

Act!onHeat Training Session 1: Facing the Energy Emergency in Europe

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Half of Europe's energy consumption is used for heating and cooling (H&C)

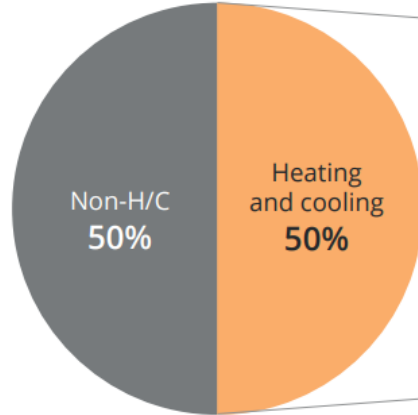


Figure 1:
Total final energy in 2015 (EU28)

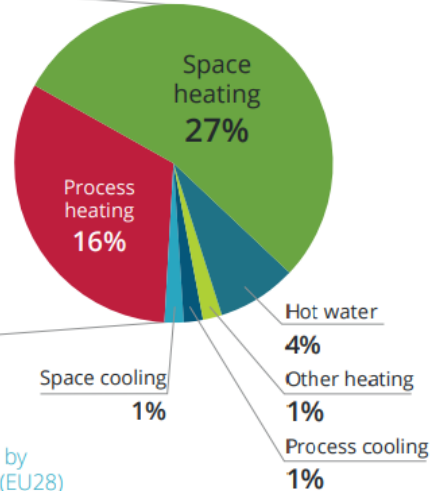


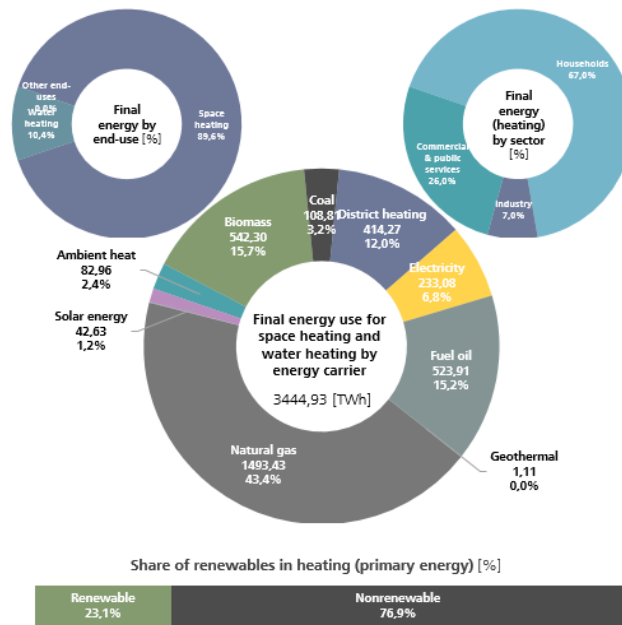
Figure 2:
H&C final energy by
end-use in 2015 (EU28)



So far, natural gas remains dominant as energy source for heat



24.762,0	million m ² floor area
17.478,0	Households
1.659,0	Industry
5.625,1	Commercial & public services

