



FLEXYNETS – Project presentation

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FLEXYNETS - GA 649820



Fifth generation, Low temperature, high EXergY
district heating and cooling NETworkS

project budget 2 M€

List of partners:

EURAC - IT

ACCIONA - ES

SOLTIGUA - IT

SOLID - DE

ZAFH-Net - DE

PlanEnergi - DK



Background



Actual DHC systems suffer from

- ∞ **heat losses**
- ∞ **unexplored integration potential** of different available **energy sources** into the same DHC network
- ∞ **high installation costs** (mostly if cooling is needed).

Strategic Objectives



TO REDUCE TRANSPORTATION ENERGY LOSSES

- ∞ By using a carrier fluid working at “neutral” temperature levels – between 10 and 25°C

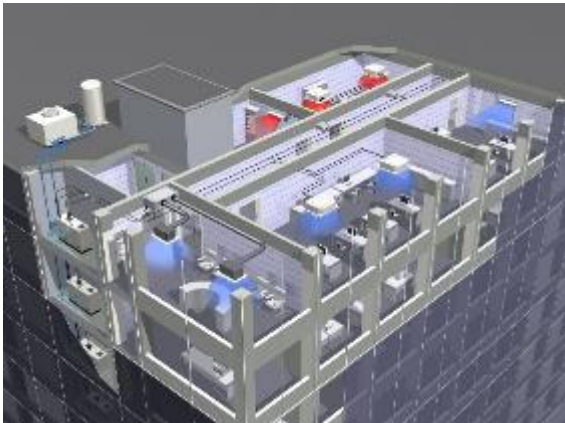
TO INTEGRATE EFFECTIVELY MULTIPLE ENERGY GENERATION SOURCES

TO EXPLOIT INNOVATIVE THERMAL CAPACITY DESIGN

- ∞ By using thermal storages at diffused and centralised level

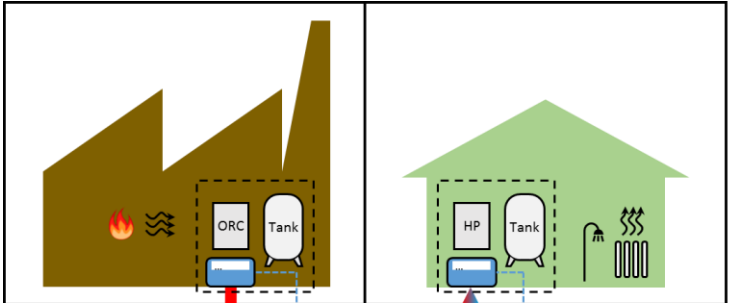
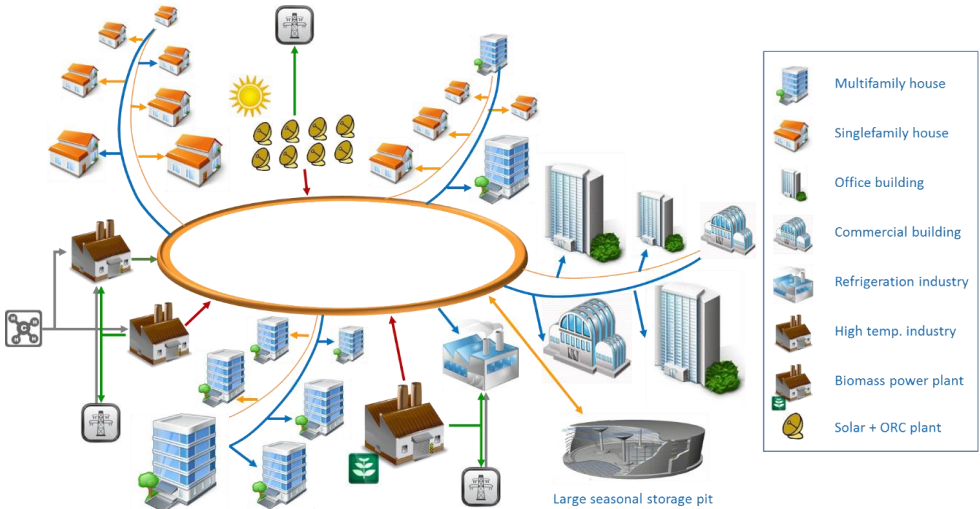
TO DEVELOP CONTROL STRATEGIES AND POLICIES

Approach



From the water-loop concept to a decentralised low-temperature DHC network (15-25°C)

Assessment of DHC network topologies



25/11/2016

DHC Network

Elaboration of substations for connection to DHC network through reversible heat pumps

Consortium Composition



EURAC – Research

Lead and expertise in district heating and development and management of HP and solar based sustainable heating and cooling systems

ACCIONA – Industry

expertise in development, construction and management of large infrastructures

SOLTIGUA – Industry

development and manufacturing of concentrating solar collectors

SOLID – Industry

automation and control hardware and software development for industrial processes and heating and cooling systems

ZAFH.Net – Research

Expertise in low temperature district heating networks design, management and monitoring

PlanEnergi – Industry

Expertise in design, construction and management of solar district heating networks

Main Results



1. ***FLEXYNETS-LOOP***

An optimised hardware and control strategy to integrate solar thermal collector fields into DH networks

2. ***FLEXYNETS-SUBSTATIONS***

Substations to connect buildings to DHC networks, entailing energy generation devices and local, short term thermal storages

3. ***FLEXYNETS-PLANNING***

FLEXYNETS will investigate different configurations of a DHC network, providing recommendations for their replication

4. ***FLEXYNETS-CONTROL***

Control strategies will be provided at i) substation, ii) network, iii) integration with the grids level

5. ***FLEXYNETS-TRADING***

Trading strategies must stimulate energy production from local RESs and waste heat, and during peak hours. Moreover, they must boost energy storage practices and off-peak drawing from the network



VISIT FLEXYNETS WEBSITE

WWW.FLEXYNETS.EU



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 649820

