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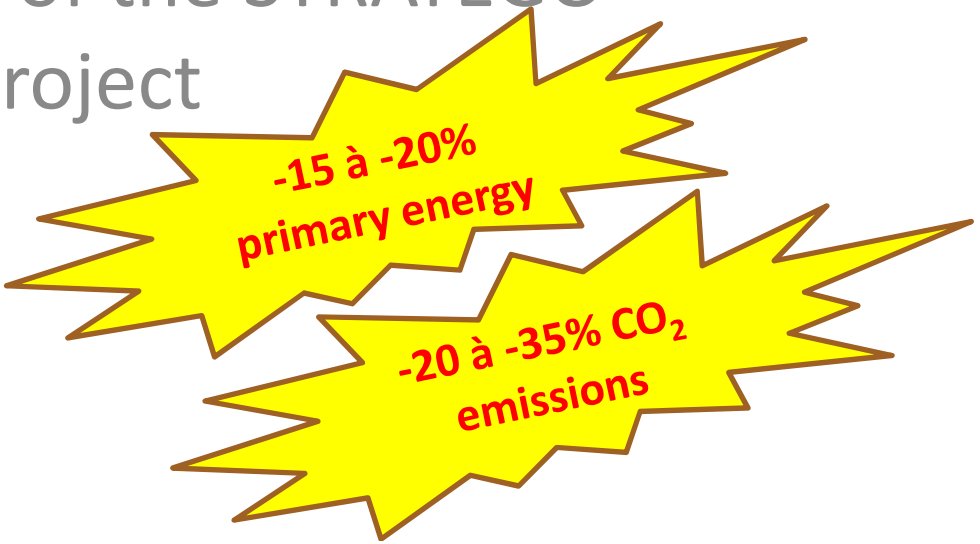
Amazing how much energy can be saved by a redesigned heating and cooling supply strategy!

Some results of the STRATEGO project



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

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The **STRATEGO** project

Multi-level actions for enhanced Heating & Cooling plans

IEE/13/650/SI2.675851

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

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Purpose

- Provide tangible support in developing National Heating and Cooling Plans
- Assist local authorities in evaluating their Heating and Cooling potential
- Find their priority area for intervention
- Identify concrete projects that should be implemented

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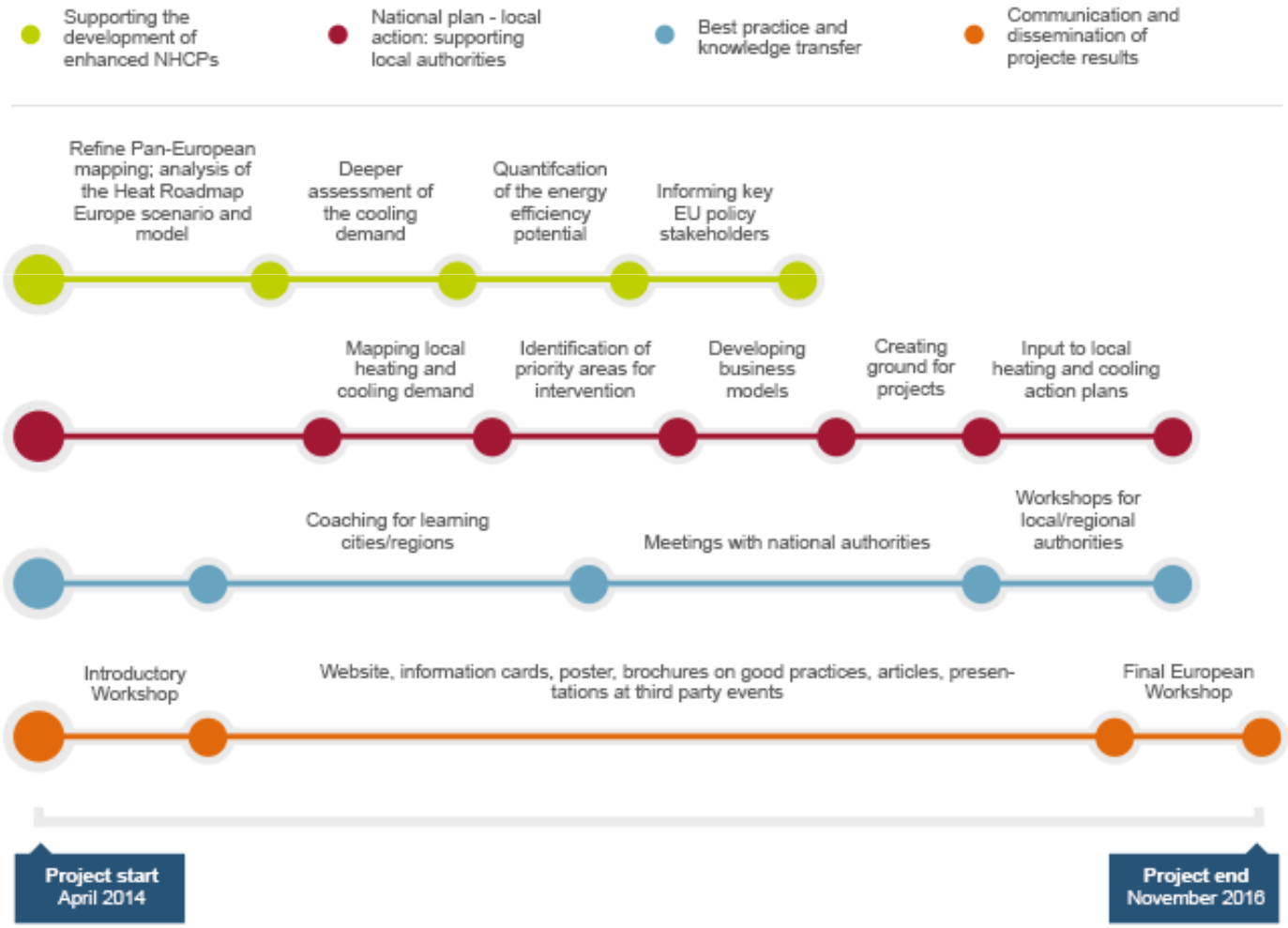
Activities



