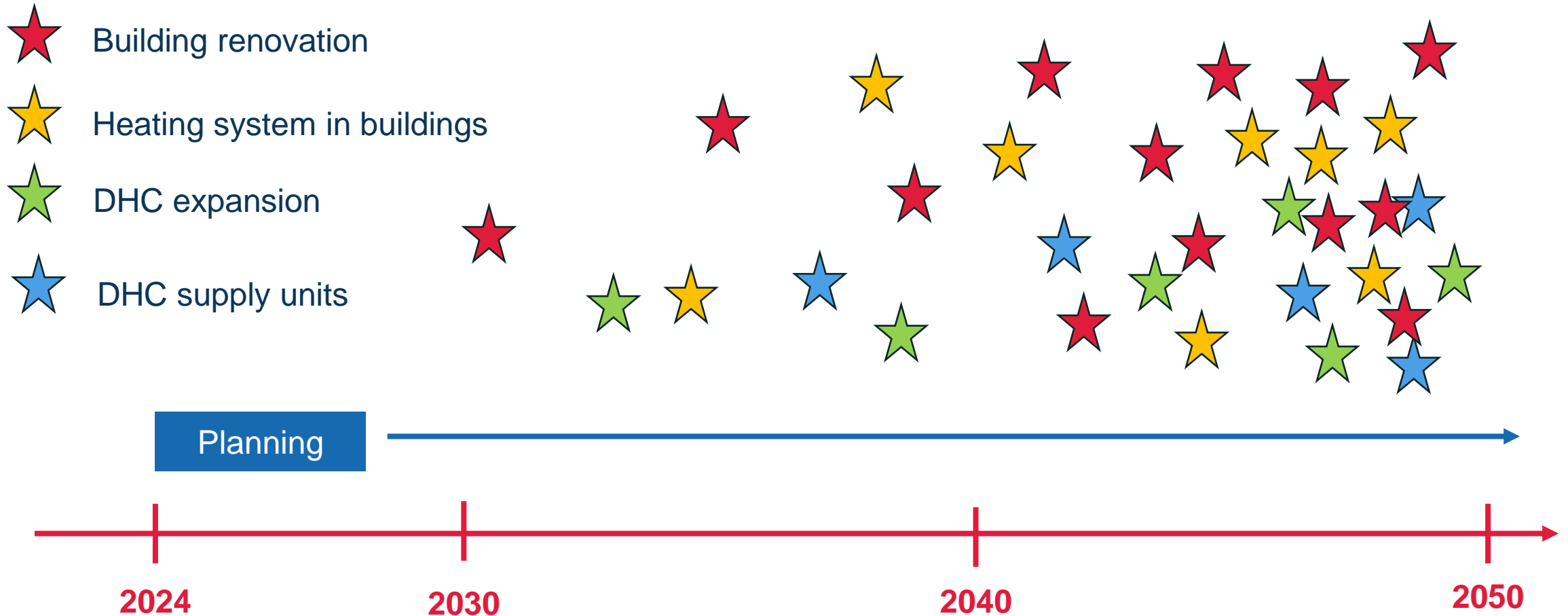


**Two streams!
Should be linked**

➤ Investments

- Public (Subsidies, tax exemptions, grants, low interest loans, ...)
- Private (Green loans, on-bill financing, green bonds, ...)

