

## DEMONSTRATION SITES

The LowUP systems were demonstrated at 5 sites in Seville, Madrid, Badajoz, Setubal and Gipuzkoa. The individual components have been designed and customized for each one of the sites.

### DEMO #5: GIPUZKOA THERMAL LAB

#### CONCEPT

##### HP-LowUP

This solution provides heat for industrial process (55-80°C) with a heat recovery system and an electrically driven heat pump with an advanced control system.

#### TECHNOLOGY

High temperature cost effective heat pump, using natural refrigerant together with specific improvements able to increase its global efficiency.

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#### DEMONSTRATION CONCEPT

Combining thermal needs (heating and cooling); so, the waste heat from cold sink is upgraded to achieve required temperatures for hot sink, in industrial applications.



#### EXPECTED RESULTS

The concept makes it possible to avoid rejecting low temperature waste heat and use it to create low carbon footprint heating; heat pumps are the most suitable technology to perform this process. The goal is to achieve a heating COP (coefficient of performance) of 6 for a temperature lift of 35K and build a heat pump which can provide 80°C hot water.