

Measures and policy framework for heating and cooling: an intro.

Ali Aydemir, 07.03.2024



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What are policies and what do we use them for?

“a set of ideas or a plan of what to do in particular situations that has been agreed to officially by a group of people, a business organization, a government, or a political party: ...”

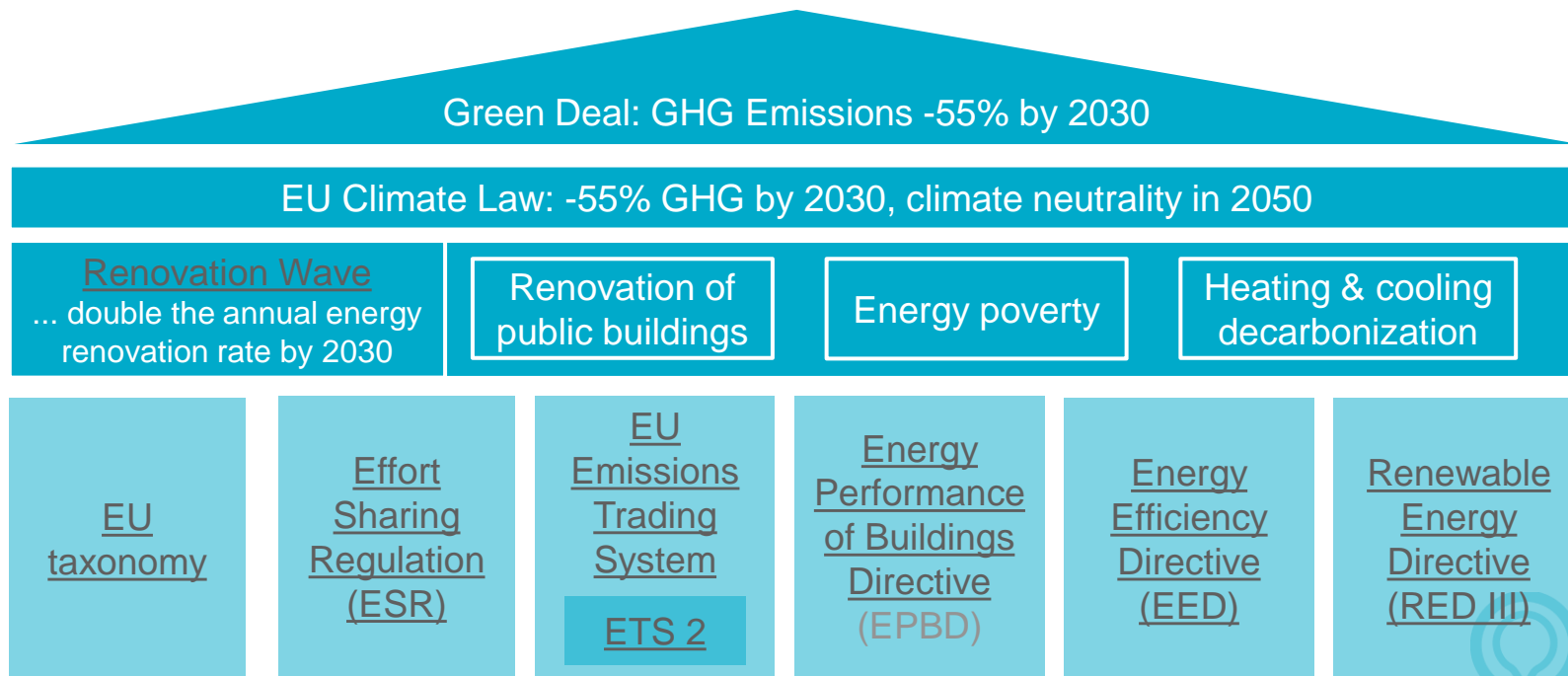
Source: <https://dictionary.cambridge.org/dictionary/english/policy>

States use policies to achieve a wide range of goals

- protect public safety and welfare
- promote economic development
- protect the environment
- ensure social justice
-



Political house of climate protection



Source: inspired by Kropp et al. (2022)

Political house of climate protection

- 2016: 2016 EU Heating and Cooling Strategy

First overview of the energy consumption and fuel mix

- 2019: Clean Energy package

Studies

Renewable heating and cooling pathways (November 2023)

Electrification of space heating in buildings (November 2023)

Advancing DH solutions and uptake in European cities (March 2023)

....