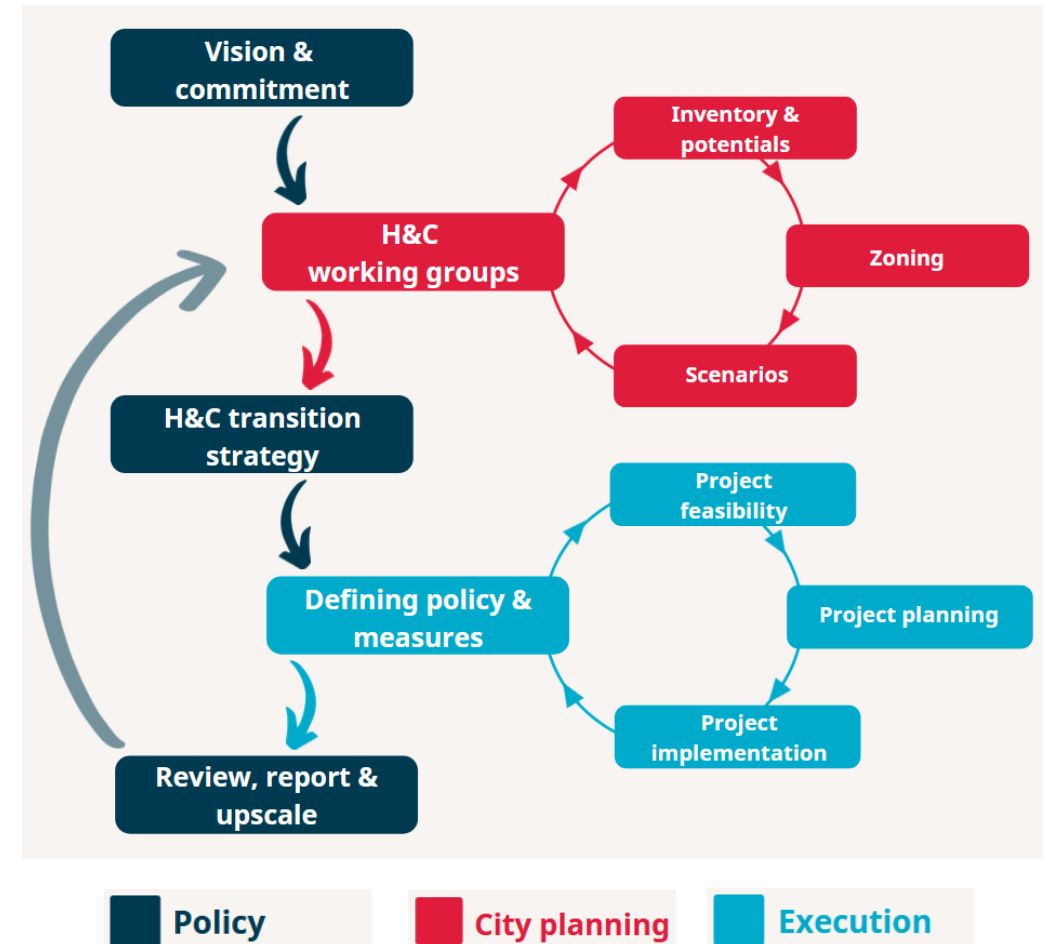
What is needed?



Only 1 technology cycle left!!

Now is the time ... and the chance ...

- ... to provide the framework conditions
 - Regulation of LHCP
 - Support for LHCP
 - Regulation for transformation
 - Support for transformation
- ... to implement a new planning culture
 - Regular planning and monitoring
 - Having dedicated full time staff constantly working on the transformation
 - Regular exchange between policy and stakeholders



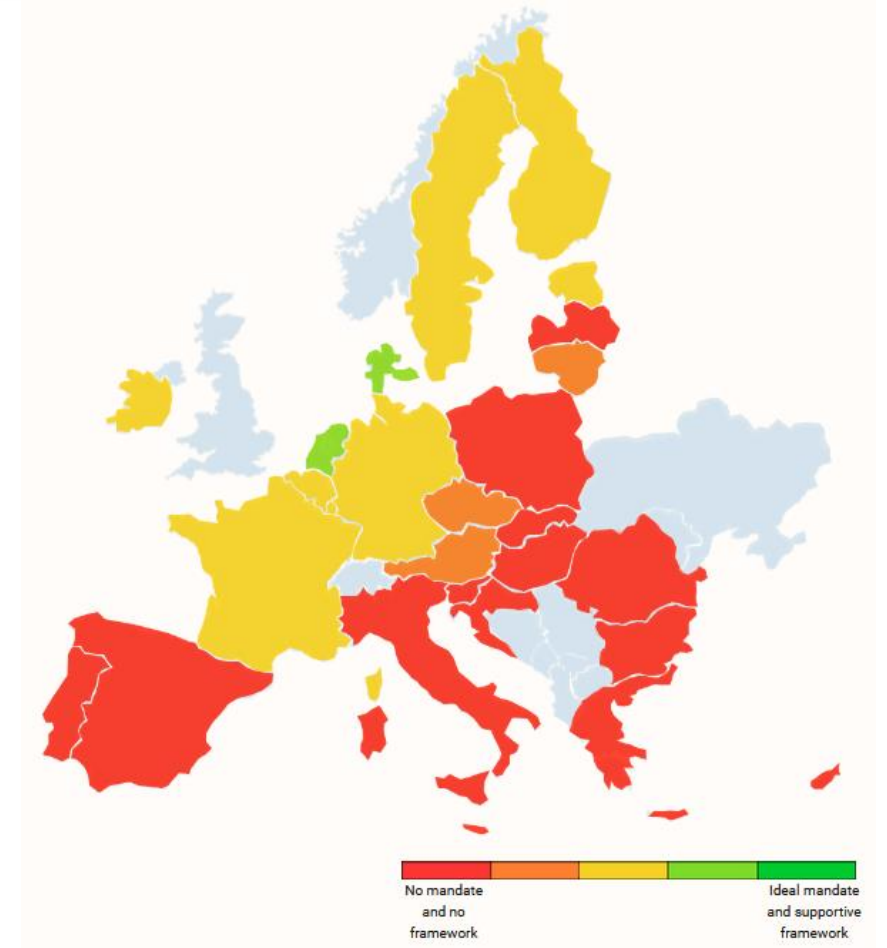
Source: ActionHeat project

Where do we
stand?



