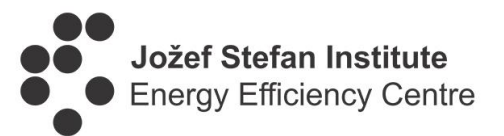




On the way towards efficient and sustainable DHC – REHEATEAST lessons learned

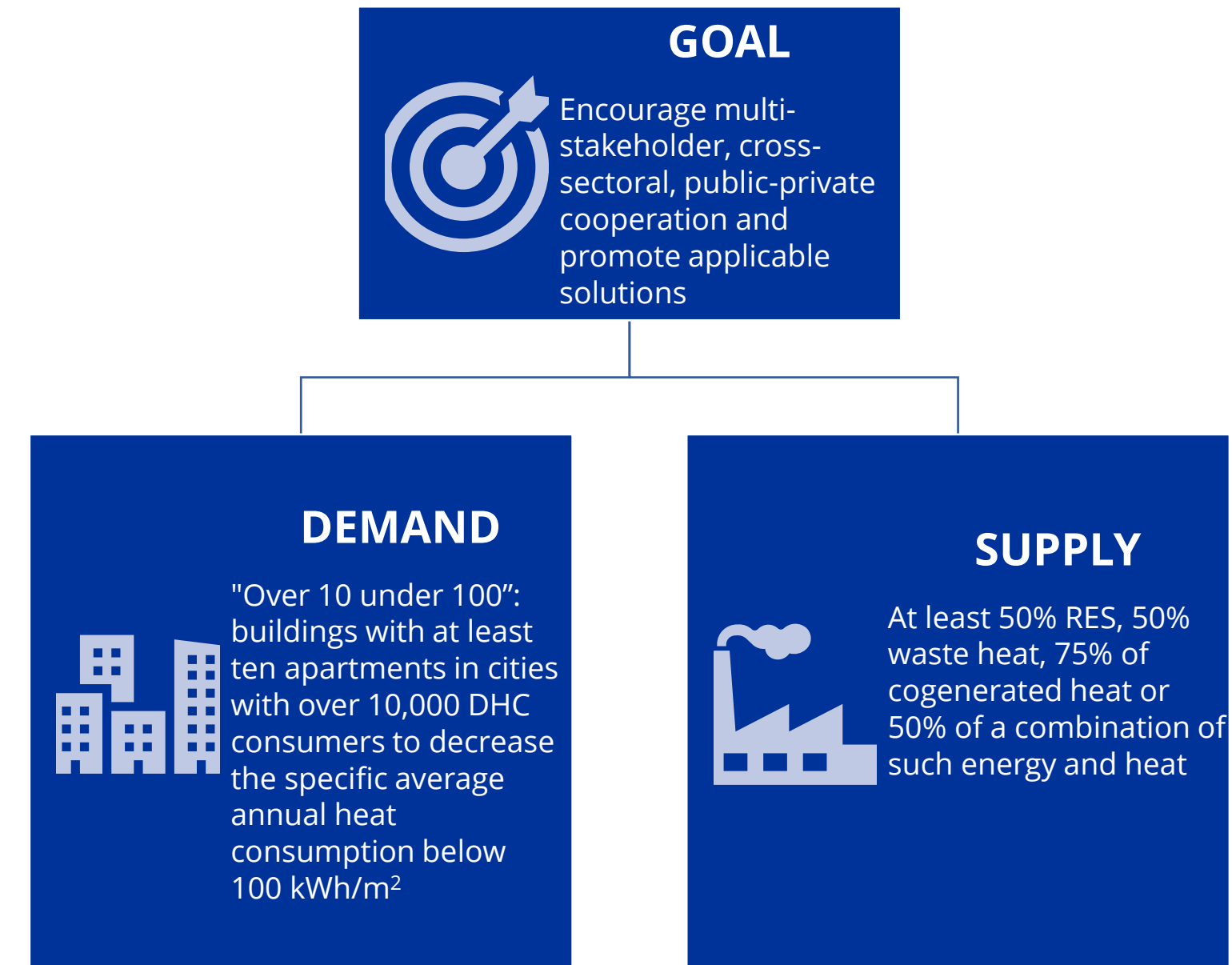
Information about the REHEATEAST project

