



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 768936.



## Technologies to decrease district heating temperature levels – the TEMPO project

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TEMPO workshop

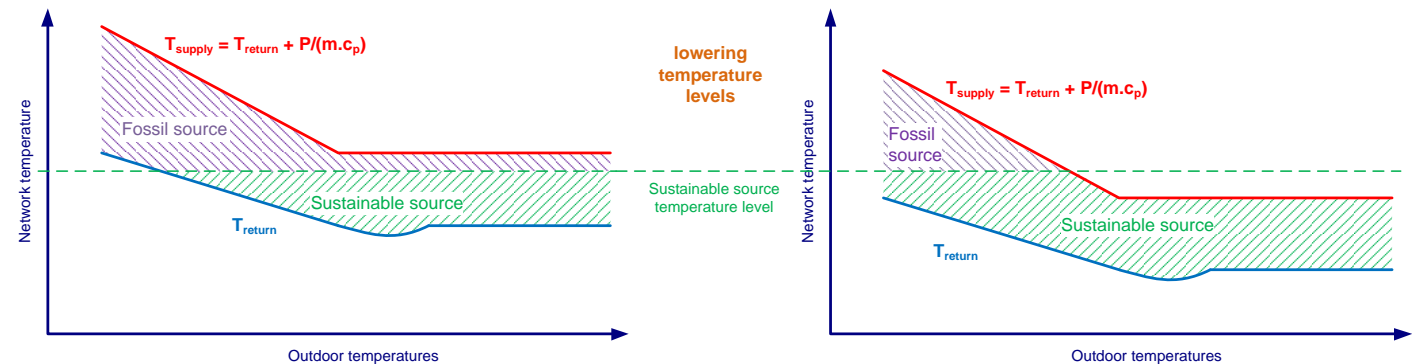
28 January 2021

# Lower network temperatures



## Benefits:

- Less heat losses
- Increased share of LT sustainable energy sources
- Increased efficiency of heat production technologies (heat pumps, CHPs, boilers etc.)



# Lower network temperatures



By technological innovations:

- Digitalisation
- Network and building infrastructure optimization

By business models rewarding low return temperatures

By consumer commitment

- Awareness creation
- Involvement



# TEMPO – project



- Horizon 2020 Innovation action project with 10 partners
- 6 Technological innovations
- Implemented and demonstrated in LT and HT networks
- 2 demonstration sites: Windsbach (DE) and Brescia (IT)
- Budget: 3,1 Meuro
- Project period: Oct. 2017 – March 2022

# TEMPO objectives

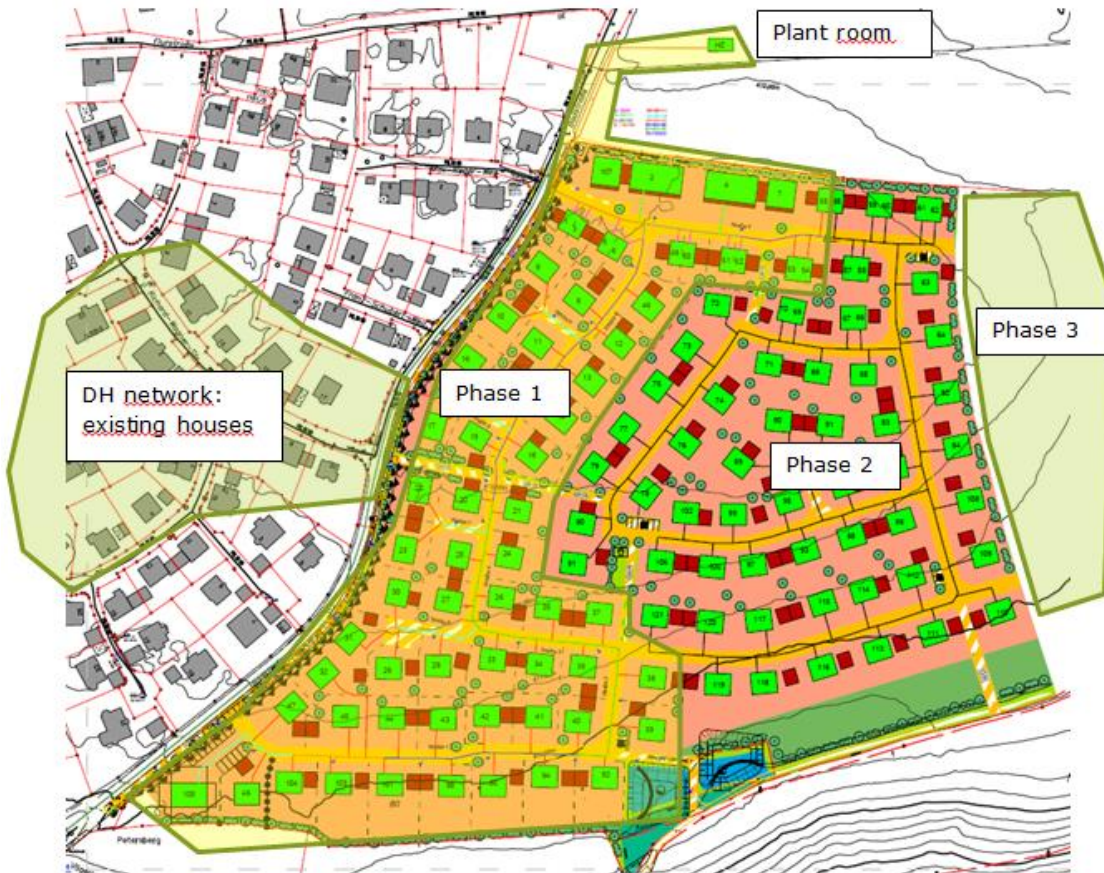
- Final development of **technological innovations** for low-temperature (LT) district heating (DH) networks.
- Quantify the **benefits of the TEMPO solution packages** for DH networks through demonstration in 2 representative demonstration sites.
- Empowerment of **end users** in LT DH network.
- Develop innovative **business models** and demonstrate their replication potential for the roll-out of sustainable and economically viable DH networks across the EU.
- Guarantee EU-wide **market uptake** of TEMPO solutions packages by developing an exploitation and replication plan.

