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5th international conference on
**Smart and Sustainable
Planning for Cities and Regions 2025**

9-12 December, Bolzano/Bozen



T1. Regular Session - Energy Transition: Towards Climate Neutral Cities

Spatial energy planning and municipal heat planning - Experiences and developments in Austria

Ingo Leusbrock, AEE INTEC



Overview

- Austria from spatial energy / municipal heat planning perspective
- Existing and upcoming challenges for Austrian municipalities
- Standardized approaches for data provision for municipalities
- How to do municipal heat planning?
- The international perspective – The IEA Cities TCP

Austria



Map created by NWECEO; administrative boundaries and fill colours by Mapchart.net. This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License ([CC BY-SA 4.0](https://creativecommons.org/licenses/by-sa/4.0/)).

Austria and its federal states

- 9,2 mln inhabitants
- 9 federal states
 - Ranging from 300k in Burgenland to 2mln inhabitants in Vienna
- Federal states have separate legislation on
 - Building code
 - Spatial planning
 - Climate and environmental protection
 - ...
- Federal states have separate subsidy schemes

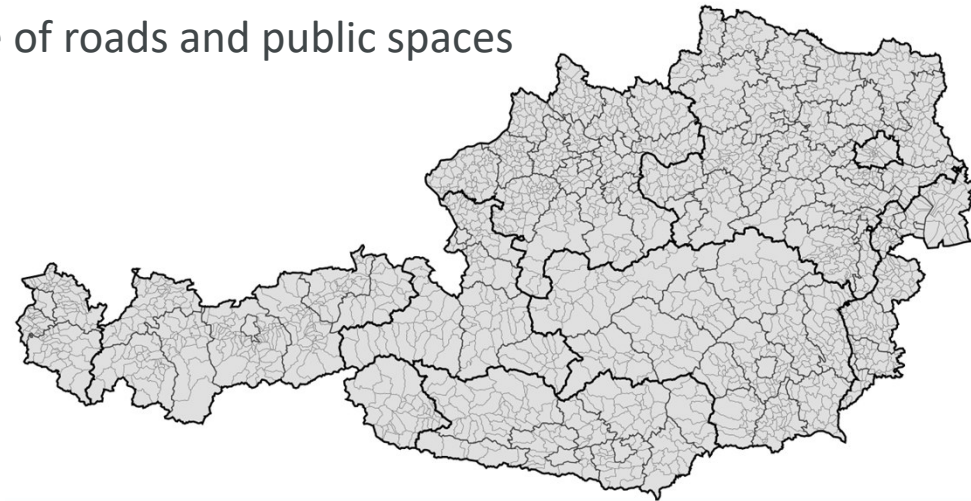


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Role of municipalities

- 2091 municipalities in Austria
- Duties and rights of a municipality
 - Self-governance in own affairs
 - Own sphere of activity and responsibilities:
 - Public services: water supply, sewage and waste disposal, street lighting, cemeteries, nurseries, primary schools, fire protection, rescue services,...
 - Infrastructure: Construction and maintenance of roads and public spaces
 - Spatial planning
 - Local building authority
 - Local climate protection agency





Upcoming legislative changes

Energy Efficiency Directive (EED III)

- Directive (EU) 2023/1791
- National version till 11.10.2025

Renewable Energy Directive (RED III)

- Directive (EU) 2023/2413
- National version till 21.05.2025

Energy Performance Building Directive (EPBD)

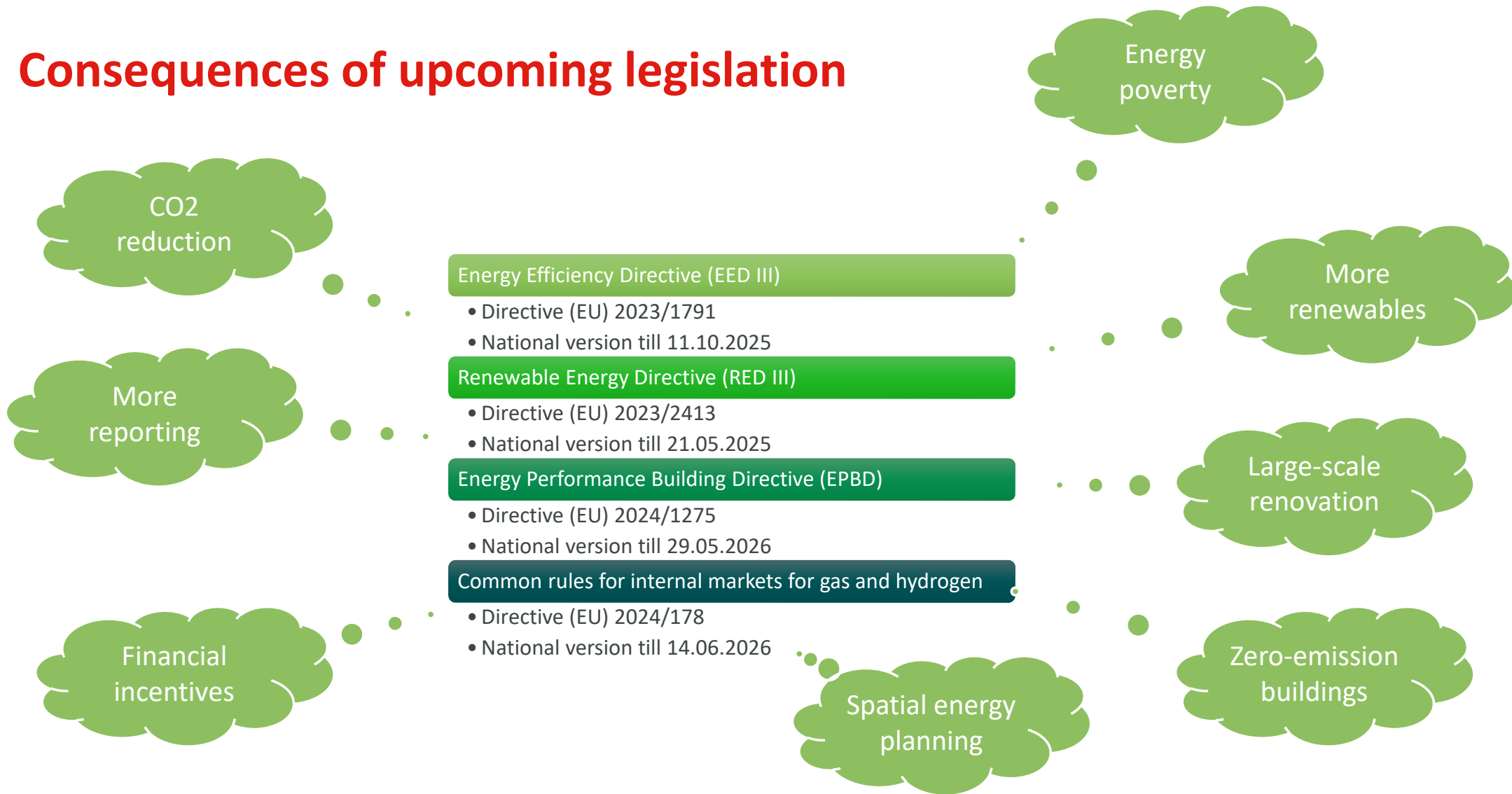
- Directive (EU) 2024/1275
- National version till 29.05.2026