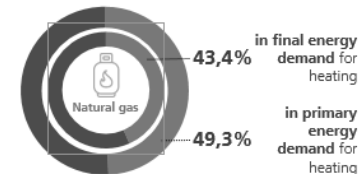


123,10 kWh/(m²*a)
useful energy demand

116,81	Households
109,46	Industry
146,70	Commercial & public services

η = 88,5% Average conversion efficiency Heating

COP = 3,06 Average heat pump performance Heating



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

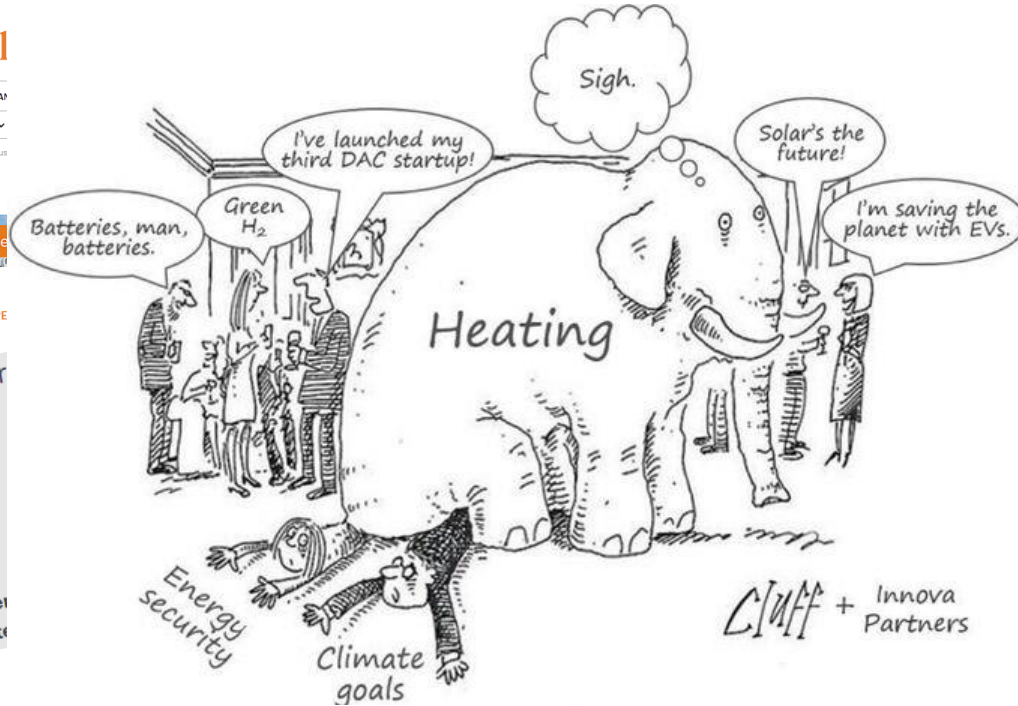


GASPREISE

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...

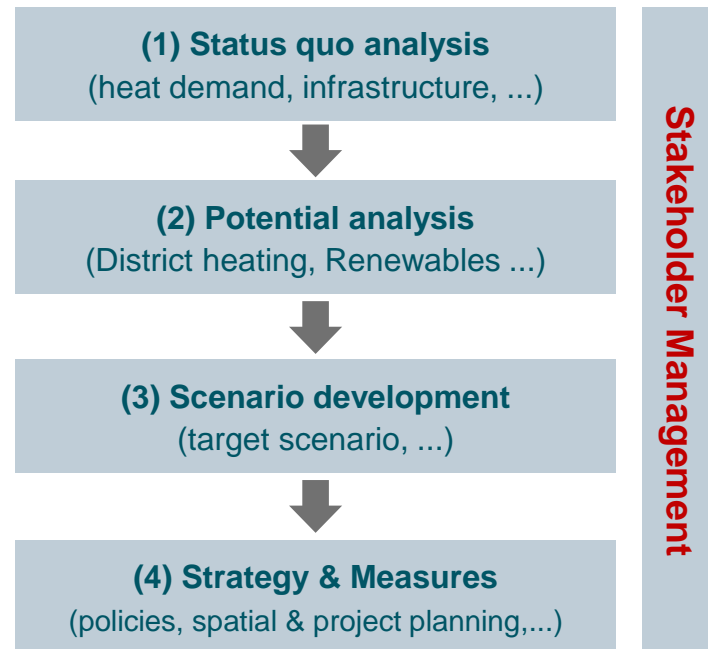
How to use more **renewable energy** for H&C? What is needed for this (e.g. land)?

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?



