



Solar Heat  
Europe  
ESTIF

# Solar Heat in Europe

Solar Heat Europe/ESTIF

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# What is Solar Heat Europe





# Energy Demand in Europe

## EU Final Energy Demand

1,197Twh

RES in H&C

19%

1,050Twh

29,6%

RES in Electricity

47%  
Heating  
& Cooling

25%  
Electricity

28%  
Transport

RES in Transport

7%

292Twh



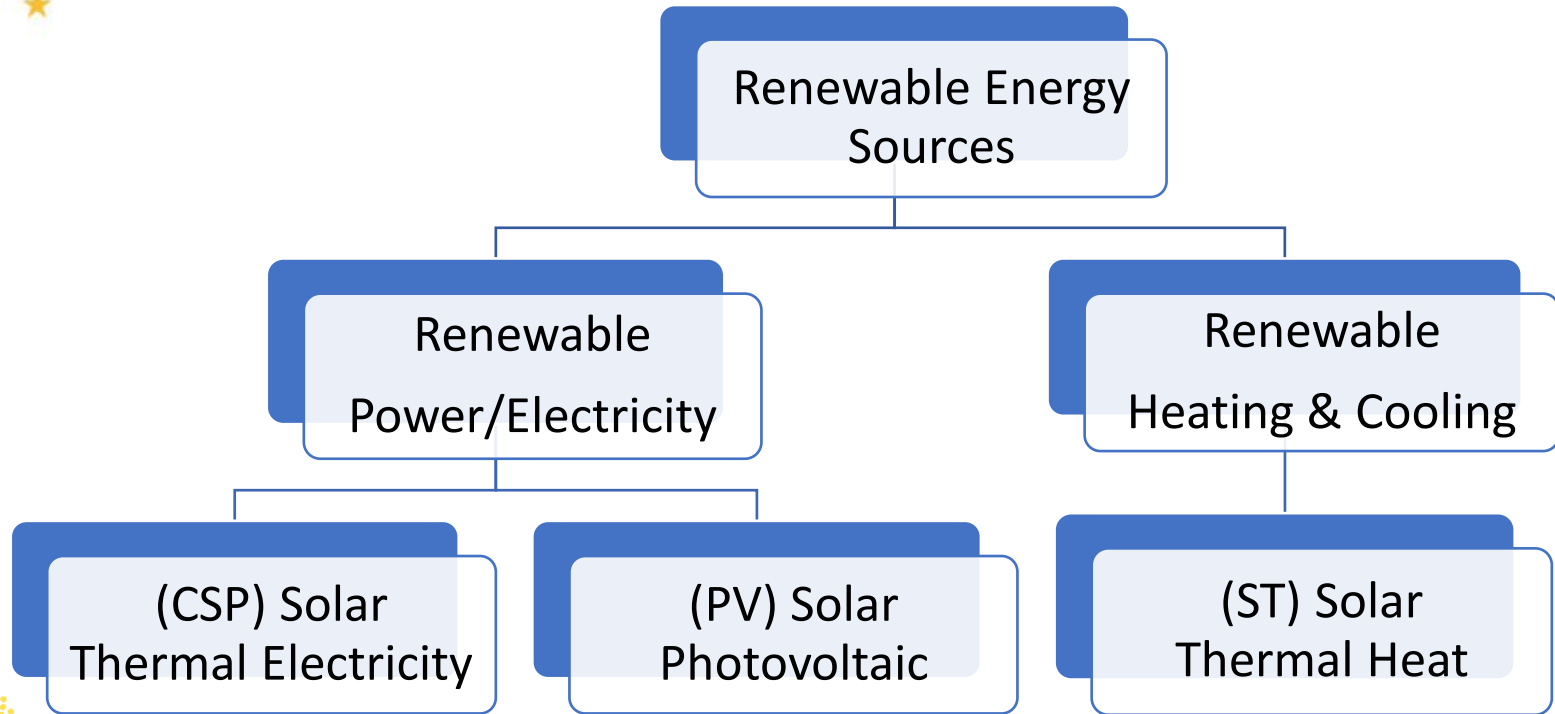