Common rules for internal markets for gas and hydrogen

- Directive (EU) 2024/178
- National version till 14.06.2026



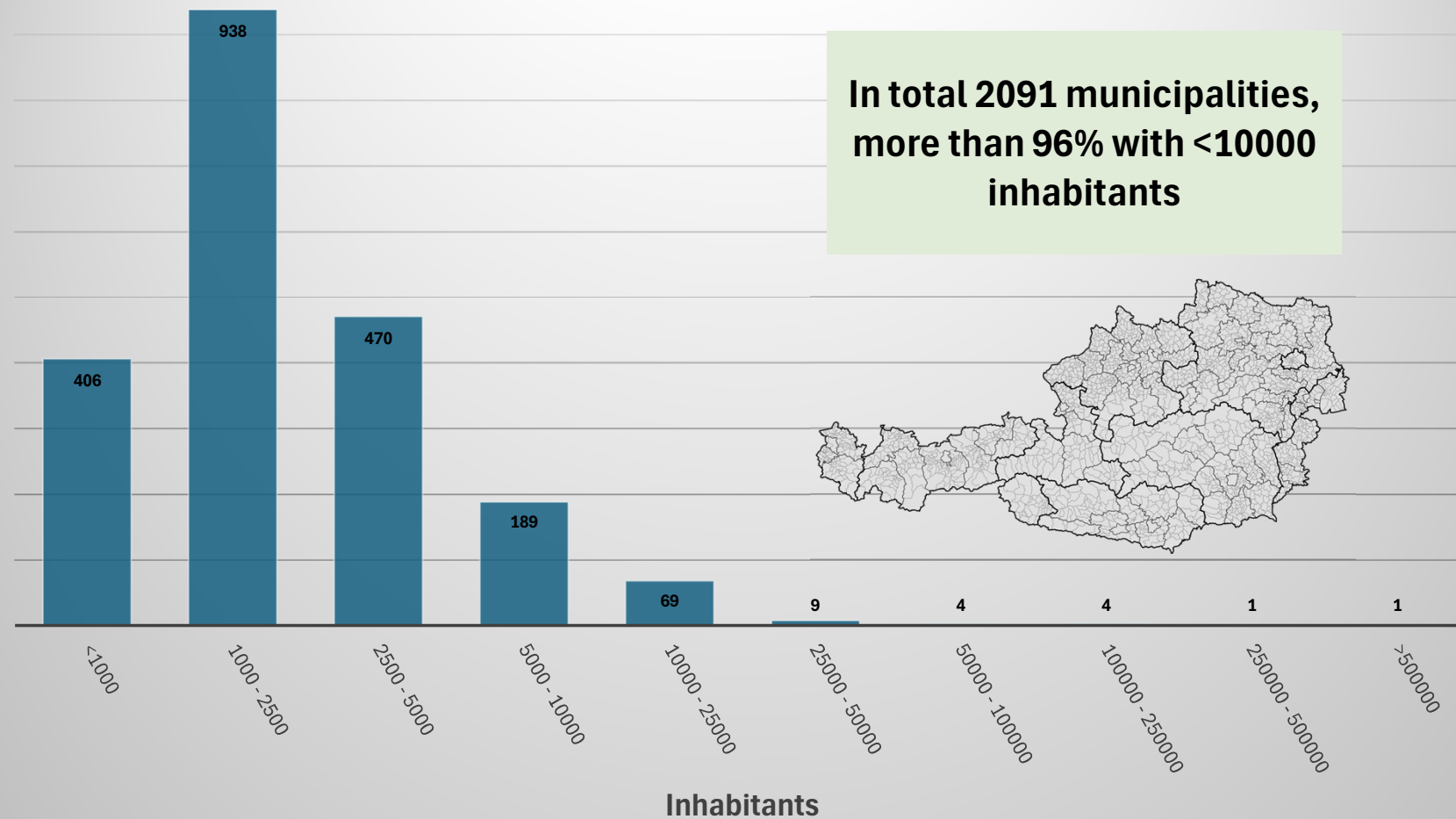
Consequences of upcoming legislation



A map of a region, possibly in France, showing numerous small municipal boundaries. A large green callout bubble is positioned in the upper left quadrant, containing the text "Millions of measures in all municipalites". Three smaller green circles are scattered below the bubble. The map is rendered in light gray with black outlines for the municipal boundaries.

