



Solar Heat for Industrial Process towards Food and Agro Industries commitment in Renewables

SHIP2FAIR General Presentation

MT-Solar Concentra, 16/12/19



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 792276.
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- SHIP -
stand for
Solar Heat for Industrial Process

Concept

Fostering the integration of solar heat in industrial process (SHIP) from agro-food sector, by developing and demonstrating a set of tools and methods for the development of industrial solar heat projects during its whole life-cycle.

Challenges

- Data gathering & ICT treatment
- Integration of SHIP in existing industrial processes
 - Engineering and commissioning process

Solutions

- Increase of industrial plants sustainability by **developing easily replicable solutions** to increase energy efficiency and lower process heat temperature.
- Development of **suitable control strategies** taking into account inertia effects, delays, influence of radiation fluctuations and susceptibility to oscillations.
- Tools validation by continuous feedback from **real-operating systems**.
- Development of **training from a practical methodology**, making large use of **use-cases**, letting users utilize the software directly within their local environment, thus achieving a **tailored solution to users local challenges**.

Areas of expertise in the project

 circe The Spanish research centre leads **SHIP2FAIR** team, with a perfect balance of main partners from key sectors and areas of expertise:

The Agro-food field

Solar technologies providers

R&D and Consulting

Dissemination & Training



BUDGET: 7.996.793,25 €
DURATION: 2018-2022

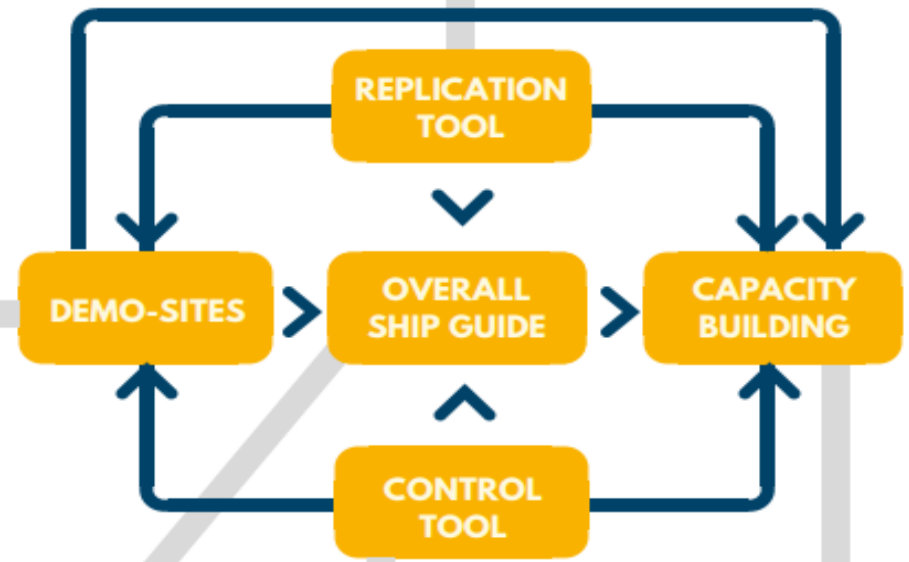
SHIP2FAIR will develop and demonstrate, at four real industrial sites (demo-sites), a set of tools and methods for the development of industrial solar heat projects during their whole life-cycle.

DEMO-SITES & TOOLS

WORLDWIDE LIGHTHOUSE PROJECTS OF SHIP



This software will be developed, validated & fine-tuned at the demo-sites to support the concept design of SHIP projects & the development of techno-economic feasibility studies



Integrates the use of tools, results & ad-hoc tips for supporting stakeholders in the design, commissioning and operation of their SHIP projects

Decision Support System to optimize the operation of SHIP projects

Training campaigns addressing professional & master students interested in SHIP applications in the agro-food sector

The Replication Tool

A software that will be developed, validated & fine-tuned at the demo-sites to support the concept design of SHIP projects & the development of techno-economic feasibility studies.

Objectives

- To define algorithms required to map local solar potential for industrial purposes
- To model the demand profiles of the industrial processes identified in the most representative use cases
- To define the necessary algorithms to evaluate the feasibility of a particular solar heat integration solution in a given industrial process
- To define a methodology to carry out the concept engineering and feasibility analysis of a solar heat integration in a particular industrial process