Policy framework

- **Situation highly uneven across EU:**
 - in some countries long tradition
 - in some recent developments
 - in more than half of countries legal framework fully absent
- **Cooling planning is mostly no topic still**
- Technical and organisational support frameworks exist in countries with obligations
- **Several energy planning documents (e.g. SECAPs) lack detail** as well as strategic and spatial dimensions



Source: [EU Tracker – Local heating and cooling plans, Energy Cities - pdate2024](#)

Main obstacles

- Remarkable **limitations in availability of energy-related and geodata**
 - GDPR
 - Existence of data, distribution of data (many different data holders)
 - Regular / automated update of data
- **Lack of staff** in many places
 - No technical expertise in the municipalities
 - Number of persons not enough
- **Lack of technical know-how**
 - templates, guidelines, best practices
- **Lack of financial capacity**
 - mainly regarding implementation of planning / staff shortage

Data!

Money!

Know-how!

What is offered
in ESCALATE?



ESCALATE: Objectives

- ESCALATE is a LIFE project, running from 1. September 2024 – 31. August 2027
- ESCALATE aims to accelerate the clean energy transition of the building sector by helping to implement and transpose EED article 25 (6):
 - Development / compilation of **templates, guidelines, tools**
 - Set-up and implement a **training programme**
 - **Develop LHCP** in line with EED article 25 (6) in **6 countries**
 - Implement a **policy process in 8 countries**
 - Dissemination