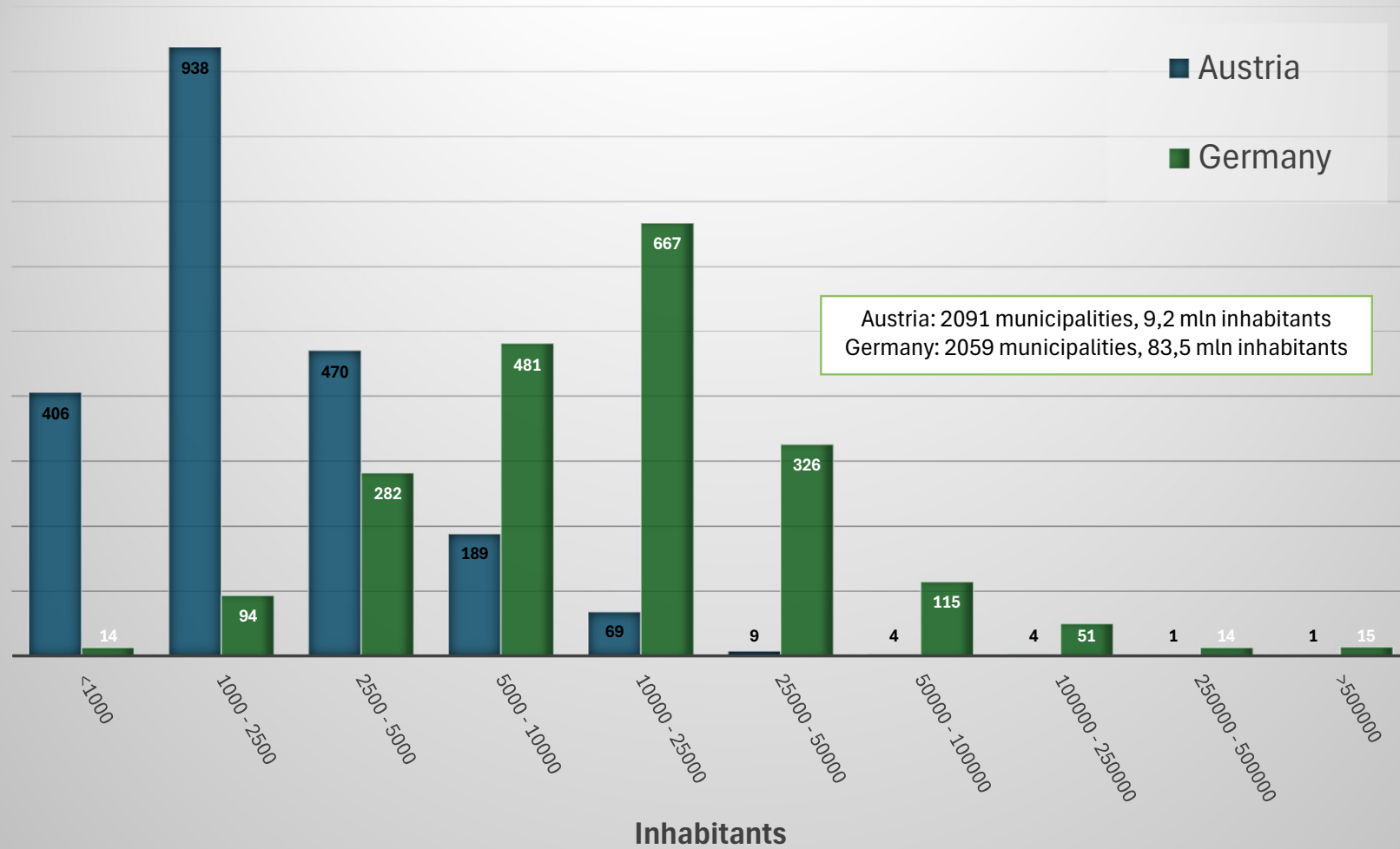
Millions of measures in all
municipalites

Size distribution of Austrian municipalities, 01.01.2025



Data: Statistik Austria, 20.11.2025

Size distribution of German and Austrian municipalities in 2025



Data: Statistik Austria & Statistisches Bundesamt 20.11.2025

The challenge and opportunity for municipalities

- Energy transition / climate targets and new requirements necessitate
 - **sound data and**
 - **suitable tools**
- Energy transition also enables
 - Significant scope for decision-making and design
 - Involvement of citizens
 - Improvement in quality of life in municipalities



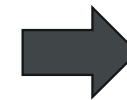
Spatial energy planning & municipal heat planning as a lever for municipalities

GEL S/E/P - Spatial Energy Planning for Energy Transition



- National projects 2017 – 2024
 - www.waermeplanung.at
- Objective
 - Development of all necessary foundations for the implementation of SPATIAL ENERGY PLANNING
 - [...] to enforce a sustainable development of spatial structures while
 - [...] REDUCING ENERGY DEMAND AND MINIMIZING CO₂e EMISSIONS

