Smart City and District Heating & Cooling Network: a simbiosis

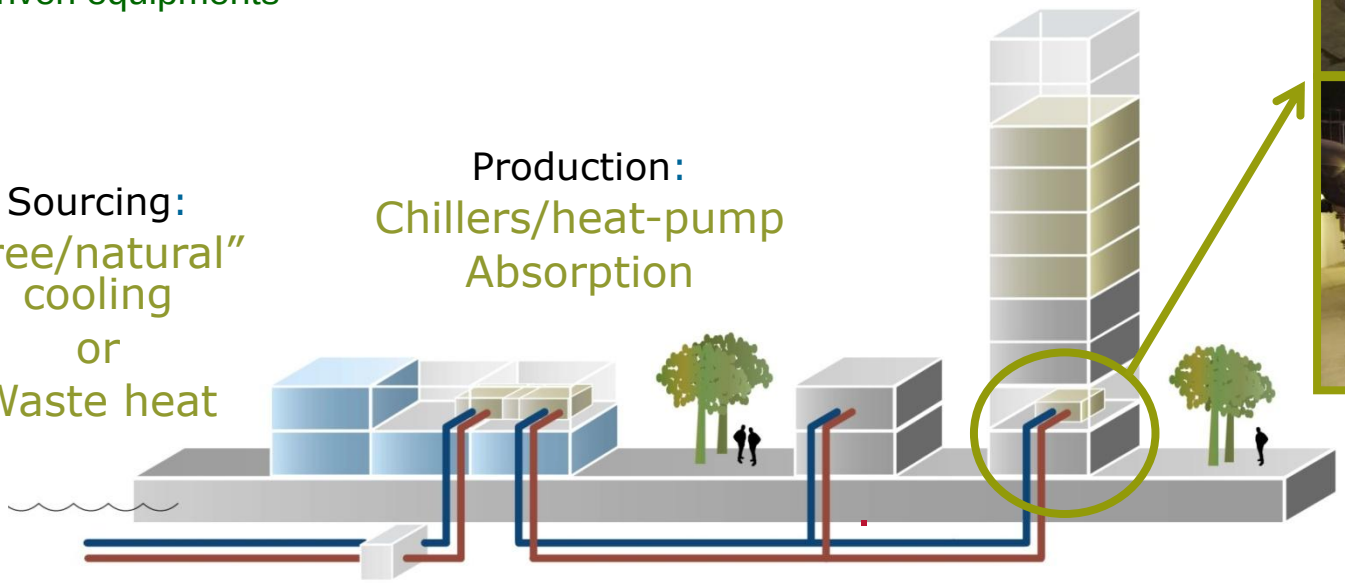
What's a DHC Network?

The main idea of district Heating and Cooling is to use local sources for energy that would otherwise be wasted or not used, in order to offer the local market a competitive and high-efficient alternative to the traditional heating and cooling solutions

Principle

Comments

The centrally produced district heating and cooling can reach **5-10 times higher** efficiency than local electricity-driven equipments



SMART for the cities

- **Global monitoring of the production plant**

  ….. with the best energy available at each time.

- **Reduction of CO_2 emissions.**

  …as a consequence of the lower consumption of fossil primary energies and in order to avoid the loss of refrigerant gases from the conventional solutions that this method replaces.

- **Exploitation of local renewable or free energies.**

  … from municipal urban solid waste incinerators, free cooling or cooling of equipments with water from the sea or rivers…… it is often the ONLY solution to it.

- **Possibility to store the electricity as heating or cooling energy**

…is a use advantage with national electrical productions more and more renewable, and due to that intermittent.

- **Less dependence on foreign energy**

  … energy efficiency is the smartest way, unavoidable for countries that are dependent on energy sources…

SMART for the cities

- **Decrease of the overall electricity consumption**

  … centralized energy production allows, in economies of scale and due to its greater efficiency, a production capacity lower that the whole of the avoided, taking advantage at the same time of the non-simultaneity of all the demand…

- **Reduction of local thermal impact**

- **Elimination of health risks.**

  …elimination of cooling towers and other legionella potential sources …

- **Reduction of water and chemicals global consumption**

  …elimination of cooling towers and other equipments consuming water additives (biocides, water treatment, etc) …

