Eurométropole de Strasbourg

District heating case study using THERMOS

THERMOS Training & Capacity Building Workshop
Berlin, 06/12/2019
Strasbourg - Context

Oceanic/Semi-continental climate

Heading Degree Days (base 17°C) : 2330

New temperature record reached in June 2019 : 38.8°C

City population : 280,000
Eurométropole pop. : 488,000

2017
Energy demand : 12.1 TWh/year
Heat demand : 4.3 TWh/year
Cooling demand : 0.2 TWh/year
Historic & new District Heating networks

Strong development in the 1970s, renewed development and interest since 2010

4 public DH concessions & several private networks

603 GWh heat delivered (12.5% of the heat demand)

40% ENR (Biomasse & heat recovery) and 60% gas
Ambitious 2030 goals for DH & DC in Strasbourg:

- 1 093 GWh heat delivered (+80%),
- Increase ENR from 40% to 75% (heat strategy largely focused on geothermal and waste heat recovery).

How?

Develop ENRs and develop DH & DC!

- Create an energy company / increase public governance,
- Channel public investment to transport heat,
- Densify existing networks,
- Create DH strategies in the mid-size and small towns surrounding Strasbourg.

To get there, in-house expertise required ->
THERMOS Case Study: Strasbourg Satellite Town

Town: Lingolsheim
(pop. 18 000, 6km from Strasbourg centre)
### First results using THERMOS

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
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<tbody>
<tr>
<td>Heat demand</td>
<td>115 GWh</td>
</tr>
<tr>
<td>Capacity</td>
<td>47 MW</td>
</tr>
<tr>
<td>Pipe length</td>
<td>29 km</td>
</tr>
<tr>
<td>Pipe cost</td>
<td>14,7 m €</td>
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<tr>
<td>Energy density</td>
<td>4 MWh/ml</td>
</tr>
<tr>
<td>Energy production costs (min 65% ENR)</td>
<td>??</td>
</tr>
<tr>
<td>Aim</td>
<td>17 MW ENR</td>
</tr>
<tr>
<td>- Biomasse</td>
<td></td>
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<tr>
<td>- Heat pumps</td>
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<tr>
<td>- Heat recovery (industriel site)</td>
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<tr>
<td>- Heat purchase from neighbouring DH network</td>
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</tbody>
</table>
Some difficulties using the tool:
- Setting tariffs at the beginning of the model,
- Setting costs: need to translate local costs using the formula,
- Run time required to find bugs (30 minutes).

Concrete next steps
- Positive reception from local council members & teams,
- Agreement to formalise this area for public DH development,
- Further study & negotiation required for heat supply,
- Use thermos to compare different heat sources,
- Question for the group: assistance required for heat demand and network pre-design?

Overall a very positive experience!