

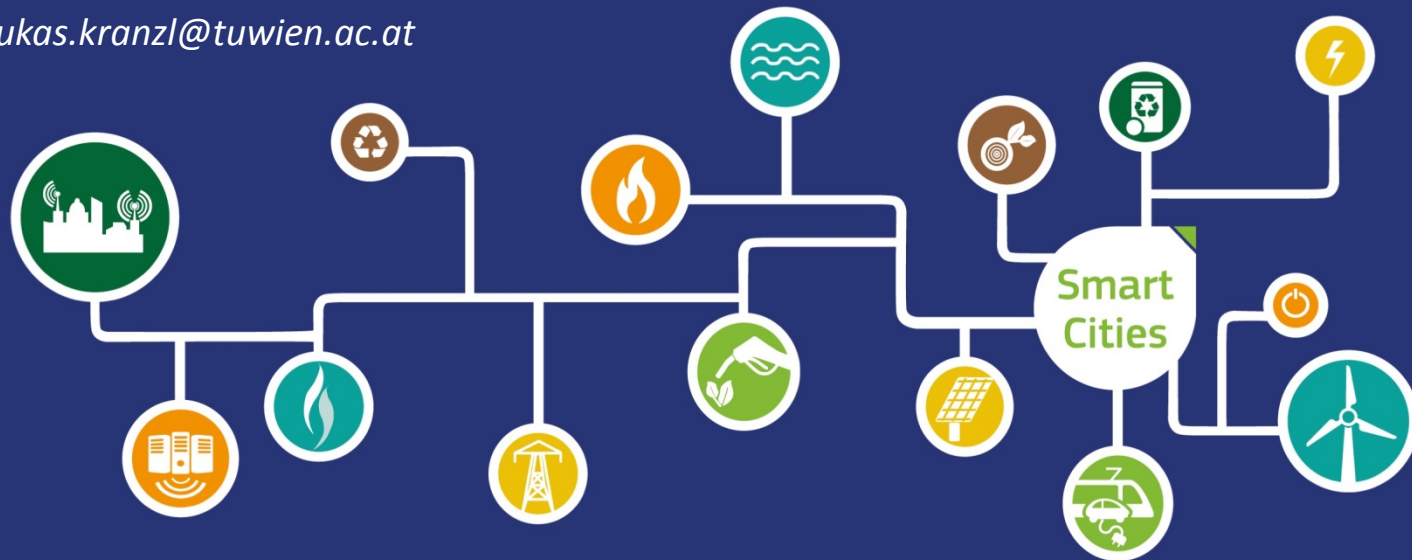
# Empowering smart solutions for better cities

2 & 3 OCTOBER | BUDAPEST, HUNGARY

## Renewable district heating: best practices & challenges from Litomerice and Brasov

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Smart cities are engaged cities. So said Usman Haque from Umbrellium in his keynote at the Empowering smart solutions for better cities conference on 2

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# In a nutshell

- Strategies and policies for increasing renewable heating were developed for Brasov and Litomerice (and four other cities and six countries) based on
  - Stakeholder analysis
  - Analysis of barriers and drivers
  - Techno-economic modelling
  - Intensive stakeholder dialogue
- The ownership structure and an active role of the municipality in the process (remunicipalisation) turned out to be crucial for renewing the district heating system.

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# The project progRESsHEAT



Funded by the Horizon 2020 programme of the European Union

March 2015-October 2017

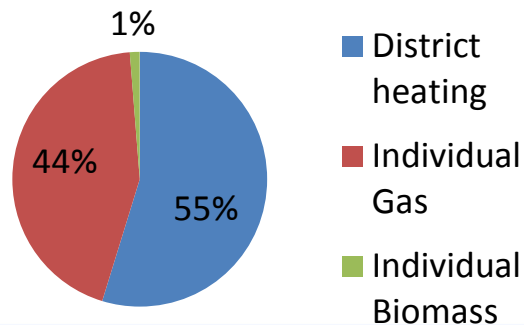
[www.progressheat.eu](http://www.progressheat.eu)



