HOLISTIC ENERGY MANAGEMENT AND THERMAL WASTE INTEGRATED SYSTEM FOR ENERGY OPTIMIZATION

HEATWISE

Challenges

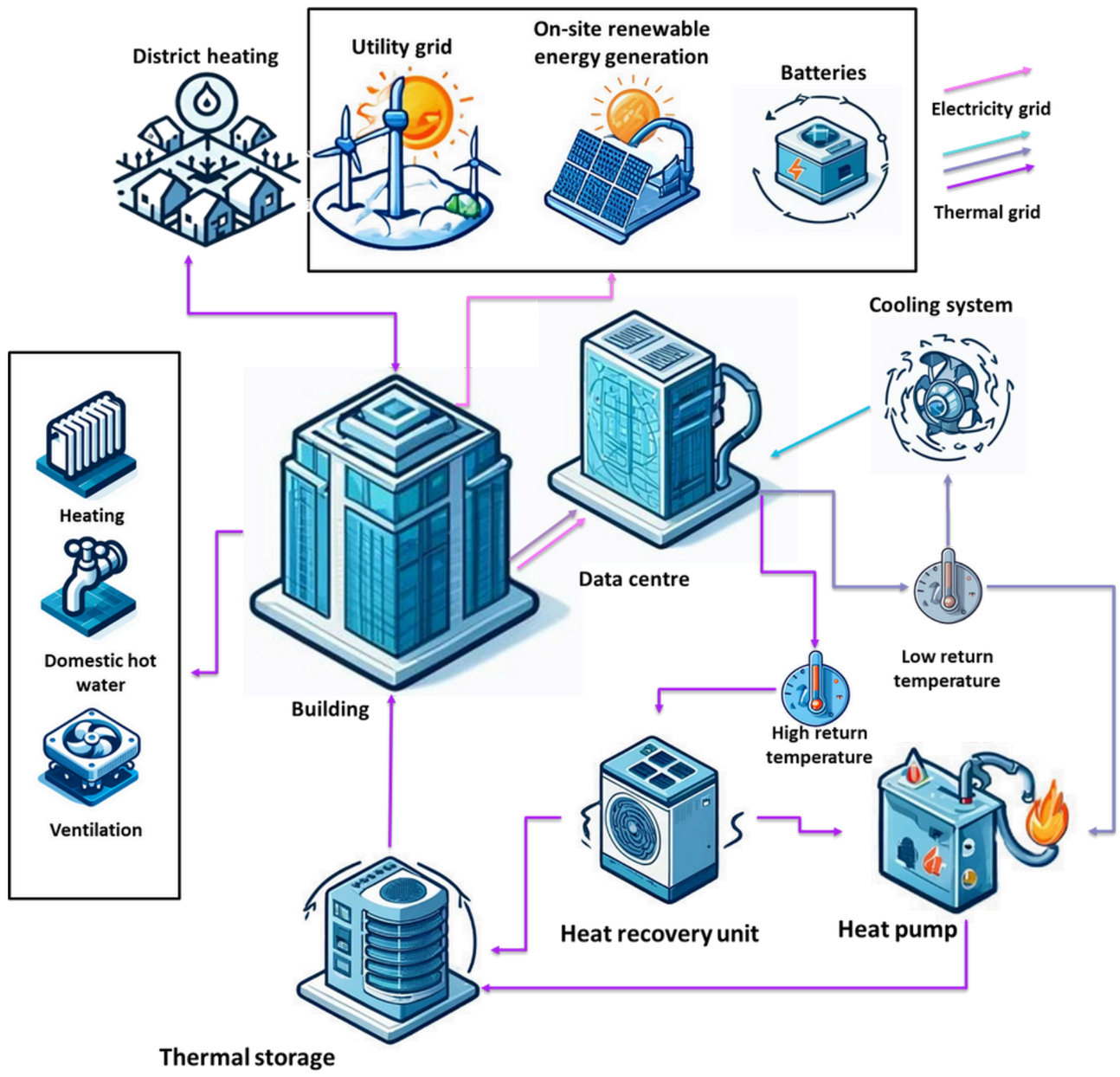
- **Date Centers:** increasing heat, confined space, energy cost, reporting obligation on resource efficiency, space rental fee
- **Buildings:** greening the buildings, passive building, energy cost
- **Policy Makers:** a need for integrated KPIs for integrated systems.

Objectives

- Novel automatically operated integrated building and DC ecosystem
- Waste heat recovery of 100%
- Power Usage Effectiveness (PUE) below 1.05
- Energy Reuse Factor (ERF) improved by a minimum of 10%
- Primary Energy Saving (PES) of 20% for each server

HEATWISE solutions

- **For the server room or power-intensive IT Equipment thermal management front:**
  - Hybrid air immersion and on-chip dielectric liquid cooling system
  - Holistic data centre management system
- **On the tertiary building level energy optimization:**
  - Multi-objective building thermal energy management system
  - Self-assessment and optimization tool with open-source CFD tools for the thermal simulations of pilot sites

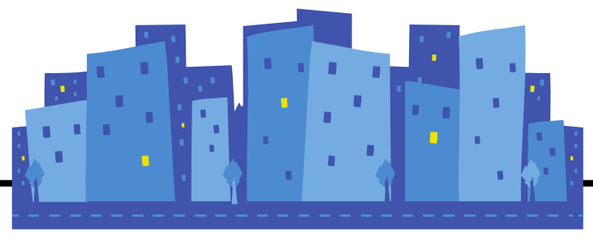


Budget & Duration

- €4,5 M
- 2024 - 2026

Pilot Demonstrations

- A university building using large amounts of highly detailed BMS data available to identify potentials for utilizing waste heat generated in data centers.
- A smart factory with low IT density, transitioning from air to liquid cooling in a real environment.
- A next-generation mixed-use residential and public building, serving as a dynamic and advanced demonstrator for medium to high IT density scenarios representing different building units (offices, rented apartments, fitness) with liquid and air-cooling in a lab environment.
- A super computing center with medium to high IT density in a real environment.



PARTNERS

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