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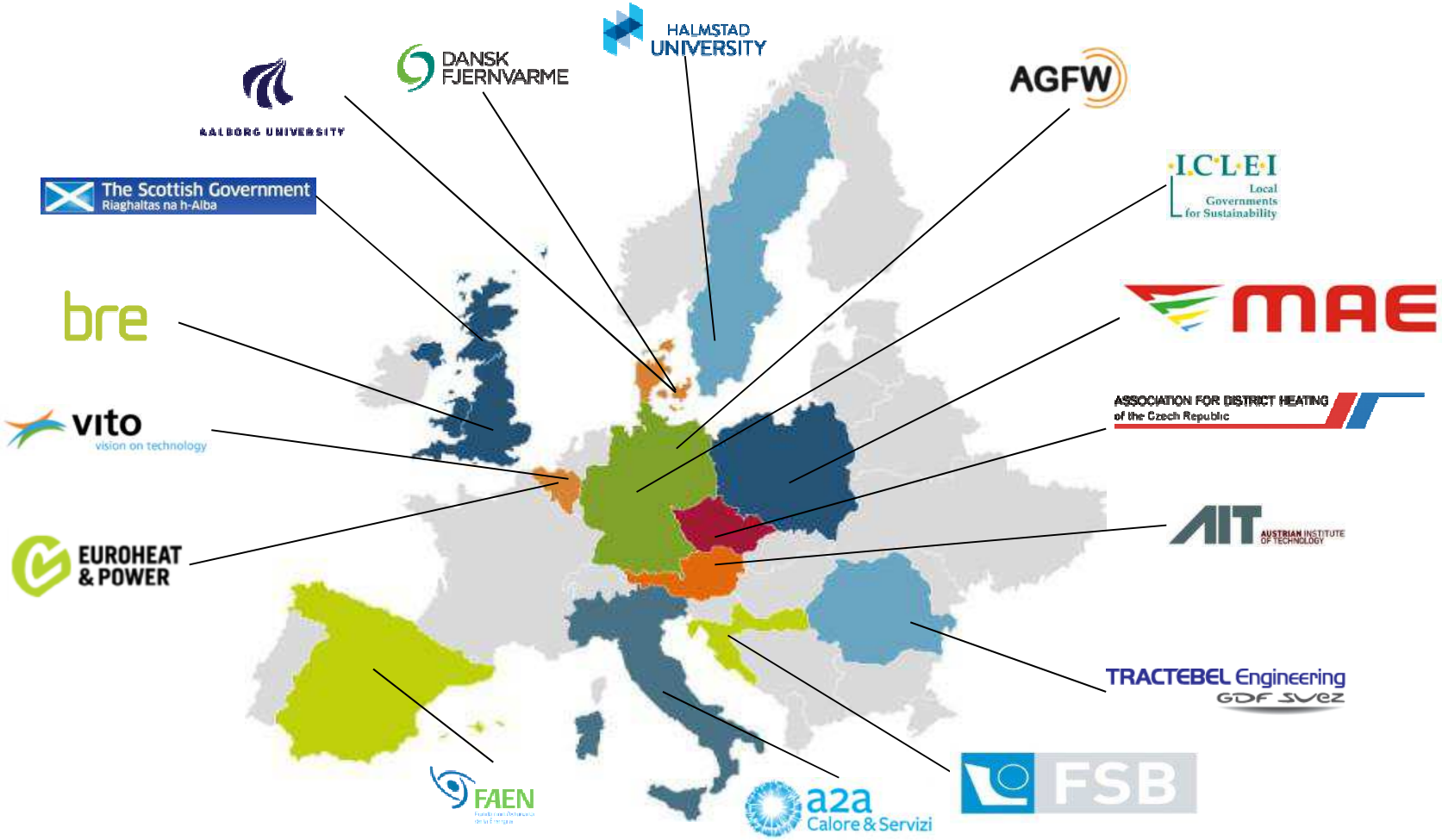
Geographical coverage