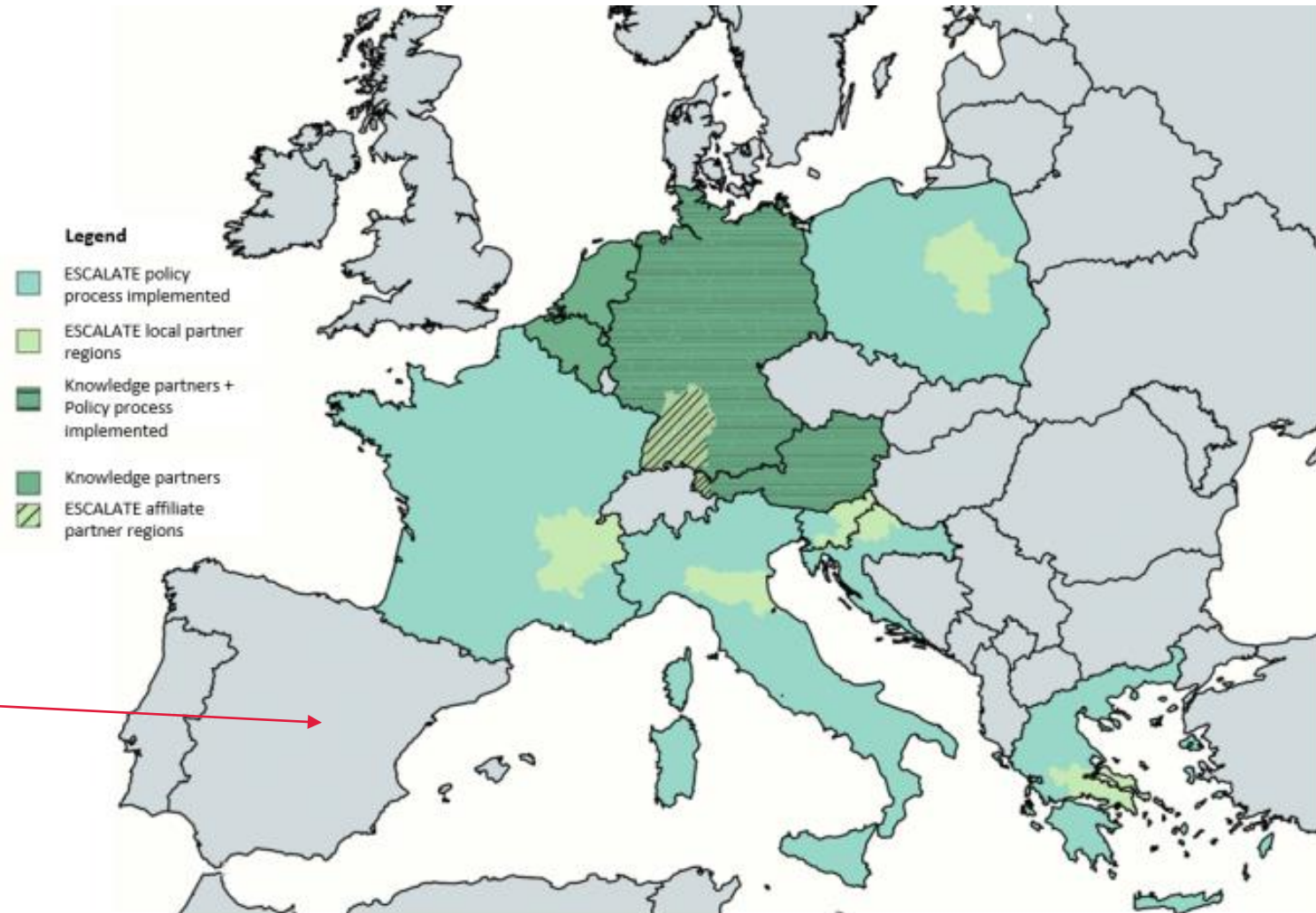


The LIFE23-CET-ESCALTE project has received funding from the European Union's LIFE programme under grant agreement n° 101167599

ESCALATE: Countries and regions

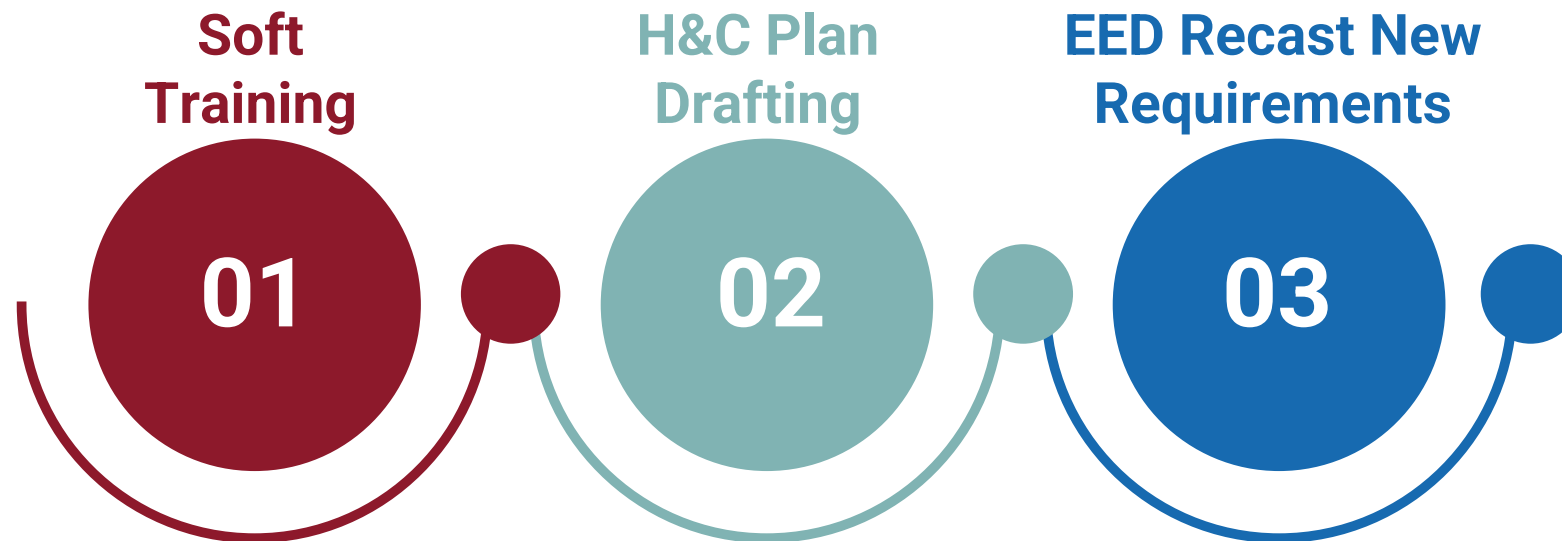
➤ Languages of materials:

- DE
- FR
- IT
- SL
- HR
- GR
- PL
- ES
- EN



ESCALATE: Capacity Building

- Develop a **guideline** and **template** that consolidate best practices into an **EU-wide methodology**
 - **Capacity Gap Assessment (CGA)** to identify support needs via an online survey
 - **Interactive platform** with modules, videos, and learning materials
 - Delivering an **internal capacity-building** program to local partners
- **Capacity building topics**



ESCALATE: Capacity Building



Soft Training

01

1. Introduction to H&C planning
2. **Learn or outsource**
3. Steps to developing a H&C plan
4. Steps to developing a Renovation Strategy
5. Technologies and potential to decarbonising H&C
6. **Data collection, inventory, modelling, and projections**
7. Tools and methods for H&C management and planning

