The Role of City-Regions in the Achievement of a Low Carbon Economy

Euroheat & Power / DHC+ Technology Platform

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DHC+ TECHNOLOGY PLATFORM

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No energy transition without sustainable cities.

No sustainable cities without sustainable heating and cooling.

No sustainable heating and cooling without district energy.

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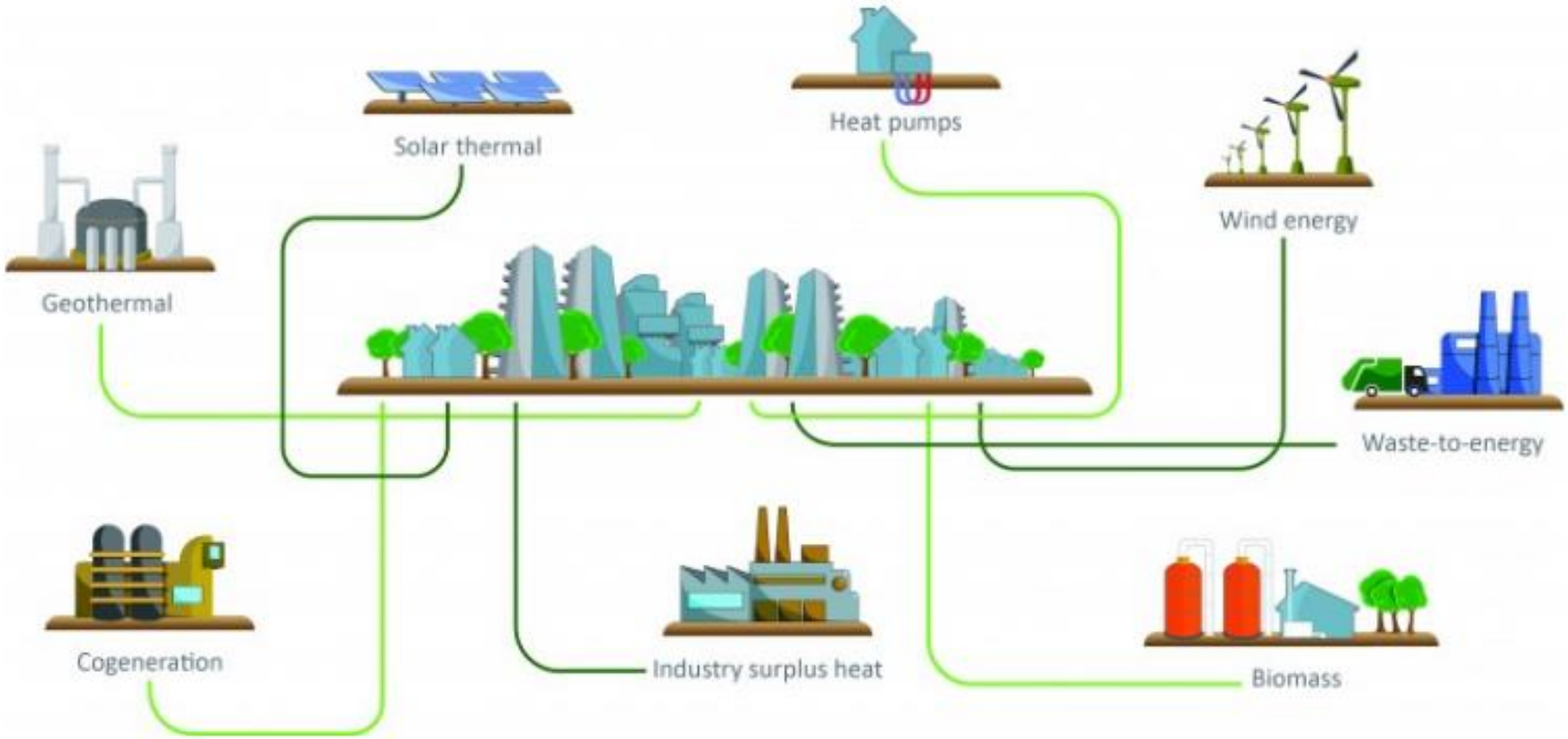