→ sound data and suitable tools for all federal states and municipalities



GEL S/E/P - Spatial Energy Planning for Energy Transition

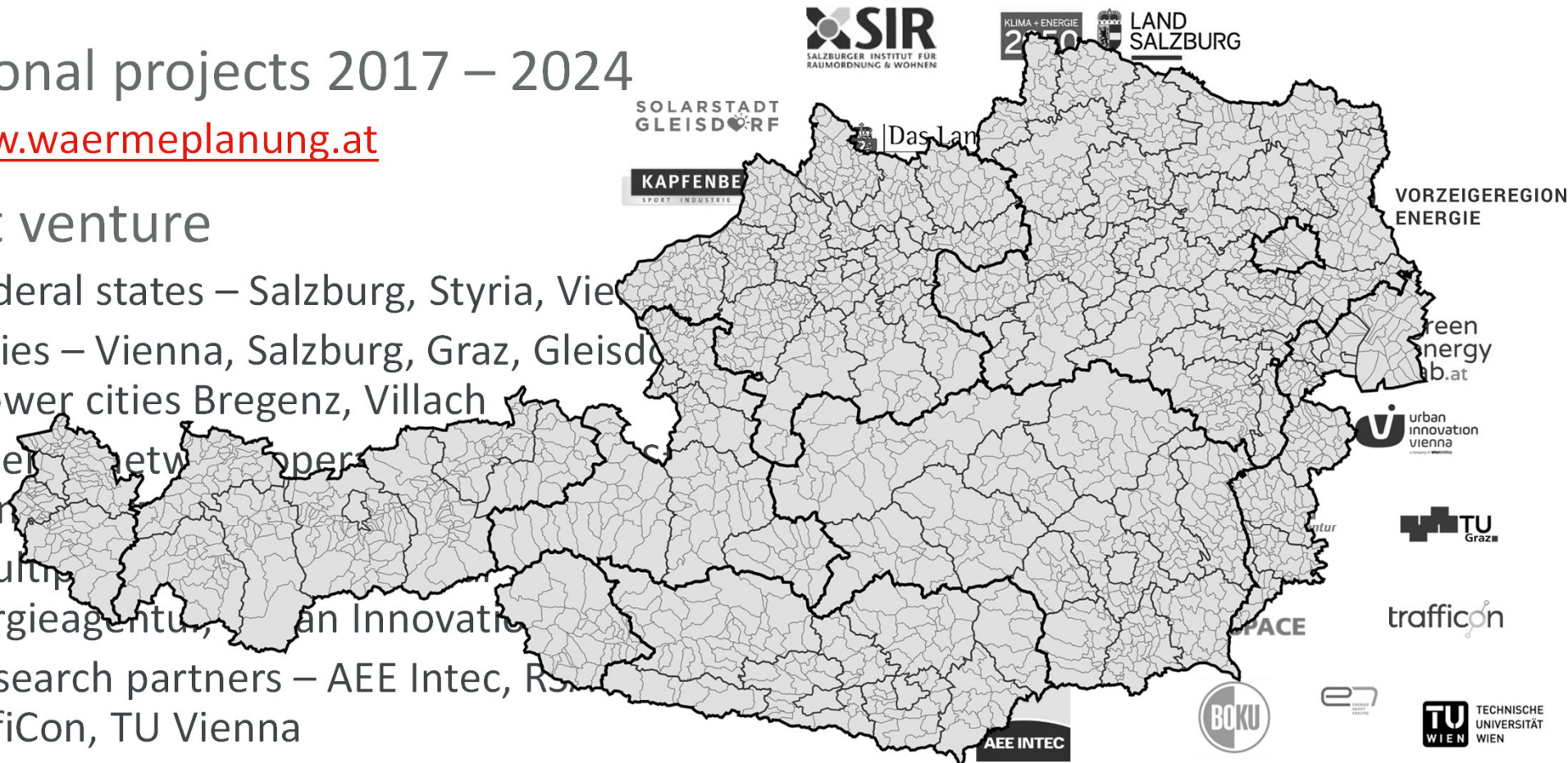


- National projects 2017 – 2024

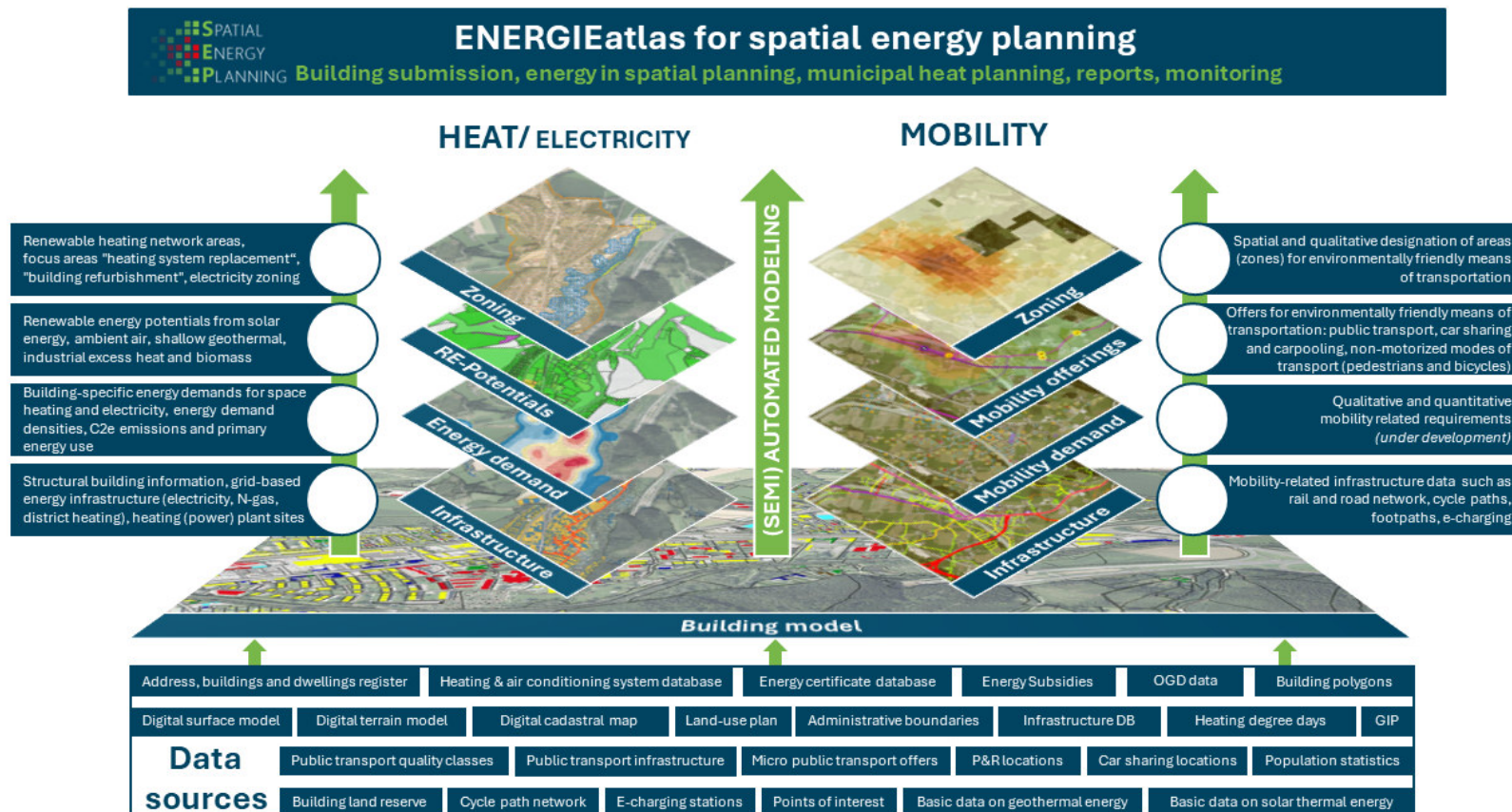
- www.waermeplanung.at

- Joint venture

- 3 federal states – Salzburg, Styria, Vienna
- 7 cities – Vienna, Salzburg, Graz, Gleisdorf, Bregenz, Villach, Innsbruck