# Starting point

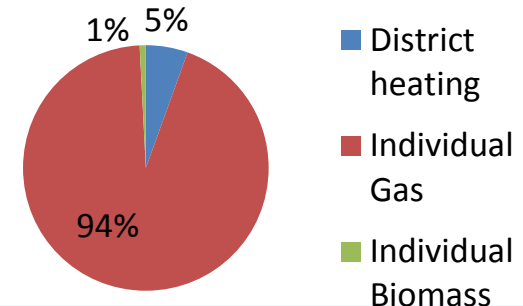
## Litomerice

- Relevant share of heat demand covered by district heating
- Current district heating supply through coal
- High temperature level in the grid (110-130°C), high losses (30%)
- Sustainability and long-term investments no priority of private district heating companies



## Brasov

- Old district heating formerly for industry and households
- Industry closed down 1990
- Now overdimensioned, unreliable
- Change to individual gas boiler
- Bad image of district heating
- Big losses in network (>50%)
- Split ownership of grid and heat generation

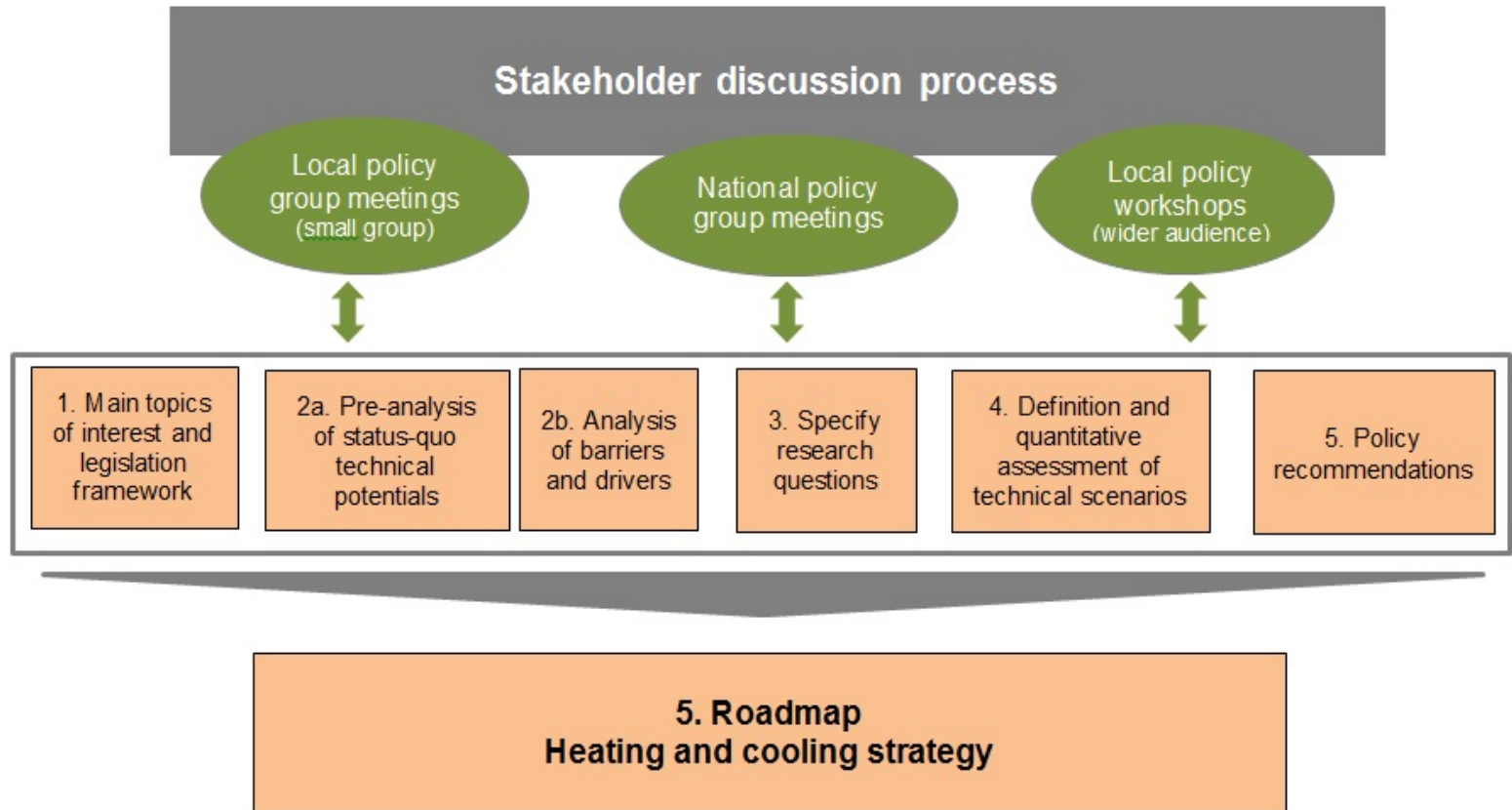


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# Stakeholder discussion process



