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Temperature Optimisation for Low Temperature District Heating across Europe

Johan Desmedt, VITO/EnergyVille
Content

• Introduction
• H2020 TEMPO project
• Results
• Final words
Low network temperature

Benefits:

• Less heat losses
• Increased share of sustainable energy sources
• Increased efficiency of heat production technologies (heat pumps, cogeneration, boilers, etc.)

Source: IEA annex TS2
Low network temperature

By technological innovations:
• Digitalisation
• *Network* and *building* infrastructure optimization

By business models rewarding low return temperatures

By *consumer* commitment
• Awareness creation
• Involvement
Objectives

The H2020 TEMPO project will demonstrate the applicability of low temperature district heating through a **COMPREHENSIVE SOLUTION PACKAGE** including:

- technological innovations on the network and building side
- consumer empowerment enabled by digital solutions
- and innovative business model for EU replication.
## TEMPO consortium

<table>
<thead>
<tr>
<th>Participant No</th>
<th>Participant organisation name</th>
<th>Participant short name</th>
<th>Country</th>
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<tr>
<td>1 (coordinator)</td>
<td>Vlaamse instelling voor technologisch onderzoek</td>
<td>VITO</td>
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<td>2</td>
<td>NODAIS AB</td>
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<td>3</td>
<td>AIT Austrian Institute of technology GmbH</td>
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<td>Thermaflex International Holding bv</td>
<td>THF</td>
<td>The Netherlands</td>
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<td>5</td>
<td>Steinbeis innovation GGMBH</td>
<td>Solites</td>
<td>Germany</td>
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<td>Smet GWT nv</td>
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<td>Belgium</td>
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<td>Germany</td>
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<td>8</td>
<td>ENERPIPE GmbH</td>
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<td>A2A Calore &amp; Servizi SLR</td>
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<td>Hogskolan</td>
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<td>11</td>
<td>Euroheat &amp; Power</td>
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Demo 1: Windsbach, Germany - ENERPIPE

- Newly-built area – 50 houses TEMPO - 100 houses in total
- Low temperature district heating network
- Biogas fired cogeneration units
- Central and decentralised buffers Enerpipe
- Innovations: decentralised buffers and optimal control

www.tempo-dhc.eu
Demo 2: Brescia, Italy – A2A

- Existing high temperature network
- Stepwise reduction of network temperatures
- Main constraints: existing buildings, existing radiators/substations, small diameter house connection
- Innovations: Supervision ICT platform, Visualisation tools, Smart district heating network controller, Optimisation of building installation
Results - 1

Secondary return temperature apartment building in °C

- Controller not active at night time
- Main reduction of the return temperature
- Smart controller district heating networks
- Decentralised buffers

a) LT monitoring
b) RT optimisation
Results - 2

ICT platform for fault detection substations

Building simulations
Things to remember
Big thanks to

• You!
• All project partners for the great work and friendship
• Our project officers at CINEA for their support
• EHP for the organization of this final event
• My colleagues for all their contributions and insights into low temperature district heating networks and digitalization
Thank you!

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