- **Project title:** Building local partnerships for reducing the fossil energy demand of district heating systems in the Eastern Danube Region
- **Project duration:** January 2024 – June 2026 (30 months)
- **Financing:** Interreg Danube Region Programme
- **Consortium:**
 - 11 Project Partners
 - 26 Associated Strategic Partners (ASPs)
- **Coordinator:** PANNON EGTC (HU)



Project goals and outputs

- 1 → Cross-border cooperation of partners
- 2 → Joint REHEATEAST policy improvement strategy
- 3 → Implementation of pilot projects at 11 REHEATEAST locations and development of solutions



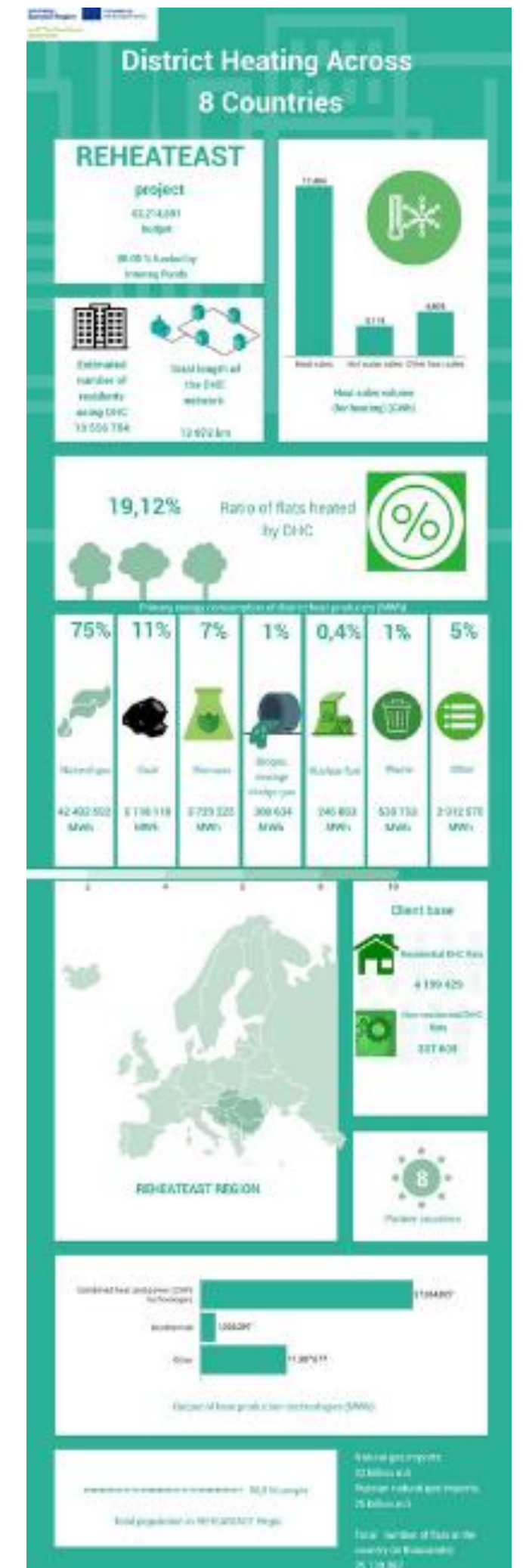
Detailed analysis of the district heating sector

- Identification of key challenges, barriers and development potentials for sustainable district heating systems; integration of RES; investment needs; future expectations; Examples of good practice
- Regional survey
- Five stakeholder groups
- Country-level analysis
- Comparative analysis at the regional level (SWOT)



- Questionnaire results
- Analysis of challenges, gaps and good practices
- Comparative analysis of the institutional, legal and financial status quo

- Regional DHC data
- Comparative indicators
- Public online access
- Platform link



DHC Utilities Overview

Explore data from DHC utilities in various cities across the REHEATEAST region. Compare their infrastructure, efficiency indicators, and approaches to sustainable energy use.