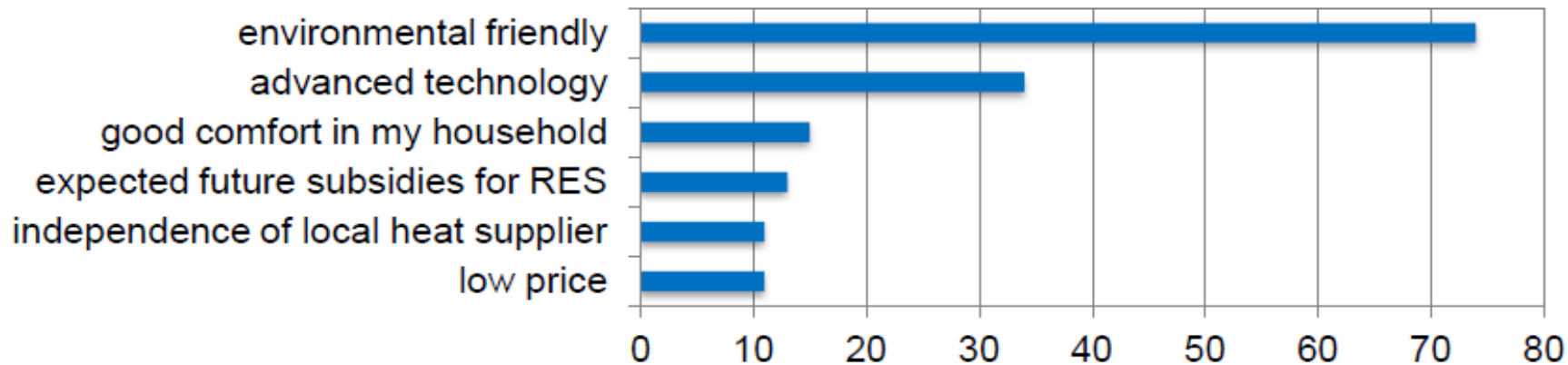
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# Analysis and involvement of stakeholders

- Stakeholder analysis based on interviews and surveys
- Identified key common barriers in Brasov & Litomerice:
  - High investment costs
  - Lack of awareness
  - Lack of information and demonstration sites
  - Inadequate grid

## Five most important reasons to use geothermal energy in Litoměřice (n=99)



# Techno-economic model results - Brasov (1)

## Reference scenario:

- Purchased heat from external company, heat produced in natural gas fired HI-CHP engines
- Produced heat in natural gas fired district thermal plants
- Renewing 50% of the old parts of the network
- Building renovation

