

Energy efficiency in buildings

What are the next challenges to face ?

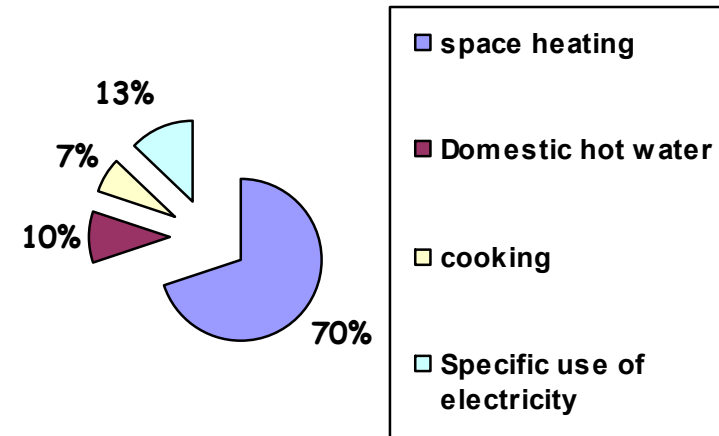
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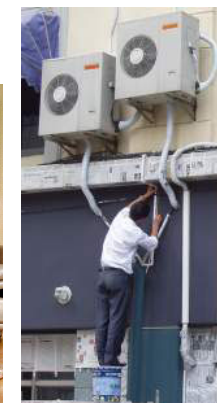
Context

- ▶ **Goal** : Reduction of energy consumption and CO₂ emissions of existing buildings
- ▶ **First sector** : Residential dwellings
- ▶ **First consumption** : Space Heating and Hot Domestic Water
- ▶ **How** : Providing low carbon solutions to the market in relation with the energy mix of each country



Challenges at the scale of the building

- ◆ Improving the performance of the existing envelope
ex : High efficiency insulation
- ◆ Taking advantage of the thermal Renewables
ex : Heat Pump (ground, water and air)
- ◆ Taking advantage of local low CO₂ generation
ex : PV production
- ◆ Improving demand flexibility to take advantage of renewable low CO₂ energy
ex : Local storage
- ◆ Integration and comfort
ex : Noise/Aesthetic issues and summer comfort

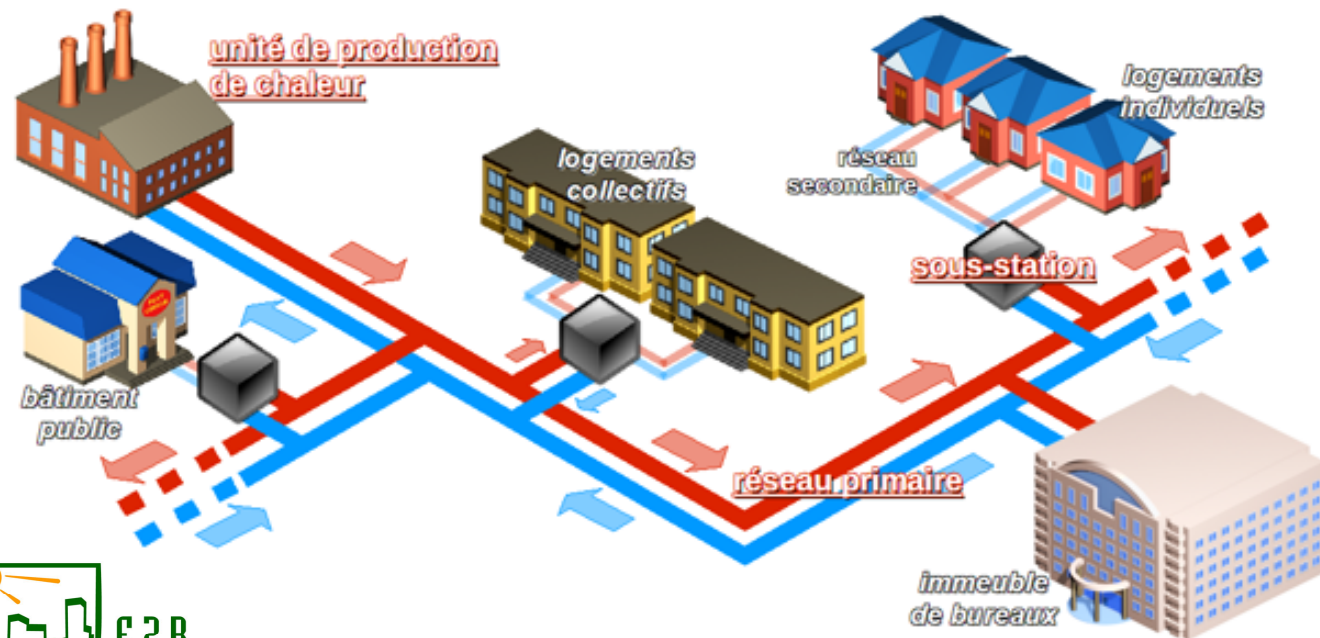


Challenges at the scale of the district

► Real-time flow management and infrastructure planning

ex : Heat networks with centralised production like

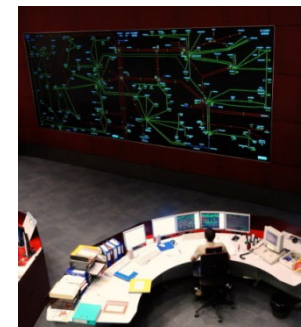
- heat pumps
- geothermal applications
- bio-mass
- waste treatment ...



Facing the next challenges

- ▶ **Goal** : Fulfilling building occupants' needs through optimal management of the different flows related to energy consumption and CO₂ emissions with respect to the constraints of the networks (heat network, grid, water...)
- ▶ **How** : With a systemic and global approach at the scale of the district based on complementary interactions between Renewables, electricity, bio-mass ... supported by ICT-based solutions

- ▶ **The EeB PPP :**
A powerful and critical tool to achieve the goal !



Energy efficient Buildings PPP

Thank you for your attention !