Heating & cooling
decarbonization



Political house of climate protection

EU
Emissions
Trading
System

ETS 2

- 2023: ETS 2 → Buildings, road transport, ...
- 2025: ETS 2 → Monitoring and reporting of emissions
- 2027: ETS 2 → Operational



Political house of climate protection

Energy
Performance
of Buildings
Directive
(EPBD)

- Status: provisional agreement (Dec 2023),...
- Each MS, **national trajectory**, reduce average primary energy use of **residential buildings by 16% by 2030 and 20-22% by 2035** ,...
- measures will have to ensure that **at least 55% of the decrease** ... is achieved through the renovation of the **worst-performing buildings**
- Establish national Building Renovation Plans
-



Political house of climate protection

Renewable
Energy
Directive
(RED III)

- increase share of renewables in final energy consumption;
from 22% in 2020 to 42.5% in 2030
- increase share of renewable heating and cooling
annual 0.8 percentage point increase from 2021 to 2025
annual 1.1 percentage points increase from 2026 to 2030
Example: share (2023) is 20% → share (2024) must be 20.8%

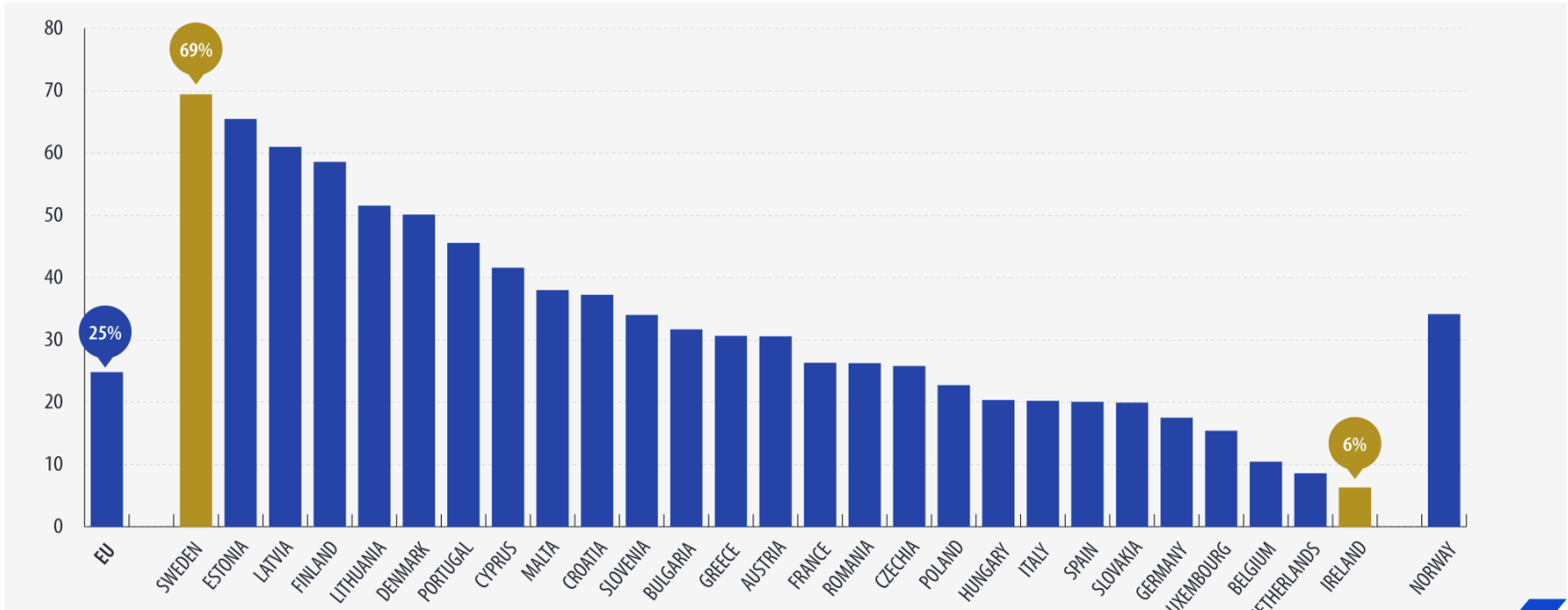


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Energy Efficiency Directive (EED)

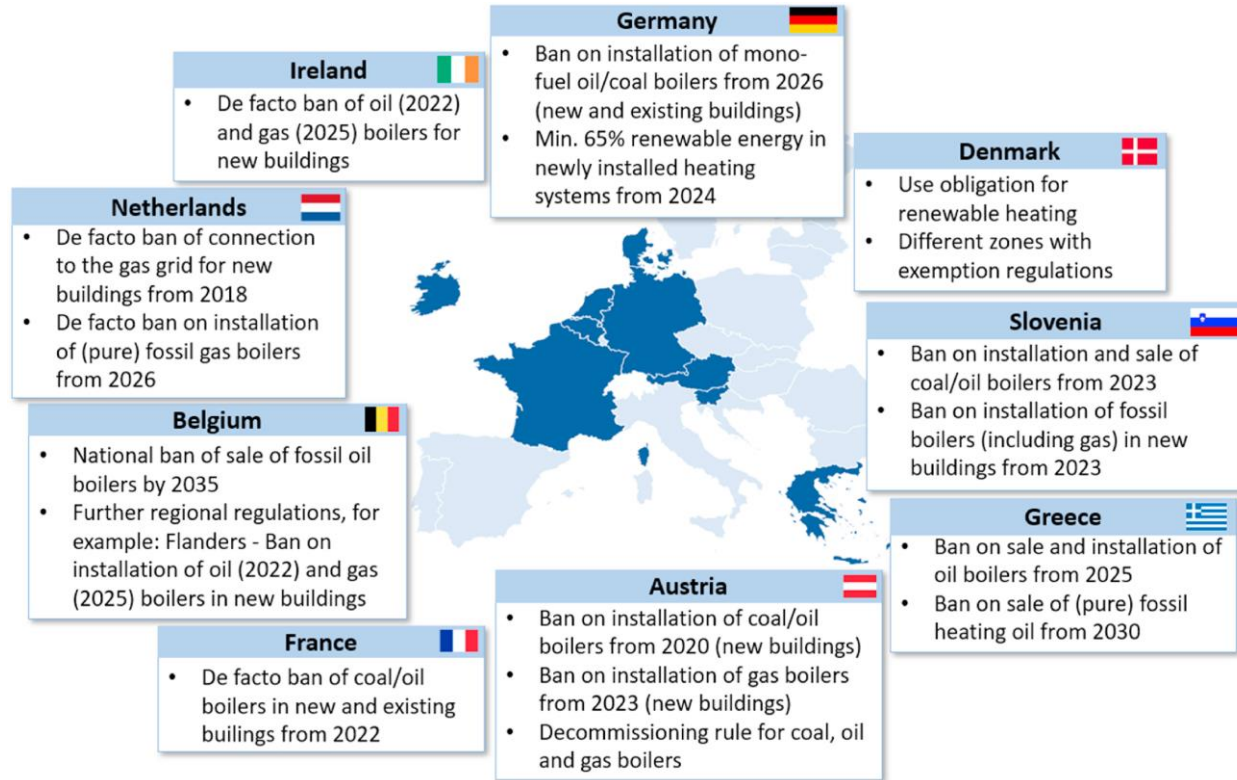
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Source: <https://ec.europa.eu/eurostat/> using dataset: nrg_in_ren.