## Alternative scenario:

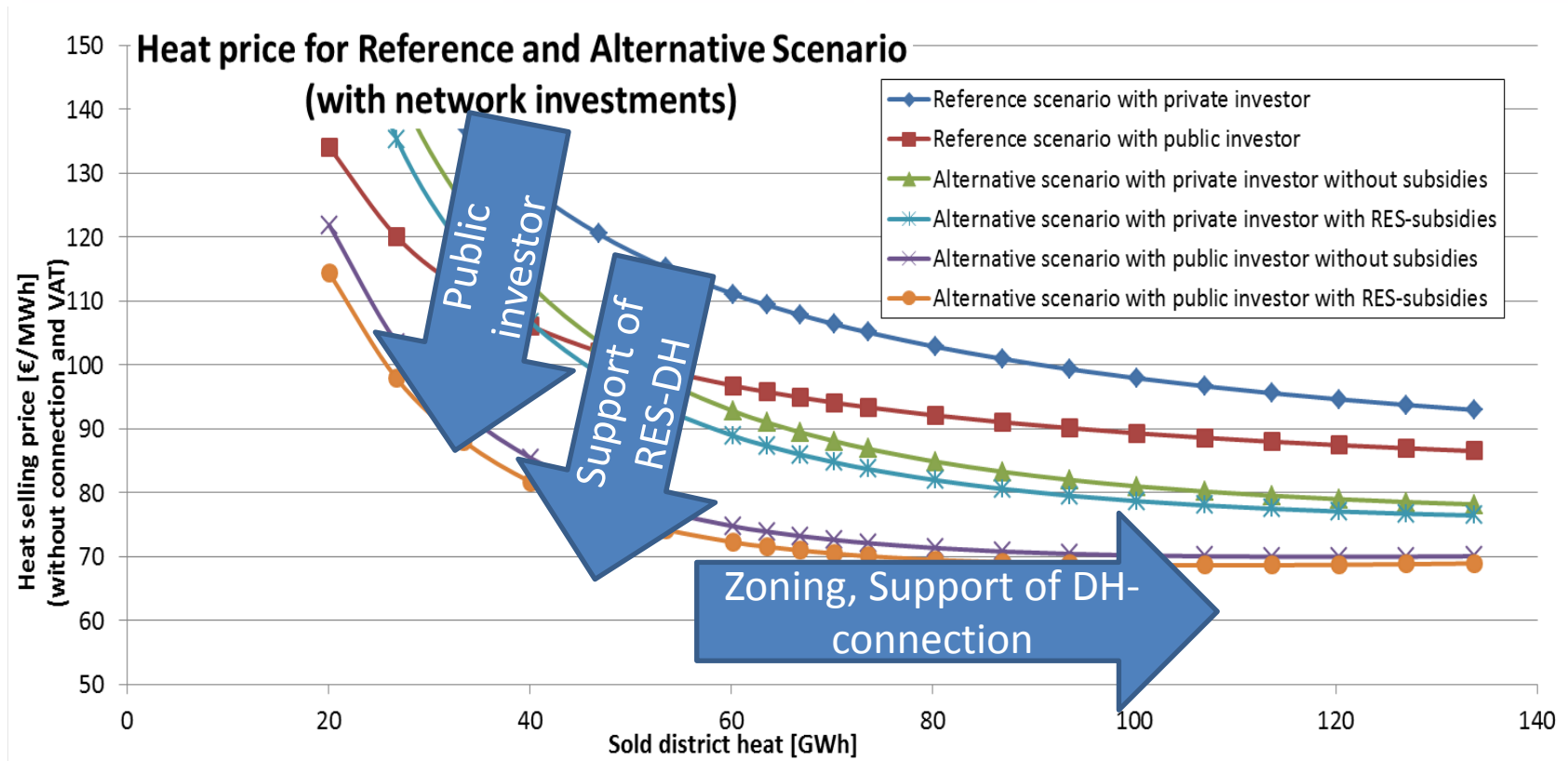
- RES Production units installed in various parts of grid: solar thermal panels and heating storage, biomass boiler, heat pump, natural gas boilers
- Purchase additional heat needed from external company (gas CHP)
- Renewing 50% of the old parts of the network
- Building renovation

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# Techno-economic model results - Brasov (2)