- **Local jobs creation.**

  …the commitment with the district cooling & heating network area contributes to its economic revitalization and to the creation of new jobs …

SMART for the cities

- **Appreciation of the architectural environment**

  … completely clean facades and roofs, free from machinery, chimneys (with feathers) and facilities…

PROGRESS
INNOVATION

Conventional solution

DHC Solution

SMART for the end-users

- **Continuous consumption control and follow-up**
- **Savings. Reduction of the energy bill.**
  … the energy cost is lower than in conventional systems …
- **Absence of noise and vibration in buildings.**
- **Elimination of equipments replacement costs.**
- **Reduction of the maintenance costs.**
- **Elimination of breakdowns.**
- **Reduction in costs of conventional energies supply (gas and electricity). Lower power levels to hire.**
- **Elimination of risks (legionella, combustion…)**
  … due to the absence of thermal production equipments in the building

SMART for the end-users

- **Guarantee of energy supply.**

  … the heat and cooling network has redundancies, both in production plants and in their thermal production equipments …

- **Flexibility and adaptability. Its easy to have more power.**

  … just expanding the energy exchangers, hardly needing more room …

- **Outsourcing of the thermal production service and its associated risks (legal, service quality commitment, ….).**

SMART for the end-users

- **Greater availability of usable space. Minimum requirements for technical space.**

  … the required energy exchangers are inert items, with hardly any risk of breakdowns, much less expensive, and requiring very little space in comparison with the conventional equipments they replace ….

PROGRESS
INNOVATION

A building of 10.000 m2 with ***DHC only*** *needs* ***30 m²*** *, instead of 200 m². for its technical room*

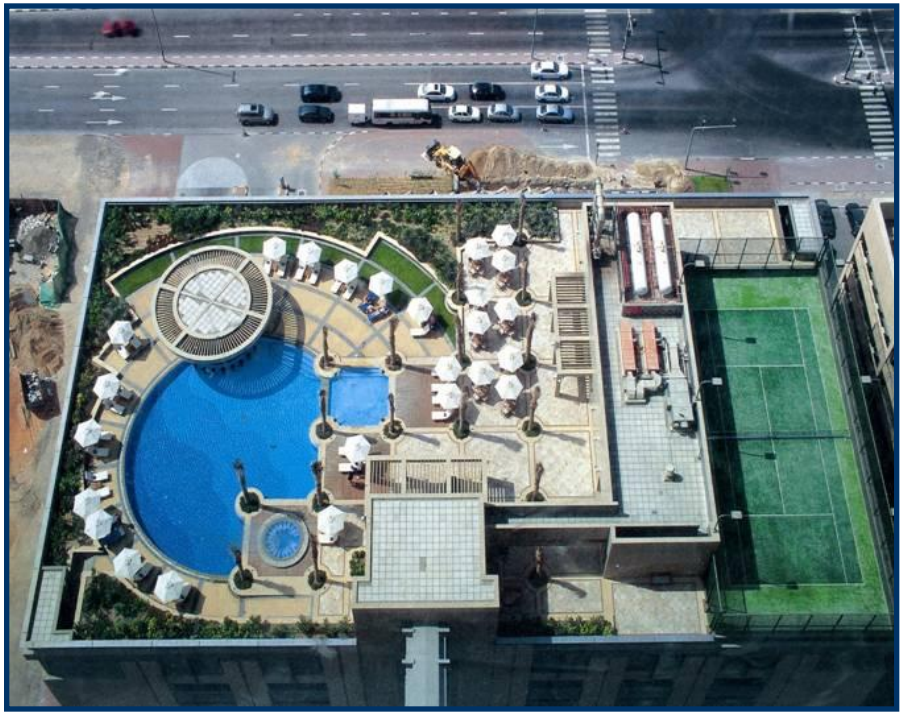
SMART for property developers

- **Differentiation of the offer. Singular and emblematic innovative buildings, with no restrictions in architectonical creativity.**
- **Sustainable buildings with high energy rating.**
  … in line with the growing awareness of the market and public administration….
- **Lower initial investment in facilities.**
- **Lower future maintenance costs for the tenant or buyer of the property.**
- **More marketable useful space.**
  … in some cases with great value in the market, such as attics or parking spaces in basements….

SMART for everybody

Conventional solution

DHC Solution



Asociación de Empresas de Redes de Calor y Frío

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