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WP2: Impact assessment on nation level

- Overall aim
  - To develop low-carbon heating and cooling strategies (Heat Roadmaps)
    - What heating and cooling technologies do we need?
    - How much of each technology?
    - How do these technologies fit with the rest of the energy system?
  - To quantify the impact of implementing them at a national level
    - For CZ, HR, IT, RO, UK

WP2: based on modelling and mapping

Modelling steps

Starting point (2010)

↓

Forecast for the Future (BAU 2050)

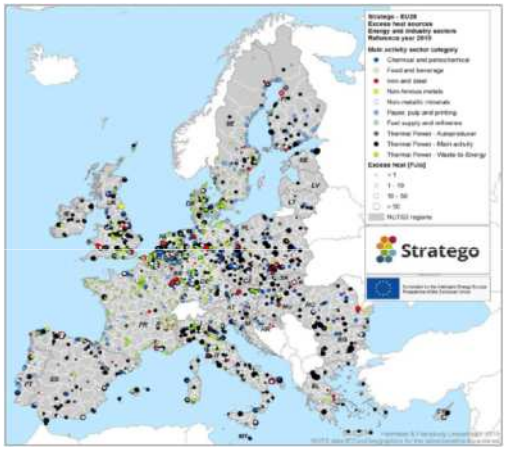
↓

Alternatives

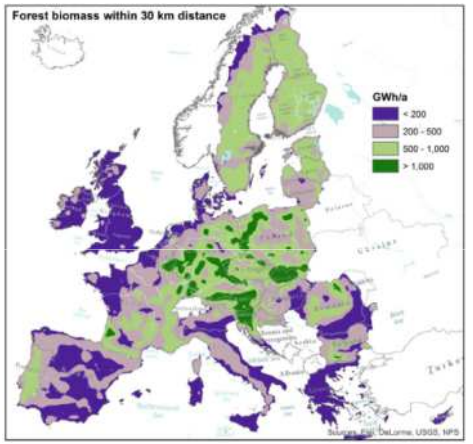
↓

Results (Energy, Environment Economy)