ESCALATE: Capacity Building



H&C Plan Drafting

02

8. Estimate and mapping of demand and potential (Hotmaps/citiwatts)
9. **Zoning: decentral and district areas (Hotmaps/citiwatts)**
10. Calculation of decentral vs district heating costs (Hotmaps/citiwatts)
11. Excess heat sinks and sources matching (EMB3Rs)
12. Identifying potential DHC systems at the building level (THERMOS)
13. Setting up consistent scenarios for the region
14. Draft and Use Waste Heat Cadastres
15. Replicable solutions for selected building archetypes
16. TerriSTORY
17. **Urban planning solutions to decrease cooling demand**

ESCALATE: Capacity Building



EED Recast New Requirements

03

18. **Compliance with Energy Efficiency first principle**
19. Strategy development for the implementation of identified potentials
20. Involve relevant stakeholders and the general public
21. Consider existing infrastructure, replace inefficient H&C in public buildings
22. Consider common needs of local communities and administrative units
23. Assess the role of energy communities and consumer-led initiatives
24. Analyze local building appliances & area-specific energy-saving potential; address needs of worst-performing buildings and vulnerable households
25. **Financing local policies and measures to decarbonize H&C**
26. Result-oriented Measures and Policy Implementation Monitoring
27. Synergy with neighboring authorities and joint investments

ESCALATE: Policy Process

- ESCALATE initiates a policy process at both **local and national levels** in project regions and countries



ESCALATE: Policy Process

Identify success factors, barriers, and best practices for **knowledge transfer to policymakers**



Address needs related to national regulatory frameworks and support mechanisms



LOCAL LEVEL POLICY PROCESS

Identify success factors, barriers, and **best practices for organizational structures**



Address the needs of consumer-led initiatives and energy communities in relation to local and regional governments.



Foster and institutionalize exchange between local policymakers and stakeholders.



Identify suitable organizational structures for cooperation on H&C implementation with energy communities in affiliate regions



ESCALATE: Policy Process

Communicate experiences from capacity building and H&C plan development



Address current lack of standardization for H&C plans, which can be adopted EU-wide or tailored to national needs



Communicate needs of local and regional authorities (LRAs) to inform national frameworks



NATIONAL LEVEL POLICY PROCESS

Streamline a structured, linear, and user-friendly **methodology and template** to develop H&C plans



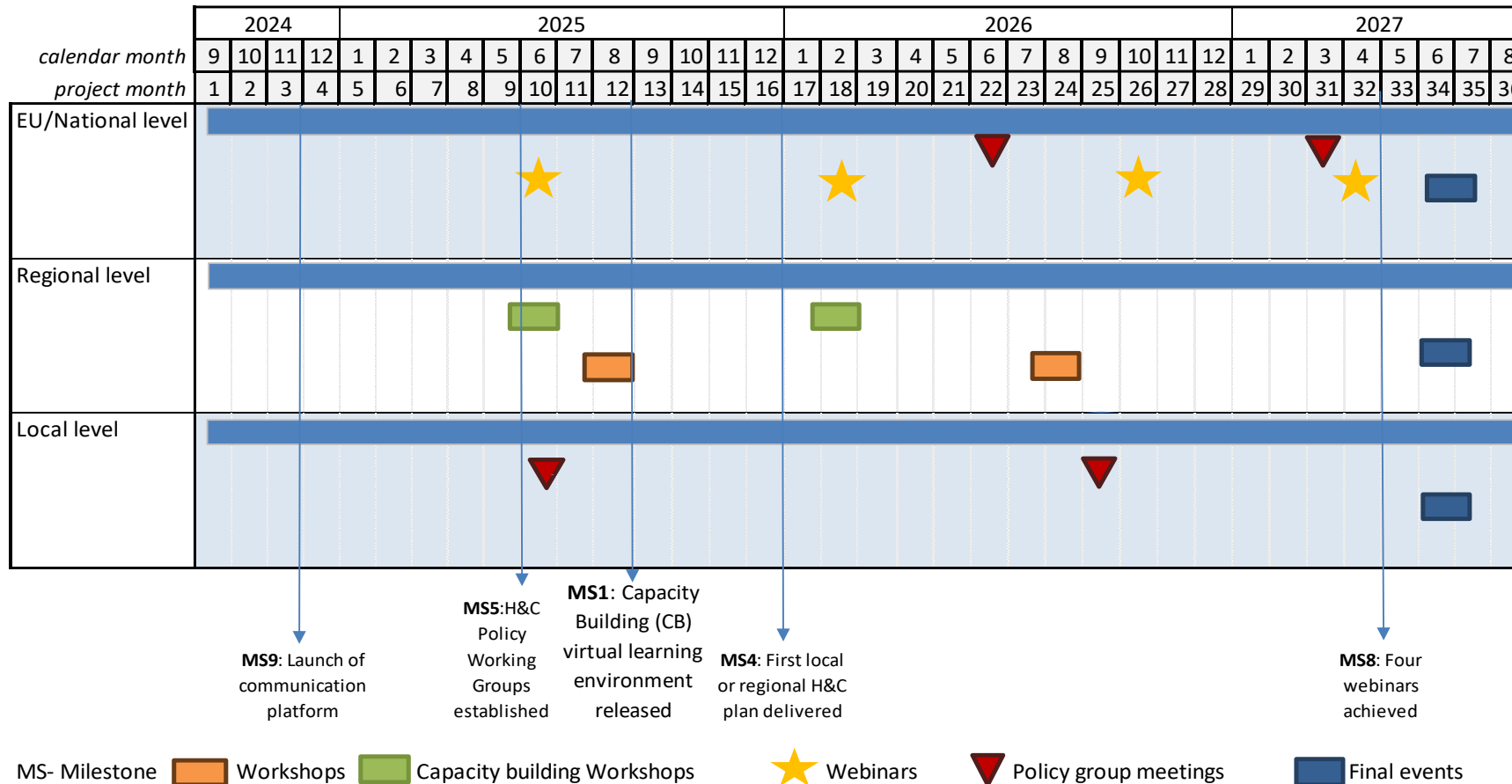
Promote heating and cooling (H&C) solutions based on ESCALATE project experiences, best practices, and identified barriers