- 2 energy network operators – Wien Energie, E.ON
- 4 municipalities – Energieagentur Wien, Energieagentur Graz, Energieagentur Innsbruck, Energieagentur Villach
- 6 research partners – AEE Intec, RS, TU Graz, TU Wien, BOKU, trafficon



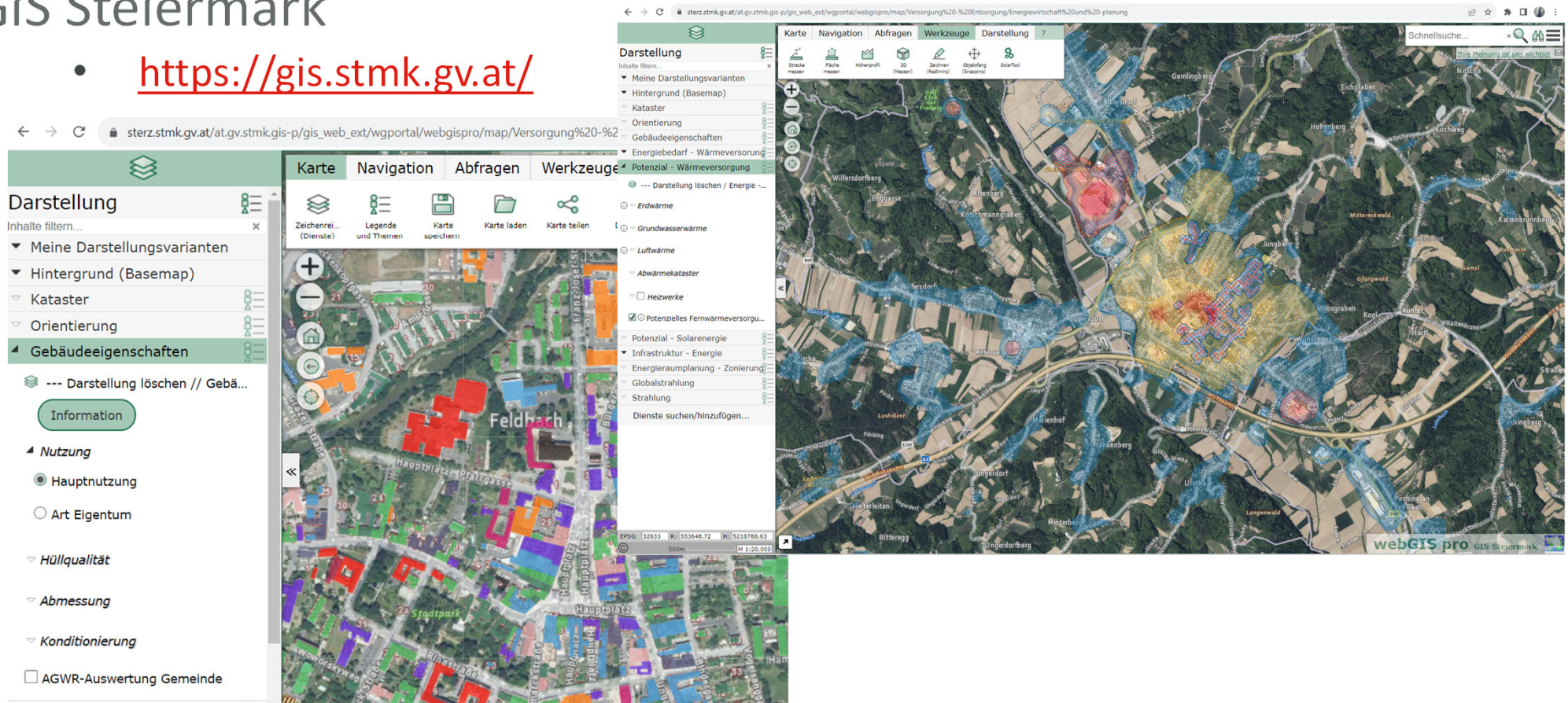
Main result: Energy atlas as foundation for spatial energy planning