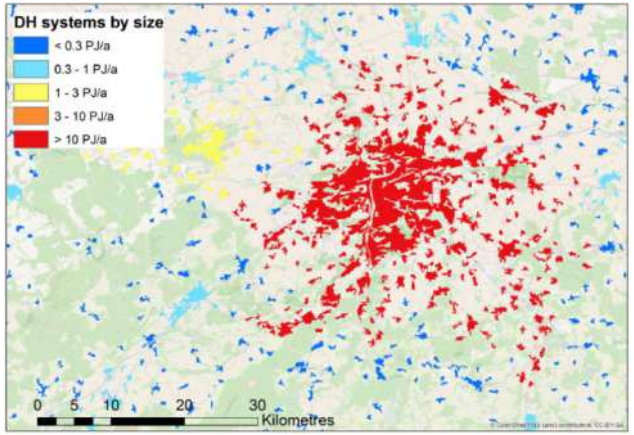
Excess heat



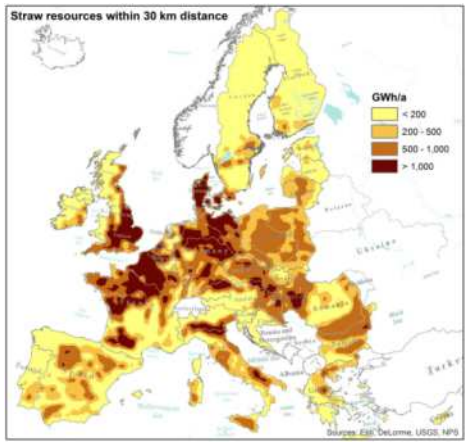
Renewable heat



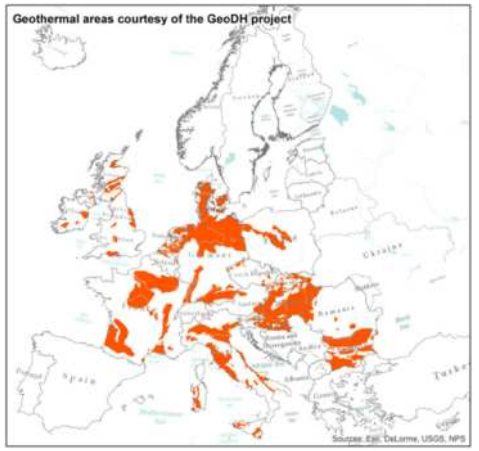
Heat demand



Biomass potential



Geothermal heat

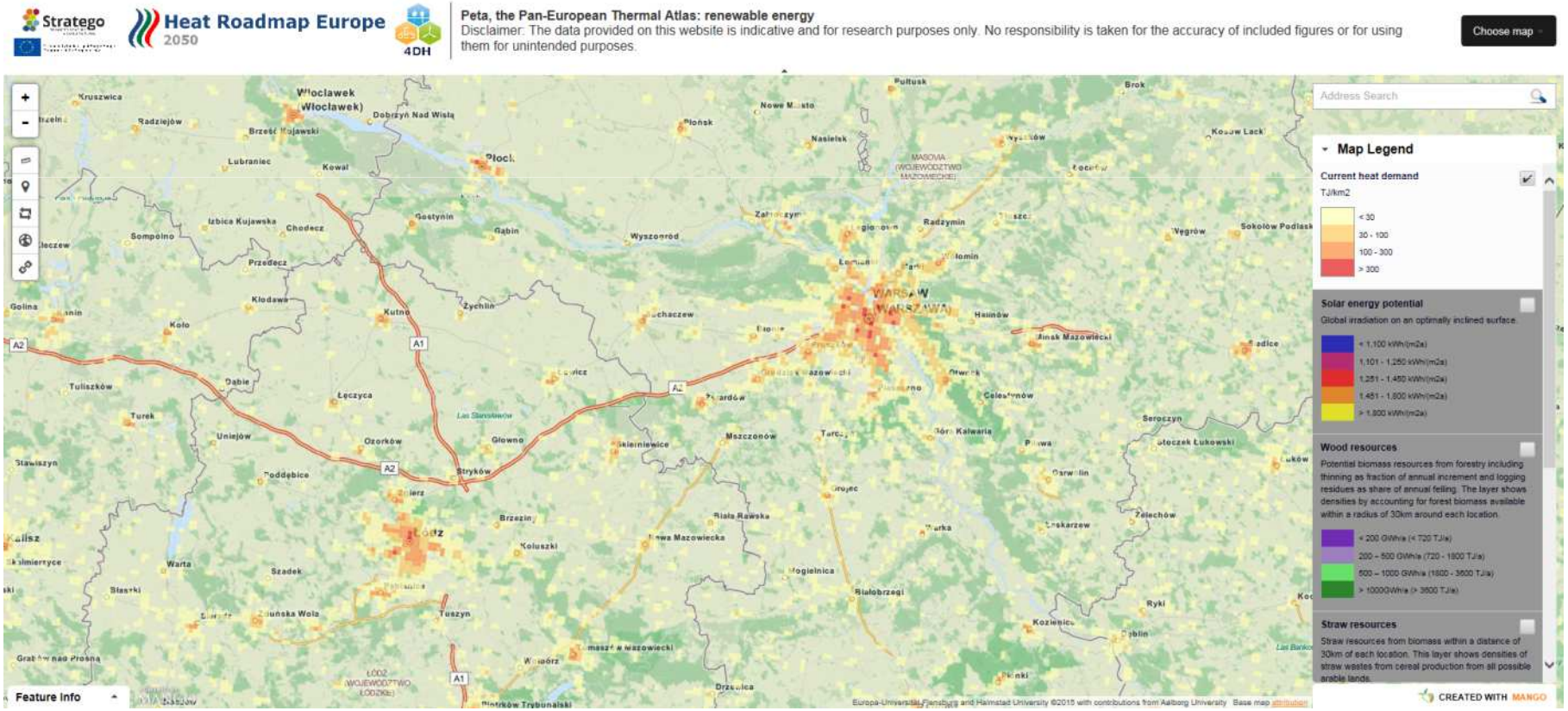


WP2: Impact assessment on nation level

1. Creating National Energy Models for 2010 and 2050
2. Creating Hourly Profiles to Model both Demand and Supply
3. Quantifying the Cost of Heat Savings in EU Member States
4. Quantifying the Heating and Cooling Demand in Europe
5. Mapping the Heating and Cooling Demand in Europe
