Case study 2026

POC project Paris Habitat

43 housing units

Paris, France

Demonstration project carried out with Paris Habitat and ENGIE (CIEC)



65%

Heat recovery production rate during the summer period

-63%

5,56 MWh saved in 4 months

-2,05 Tonnes CO_2

of GHG emissions avoided in 4 months

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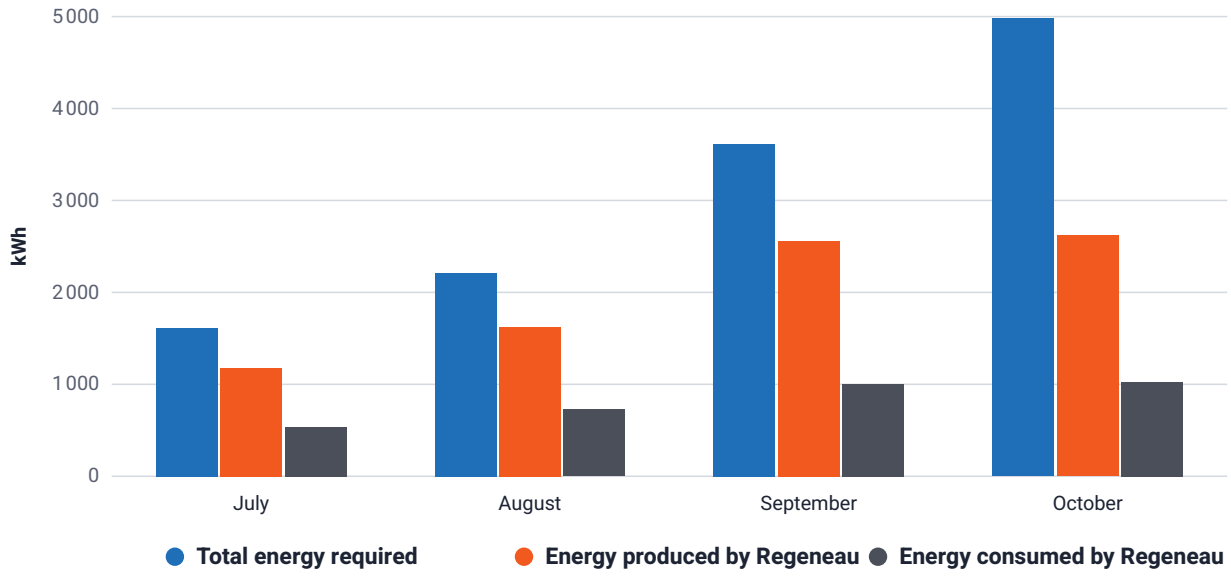
The POC (proof of concept) project is a 43-unit residential building located in Paris, France. The RegenEAU system was installed to preheat domestic hot water, upstream of the existing gas-fired backup equipment, significantly reducing its thermal load. By recovering heat from blackwater, the heat pump supplied 7,973 kWh of preheating energy from July 1 to October 31, 2026, covering 65% of demand, with a recovery COP of 2.42. Compared with equivalent gas-fired production, energy consumption fell by 63% and 2.05 tonnes of CO_2e were avoided in four months. These results were achieved even though the system collects, on average, only about 75% of the building's wastewater.

A demanding measurement period

These results were measured from July to October, the least favourable period of the year for savings. In summer, hot water usage is at its lowest and cold water arrives warmer: preheating demand drops and the heat pump operates at a higher temperature, which reduces its COP. The savings and COP presented here are therefore conservative. The 64% production rate, however, is a summer rate: it is expected to decrease in winter, when preheating demand rises.

7,97 MWh	3,30 MWh	274,9 m³	21,1 °C
Energy produced	Energy consumed	Hot water delivered	Average cold water

Energy production



≈ 23 %
of annual preheating demand occurs between July and October, based on the median seasonal profile

