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Energy from Wastewater

Heating from wastewater for Tulln City Hall

15th IEA HEAT PUMP CONFERENCE, 26.05.2026



Rabmer Group

We combine tradition with innovation

- Rabmer is an internationally operating group of companies consisting of 7 companies headquartered in Altenberg/Linz, Austria.
- Family business in its second generation – founded in 1963
- Managing Partner: Ulrike Rabmer-Koller
- Fields of activity: Civil engineering, real estate, municipal services, environmental technology and renewable energy
- Focus on water and wastewater as well as energy efficiency solutions in the field of environmental technology









Rabmer Group

We combine tradition with innovation

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GRUPPE. QUALITÄT. KOMPETENZ. INNOVATION.

- Rabmer stands for quality, competence & innovation and has already received several awards.



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Our environmental technology products

- **Energy from wastewater**
- Ecowaterjet by rabmer® Water and energy efficiency
- AQUABION® Limescale and corrosion protection
- Water treatment systems
- Grease inhibitors for grease separators and wastewater systems
- Pipe, shaft and tank rehabilitation
- PV roofs



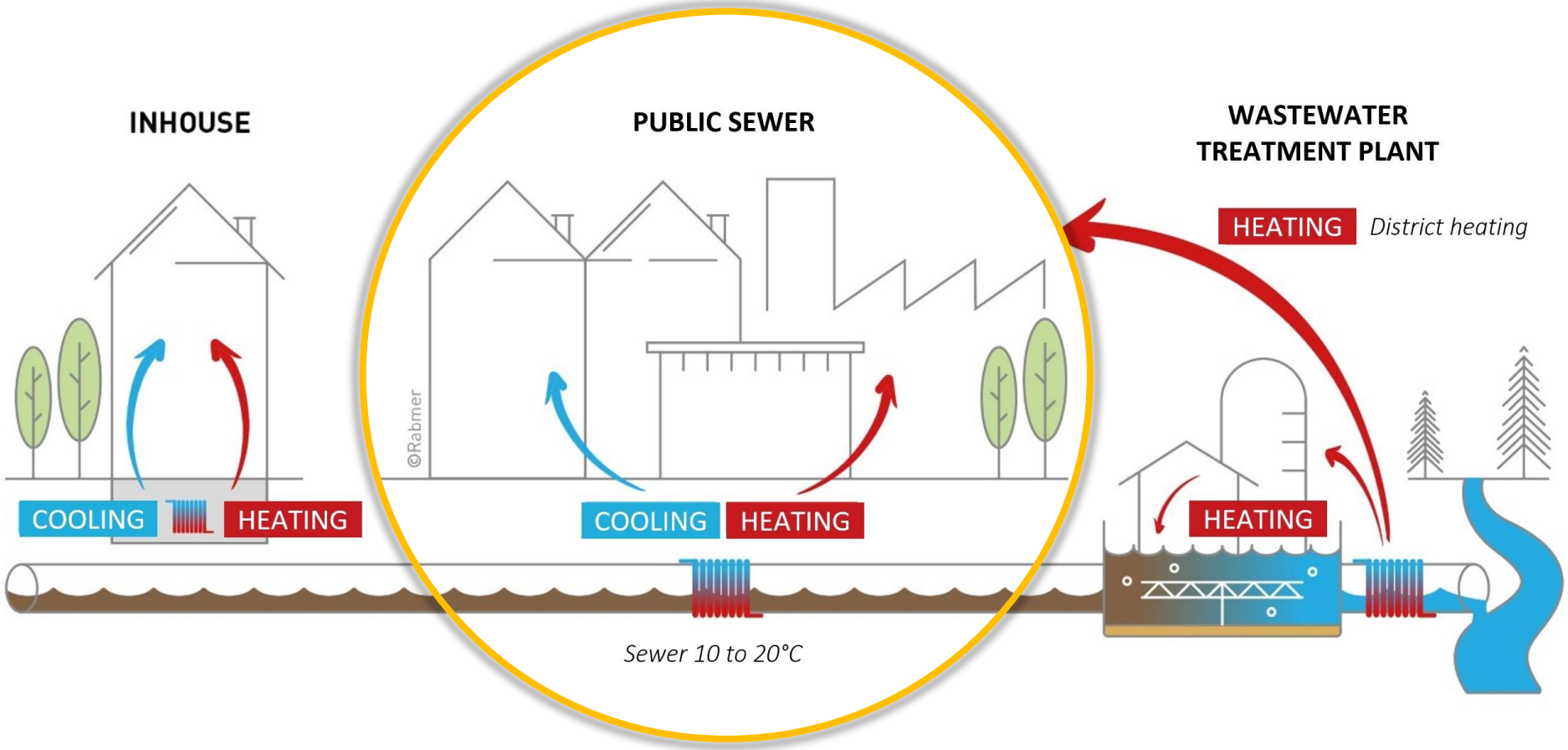




Why generate energy from wastewater?

