

Solution Packages

Six technological innovations that contribute to minimising the temperature in networks and enables a cost-efficient implementation of low temperature networks will undergo final development in TEMPO. Each of the innovations can bring value to most district heating networks individually. However, the main strength of this project lies in the combination of the individual technologies into solution packages for dedicated application areas. Three solution packages customised to three different application areas, will be tested in selected representative demos.

The following technological innovations will be developed:

- Network Optimisation – Digitalisation
- Network Optimisation – Infrastructure
- Individual Building Optimisation

Application Area per Solution Package	Included Technological Innovations
01 New LT Networks in Urban Areas	Supervision ICT platform Visualisation tools Smart DHC controller Innovative pipe system Optimisation of building installation
02 New LT Networks in Rural Areas	Supervision ICT platform Visualisation tools Smart DHC controller Decentralised buffers Optimisation of building installation
03 Existing (HT) Networks	Supervision ICT platform Visualisation tools Smart DHC controller Optimisation of building installation

Our Partners

The TEMPO project consortium gathers ten partners in six European countries. It includes complementing partners such as research institutes, industrial companies, district heating operators, a university, and an industry association.



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Temperature Optimisation for Low Temperature District Heating across Europe

www.tempo-dhc.eu

About Our Project

The TEMPO – Temperature Optimisation for Low Temperature District Heating across Europe – project develops technical innovations that enables district heating networks to operate at lower temperatures. By decreasing the temperature in the systems, it reduces heat losses and allows a higher share of renewable and excess heat to be used as heat sources. The use of these heat sources will be crucial to adapt current district heating systems and create new ones suitable for a sustainable energy system.

Additionally, TEMPO develops innovative approaches to consumer empowerment enabled by digital solutions. The project will also develop new business models and demonstrate their replication potential for the roll-out of sustainable and economically viable district heating networks across the EU.



The Tempo project develops technical innovations that enables district heating networks to operate at lower temperatures”

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Nurnberg region (DE): New Low-Temperature District Heating Network - Rural Area

Brescia (IT): Existing High Temperature District Heating Network - Urban Area



**Nurnberg region (DE):
New Low-Temperature
District Heating Network**

The municipality of Windsbach has planned a new residential housing project, developed in rural area and heated by DH.

DH Network with TEMPO:

Temperature level decrease 65-55/25-30°C

Heat sources:

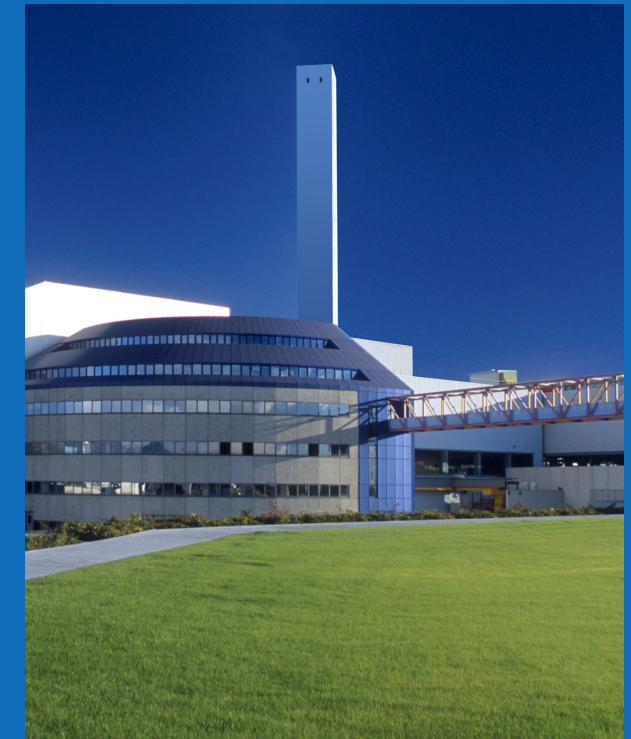
- Waste heat from existing biogas plant.
 - Two new bio methane CHPs
 - New DH system will be ready for low grade heat sources
- A smart network controller and innovative decentralised buffer units will be installed
A smart controller to minimize heat losses in the network.

The DH System in Brescia

The DH system in Brescia, is the largest DH system in Italy, with more than 1 TWh annual supply and covering about 70% of the town heat demand. Today more than 60% of the heat is produced by a waste-to-energy plant.

DH network with TEMPO

- Reduction of the network temperatures
- Involve end users in the project, as a test case for later projects
- Inclusion of TEMPO innovations



**Brescia (IT): Existing High
Temperature District Heating
Network**