Table

Countries

Compare

Select cities to compare (maximum 4 cities can be selected). Currently 0 cities selected.

Bosnia and Herzegovina

6 cities >

Bulgaria

10 cities >

Croatia

7 cities >

Hungary

33 cities >

Slovenia

11 cities >

Romania

49 cities >

Serbia

55 cities >

DHC Best Practices

The transformation of DHC systems is being driven by innovative technologies, sustainable energy practices, and evolving regulatory frameworks. This section presents two selected best practices from each country within the REHEATEAST region, highlighting successful DHC developments that demonstrate technical, environmental, cooperative, and economic advancements.

The showcased projects offer practical approaches to improving energy efficiency (EE), integrating renewable energy sources (RES), and modernizing infrastructure. Each example addresses local challenges while delivering measurable environmental, economic, and operational benefits. These initiatives highlight the potential of DHC systems to support urban sustainability, reduce carbon emissions, and enhance service quality for end-users. By sharing these best practices, this section aims to inspire replication, stimulate innovation, and accelerate the transition toward a more energy-efficient and renewables-based future across the region.

Hungary

2 practices >

Romania

2 practices >

Bulgaria

2 practices >

Slovakia

2 practices >

Serbia

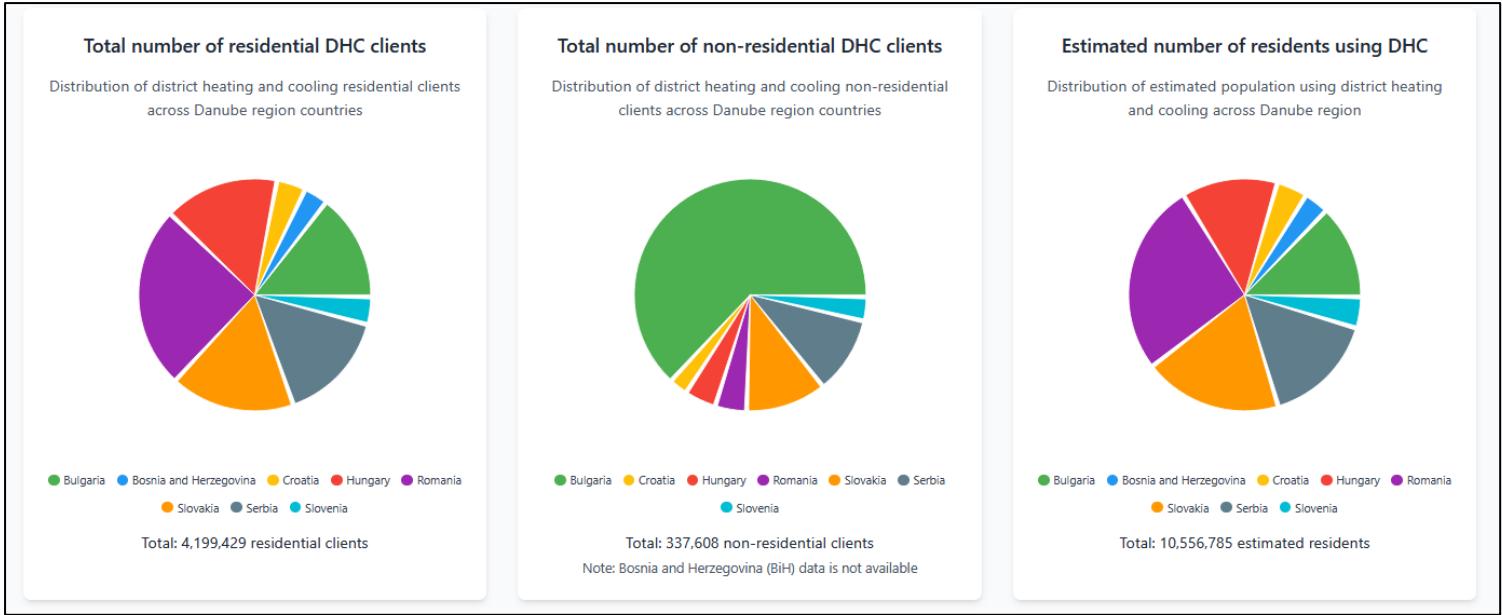
2 practices >

Croatia

2 practices >

Slovenia

2 practices >



Online training materials

- Structured educational content for energy professionals, planners and decision-makers
- Technical and strategic topics: energy efficiency, RES integration (geothermal, solar etc.), thermal storage and digital tools
- Coverage of regulatory frameworks, green procurement, standardisation and certification
- References to key literature, standards and emerging practices