GIS applications of the federal states

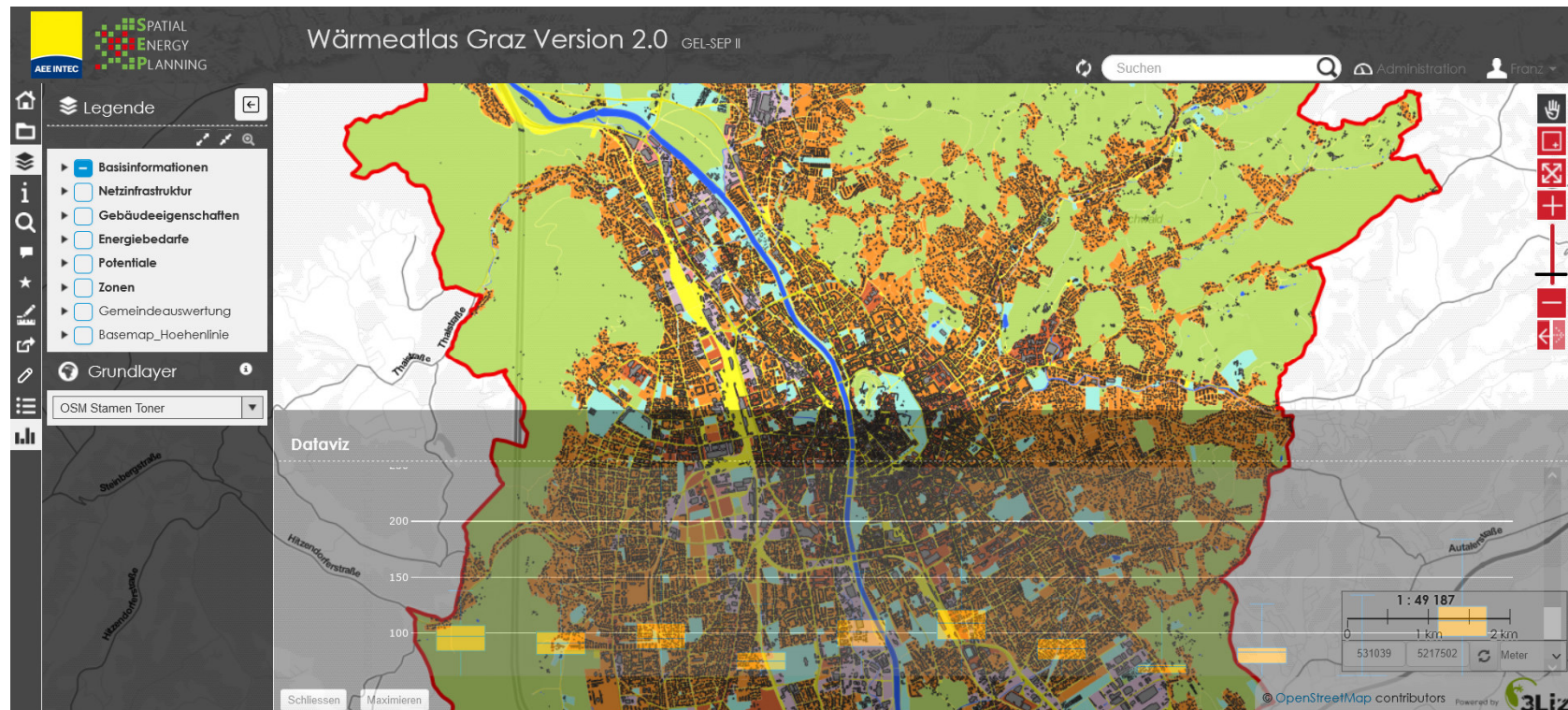
GIS Steiermark

- <https://gis.stmk.gv.at/>



More detailed services possible

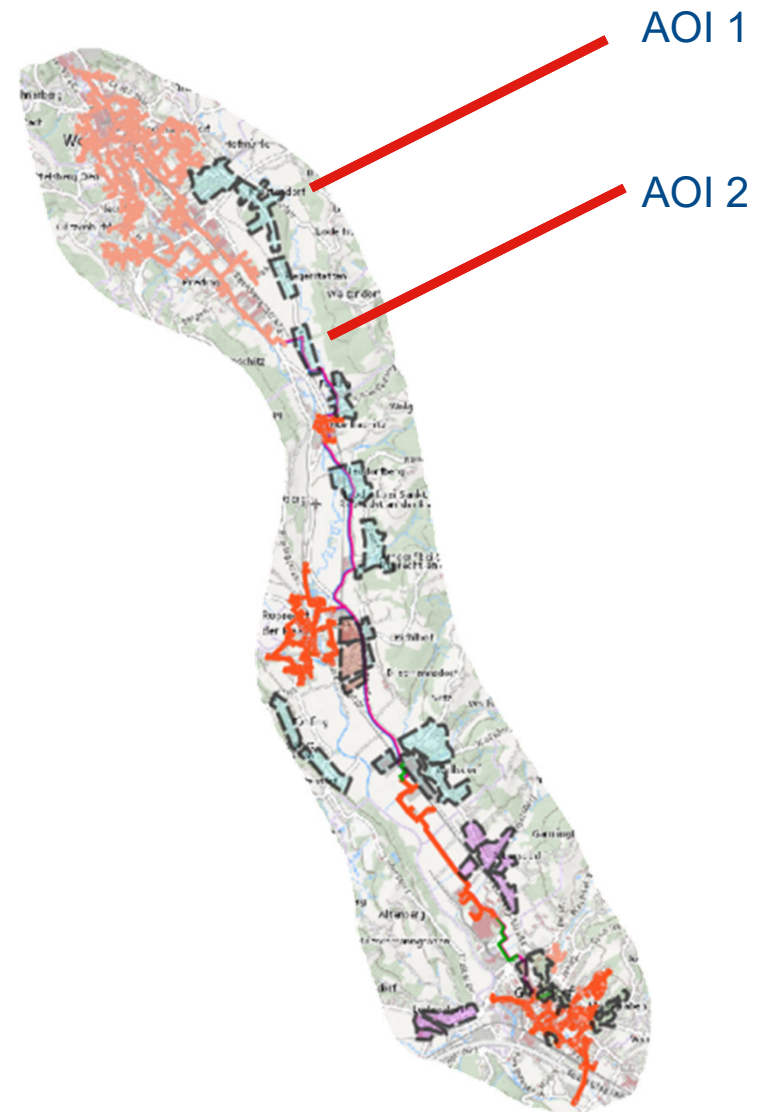
LizMap WebGIS Prototype ([LINK](#) to Demo Video)



More detailed services possible

Webservices for

- DHC operators → transformation planning
- Municipalities → portfolio management