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Some facts on district heating

- Heating and cooling will be biggest energy demand in 2050
- District heating is modular
  - Biomass, boilers, thermal, storage, solar, heat pumps
- "Cheap" way to decarbonise the energy system
- 2 trends:
  - increased energy efficiency by reducing temperature levels in networks
  - increasing reliance on renewable and residual heat

("Delivering the Energy Transition: What Role for District Energy" Ecofys, 2016)

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Cities are both the problem and the solution

- 70% of energy demand in cities
- Current reliance on 'obsolete fossil-fuel boilers' is unsustainable
- District heating will have a vital role to play in decarbonising
- A shift to renewables and surplus heat is possible and necessary

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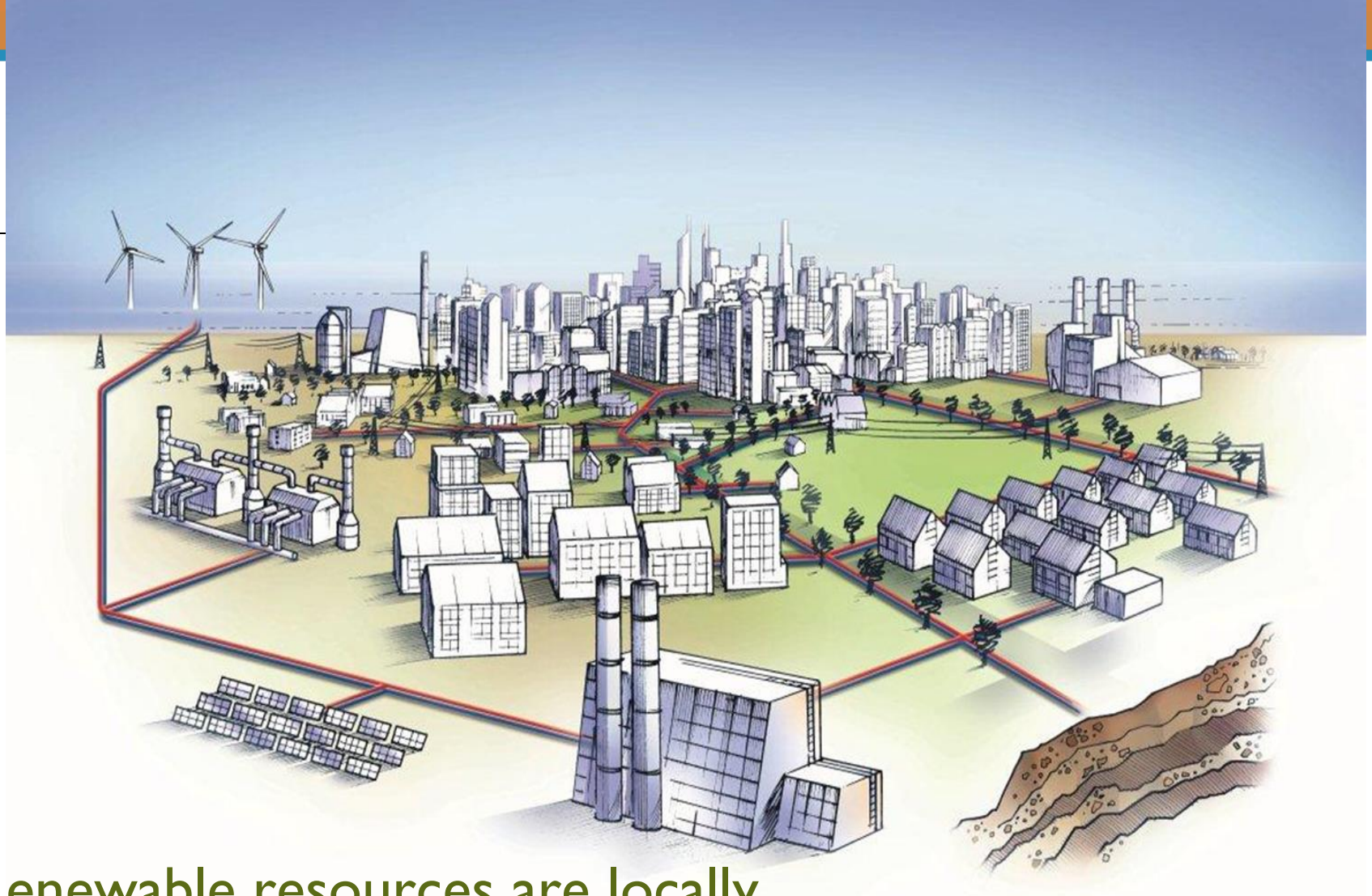

