



**Interreg**   
CENTRAL EUROPE European Union  
European Regional  
Development Fund

**ENTRAIN**

# **RENEWABLE DISTRICT HEATING**

*local success stories*

2022

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# Why local and small-scale renewable district heating?

Renewable district heating systems are currently among the most effective and economically viable options for reducing fossil fuel consumption and decarbonising heat use in urban areas. Despite the existence of ready solutions, in central Europe such approaches often lack the support of effective policies or investments.

DH systems fed by heat produced from renewable sources and focusing on quality has been one of the main objectives of the ENTRAIN project: building on existing experiences and collecting available knowledge to foster the diffusion of RES DH plants operating on quality standards and thus assuring economic and environmental sustainability.

Read the whole story published on the **[#cooperationiscentral](#)** Interreg CE blog!





## ENTRAIN

ENhancing renewable heaT  
planning for improving  
the aiR quAlity of commuNities



Knowledge transfer and local actions  
for renewable district heating



## ENTRAIN

Optimierung der Wärmeplanung  
aus erneuerbaren Energien zur  
Verbesserung der Luftqualität  
in den Gemeinden



Wissenstransfer für die Umsetzung von lokalen  
Maßnahmen, die nachhaltig mit erneuerbaren  
Energien aus Solarthermie, Biomasse oder Abwärme  
versorgt werden

**16**

**pilot DH plants  
initialisation**

**5**

**regional action plans**

**300+**

**local authorities reached**

**25**

**training sessions**

**230+**

**trained stakeholders**

**7**

**twin projects  
collaborating**

**29**

**(inter)national and local  
conferences and events**



# Enhanced QM

**Quality pays!**



**Biomass DH Plants**

4th and 5th generation district heating requires consistent shares of renewable energy sources in its production portfolio, in order to provide an essential contribution to the ambitious European objectives.

However, since the combined use of different RES within the same DH network is not yet a common technical solution, the need arises for a quality management system ensuring the environmental and economic sustainability of a DH system from its design to its operation and maintenance phase.

Within ENTRAIN, the **QM Holzheizwerke® system** (QM for Biomass DH Plants), born for biomass district heating in CH, AT and DE, has been widened to HR, IT, PL and SI.

**Translations of documents and tools**, as well as knowledge transfer for local stakeholders are provided. Furthermore, the QM system has been enhanced by **including other RES** (e.g. solar thermal, geothermal and waste heat) and thus made consistent with a modern approach towards increased flexibility.



# QM

Biomass DH Plants

One of the highlights which shows a good cooperation is the admission of project partner APE FVG as a new member of the **international Working Group on Quality Management for Biomass District Heating Plants** in 2020 which was initiated by the project. Furthermore, the rollout of the QM system by APE in Italy (which is ongoing at present) is considered as a major achievement not only within the project itself. The expansion of the international working group as well as the transfer of the QM system itself to Italy are outstanding events in the history of the QM system within the last few years.

The image shows two men in a video conference. The man in the foreground is wearing a dark sweater over a collared shirt and a headset. The man in the background is wearing a dark suit jacket and a headset. They are both looking towards the camera. The background includes a whiteboard with a red triangle and some papers.

# Knowledge transfer

**Train the trainers**

During the ENTRAIN project we had the possibility to learn from our expert partners!

We planned and organized **5 train-the-trainers sessions** in which the consortium and external guests benefited from our German and Austrian partners' knowledge and experience in renewable district heating.

The training was based on the QM system and guidelines but covers a wide range of topics, including **system basics, economics and financing, fuel and ash logistics, operation and optimization** of the heating plants.

[All trainings are available on the project website.](#)



# Capacity building

## Local trainings

Knowledge-transfer is essential to promote the uptake of an integrated and effective approach to energy planning by local stakeholders: in each region a **Regional Stakeholder Advisory Group (RSAG)** was established for the involvement and consultation of local stakeholders.


**Four rounds of local training sessions** targeting opinion leaders, decision makers and technical actors improved skills and expertise for initiating projects and proof the technical and economic feasibility of local renewable DH and the positive impacts on air quality, CO2 reduction, regional job creation. The trainings focused on case studies analysis, guidelines on planning procedures, reference technical standards and quality criteria and were tailored to the needs of the different target groups.

A total of **25 training sessions** were accomplished, with more than **230 stakeholders trained** during the project!





17



# Virtual study tours

We have collected a selection of video tours of renewable district heating plants across Europe.

Why should you watch them?

