Policy Event- ReUseHeat

Policy Event 20191002, Brussels

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**Objective**: Demonstrate system innovations that are advanced, modular and replicable systems enabling the recovery of urban waste heat
The ReUseHeat project

Context

- EU decarbonisation
- H&C: 50% of EU final energy use
- EU Strategy on H&C

Waste energy
- Building renovation
- Increase RES share
- User’s involvement

Industrial Urban

Support the energy transition!

www.reuseheat.eu @ReUseHeat #H2020Energy #ResearchImpactEU
The ReUseHeat project

Expected results:

- Identify the urban waste heat potential & what happens if we use it
- **Stakeholder analysis**: Who? Needs? How?
- Validated technologies for 4 system innovations
- Identify necessary adjustments to existing business models and contracts
- Address the financing constraints: investment risk & bankability
The ReUseHeat project

Short facts:

▪ Partners from 9 countries
▪ Academia, Industry and Associations
▪ H2020 (Innovation action- focusing on system innovations)
▪ Estimated project cost €4,883,672
▪ 48 months (we are in month 25)
▪ 4 system innovations

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The ReUseHeat project

4 system innovations in focus: METRO - DATA CENTER - SEWAGE - HOSPITAL

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The ReUseHeat project

Large amounts of heat are being wasted!

Industrial (high temperature) and Urban (low temperature)
Waste heat recovery- industrial

The total volume of industrial heat recovery in the EU that is recovered is 30 PJ/year*

Little of it is recovered into national DH systems**

<table>
<thead>
<tr>
<th></th>
<th>Industrial heat recovery, PJ</th>
<th>Proportion of total heat supply</th>
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</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>2.6</td>
<td>2.1%</td>
</tr>
<tr>
<td>Finland</td>
<td>2.9</td>
<td>2.3%</td>
</tr>
<tr>
<td>France</td>
<td>2.2</td>
<td>2.4%</td>
</tr>
<tr>
<td>Germany</td>
<td>4.0</td>
<td>1.6%</td>
</tr>
<tr>
<td>Russia</td>
<td>330.8</td>
<td>6.0%</td>
</tr>
<tr>
<td>Sweden</td>
<td>17.8</td>
<td>9.0%</td>
</tr>
</tbody>
</table>


** Lygnerud & Werner, Risk assessment of industrial excess heat recovery in district heating Systems, Energy (151), 2018, 430-441
Waste heat recovery - urban

The total volume of urban heat recovery in the EU that is recovered is *unknown*

**There is potential!**

1.2 EJ/yr are possible to recover from data centres, metro stations, service sector buildings, and waste water treatment plants ≈ 10% of the EU’s total energy demand for heat and hot water (10.7 EJ)
Urban waste heat recovery business challenges*

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>Low technical maturity of the existing system solutions</td>
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<tr>
<td>2</td>
<td>Long payback periods</td>
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<td>3</td>
<td>Existing incentives for RES and CHP</td>
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<td>4</td>
<td>Absence of a legal framework for urban waste heat recovery</td>
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<td>5</td>
<td>Absence of standardized contracts</td>
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<tr>
<td>6</td>
<td>Diverging views of the value of heat</td>
</tr>
<tr>
<td>7</td>
<td>The low temperature of urban waste heat</td>
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</tbody>
</table>

*Contracts, Business Models and Barriers to Investing in Low Temperature District Heating Projects

*Applied Sciences, Lygnerud, Wheatcroft and Wynn

*July 2019
ReUseHeat - Policy event

1. Put the legal framework in place - Waste heat falls in between

2. Build a track record of waste heat recovery projects - Validation lowers risk

3. Financial support and guarantees - Investors want to invest in green