Source: Braungardt et al. (2023). Banning boilers: An analysis of existing regulations to phase out fossil fuel heating in the EU. <https://doi.org/10.1016/j.rser.2023.113442>.



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Energy Efficiency Directive (EED)

- Ensure an additional 11.7% reduction in energy consumption by 2030
(**compared to the 2020 reference scenario projections**)
- Article 8 energy saving obligations
(2024-2025, 1.3%; 2026-2027, 1.5% 2028-2030, 1.9%)
- Article 12: Data centres
(data base, best practice,...)
- Article 25: Heating and cooling assessment and planning, section 6.
→ local heating and cooling plans



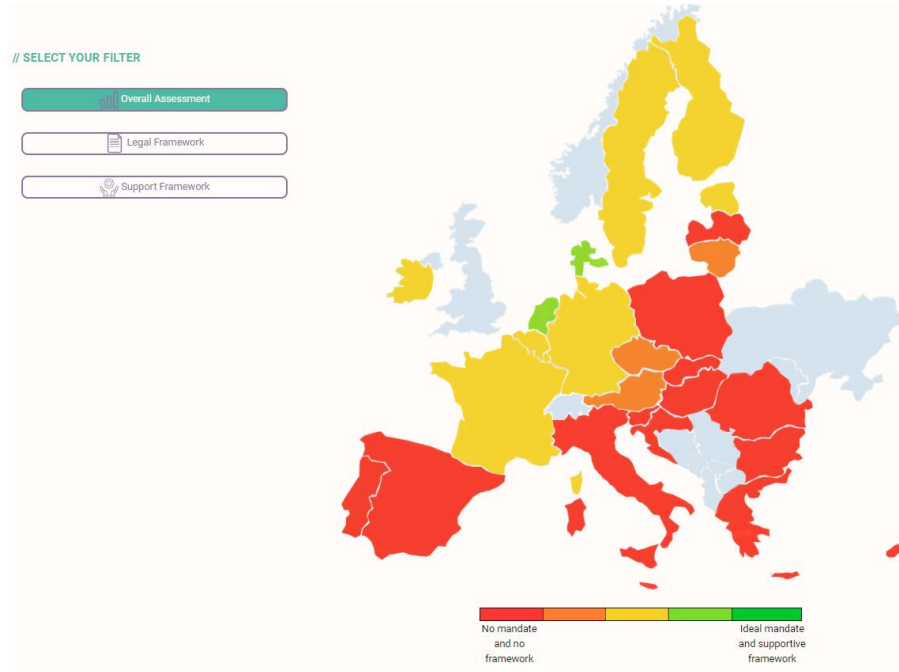
"6. Member States shall **ensure** that regional and local authorities **prepare local heating and cooling plans** at least in municipalities having a total population higher than **45 000**. Those plans should at least:

- (a) be based on the information and data provided in the comprehensive assessments carried out pursuant to paragraph 1 and provide an estimate and mapping of the potential for increasing energy efficiency, including via low-temperature district heating readiness, high efficiency cogeneration, waste heat recovery, and renewable energy in heating and cooling in that particular area;
- (b) **be compliant with the energy efficiency first principle;**
- (c) include a strategy for the use of the identified potential pursuant to point (a);
- (d) be prepared with the **involvement of all relevant regional or local stakeholders and ensure the participation of general public**, including operators of local energy infrastructure;
- (e) take into account the relevant existing energy infrastructure;
- (f) consider the common needs of local communities and multiple local or regional administrative units or regions;
- (g) assess the role of energy communities and other consumer-led initiatives that can actively contribute to the implementation of local heating and cooling projects;
- (h) include an analysis of heating and cooling appliances and systems in local building stocks, taking into account the area-specific potentials for energy efficiency measures and addressing the worst performing buildings and the needs of vulnerable households;
- (i) assess how to finance the implementation of policies and measures and identify financial mechanisms allowing consumers to shift to renewable heating and cooling;
- (j) **include a trajectory to achieve the goals of the plans in line with climate neutrality and the monitoring of the progress of the implementation of policies and measures identified;**
- (k) aim to replace old and inefficient heating and cooling appliances in public bodies with highly efficient alternatives with the aim of phasing out fossil fuels;
- (l) assess potential synergies with the plans of neighbouring regional or local authorities to encourage joint investments and cost efficiency.