Renewable resources are locally available & technology is already there!

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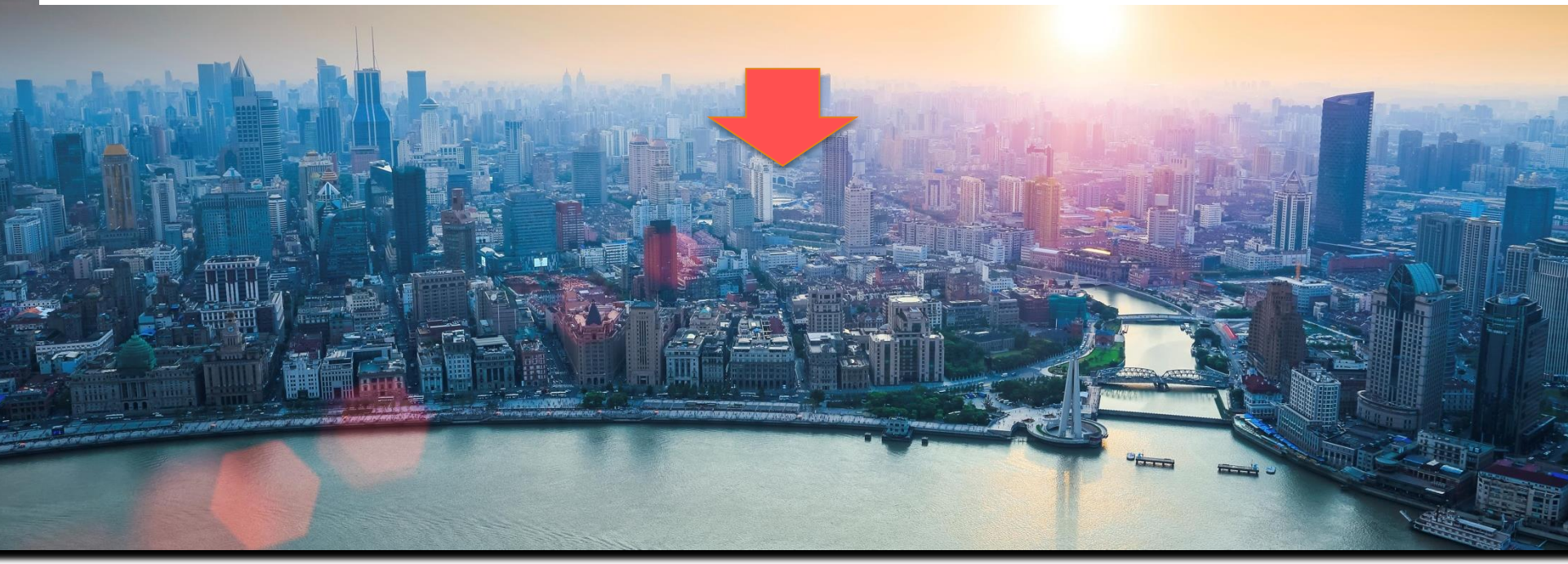
75% of EU citizens will live in urban areas in 2020, with an increase to 84% by 2050