Support integration of EED Recast Art. 25 into national legislation



ESCALATE: Policy Process



ESCALATE: Policy Process



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What else for
an effective
transposition?



Different implementation approaches



➤ **Population threshold:**

- In the end, all municipalities should make a LHCP
- Potentially, bigger municipalities quicker than others, smaller done by regional energy agencies

➤ **Deadlines for implementation:**

- 1,5 - 2 years is a valuable timeline for a LHCP, including approval in the local government
- Important action can also start with a plan containing less analytical detail → do not postpone first deadline too much
- Regular (re)planning and monitoring is key to an effective plan → regular updates should be mandatory

➤ **Energy efficiency first principle:**

- Mandatory cost benefit analysis of savings / efficiency vs. carbon-neutral supply of H&C

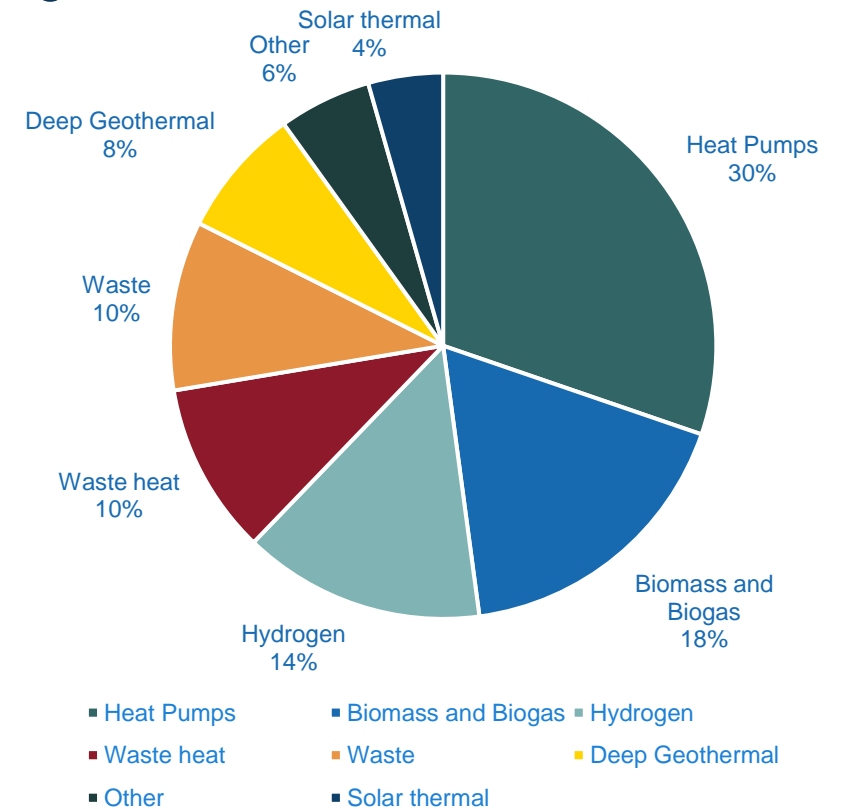
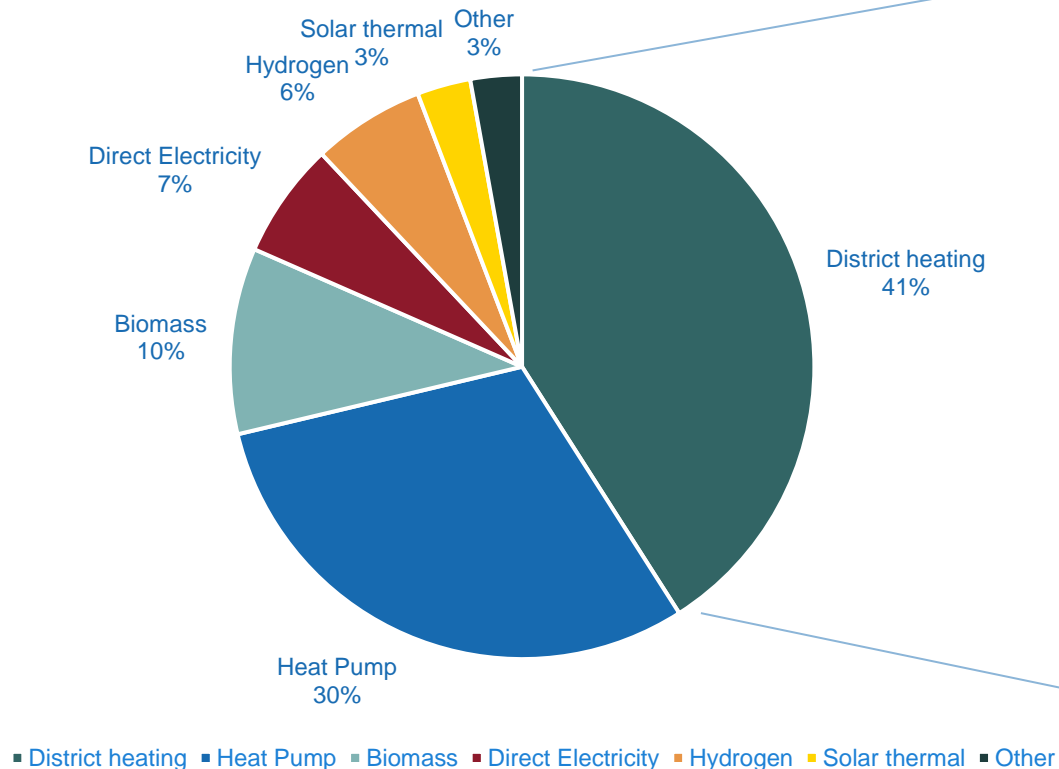
Link with other planning activities



- Link with other **local planning activities**:
 - Merge LHCP with other mandatory existing energy / climate planning activities, not additional plans
 - Enhance level of detail and topics in line with LHCP; especially relevant is spatial dimension and detail
 - Align in timeline; take into account regular character
 - Require a **link between LHCP and DHC transformation planning**
- Link with **national level planning and target setting** (CA, NECP):
 - Breakdown of targets is difficult
 - Based on discussions and regular exchange is a good way
 - Information about national planning, scenarios, targets to local level is important
 - Reverse a real link could make sense