To **answer these questions:**

- How to retrieve heat from the underground water of an abandoned mine?
- How to integrate large-scale solar thermal?
- How are low-temperature district heating and large heat pumps an essential element?
- How to operated DH systems in a cooperative model?
- How to successfully engage the stakeholders?



# Local success stories

**FRIULI VENEZIA GIULIA (Italy)**

**NECKAR-ALB (Germany)**

**MAZOWIECKIE (Poland)**

**KARLOVAC (Croatia)**

**PTUJ (Slovenia)**

# Quality in district heating, a story from **FRIULI VENEZIA GIULIA**

APE FVG, the Energy management agency of Friuli Venezia Giulia region focused on transferring to Italy the **QM system, a quality management procedure** that supports and sets criteria for planning, design, construction and operations of biomass-fired DH networks.

Activities performed:

- detailed analysis of all the existing plants in the region, spotting criticalities and mistakes, and analysing hypothetical solutions;
- **17 pre-feasibility studies** of new possible DH networks for as many interested municipalities.

APE built a **strong network of regional stakeholders** and is cooperating with the regional authorities in order to make QM a mandatory quality procedure for obtaining regional funding.

**24 interviews** with local and national stakeholders also stressed the importance of adopting the QM standard in Italy.



# Solar and biomass for local community energy in **NECKAR-ALB**

The main barriers for RES DH development in the Neckar-Alb region have been so far the increased planning efforts, competition for space and the lack of awareness. Within ENTRAIN, the Regional Association Neckar-Alb, the Wood Energy Association BW and Steinbeis Research Institute Solites have supported local communities in **spatial planning** by creating GIS based maps in Neckar-Alb's target region.

**Sixteen pilot RES-DH projects** were identified for a professional accompaniment and the lessons learned have been distributed among regional players to raise awareness for modern, climate friendly and renewable heating solutions. The goal is to build a strong network that will carry on cooperation in heat planning beyond the project's end.

The success factors can be summarized as such:

- ***Strong support for planning efforts***
- ***Political support and dedicated spaces***
- ***Engaging local stakeholders***