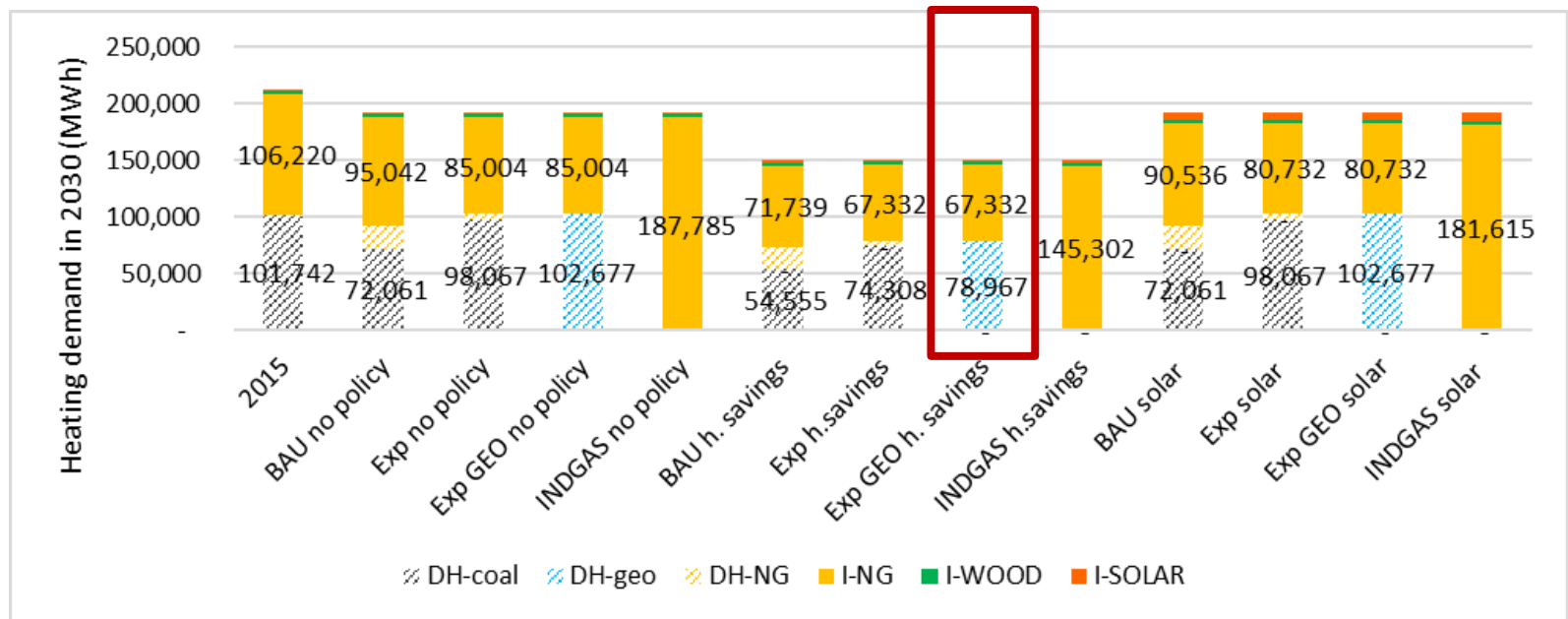


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# Techno-economic model results - Litomerice

- Expansion of district heating with supply from geothermal energy turns out to be cost-effective and leads to lowest CO2-emissions



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# Lessons learned and next steps - Brasov

- CO2 emissions can be significantly reduced with heat savings and integration of renewables into DH
- Long term investment horizon into network needed
- Long term horizon needs long term targets and planning
- Support of connection to DH network
- Zoning with prohibition of individual fossil technologies
- Subsidies for integration of RES into DH
- New image of DH: Modern, reliable, renewable
- **Municipality created new public service for district heating**

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# Lessons learned and next steps - Litomerice

- Feasibility study and roadmap for re-purchase of district heating into municipal property
- Future energy mix: strong role of geothermal energy
  - SECAP – to be finished in 2018 – GeoCHP main part of the future measures for CO2 mitigation
  - New proposals for national and EU programs prepared – investment cost for drilling of GEO
  - New municipal owned company for geothermal energy
- Finance supporting RES and EE
  - Wider use of Energy saving fund also for residential sector

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# Lessons learned and next steps - Litomerice

- Municipality campaign for DH support
- ENGAGE – information campaign since 2016
- New municipality web portal – sustainable energy and transport – since 2018
- Calculation tool for „real“ price of individual heating – residential sector

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# Lessons learned & key policy messages



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# Hotmaps

The Hotmaps project develops a toolbox that supports heating and cooling mapping and planning processes.