Contents

1. Introduction and fundamentals	3
1.1 Historical Development of District Heating	3
1.2 Benefits of district heating.....	7
1.3 Types of District Heating and Cooling Systems	9
1.4 Global and Regional Trends in District Heating and Cooling (DHC) Development	12
1.5 Core components and system architecture.....	14
2. Production technologies	18
2.1 Heat Generation Technologies.....	18
2.2 District cooling	56
2.3 Thermal Storage	60
3. Design and operation of Heat Transport and Distribution Network	85
3.1 Heat density	85
3.2 Planning and implementing district heating systems	88
3.3 Heating load calculation	90
3.4 Diversity of demand.....	92
3.5 Variable flow and temperature.....	94
3.6 Network design.....	98
3.7 Pressure and thermal losses	101
4. Interface Systems for End Users in District Heating Networks.....	105
4.1 Substations and heat modules	105
4.2 Heat Meters.....	108
5. District heating and cooling optimisation	111
5.1 Demand side measures	111
5.2 Supply side measures	122
6. Green Procurement in District heating and cooling systems	142
6.1 Definition and Objectives	142
6.2 Application Areas in DHC	144
6.3 Procurement Criteria and Standards.....	145
6.4 Benefits of Green Procurement in DHC	146
6.5 Implementation Challenges	147
7. Standards and certifications.....	148
7.1 Role of Standardisation in DH.....	148
7.2 Standards for District Heating	148
7.3 Certification Schemes	151
7.4 Benefits of Standardisation and Certification	153
8. Contemporary Energy Trends.....	154
8.1 Energy and Its Associated Global Effects	154
8.2 Towards smart energy systems	172

Transnational decision-maker network

- Building a cross-national network of policy makers
- Fostering active connections with key stakeholders



Accelerating the Transformation of District Heating in Central and Eastern Europe

REHEATEAST Policy Brief No.1 | Policy lessons for decision-makers in heating and the energy transition

This first REHEATEAST Policy Brief presents evidence and policy insights from stakeholder consultations with national and regional policymakers, regulators, and sector experts across the project partner countries - Bosnia and Herzegovina, Bulgaria, Croatia, Hungary, Romania, Serbia, Slovakia and Slovenia. It aims to support decision-makers in shaping effective, socially just, and climate-aligned district heating (DH) policies.

Why District Heating Transformation Matters

Heating accounts more than 40% of building energy consumption in Europe, yet many Central and Eastern European countries DH remains heavily fossil-based – contributing to price volatility, energy poverty, and climate risks. Optimized networks can better adapt to demand fluctuations, integrate diverse heat sources and increase resilience, often with lower social and economic disruption than large-scale infrastructure replacement.

» Modernising DH through energy efficiency, renewable heat, waste heat recovery and system optimization is essential for building affordable, resilient, and low carbon energy systems. REHEATEAST promotes a holistic approach that links building renovation, integration of renewables, and network modernisation.«

What Stakeholders Say: Key Findings

Consultations with policymakers, regulators, and sector experts highlight consistent messages:

A clear role for district heating

Stakeholders broadly agree that DH will remain a cornerstone of future heating and energy systems. A shift toward low-temperature, renewable-based, and interconnected networks, aligned with building renovation and urban development, is widely expected.

Regulatory frameworks lag behind ambition

Current policies only partially enable DH decarbonisation. Major gaps remain in tariff design, heat planning, permitting, and incentives for renewable and waste heat integration. While EU-level initiatives are strong drivers, national implementation remains uneven.

