Soissons, France
Renovation of domestic hot water production in 12 social dwellings

Key facts

**Building**
- **Location**: Soissons, France
- **Construction**: 1975
- **Heat distribution**: collective
- **DHW production**: collective heat pump
- **Heated area**: 841 m² living
- **Level of insulation**: average

**Heat pump and source**
- **Number of**: 1
- **Installed power**: 11kW
- **Operation mode**: DHW only
- **Heat source**: Outside air

**Domestic hot water**
- **Type of system**: central
- **Max. temperature**: 60 °C
- **Hot water storage**: 1500 l with a thermodynamic loop heater

**Other information**
- **Electric energy consumption 2013 for DHW**: 29 kWh_{ep}/m².yr
- **Investments costs**: unknown
- **Renewables ratio**: 50%

**Some figures**
- Before renovating, the primary energy consumption due to DHW production was about 75 kWh_{ep}/m².yr.
- Final objective for ep consumption is 24 kWh_{ep}/m².yr.

In this social housing building, heating is supplied by a renovated district heating grid connected to a wood-fired heating plant.

Until now, the Domestic Hot Water production was ensured by individual electrical water heaters. The replacement of these individual solutions (in 12 dwellings) by a collective heat pump induces in a 50% reduction on the electric bill due to domestic hot water production.
Soissons, France, Technical details

Description of the technical concept

The system consists of:

- A 11 kW Atlantic® air-to-water heat pump
- 2 storage tanks with a 750 liters capacity each
- An Atlantic® thermodynamic loop heater

The system functioning is based on an accumulated mode: the storage tanks allow to store the daily DHW needs. Then, the heat pump produces heat during the night, for 8 hours continuously.

Even if the outside air temperatures are lower during the night, this type of operation offers advantages in terms of performances:

- After a day of draw-offs, the volume of water in the tanks is completely cold ➔ optimized COP
- An operation during night allows to benefit from lower electricity tariffs

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