Development of a toolbox that will be:

- **User-driven:** developed in collaboration with pilot areas
- **Open source:** the developed tool will run without requiring any other commercial tool or software and the code will be accessible
- **EU-28 compatible:** the tool will be applicable for cities in all 28 EU Member States

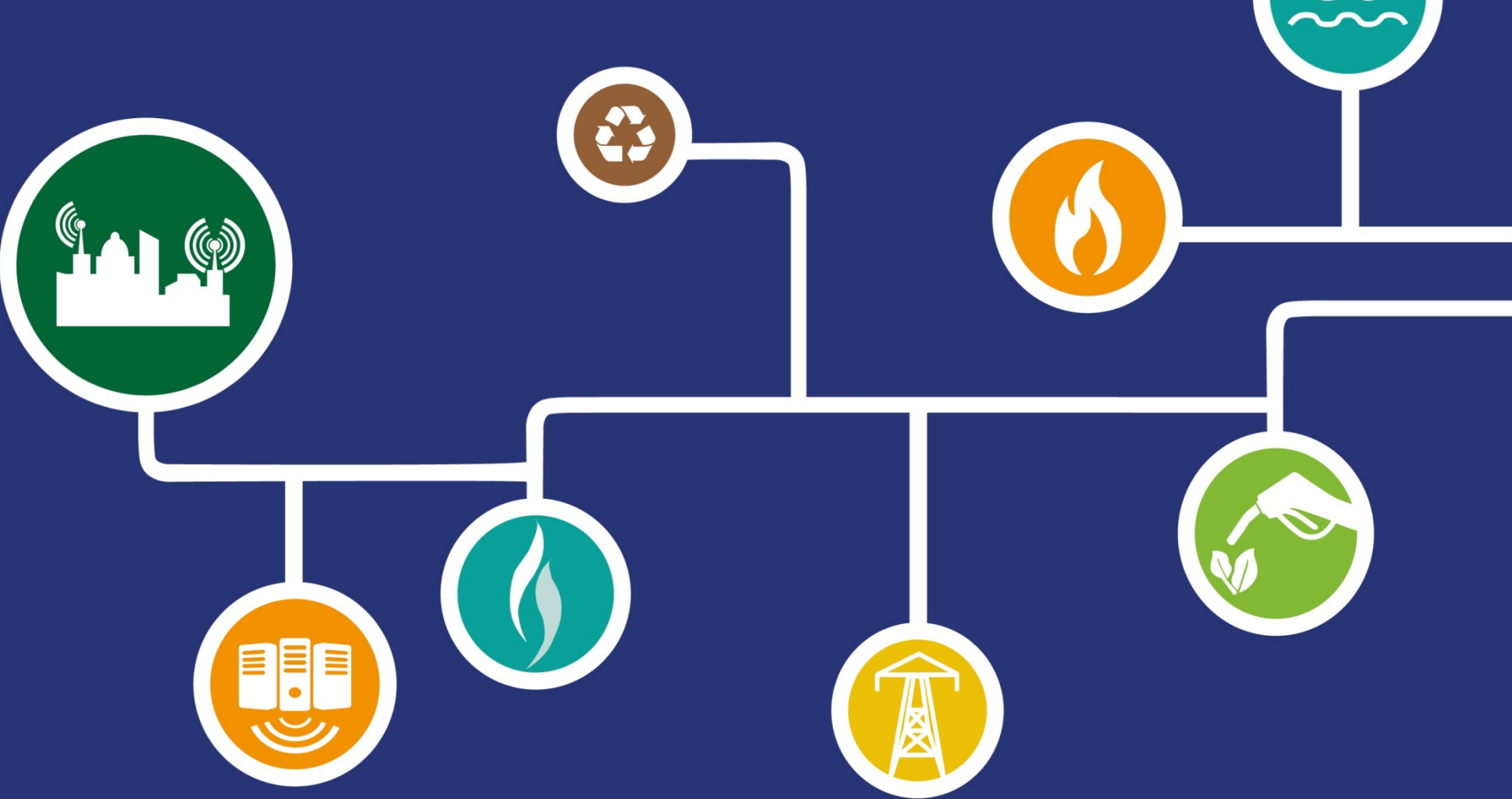
**The experts behind the project:** 17 partners combining scientific institutions and pilot areas for developing and testing the tool

# Q&A and Discussion

- What is a suitable framework to require long-term investments?
  - Remunicipalisation as a key strategy?
  - Or rather innovative private companies?
- What is the added-value of quantitative model results for local policy making?
  - Which type of model results are useful and sufficient?
  - What is required from models to convince the city council and other bodies?
- How can citizens be actively engaged in DH related decisions?

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**THANK YOU !**