Financing remains a bottleneck

Investments still rely heavily on public and EU funding. Private capital and public-private partnerships are limited, mainly due to regulatory uncertainty and unclear long-term tariff frameworks.

Governance and participation need strengthening

Municipalities and DHC operators play central role, particularly in planning and project development, yet coordination with housing managers, regulators, and residents is often weak. Stronger cooperation is crucial for delivering widely accepted solutions.

POLICY BRIEF #1 - Policy lessons for decision-makers in heating and the energy transition | Dec 2025



What Stakeholders Say: Key Findings (continued from the previous page)

Barriers coexist with strong opportunities

Key challenges include aging infrastructure, fossil dependency, low connection density, limited digitalisation, and slow permitting. At the same time, major opportunities arise in building renovation, waste heat recovery, renewable integration (e.g. geothermal), digitalisation, and energy communities.

What Needs to Be Done: Policy Recommendations

1 Strengthen strategic and regulatory frameworks

Establish long-term national DH strategies aligned with national and international climate and decarbonisation objectives.

Mandate municipal heat planning and zoning to align building renovation, network development, and heat supply.

3 Support innovation and technology deployment

Promote the social benefits of DH, system optimization, smart control, and thermal storage to improve efficiency and flexibility.

Accelerate deployment of renewable heat and waste heat recovery through targeted incentives and streamlined permitting.

Expected Impacts

Accelerated decarbonisation of the heating sector and reduced reliance on (imported) fossil fuels

Faster modernisation of facilities and reduced heat losses

Greater investment certainty and mobilisation of capital

2 Enable investment and financing

Introduce stable and transparent tariff frameworks that enable DH modernisation while protecting consumers.

Expand blended finance instruments, guarantees, and public-private partnership models.

4 Facilitate inclusive governance and participation of all stakeholders

Reinforce municipalities' coordinating role in integrated heat planning by strengthening their capacities to convene stakeholders, align spatial/urban planning with energy planning, and translate plans into bankable project pipelines.

Improve transparency, consumer information, and user engagement in planning, billing, and renovation processes.

Improved cost efficiency, affordability, and reduced energy poverty

Increased share of renewable energy and waste heat in district heating

More resilient, flexible, and climate-proof heating systems

Key Message for Decision-Makers

REHEATEAST evidence confirms that transforming district heating is both a necessity and an opportunity. With clear policy direction, supportive regulation, coordinated investment, and inclusive governance, district heating can become a backbone of climate-neutral and socially just urban energy systems. The REHEATEAST project and its growing network of policymakers and practitioners will continue to support national and local authorities in turning this vision into practice.

For more information, please, contact:

Jure Čizman, Institut Jožef Stefan
jure.cizman@ijs.si

Institut "Jožef Stefan"
Ljubljana, Slovenija

Interreg Danube Region
Co-funded by the European Union

POLICY BRIEF #1 - Policy lessons for decision-makers in heating and the energy transition | Dec 2025

Results and impacts



Reduction of fossil fuel use



Increasing energy efficiency



Development of regional models

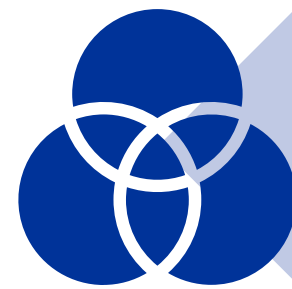


Public policy recommendations



Contribution to REPowerEU objectives

Pilots as learning and testing environments



Understanding diversity

- Different maturity levels of DHC systems across countries
- Different applications and pilot approaches within the REHEATEAST project



Learning through collaboration

- Exchange of experiences across borders
- Combination of informal and formal partner learning

