

Policy recommendations – Putting the right framework and incentives in place to boost WH recovery

- the ReUseHeat experiences



June 25th, webinar, DHC+ Talks

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1. The ReUseHeat experience

1. ReUseHeat project in short

2. Urban waste heat recovery: how it works

3. The low temperature waste heat (urban waste heat) potential

4. The economic and financial perspective: the ReUseHeat policy

recommendations



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

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Abstract: Approximately 1.2 EJ of energy are potentially available for recovery each year from urban heat sources in the EU. This corresponds to more than 10 percent of the EU's total energy demand for heat and hot water. There are, however, a number of challenges to be met before urban waste heat recovery can be performed on a wide scale. This paper focuses on the non-technical issues related to urban waste heat recovery and is written on the basis of opinions gathered from stakeholders in the field. Three non-technical issues are focused upon. First, a number of important barriers to wide-scale urban waste recovery are identified, and where applicable, recommendations are made regarding how to overcome these barriers. Second, important issues and challenges regarding contract design are identified and discussed. Key elements of heat supply contracts between the district heating company and the owner of the waste heat are described. Finally, the impact on business models of properties specific to urban waste heat recovery are discussed. Data were collected from two separate sources, both related to the ReUseHeat Horizon 2020 project, which addresses the application of urban waste heat recovery in existing district heating networks. First, a number of interviews with stakeholders were carried out. Second, information was collected from demonstrator sites involved in the ReUseHeat project. It was concluded that, for urban waste heat recovery to be taken up on a wide scale, there is still a large amount of work to do to overcome these major issues. This paper is novel in that key non-technical issues of urban waste heat recovery are discussed from the perspective of a large sample of actual stakeholders and practitioners in the field.

Keywords: urban waste heat recovery; barriers; contracts; business models



Article
The Role of Low Temperature Waste Heat Recovery in Achieving 2050 Goals: A Policy Positioning Paper

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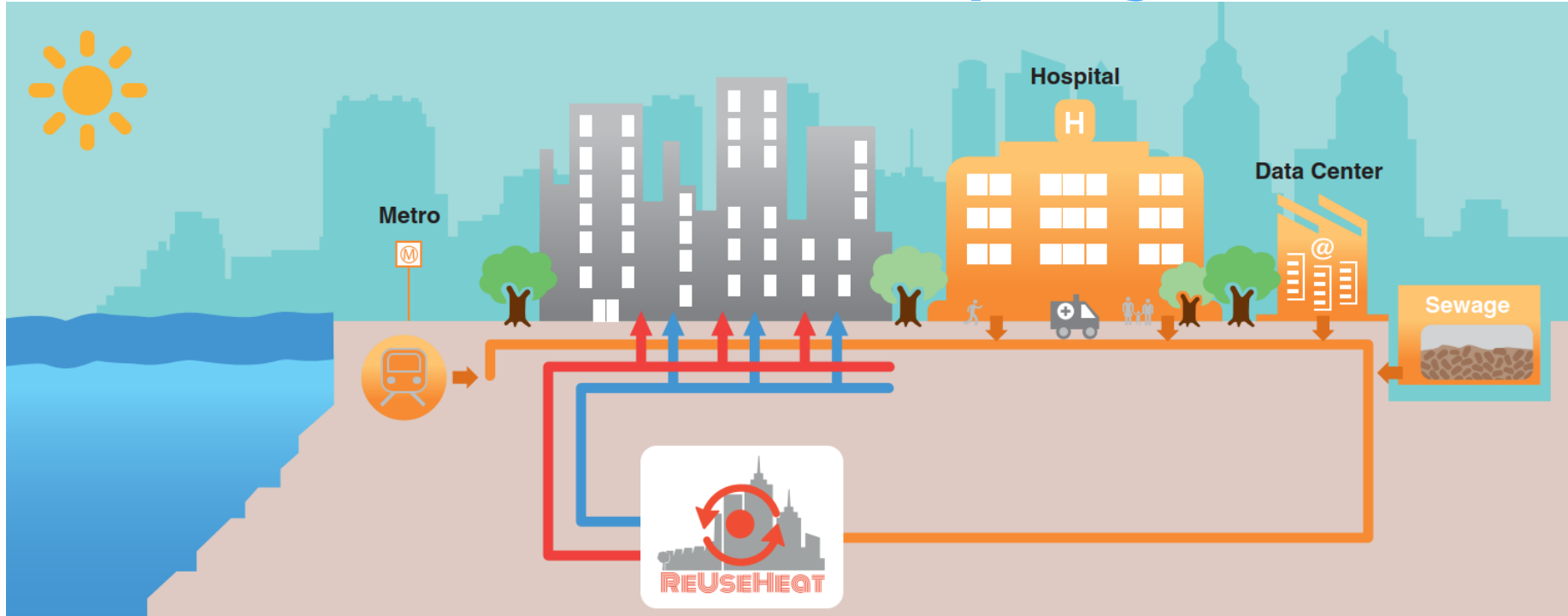
Abstract: Urban waste heat recovery, in which low temperature heat from urban sources is recovered for use in a district heat network, has a great deal of potential in helping to achieve 2050 climate goals. For example, heat from data centres, metro systems, public sector buildings and waste water treatment plants could be used to supply 10% of Europe's heat demand. Despite this, at present, urban waste heat recovery is not widespread and is an immature technology. Based on interviews with urban waste heat stakeholders, investors interested in green investments, and experience from demonstrator projects, a number of recommendations are made. It is suggested that policy raising awareness of waste heat recovery, encouraging investment and creating a legal framework should be implemented. It is also recommended that pilot projects should be promoted to help demonstrate technical and economic feasibility. A pilot credit facility is suggested aimed at bridging the gap between potential investors and heat recovery projects.