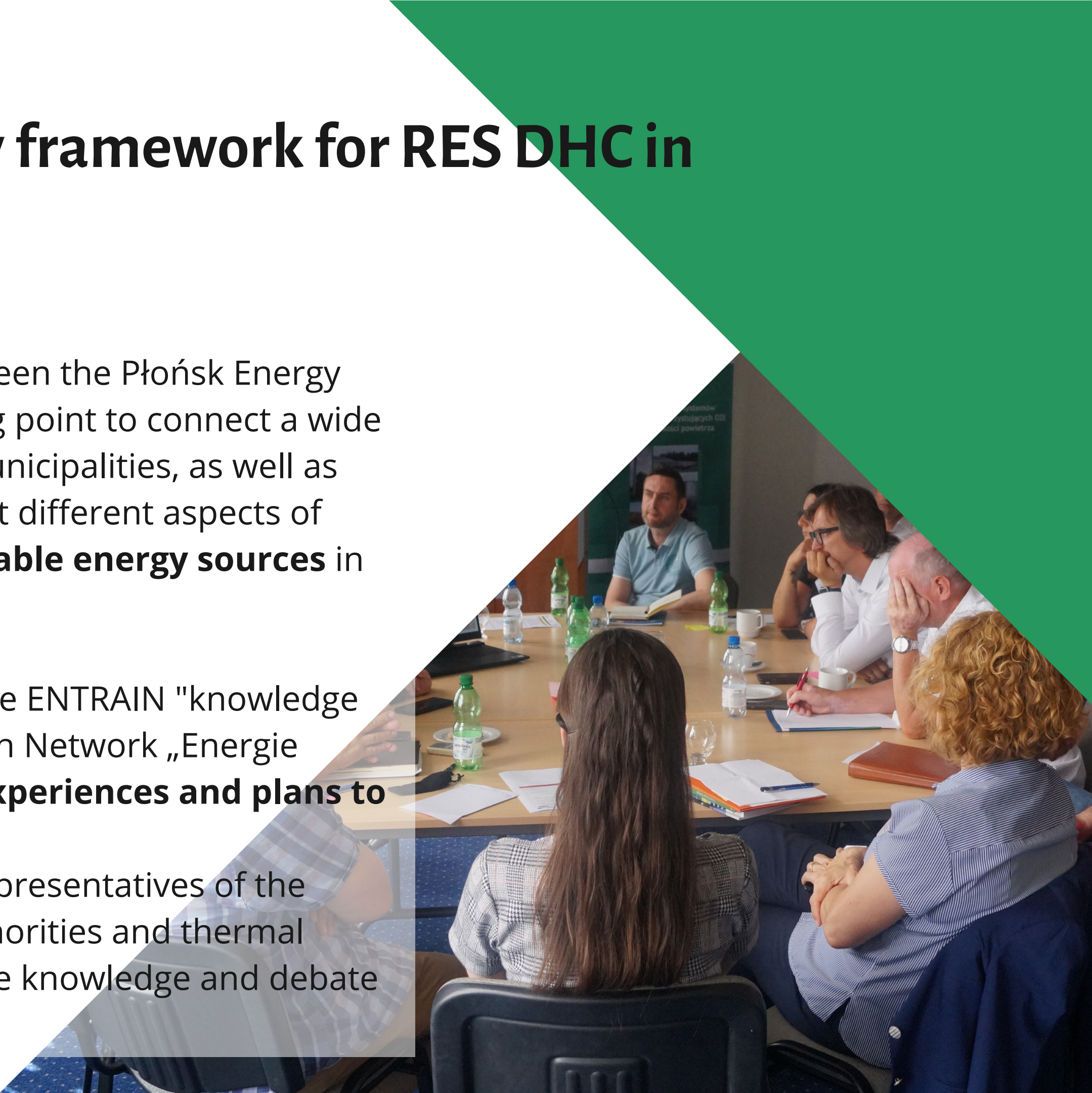


# Setting up an enabling policy framework for RES DHC in **MAZOWIECKIE**

In Poland the target region of the project has been the Płoński Energy Cluster area: ENTRAIN has been a great starting point to connect a wide range of representatives of Polish cities and municipalities, as well as experts who had the opportunity to learn about different aspects of **integrated urban planning** and use of **renewable energy sources** in district heating.

During the round tables organized as part of the ENTRAIN "knowledge transfer" the Association of Municipalities Polish Network „Energie Cités” (PNEC) facilitated the discussion about **experiences and plans to improve CHP biomass plant in Płońsk**.

The local trainings were also an occasion for representatives of the Ministry of Climate and Environment, local authorities and thermal energy companies from all over Poland to share knowledge and debate future strategies on the heating sector.



# Geothermal energy for district heating in **KARLOVAC**

The croatian city of **Karlovac** has a long tradition of using district heating: the North-west Croatian Regional Energy Agency (REGEA) and the ENTRAIN project supported the local municipality in exploring the possibility to utilize geothermal energy instead of gas.

Karlovac has a very high potential for the use of **geothermal energy, for heating** as well as **for recreational purposes** (e.g. pools and SPAs) as well as for **agriculture** (e.g. heated greenhouses). Such a cascade of users will enable the city and the system to use these valuable resources efficiently and also to expand the system and bring these benefits to even more parts of the city. REGEA is helping the city through this process also by delivering a **Green spatial and zoning plan**, the first one of its kind in Croatia.

This can be a lighthouse example of how to develop and implement green spatial plans thus enabling local and regional governments to explicitly and directly tailor their development pathways.



# Efficient renovation of existing district heating in **PTUJ**

The focus of the ENTRAIN project in Slovenia has been on the pilot project in the small city of **Ptuj**: the project had a great impact on the **reconstruction of the boiler room** of the district heating plant that serves the town, switching to a renewable energy source instead of a fossil fuel. The main goals were in fact **replacing natural gas with wood biomass**, reducing the peak load of the boiler room and connecting new consumers to the grid.

As project partners the Energy Agency of Savinjska, Šaleška and Koroška Region (KSSENA) and the Public Service Company Javne službe Ptuj d.o.o. gained a lot of **knowledge and experience from the other partners**, a valuable help to approach the reconstruction of the boiler room, and also the **local community's awareness** of the importance of renewable energy sources in DHS.

The use of the QM standard, which was translated into Slovenian language as a part of the project, was also of great help in the pilot project.



***...and  
more:***

Read the **press release** on the joint conference organized in Brussels on March 17th 2022 with projects REWARDHeat, TEMPO and the Celsius Initiative

Watch the **2-minute interview** by our lead partners that summarizes the whole project

Read the **six newsletters** published during these three years (2019-2022)





# Project partners



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Regionalverband  
Oberzentrum



[www.interreg-central.eu/entrain](http://www.interreg-central.eu/entrain)