Member States shall ensure that all relevant parties, including public and relevant private stakeholders, are given the opportunity to participate in the preparation of heating and cooling plans, the comprehensive assessment referred to in paragraph 1 and the policies and measures referred to in paragraph 5.

For that purpose, Member States shall **develop recommendations supporting the regional and local authorities to implement policies and measures** in energy efficient and renewable energy based heating and cooling at regional and local level utilising the potential identified. Member States shall support regional and local authorities to the utmost extent possible by any means, including financial support and technical support."

H&C planning is on the rise in Europe



Source:

<https://energy-cities.eu/local-heating-and-cooling-plan/>



Thank you for your attention

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WIEN TECHNISCHE
UNIVERSITÄT
WIEN

 **creara**
ENERGY EXPERTS

 **ICLEI** Local Governments
for Sustainability

 **eThink**
Energy Efficiency

 **eclareon**

Back-Up



The current energy crisis has created awareness: the heating issue is now in mainstream media

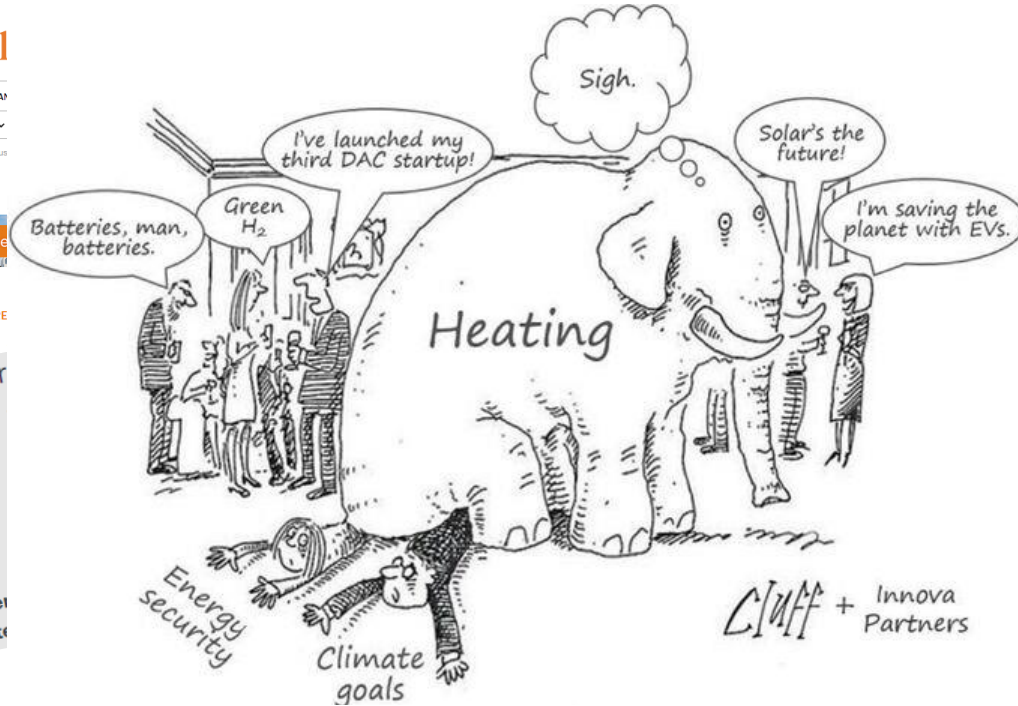


GASPREISE

Verbraucherzentrale
Erwacht
Lieferkürzung bei Nord Stream
Höhere Gaspreise
befürchtet

15.06.2022 14:46 Uhr

Wegen der gedrosselten Gaslieferungen
höhere Preise. Wirtschaftsminister



Die Gaspreise:
Gespräch

ik

Heat planning can contribute to mainstreaming awareness and help to translate it into action. Typical steps and questions are...

