Industrial Heat Pumps Cases in France

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French IHP references database

Sources of information
- Internal EDF documents
- Own R&D developments
- Manufacturers (but poor information)
- Communication on internet
- National seminars (ATEE, Ademe)
French HP references database

New sources of information:
Internal sharepoint "heat recovery"
• Open within EDF Group (EDF, DALKIA)
• Share local information about réalisations and competition
## Database analysis

<table>
<thead>
<tr>
<th>Industry Sector</th>
<th>Total installed capacity (kW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>440</td>
</tr>
<tr>
<td>Chemical</td>
<td>3 164</td>
</tr>
<tr>
<td><strong>District heating</strong></td>
<td>89 535</td>
</tr>
<tr>
<td>Education</td>
<td>419</td>
</tr>
<tr>
<td><strong>Food industry</strong></td>
<td>18 112</td>
</tr>
<tr>
<td>Malt Industry</td>
<td>4 500</td>
</tr>
<tr>
<td>Sports &amp; Recreation - Swimming Pool</td>
<td>500</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>116 700</strong></td>
</tr>
</tbody>
</table>
Database analysis: heat sources
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Number of occurrences of Heat Source Type in the database

- Chiller condensation: 5
- Cooling of CHP engine: 2
- Cooling towers: 8
- Exhaust mists: 3
- Flue gas: 6
- Geothermal: 5
- Incineration flue gas: 5
- Process steam: 3
- Return water of the...: 1
- River water: 2
- Sea water: 2
- Sewage water: 4
Database analysis: COP

COP Vs. Supply Temperature (°C)
Conclusion of the database analysis

- IHP plays an important role in France in Heating District network.
- For heating district network, the main sources of energy are geothermal and sewage water.
- The food industry is the largest industry sector for IHP.
- The heat sources are cooling towers and chillers condensers.
- There is no clear correlation between the COP and the supply temperature.