

## CHALLENGE

Heating and Cooling represents the largest source of energy demand in Europe and the majority of EU's gas imports are used for these purposes (especially to heat and cool residential and tertiary buildings).



Unfortunately, this demand is mostly met by fossil fuels, with natural gas having the main share (45%) and renewable energy sources (RES) remaining very marginal (5%).



The proposed Technology Packages (TP) aim at covering at least 80% of the Heating & Cooling needs of refurbished and new single/multi-family/tertiary buildings.

In fact, SunHorizon innovative and reliable Heat Pump solutions (thermal compression, adsorption, reversible) will act properly coupled and managed with advanced solar panels (PV, Hybrid, thermal), providing heating and cooling to residential and tertiary building with lower emissions, energy bills and fossil fuel dependency.

## CONSORTIUM



@SunHorizonEU

SunHorizon-Project

SunHorizon Project

### Contact:

Serena Scotton - Project Coordinator  
RINA Consulting s.p.a - [serena.scotton@rina.org](mailto:serena.scotton@rina.org)

Laura Giovanelli - Financial manager  
RINA Consulting s.p.a - [laura.giovanelli@rina.org](mailto:laura.giovanelli@rina.org)



## Innovative Solutions



This Project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement N. 818329

[www.sunhorizon-project.eu](http://www.sunhorizon-project.eu)

## THE INNOVATIVE SOLUTION

SunHorizon will design and demonstrate 5 technology packages (TPs) to be applied all across EU climates and building, coupling different solar technologies and HPs also integrated with Thermal Storage (TES).

In particular, different innovative and reliable Heat Pump solution (thermal compression, adsorption, reversible) will be properly coupled and managed with advanced solar panels (PV, Hybrid, thermal) and demonstrated in 8 demosties all around Europe (Germany, Spain, Latvia, Belgium).



Hybrid PVT panels



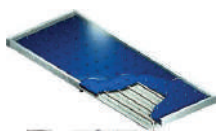
Hybrid adsorption compressor cascade chiller



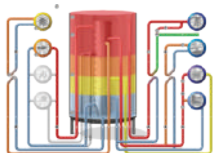
Thermal Compression HP



Hybridation of HP, solar thermal and PV



Vacuum solar thermal panels



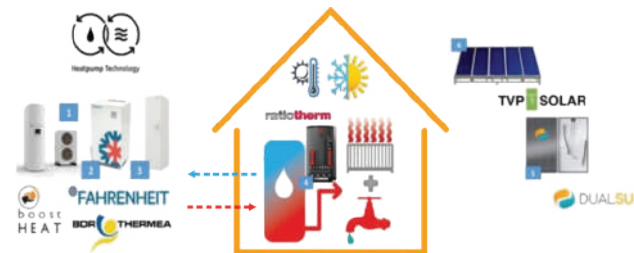
Stratified thermal storage tank

## THE MONITORING PLATFORM

SunHorizon consortium will develop also a cloud based functional monitoring platform to:

- Act as the “performance data mine” for the development of Data Driven/KPI oriented optimized algorithms and tools for predictive maintenance;
- Optimize the management towards maximisation of solar exploitation;
- Give to the manufacturer inputs for enhancing the design of their components.

This monitoring platform will also drive smart monitoring end user interfaces that will be applied at building level to collect thermal comfort data towards a new thermal comfort driven heating control system.



## BENEFITS FOR THE EU COMMUNITY

SunHorizon will provide heating and cooling to residential and tertiary buildings and will have the following main benefits for the EU community:



*Reduction of the dependence on fossil fuels through the demonstration of optimised, cost-effective H&C components*



*Primary energy savings and, consequently, lower energy bills*



*Reduction of Greenhouse Gas Emissions*



@SunHorizonEU



SunHorizon-Project



SunHorizon Project



[www.sunhorizon-project.eu](http://www.sunhorizon-project.eu)