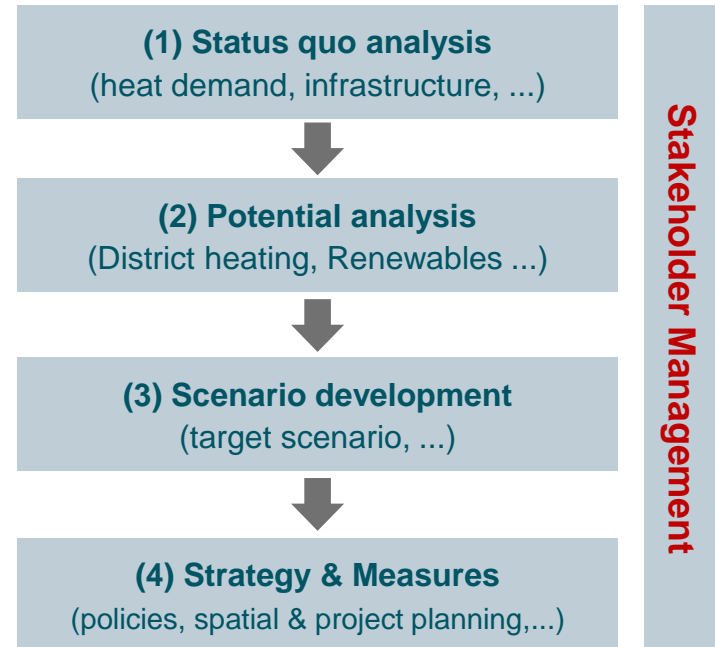
How to use more **renewable energy** for H&C? What is needed for this (e.g. land)?

Where is useful **excess heat** within the municipality?

Where are districts for **heat networks**?
What should be used to heat them?

What **standards** should apply to new **housing** developments, industrial and commercial areas?

How to **increase** the **renovation rate** in the municipality?