Define strategies for decarbonising H&C systems



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75% of EU citizens will live in urban areas in 2020, with an increase to 84% by 2050

Define strategies for decarbonising H&C systems

Change can be driven by ambitious cities and regions

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… building on best practices & experiences

Stratego
ENHANCED HEATING
& COOLING PLANS

Heat Roadmap Europe 2050
A low-carbon heating and cooling strategy

PLANHEAT

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TECHNOLOGY PLATFORM

… building on best practices & experiences

Stratego
ENHANCED HEATING & COOLING PLANS

9 background reports

Fine-tuned HRE results => PETA - Pan European Thermal Atlas

Specific Map & Summary Report for each country (CZ, HR, IT, RO, UK; 25-30% of EU H&C demand)

40+ energy efficiency projects in 30 European cities
Coaching & meetings with national authorities

Co-funded by the Intelligent Energy Europe Programme of the European Union

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STRATEGO recommendations, conclusions & follow-up

Heat Roadmaps	Heat Savings	District Heating	Individual Heating Technology	District Heat Supply from Renewable Heat & Excess Heat*
	Reduction as a Percentage of the BAU 2050 Heat Demand	% of Total Heat Demand after Heat Savings (vs. % today)	Primary Technology	% of District Heat Production
Czech Republic	40%	40% (25%)	Heat pumps are recommended as the primary technology with small shares for biomass boilers, and solar thermal. The exact mix of each technology is not optimised.	65%
Croatia	40%	40% (15%)		45%
Italy	30%	60% (<5%)		40%
Romania	50%	40% (20%)		50%
United Kingdom	40%	70% (<5%)		45%

*Doesn't include excess heat from thermal power plants or thermal boilers.

- 50% of the heat demand in Europe can be supplied with **district heating**
- There is more **excess heat** in Europe than all of the heat demand in buildings
- The heat sector is one of the cheapest options of **integrating renewables**
- Energy efficiency is required on both the **demand AND supply** side of the heat sector

Stratego ENHANCED HEATING & COOLING PLANS

Co-funded by the Intelligent Energy Europe Programme of the European Union

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STRATEGO best practices: key points from Vienna, Austria

- **Nothing is impossible!**

  Motivate the responsible persons to think "out of the box"

- **Promote innovation!**

  Local authorities can create suitable boundary conditions (e.g. subsidies)

- **Make it open!**

  Involve key partners, local stakeholders and possible new actors

- **Take a holistic approach!**

  A sound concept includes economic and ecologic considerations and thinks about technical and non-technical barriers