- **Since 2018: Energy from wastewater has been classified by the EU as a renewable energy source.**
- CO2 targets can only be achieved with renewable energies and a phase-out of fossil fuels.
- Energy from wastewater = **contribution to the decarbonization of the building sector**
  - **Available 24/7 and all year round**
  - **Temperatures in the sewer range between 12-20°C (industry often higher)**
  - Available in urban areas with often high heating and cooling demands
  - **Heating and cooling from a single source is possible.**
  - Long-established and mature technology: combination of heat exchangers and heat pumps
- Guidelines available: e.g., in Austria, ÖWAV-AB 65/2021 or in Germany, DWA leaflet M114

What are the possible applications?



Application in case of Tulln City Hall

What conditions must be met?

- Sufficiently large sewer pipe ≥ DN 800 (except for pressure pipes/new construction)
- Available wastewater volume ≥ 10 l/s
- Temperature ≥ 8°C
- Proximity of the consumer to the sewer
  (depending on the temperature level in the sewer; rule of thumb:
  100 m distance per 100 kW, e.g. 1 MW up to a maximum of 1 km…)
- Heating/cooling load requirement ≥ 50 kW
- Coordination with and approval from the sewer and sewage treatment plant operator



Municipal facilities:

Heating with wastewater at Tulln City Hall

- Wastewater energy for heating system replaces 1 (of 2) gas boilers
- Utilization of the heating potential in the sewer directly adjacent to City Hall
- Heat exchanger in sewer bed (public sewer):
  - Sewer: Egg-shaped profile 700/1050 & 800/1200
  - 88 m Therm-Liner
  - Approx. 75 kW thermal output (Design point: heating)
- Commissioning November 2024
- IDM heat pump with 95–105 kW heating capacity
- Scope of Rabmer’s project:
  - Concept evaluation and assessment of economic and technical feasibility, installation of the heat exchanger system including monitoring system, and support during commissioning





Quelle: Rabmer GreenTech GmbH

Innovative on-site monitoring

- Optimal control of heating and cooling operations
- Monitoring of energy production and its impact on wastewater parameters
  - On-site, sewer network and wastewater treatment plant
  - Monitoring system in the sewer network based on the ThermaFLEX project (implemented in Vienna Blumental)
- Increasing acceptance of wastewater management – particularly when used in the sewer system

- Continuous measurement of relevant parameters at the project City Hall Tulln:
  - Wastewater side: Temperature before and after the heat exchanger, wastewater level
  - Building side: Heat pump operating data, heat meters for primary and secondary circuits

Heating/cooling quarter:

VIO Plaza Quarter in Vienna

- Wastewater heat recovery for cooling and heating
- Neighborhood (offices, shops, hotel, etc.) with approximately 3,500 people
- In operation since 2024
- Heat exchanger in the channel bed (public sewer)
  - 2 x 185 m Therm-Liner in two parallel sewers
  - Heat exchanger design: 6 MW cooling capacity and 1.2 MW heating capacity
- Trane heat pumps (operated by Wien Energie)
  - 1x heat pump with approximately 2 MW nominal heating capacity
  - 3x chillers (2x screw chillers, 1x turbo chiller) with 7 MW nominal cooling capacity
- District heating as a secondary heat source
- Innovative monitoring
  - Support for the operation of the heating/cooling plant
  - Measurement of factors affecting sewer operation (temperature, fill level, etc.)





Quelle: Rabmer GreenTech GmbH

Industrial heat recovery:

Voest Alpine Automotive Linz

- Heating for production hall and office building
- Conversion from gas to energy from wastewater as heating source
- Use of cooling water channel directly adjacent to production hall
- Commissioning November 2024
- 166 m Therm-Liner heat exchanger in the channel bed
- 2 large Carrier heat pumps: 1 MW heating capacity
- Rabmer as partner from A to Z (concept review, preliminary design, basic and detailed engineering, installation of the heat exchanger system—including a monitoring system—as well as support during commissioning)





Quelle: Rabmer GreenTech GmbH

Conclusion – Why energy from wastewater

- Wastewater is available year-round as a renewable energy source.
- Combining heat exchangers and heat pumps enables heating and cooling with high efficiencies.
- Numerous implementation examples for a wide variety of applications.
  - Heating and cooling of buildings and districts possible
  - Feed-in to local and district heating networks
  - Use in the sewer system, at/after the wastewater treatment plant and in-house
- Innovative monitoring and intelligent control enable optimal operation.
- Intelligent coupling with alternative energy sources is beneficial.
- Wastewater energy enables greater flexibility in the decarbonization of the building sector.









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