6. Quantifying the Potential for District Heating and Cooling in EU Member States
7. Quantifying the Excess Heat Available for District Heating in Europe
8. Estimating the Renewable Energy Resources Available in EU Member States
9. Mapping the Renewable Heat Resources in Europe

Peta: Pan-European Thermal Atlas:

http://maps.heatroadmap.eu/maps/31157/Renewable-Resources-Map-for-EU28?preview=true#



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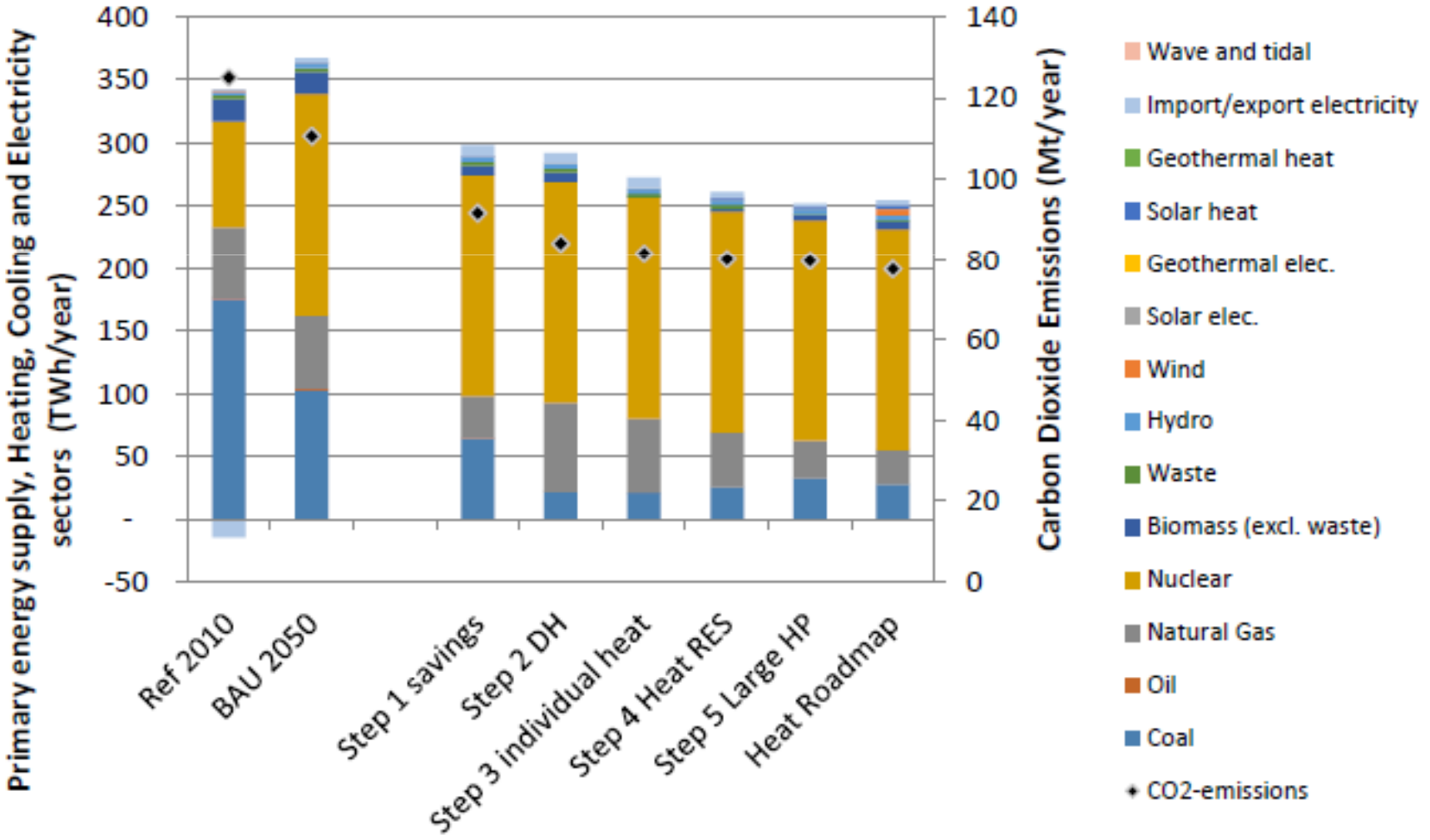
WP2: Results – Czech Republic