… building on best practices & experiences

Heat Roadmap Europe 2050
A low-carbon heating and cooling strategy

Amplifying Stratego's impact

14 EU Member States,
Covering 85-90% of H&C demand
Improving PETA
Cost analysis and 'hot spots' for DHC networks

http://heatroadmap.eu/

Co-funded by the Horizon 2020 programme
of the European Union

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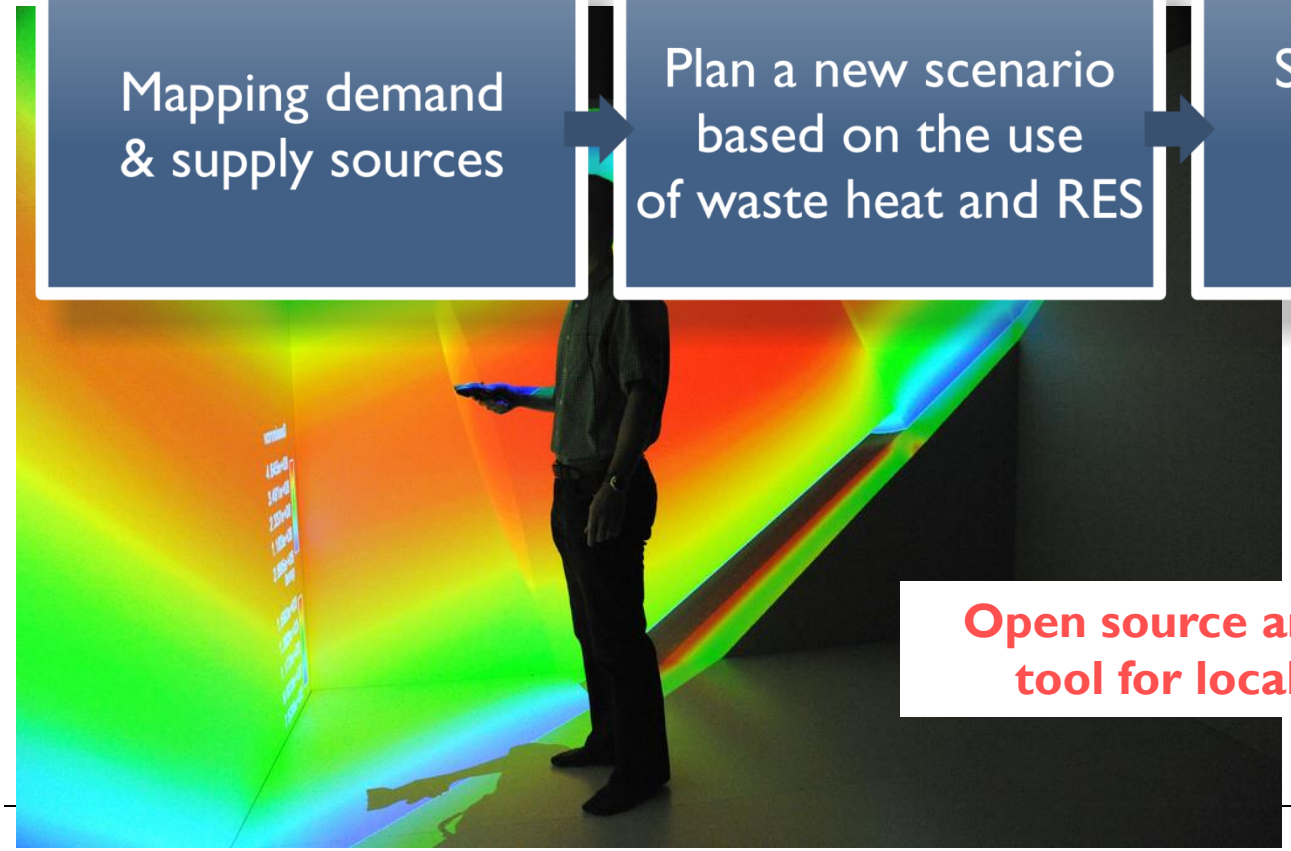
… looking ahead: Planheat

Mapping demand & supply sources

Plan a new scenario based on the use of waste heat and RES

Simulation of the new scenario & KPIs evaluation



Open source and easy-to-use tool for local authorities

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… looking ahead: Validation cities

ANTWERP

- Representative of Western Eur… Cities
- Oceanic temperate…
- More advanced cas… validation cities to p… best practices on renewable energy policy, data collection and management
- It is a relevant case study for mapping H&C supply potential recoverable from waste heat coming from ports, being Antwerp port one of the biggest in the world.

LECCE

- …outhern European …editerranean temperate climate
- Need for a strategy for collection of data about H&C demand and supply potential
- Need for a smart strategy for input data collection

VELIKA GORICA

- Representative of Eastern European cities
- Humid continental climate
- Need for a strategy for collection of data about H&C demand and supply potential
- Need to retrofit the old existing DH network (i.e., distribution and generation) based on natural gas and oil.

Target: Involve 50+ cities!

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