Control Tool

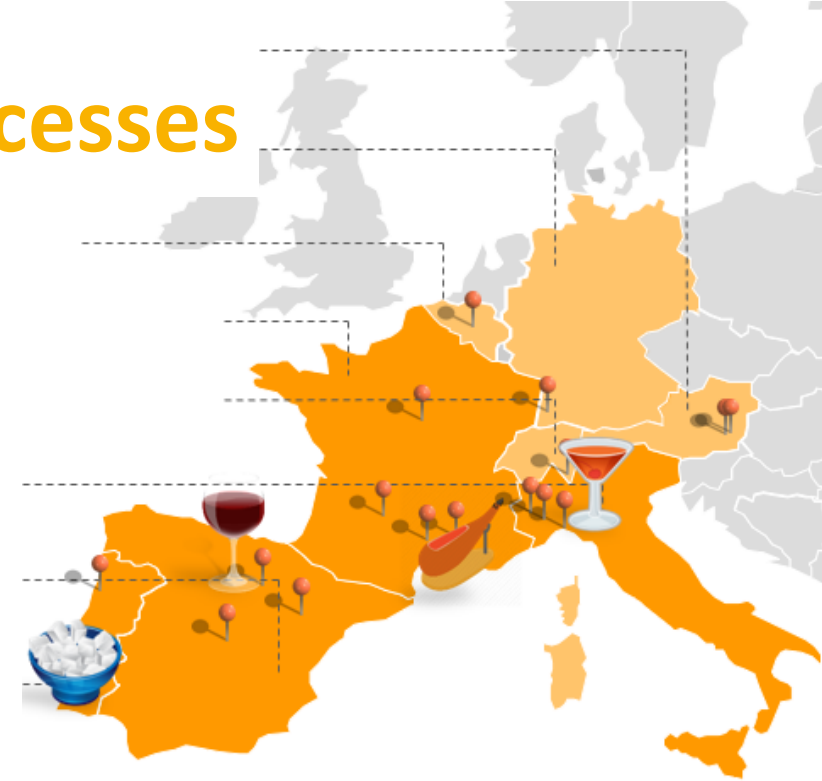
A Decision Support System to optimize the operation of SHIP projects combining supply and demand data specially designed for SHIP

Objectives

- To define the ICT infrastructure required to make an optimal solar heat process integration control
- To identify the most convenient control strategies allowing to make the most of the solar production for a particular process use case
- To develop a Model predictive control to optimise the management of solar production integrated with TES in collaboration with already installed process heating and CHP generators

4 SHIP systems fully validated in real processes

Novel solar collectors demonstrated in average irradiance areas through a 18-month demonstration campaign



Project's expected results

The demo-sites and the flagship projects



First demo-site installed

Solar thermal to provide heating & cooling
Viessman Vitosol 200TM 70m² area + Absorption machine

Cooling

Fermentation process

Ageing

Heating

Radiant floor heating for malolactic fermentation

Heat for adsorption process

Pipe cleaning & disinfecting

High-pressure cleaning

Project's expected results

The Capacity Building Program

Extensive training and capacity building activities

- 500 professionals
- 400 undergraduates
- 100 Master students



Will be trained via master classes and visits to the demo-sites with the double benefit of a more prepared workforce & a good number of potential users



Will contribute to create

Feasibility studies in 10 additional sites **by the end of the project**



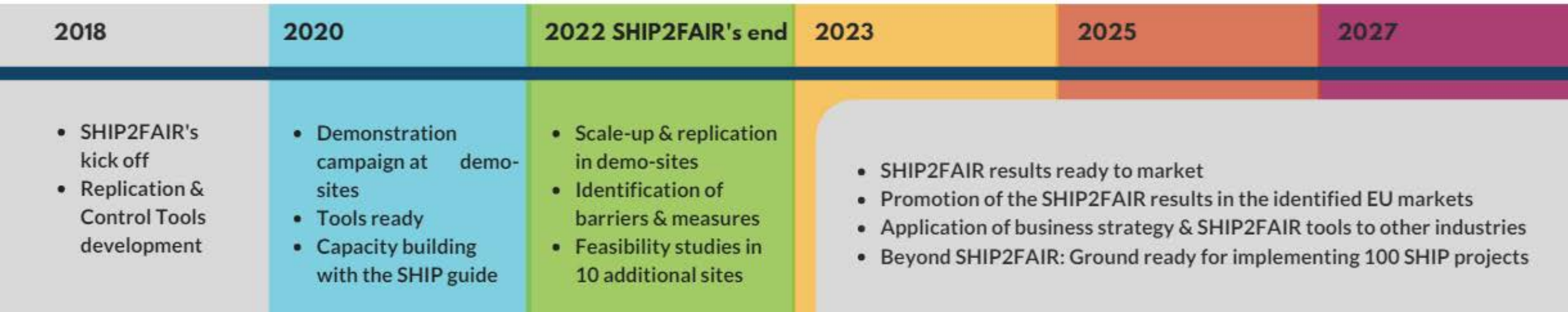
Will help to set the ground for

- 75 EU agro-food industries
- 25 plants from other industrial sectors **after SHIP2FAIR**



Results' timeline

From 2018 to 2022 and beyond SHIP2FAIR



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Thank you!

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