Aggregation of LHCPs in Germany

➤ Share of energy carriers for heating in Baden-Württemberg 2040

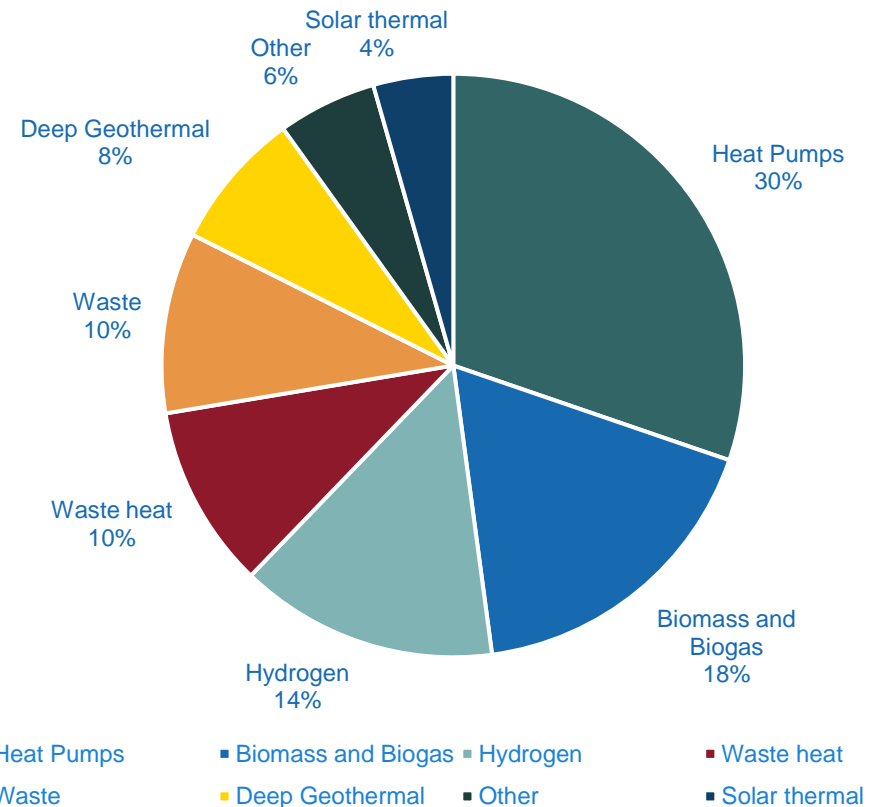
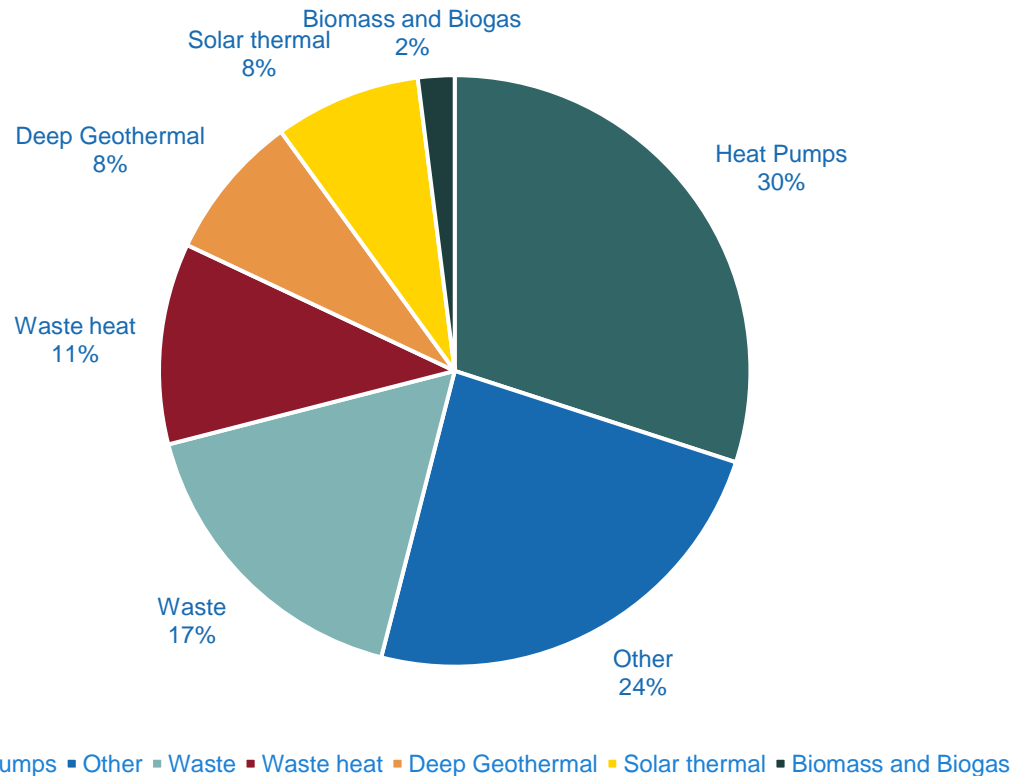


Source: Fritz et al 2024 (unpublished)

Aggregation of LHCPs in Germany

Comparison with results from Comprehensive Assessment (2021) – Energy carriers for district heating

Comparison Comprehensive Assessment



■ Heat Pumps ■ Other ■ Waste ■ Waste heat ■ Deep Geothermal ■ Solar thermal ■ Biomass and Biogas

■ Heat Pumps ■ Biomass and Biogas ■ Hydrogen ■ Waste heat
 ■ Waste ■ Deep Geothermal ■ Other ■ Solar thermal

Data and regulation is key

- (High quality) plans need a corresponding legislative structure
 - Plans are mainly developed according to legislation
 - Specific H/C plans are often only developed in case there is an obligation
 - Important elements: **Data, CBA, zoning**

- Data is crucial for planning
 - A **clear legislation on data provision** from data holders to authorities and planners
 - E.g. authorising ordinance on data transfer with exact rules and definition (e.g. which data holders, which level of aggregation, which data)
 - Also need for **definition of data protection in the context of strategic H/C planning** in the legislation

- Implementation of identified transformation needs a legislative structure
 - **Mandatory DH connection** is only possible with a respective framework
 - **Regulation of the DH sector**
 - this should be discussed and defined at national / regional level; overall options and structure to come from national level

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Thank you for your attention!