Barriers and solutions for implementing 4th generation district heating

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4DH
4th Generation District Heating Technologies and Systems
Experiences with 4DH

- Presenting this concept since 2 years
- Introducing it to District Energy companies
- Proposing it for projects
Experienced Barriers:

- conservative engineers
- existing building stock demand higher temperatures
- low energy houses with individual solutions
Proposed Solutions:

- Wider stakeholder involvement
- Focus on areas, where new solutions can be planned from the very beginning
DHC District Heating Cooling

Who are the Stakeholders

- Energy Provider
- Municipality
- End User
- Designer Installer
- Housing Developer & Cooperation

External forces
What are your stakeholder expecting?
Do you know their wishes & challenges?

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Wishes &amp; challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipality</td>
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<tr>
<td>End Customer DH</td>
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<tr>
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We have made some analysis...

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<tr>
<th>Stakeholder</th>
<th>Wishes &amp; challenges from our experience</th>
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<tbody>
<tr>
<td>Municipality</td>
<td>Reliable operator for the DH system, keeping money in the region, Sustainable solution, saving trees, plants and infrastructure, Fast realization with minimum disruption</td>
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<tr>
<td>End Customer DH</td>
<td>Reliable and good “value for money” heating and hot water Minimum disturbance during installation</td>
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<tr>
<td>Housing Developer &amp; Co-operations</td>
<td>Cost efficient and “green energy”, affordable houses for young families, meeting green building standards</td>
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<tr>
<td>Installer/contractor</td>
<td>Easy to install system, simple to adapt to ground conditions, certificates for system installation, meeting deadlines</td>
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<tr>
<td>Designer</td>
<td>Keeping all regulations, optimized system with high energy efficiency</td>
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<tr>
<td>Energy Provider</td>
<td>Security on long-term operation, high connection rate, fair heat/cool price, low operation/maintenance cost</td>
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Key points for the Municipality:

- Driving towards fossil free heating and cooling systems,
- Helping that 70% and more of the heating/cooling bills stays in the region.
- Supporting the implementation of thermal networks

“Networks are the environmental capital for the community when it comes to renewable energy.”
Low Energy Buildings: Wörgl/Austria

60/40°C

Green Energy (Biomass/Industrial waste heat)

20 houses connected

FlexaNet Solution
Hengelo, NL – a dynamic city

Industrial waste heat for 5,000 new apartments

Example: Park Veldwijk

70°C/40°C

Source: http://www.parkveldwijkhengelo.nl/
Milano City Life
Sustainable District Heating & Cooling networks
Connection with the future
Innovation: Thermo-chemical district networks

- Multifunctional smart network
- Different temperatures levels
- No thermal losses
- Optimum recovery of waste heat and low temperature sources

Special focus in Session 16 >>> H-DisNet
Conclusion

- 4th DH is realized today
- Let’s spread the word about successful examples
- Have all key stakeholder involved
- New developments eg H-DisNet will give an extra boost
Thanks and please share your comments.

Let's connect!
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