Check our
website for
further insights

<https://actionheat.eu/resources>

For example



Strategic H&C planning success factors

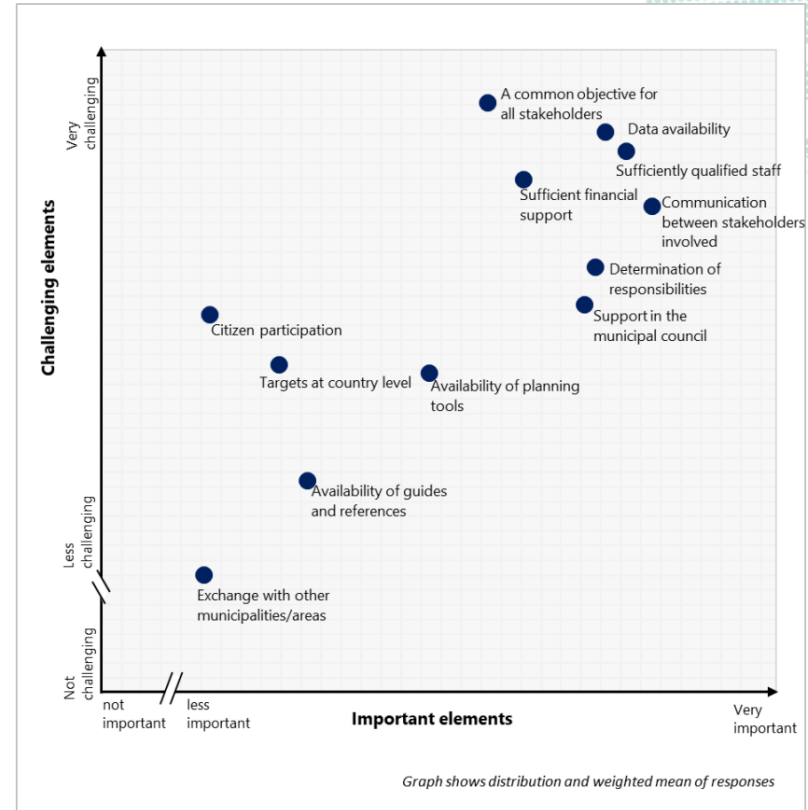
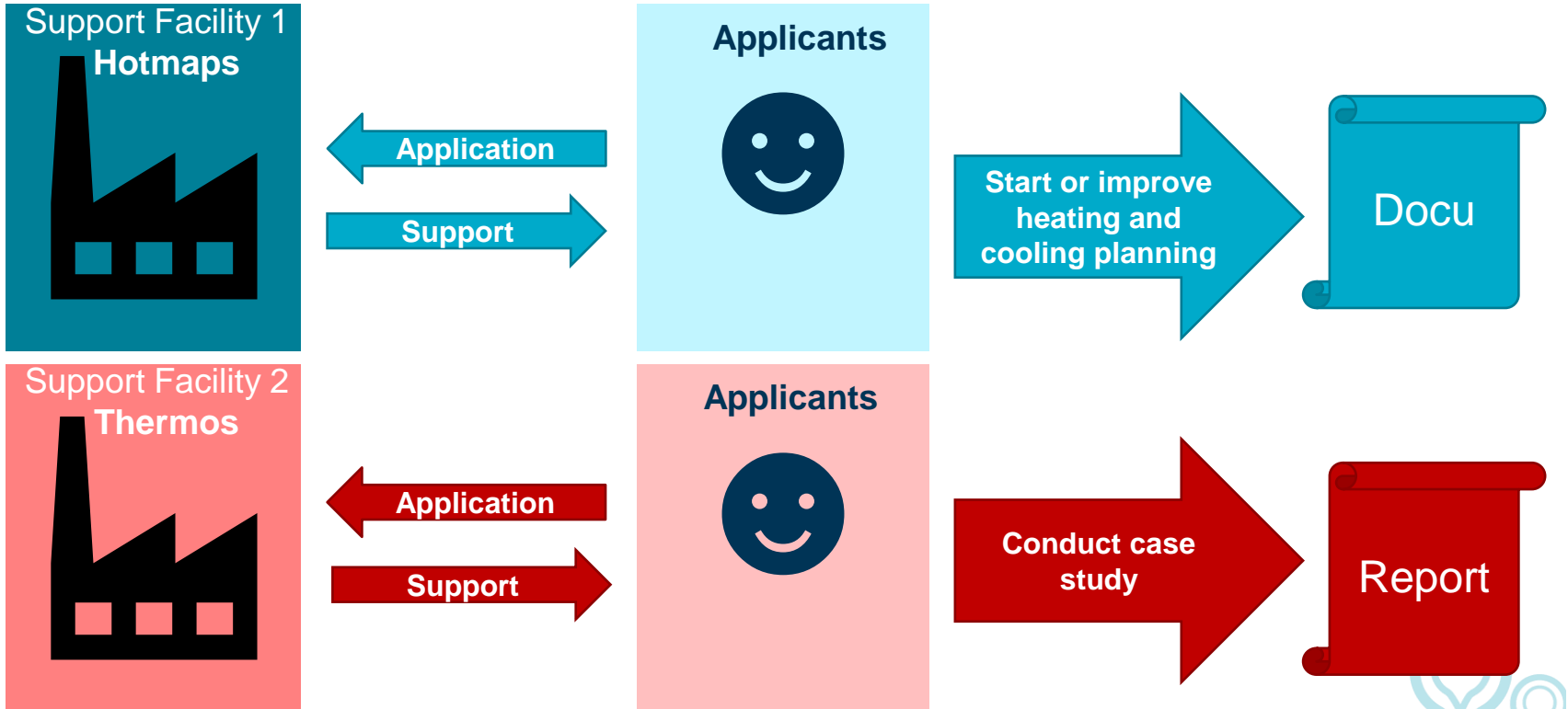


Figure 2: Key results from the survey on key success elements for H&C planning (n=349)



What you get out of participating and what you need to bring to the table.