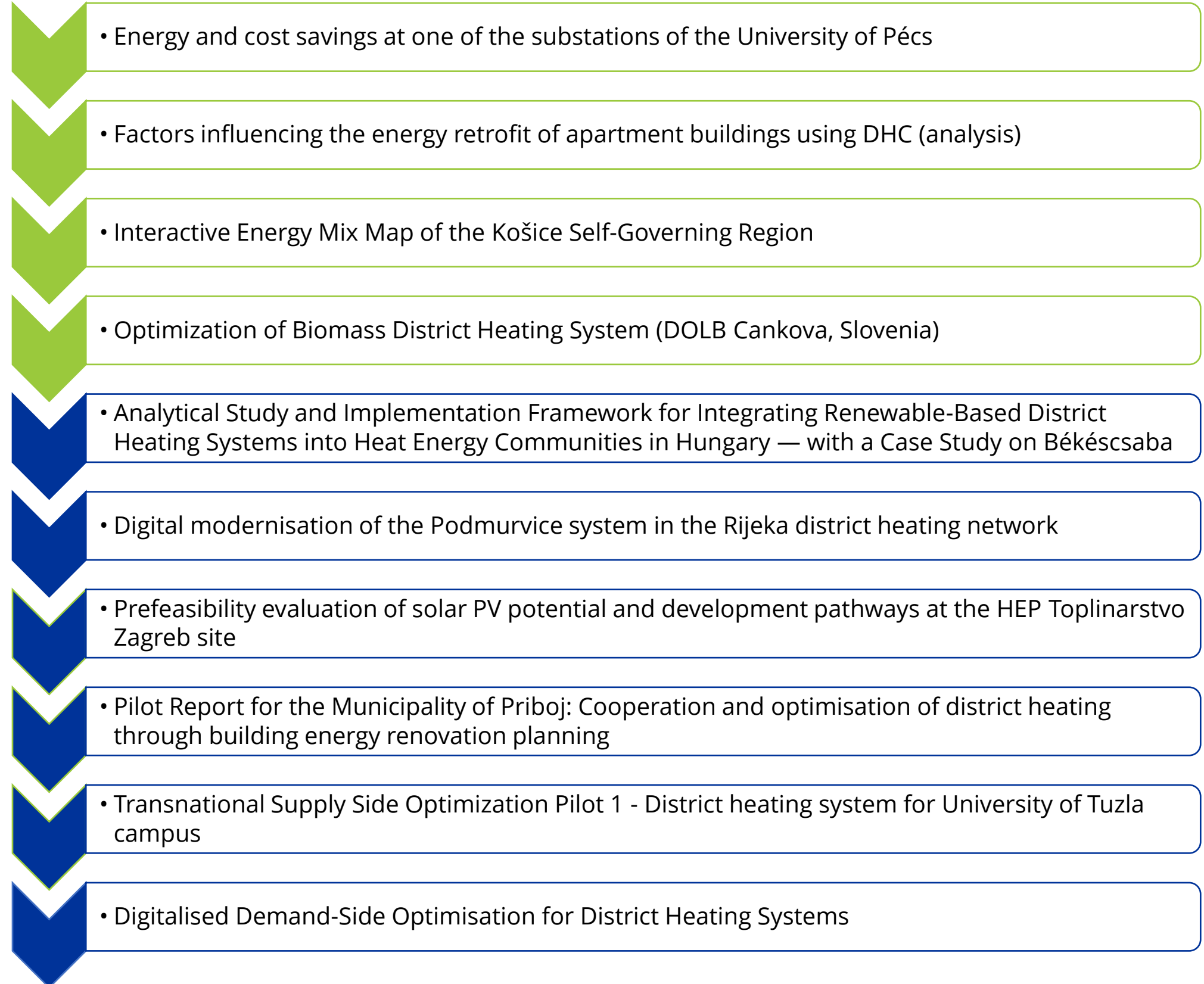


Testing approaches in practice

- Pilots as low-risk testing environments
- Need for phased implementation

REHEATEAST pilot actions

- Small-scale/local DHC solutions and feasibility testing
- Upgrading and optimisation of existing DHC systems
- Planning tools and decision support for DH operators and municipalities



Thank you for your attention!

Additional information:

<https://interreg-danube.eu/projects/reheateast>



<https://www.linkedin.com/showcase/reheateast/>



<https://www.facebook.com/reheateast>



Lea Leopoldović,
lleopoldovic@eihp.hr

**Interreg
Danube Region**



**Co-funded by
the European Union**