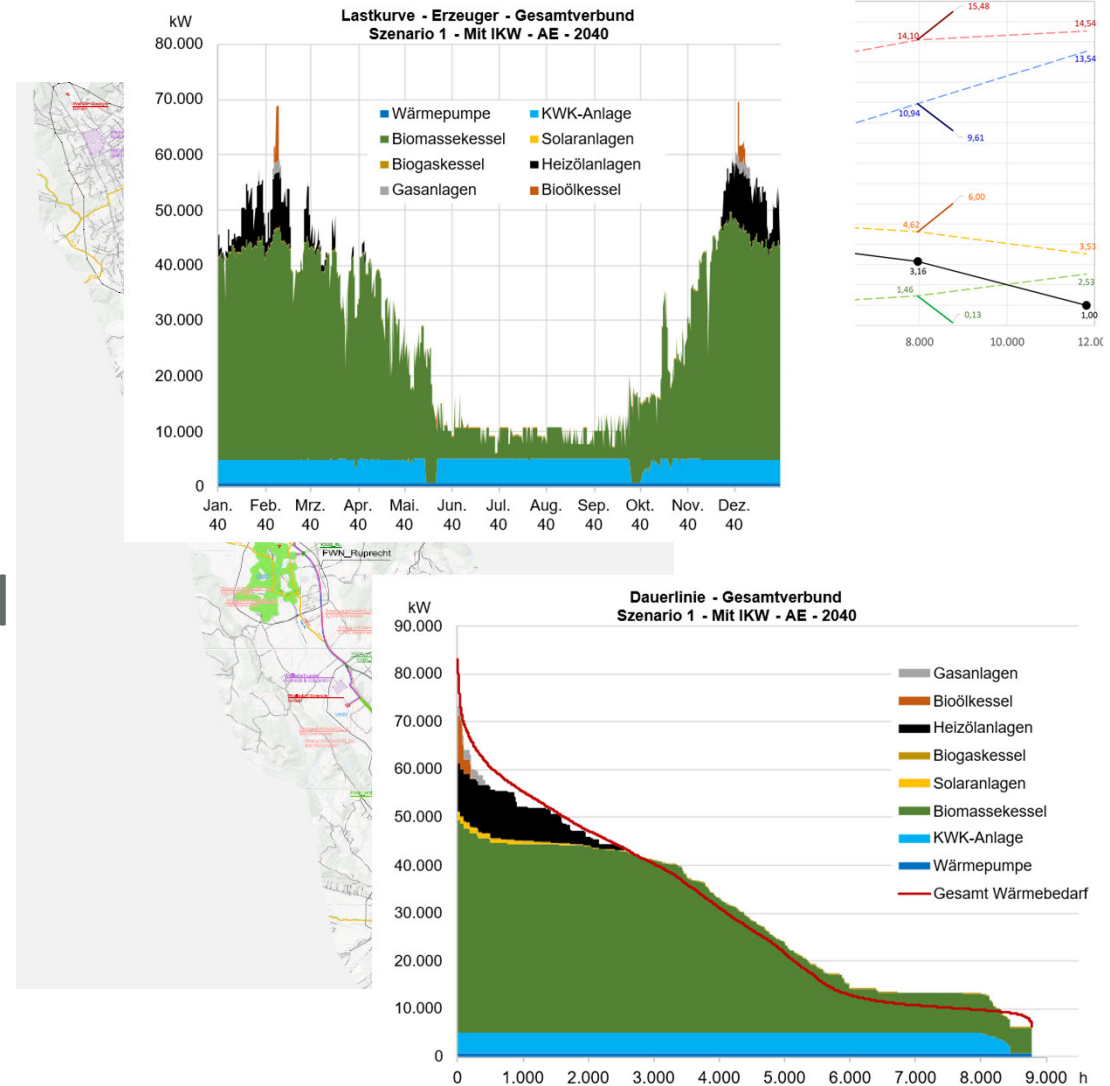
More detailed services possible

Webservices for

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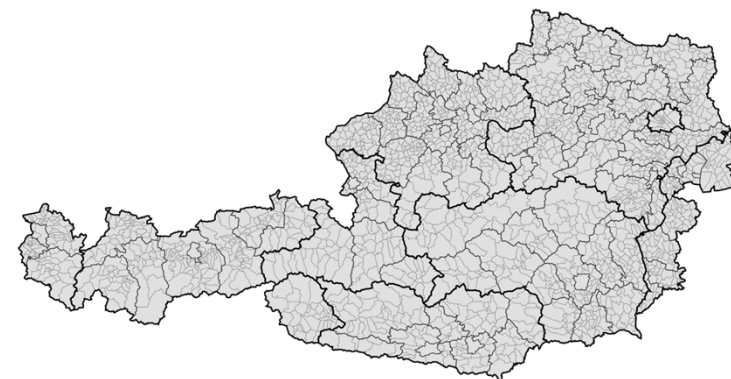
Direct link with detailed technical planning

- Thermo-hydraulic simulations
- Supply and demand profiles & merit-order optimization



Current activities

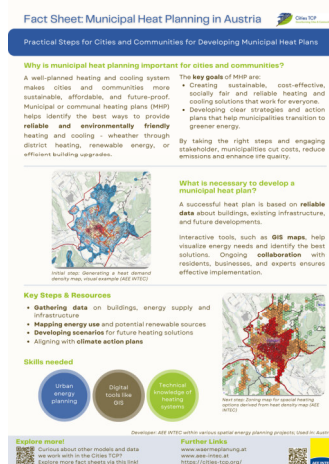
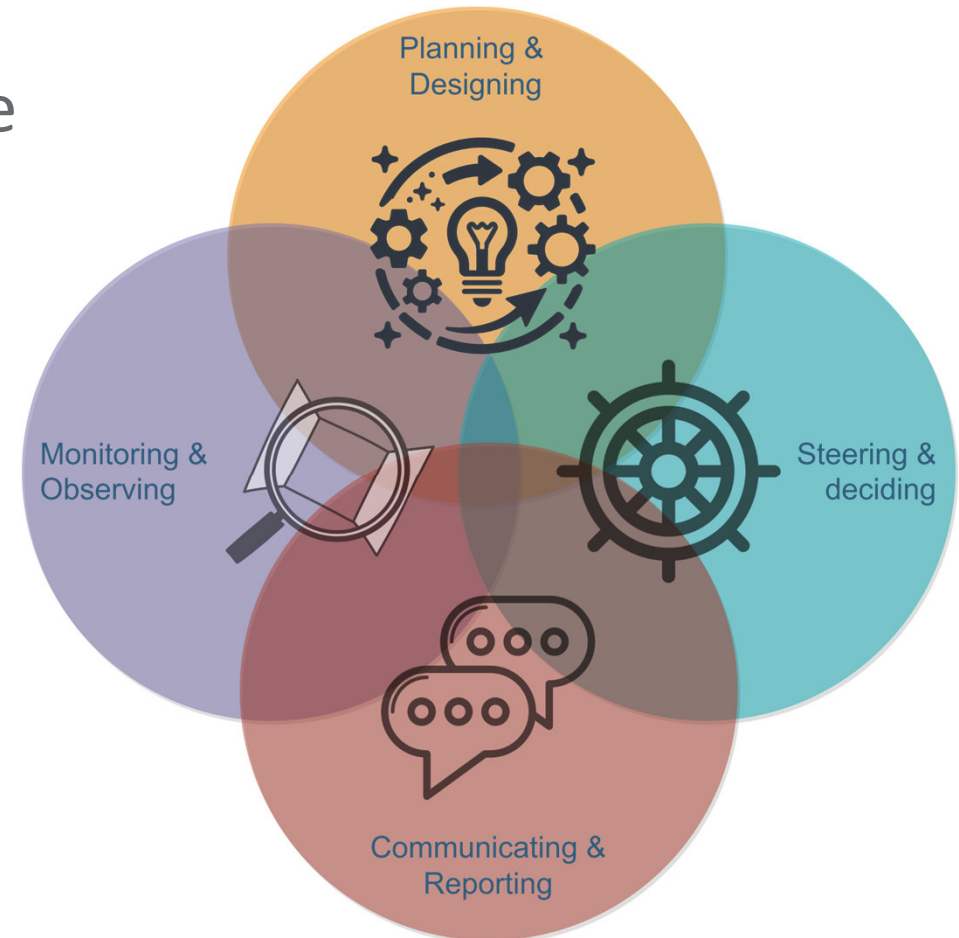
- Austria
 - Rollout planned in all other federal states
 - Integration in daily practices of municipalities
 - Further development of tools and capacity building
- International
 - Creation network
 - Knowledge sharing
 - Collection data and development data bases



International
Energy Agency

IEA Cities Task 2 – Data for urban energy planning

- International experience exchange
- Cities as clear target groups
- Topics
 - All energy sectors
 - From data to tools to use cases



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