Stratego WP2: Results

-15 à -20% primary energy

-20 à -35% CO_2 emissions

Changes for the Energy System

Heat Roadmap vs. BAU 2050	Energy		Environment		Economy	
	Change in Primary Energy Supply		Change in Carbon Dioxide		Change in Energy System Costs (Excluding Vehicles)	
Unit	TWh/year	%	Mt	%	Billion €/year	%
Czech Republic	-113	-19%	-5	-19%	-0.63	-7%
Croatia	-18	-15%	-33	-30%	-2.44	-7%
Italy	-384	-17%	-100	-21%	-13.48	-8%
Romania	-116	-23%	-34	-36%	-3.35	-9%
United Kingdom	-441	-19%	-114	-24%	-17.18	-9%

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WP2: Key messages - Heating

- Heat savings should begin today and be strongly supported to the point where their total heat demand is reduced to 60-90 kWh/m2
  - In existing buildings while they are undergoing other refurbishments and in new buildings,
- Share of district heating can be expanded significantly in all countries
  - Urban Areas
- Electric heat pumps are the most sustainable option for individual heating
  - Rural Areas
- In all the countries there are large amounts of renewable and excess heat available, but there is a limited supply of renewable electricity, while there is likely to be a shortfall of biomass if the aim is to decarbonise the entire energy system.
- The results are extremely sensitive to cost assumptions, but the conclusions are very robust

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WP2: Key messages - Cooling

- Today, the cooling demand is too small to have a major influence at national level
- However, implementing district cooling is likely to have a positive impact at the local level
- If buildings meet their cooling needs in the future, then the cooling sector will start influencing the national energy system
- More research is required to identify an optimal level of district cooling: mapping and local modelling is most urgent in the short term

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WP3: National plan – local action: supporting local authorities

- Overall objective

  Supporting local authorities in assessing their local potential by mapping it and by the identification of areas of priorities