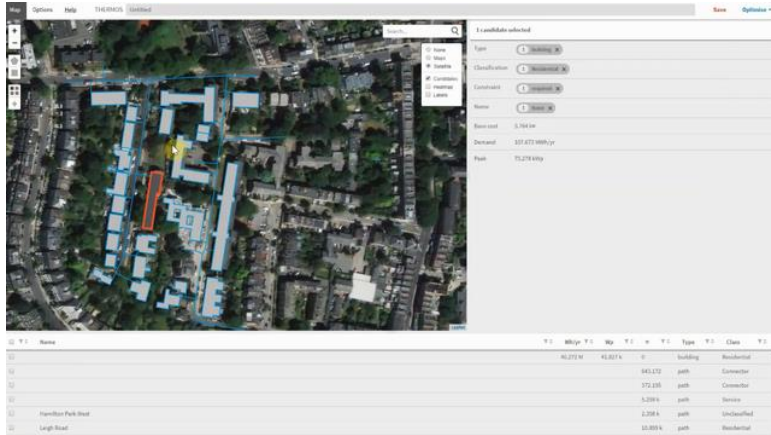


act!onheat Tools for H&C planning

THERMOS



H°TMAPS



Ongoing Support Facility Case Studies



- Energy agency in Hessen (Germany)
- Heat planning will be mandatory next year
- First point of contact for the municipalities on heat planning

3 comprehensive workshops attended by numerous Hessian municipalities. Experts from the Act!onHeat consortium gave keynote speeches.

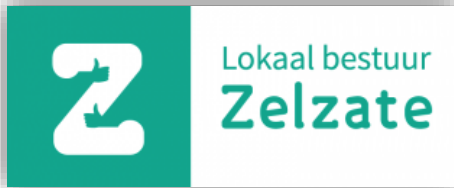
Targeted *training webinars* for members of LEA Hessen. The topics are:

- "Data for municipal heating and cooling planning"
- "Developing a data inventory for heat planning"
- "Using the hotmaps database and toolbox for strategic heating and cooling planning"

Provide advice for a quick advisory service for district heating. This includes the development of a *best-practice slide deck for RES in district heating networks*.



Ongoing Support Facility Case Studies



- Zelzate Town in East Flanders (Belgium)
- Sources of a large amount of residual heat nearby
- Already identified a potentially economically viable heat network

As part of the Support Facility, THERMOS tool has been used to answer specific heat network related questions for the local government.

Experts from the Act!onheat consortium have been **meeting regularly with various stakeholders** to gather the required data on building heat demands, drilling costs, and heat supply costs for THERMOS to produce accurate results.

The output of the collaboration will be a **pre-feasibility study** for the local government. Currently, initial results are being produced and discussed between experts from the Act!onheat consortium and the local government.



Ongoing Support Facility Case Studies



Macedonian
Academy of
Sciences and
Arts

- Research Center for Energy and Sustainable Development (RCESD)
- Objective to set up a data inventory to assist Macedonian municipalities in their H&C strategy

Currently participating in targeted *training webinars* as part of Act!onHeat. The topics are:

- "Data for municipal heating and cooling planning"
- "Developing a data inventory for heat planning"
- "Using the hotmaps database and toolbox for strategic heating and cooling planning"

Experts of Act!onHeat assist **RCESD** in the collection of data to *set up the Hotmaps toolbox for Macedonia* to be used by Macedonian municipalities in the development of their H&C strategy.

Act!onHeat will host a workshop to Macedonian municipal authorities to show in detail *how the toolbox works*