# Technological innovations

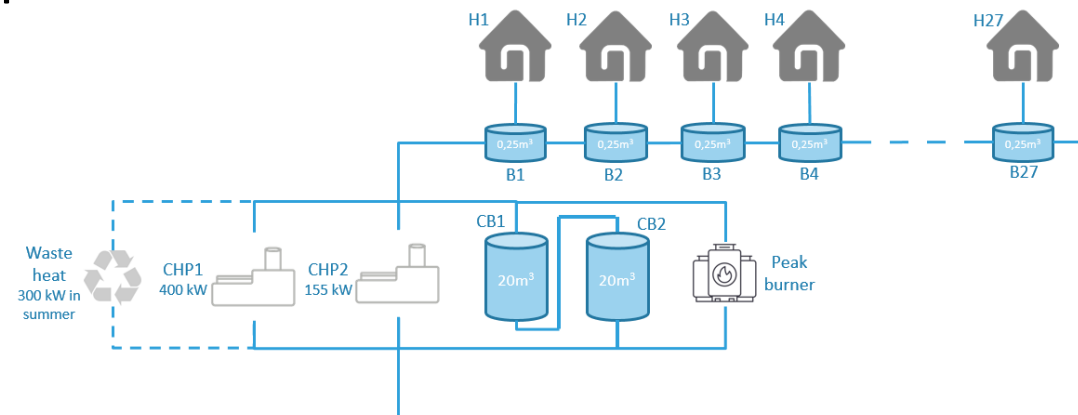


1. Supervision ICT platform for detection and diagnosis of faults in DH substations
2. Visualisation tools for expert and non-expert users
3. Smart DH network controller to balance supply and demand and minimise the return temperature
4. Innovative piping system
5. Optimisation of the building installation
6. Decentralised optimal controlled buffers at the consumer side

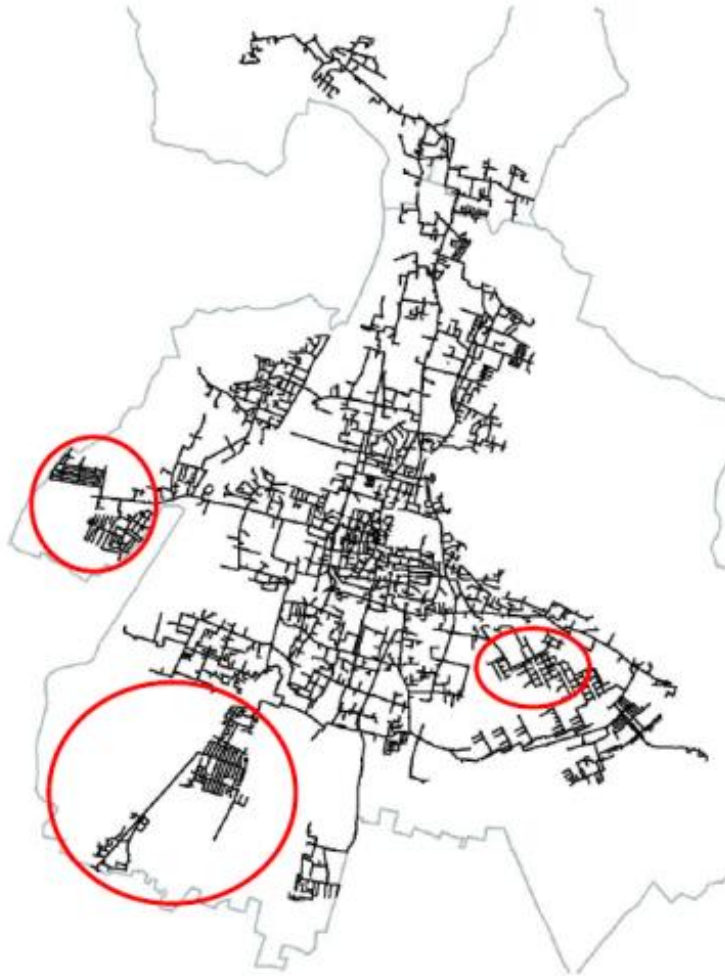
# Demo 1: Windsbach, Germany - ENERPIPE



- Newly-built area – 100 houses
- Energy supply by LT DH network
- Biogas fired CHP
- Central and decentralised buffers Enerpipe
- Innovations: decentralised buffers and optimal control



## Demo 2: Brescia, Italy – A2A



- Existing HT network
- Is it possible to decrease network temperatures in low heat density area's, through the TEMPO innovations?
- Main constraints: existing buildings, existing radiators/substations, small diameter house connection
- TEMPO innovations: Supervision ICT platform, Visualisation tools, Smart DHC controller, Optimisation of building installation





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Thank you for your attention!

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