- Work packages

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WP3: Cities involved

Aberdeen
Dundee
Edinburgh
Glasgow
Inverness
Perth
Stirling

Antwerp
Brussels
Kortrijk

Alsdorf

Ostrava

Vienna and surrounding
Oberösterreich

Lombardy region

Velika - Gorica
Osijek - Zagreb
Topusko
Karlovac region

Alba Iulia
Tulcea

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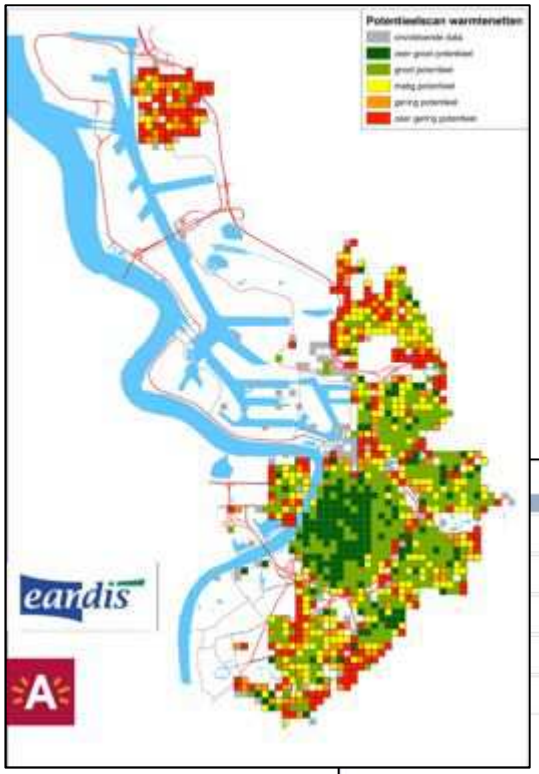
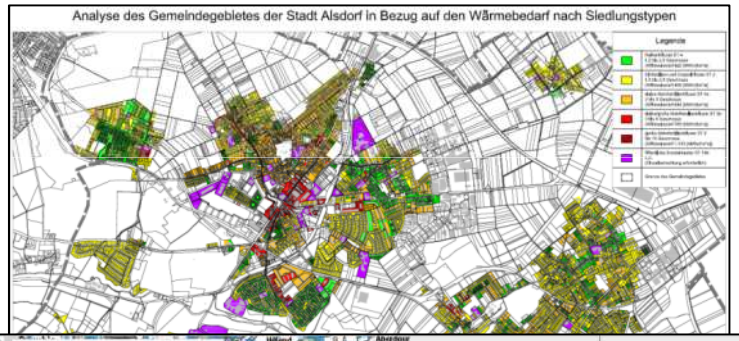
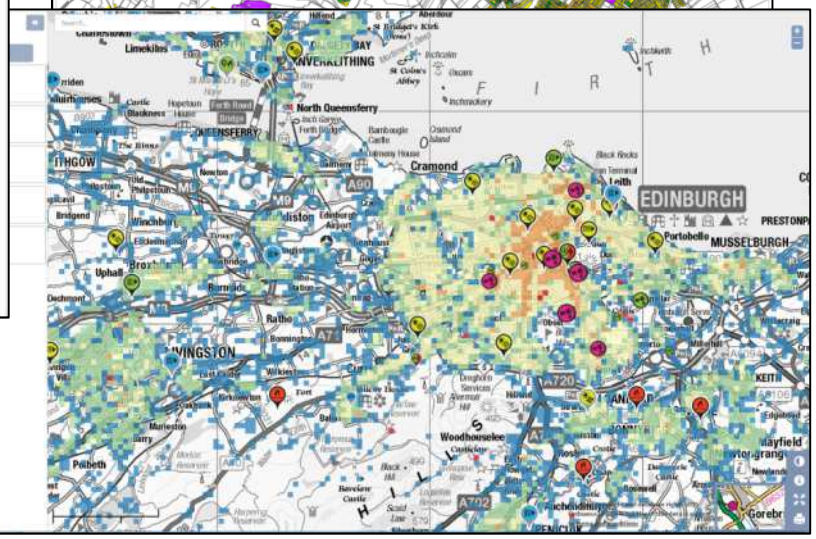
WP3: Mapping local heating and cooling demand and supply







WP3: Projects to consider

1. Reduce heating and cooling demand at end-consumers
2. Improve and expand existing heating and cooling networks or build new ones in areas with a substantial heating and cooling density
3. Look for more sustainable individual heating and cooling solutions in areas with a limited heating and cooling density
4. Tap excess heat from thermal power stations, waste-to-energy installation, energy-intensive industry, …
5. Tap renewable heating and cooling sources (geothermal, bio-energy, solar thermal)
6. Improving conversion of fossil fuels to heat or cooling

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http://stratego-project.eu/

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Thank you for your attention

Erwin CORNELIS
Expert Energy Policy
VITO NV
Boeretang 200
BE-2400 MOL
Tel: +32 14 33 58 29
Email: erwin.cornelis@vito.be