2,18 → 2,55
The COP improves as the cold water gets colder, from July to October

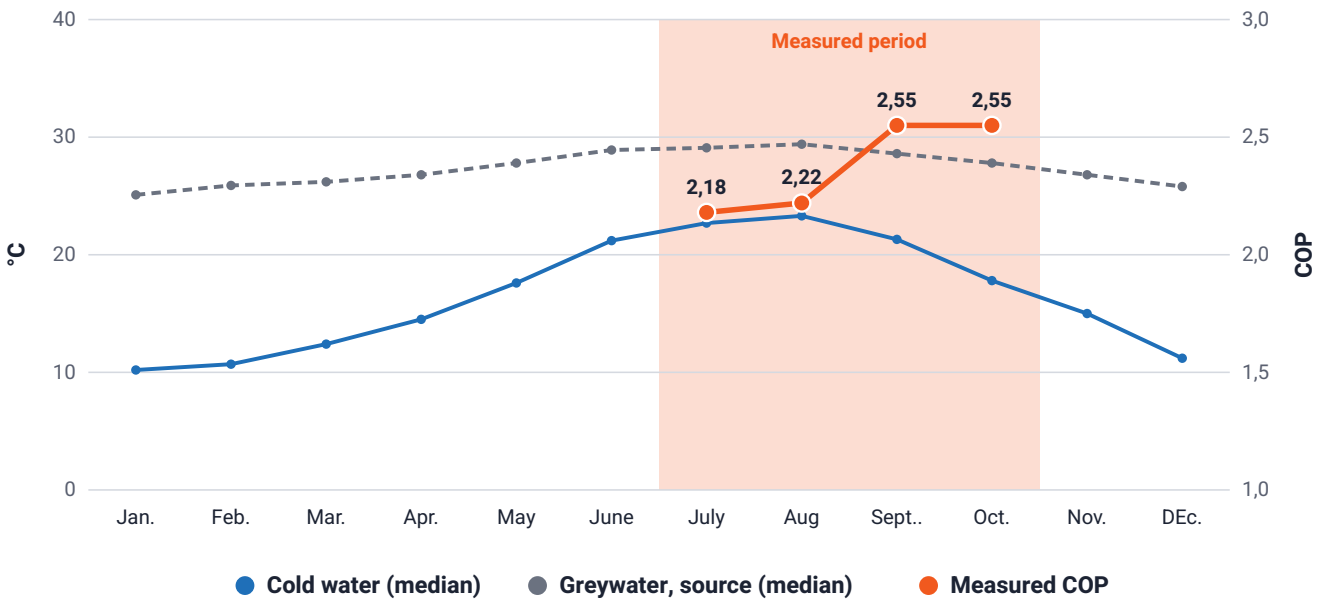
73 % → 53 %
The production rate decreases as demand increases, from July to October

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Performance and Seasonality

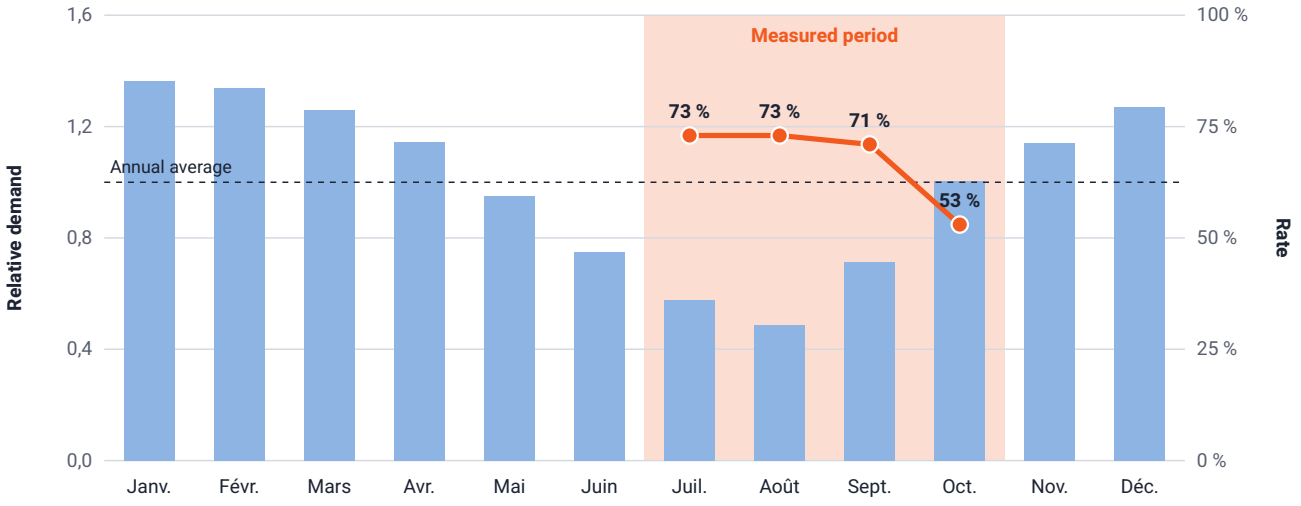
Measured on-site performance (in orange), overlaid on the median seasonal profile across sites, shows a direct link between the time of year and the system's behaviour.

COP and water temperatures



Measured on-site performance (in orange), overlaid on the median seasonal profile across sites, shows a direct link between the time of year and the system's behaviour.

Production rate and preheating demand



Relative demand = hot water usage × (60 °C − cold water temperature); 1.0 = annual average

In summer, demand is low and the heat pump covers a large share of it. From October onward, demand reaches the annual average and the rate decreases; this trend is expected to continue through the winter.

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