

## **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**

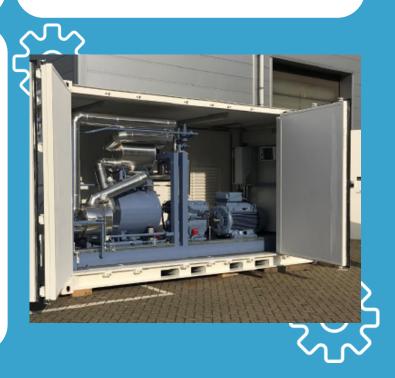
High temperature cost effective heat pump, using natural refrigerant together with specific improvements able to increase its global efficiency.





# 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.