H&C planning is on the rise in Europe

Netherlands

- Regional H&C planning since 2019
- First plans should be ready by the end of 2021
- Interim target: decarbonisation of 20% of districts by 2030

Germany

- Mandatory municipal H&C already implemented in three federal states
- National law expected by 2023

Swiss

- H&C is part of regional energy planning
- Rules may differ btw. cantons
- Geneva and Zurich are frontrunners

Denmark

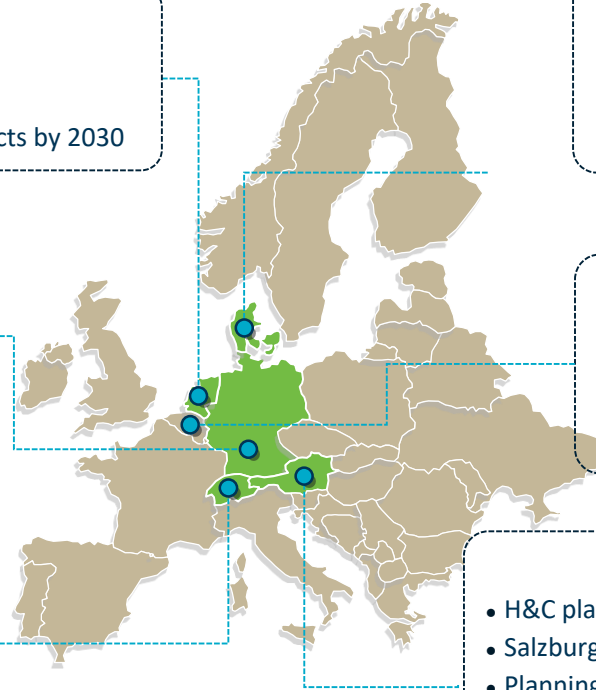
- Pioneer since 1976
- Municipal planning with **strong influence**
- Focus on district heating
- Today: DH and RES share \approx 50%

European Commission

EED revision (Ff55): MS „shall encourage regional and local authorities to prepare local heating and cooling plans at least in municipalities having a total population higher than 50.000”

Austria

- H&C planning is part of regional energy planning
- Salzburg, Styria and Vienna are first movers
- Planning tools for municipalities under development



Check our
website for
further insights

<https://actionheat.eu/resources>

For example



Strategic H&C planning success factors

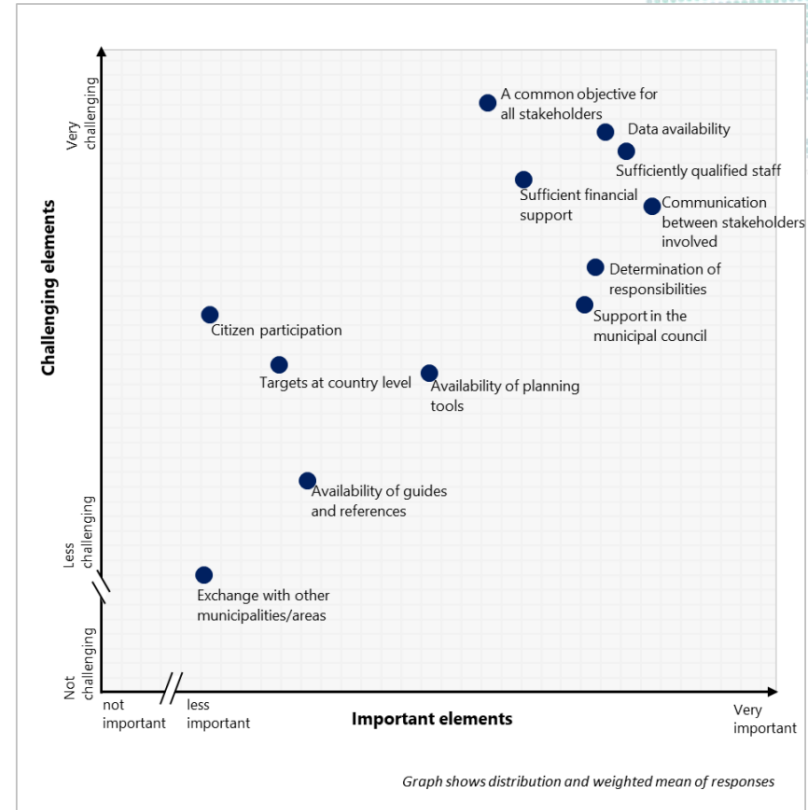




Figure 2: Key results from the survey on key success elements for H&C planning (n=349)