Keywords: district heating and cooling; urban waste heat recovery; data centres; metro systems; low temperature; excess heat

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1. The ReUseHeat project



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

1. The ReUseHeat project

Expected results:

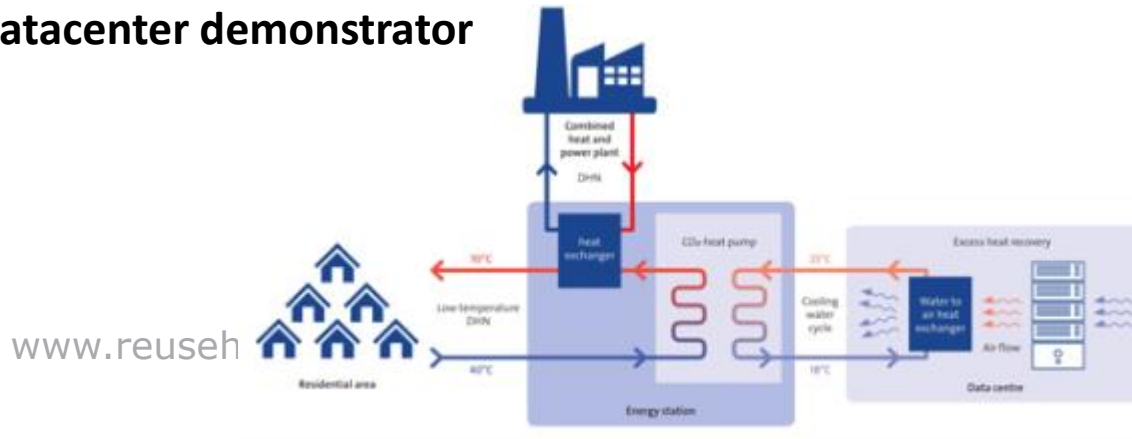
- Identify the urban waste heat **potential & what happens if we use it**
- **Stakeholder analysis**: Who? Needs? How?
- Validated **technologies** for 4 system innovations
- Identify necessary adjustments to existing **business models and contracts**
- Address the financing constraints: **investment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

Global district energy climate award 2019- newcomer category!



Sustainable energy solutions for today and tomorrow!

Datacenter demonstrator



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ReUseHeat | Braunschweig, Germany

ReUseHeat – excess heat recovery from the data center | Braunschweig, Germany Veolia is expanding its activities in the energy sector in order to stay at the vanguard of the transition to renewables. Veolia's subsidiary BS|ENERGY operates a city-wide district heating network powered by



Excellent innovation- key innovation in H2020 program

The project has been analysed by the European Commission's Innovation Radar and is seen as one key innovation in the H2020 program!