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

Support Facility 1
Hotmaps 




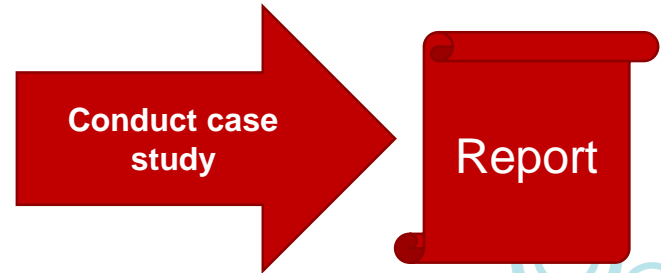
Applicants 



Support Facility 2
Thermos 



Applicants 

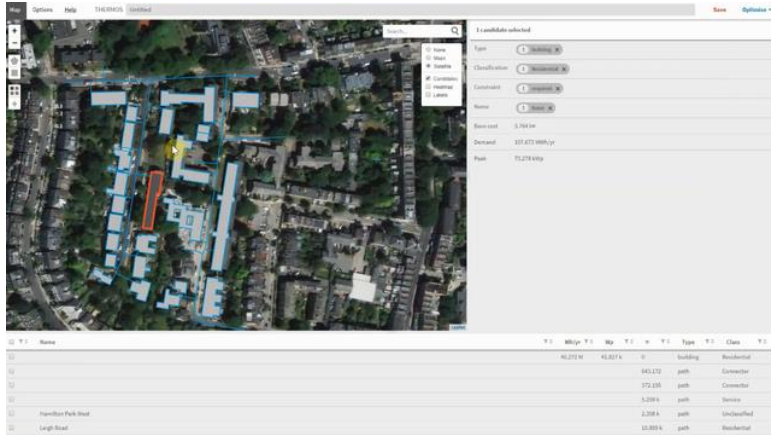


act!onheat Tools for H&C planning

THERMOS



H°TMAPS



3 buildings selected

Type: Building

Classification: Residential

Construction: Residential

Name: Building

Base cost: 3,784 M

Demand: 237,872 MWh/yr

Peak: 72,278 kW

ID	Name	X (m)	Y (m)	Z (m)	Type	Class
10		46,270	46,837	0	Building	Residential
11		443,172			path	Connector
12		172,135			path	Connector
13	Hambleton Park Road	5,239			path	Service
14	Leigh Road	2,238			path	Unclassified
15		10,895			path	Residential



LAYERS

Buildings

- HEAT DEMAND RESIDENTIAL
- HEAT DEMAND NON-RESIDENTIAL
- CO2 AND ENERGY TOTAL
- GROSS FLOOR AREA TOTAL
- GROSS FLOOR AREA RESIDENTIAL
- GROSS FLOOR AREA NON-RESIDENTIAL
- BUILDING VOLUMES TOTAL
- BUILDING VOLUMES RESIDENTIAL
- BUILDING VOLUMES NON-RESIDENTIAL
- SHARE OF GROSS FLOOR AREA
- CONSTRUCTION BETWEEN 1975 AND 2004
- SHARE OF GROSS FLOOR AREA
- CONSTRUCTION BETWEEN 1975 AND 1984
- SHARE OF GROSS FLOOR AREA
- CONSTRUCTION BETWEEN 1985 AND 2004
- SHARE OF GROSS FLOOR AREA
- CONSTRUCTION BETWEEN 2005 AND 2014

Industry

- INDUSTRIAL SITES BUILDINGS
- INDUSTRIAL SITES EXCEPT HEAT
- INDUSTRIAL SITES EXCEPT HEAT
- INDUSTRIAL SITES EXCEPT HEAT
- INDUSTRIAL SITES SUBSECTOR

Population

- POPULATION TOTAL

R.E.S. Potential

- WASTE WATER TREATMENT PLANTS - POTENTIAL
- WASTE WATER TREATMENT PLANTS - CAPACITY



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.

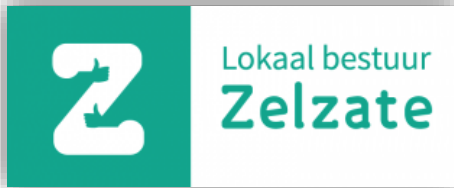
Targeted *training webinars* for members of LEA Hessen. The topics are:

- "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*



Thank you for your attention

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