Information on the European Commission's Innovation Radar platform on July 20th

2. Urban waste heat recovery: how it works

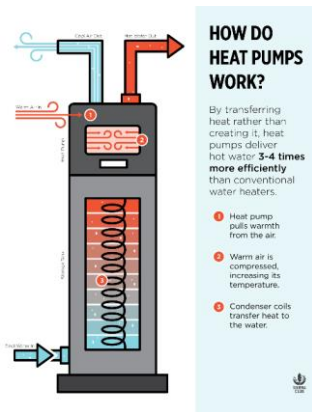
The most efficient heat recovery is made in new buildings with low energy demand but the urban waste heat can also be recovered into existing DH networks (islands with switches)

The technology is based on heat pumps boosting the temperatures to desired levels

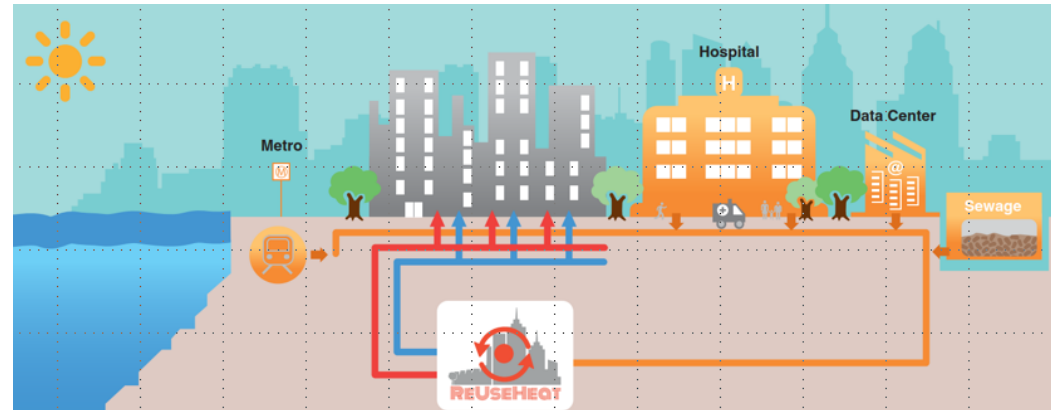
- Datacenter in Braunschweig (20-25°C to 65°C)- from datacenter to low temp network accounting for legionella
- Hospital in Madrid (25-35°C to 55°C)
- Metro in Berlin (8-15°C to 50°C)

2. Urban waste heat recovery: how it works

Heat pumps are no news but the design of a **system of low temperature waste heat recovery where the heat pump is a facilitating technology is news...and much needed in 2050**



+



= NEWS

3. Urban waste heat potential

Approximately **1.2 EJ** (or 340 TWh) per year are possible to recover from data centres, metro stations, service sector buildings, and waste water treatment plants.



This corresponds to more than **10 % of the EU's total energy demand for heat and hot water**, which is approximately 10.7 EJ (or 2,980 TWh)*

4. The economic and financial perspective: the ReUseHeat policy recommendations

The economic and financial perspective

The system implementations are new...this means:

- No standardization: long paybacks
8-17 years in ReUseHeat....but is it an issue?
- Old (high temperature) business logics remain
Central production --- Decentralized
Customers --- Prosumers
Heat and hot water --- the value of green
- The investments are too small to attract institutional investors (5M€)
- District energy is news to the investor (makes due diligence difficult)- more so with the urban waste heat recovery solution

The regulatory system is not clear

- What is waste heat?
Is it comparable to RES?
- There is no direct incentive for low temperature heat recovery
But such exist for RES...so urban waste heat recovery investments competes with subsidized RES investments
- Review the legislation of Legionella
There are urban waste heat recovery solutions that eliminate the risk of it

The ReUseHeat policy recommendations

- **Low awareness** of the possibility to harvest low temperature sources and their potential – make pilots to build capacity!
- **Motivation for engaging in green energy** needs to encompass urban waste heat (not compete with them)- create incentives!
- **Derisk the investment** in urban waste heat recovery investment- credit facility!*

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Thank you for your attention!
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