Figure: Buzzle

© RHC-ETIP

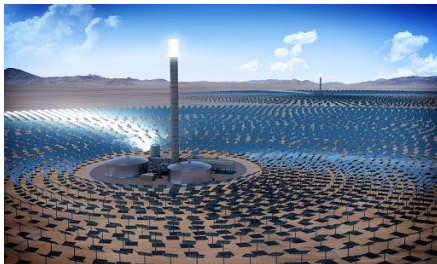
Figure: Wonderlist



# Solar Energy Technologies



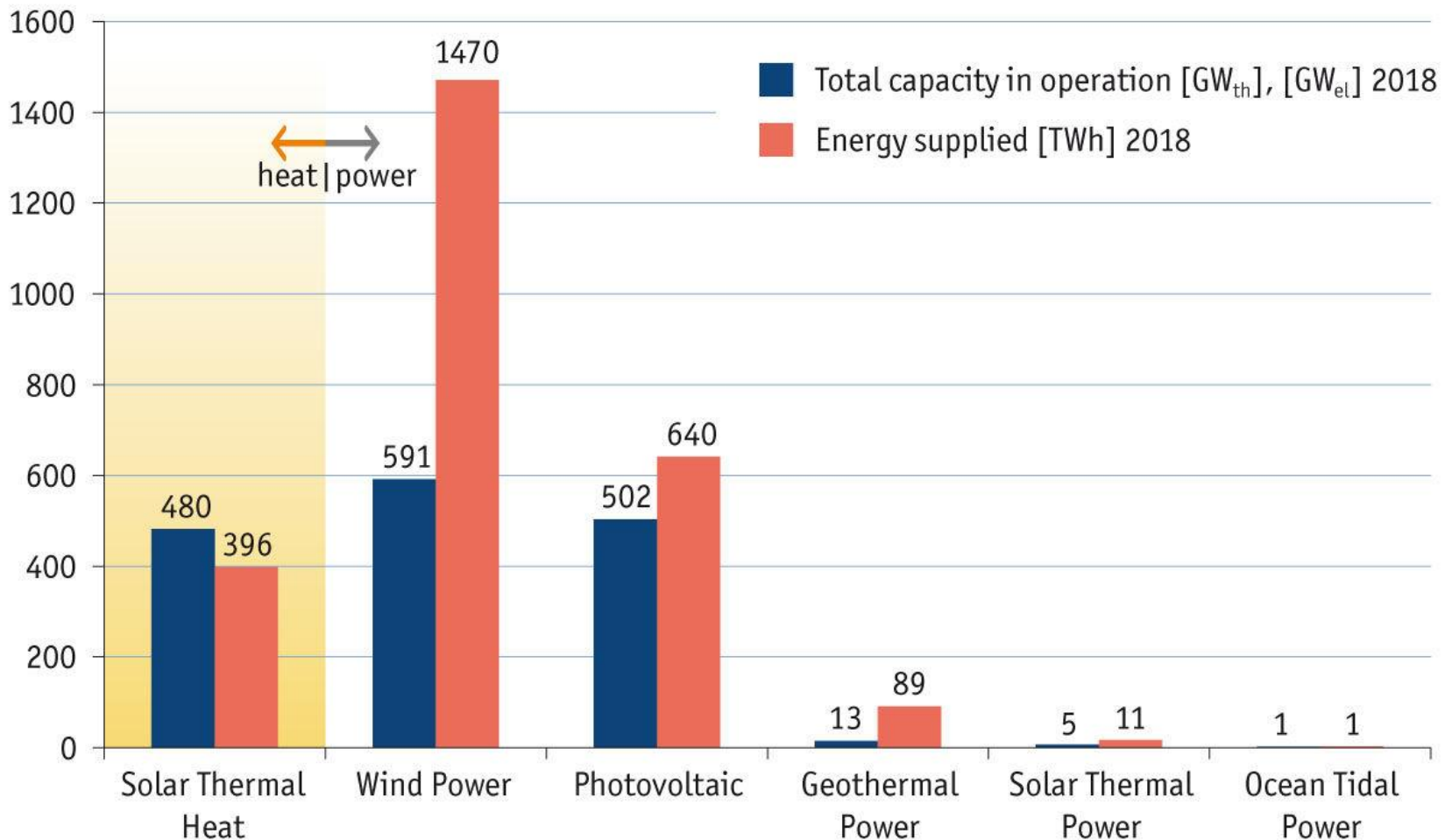
© <http://helioscsp.com/>





# Global RES capacity in operation

Global capacity in operation [ $\text{GW}_{\text{el}}$ ], [ $\text{GW}_{\text{th}}$ ], and energy supplied [ $\text{TWh}_{\text{el}}$ ], [ $\text{TWh}_{\text{th}}$ ], 2018



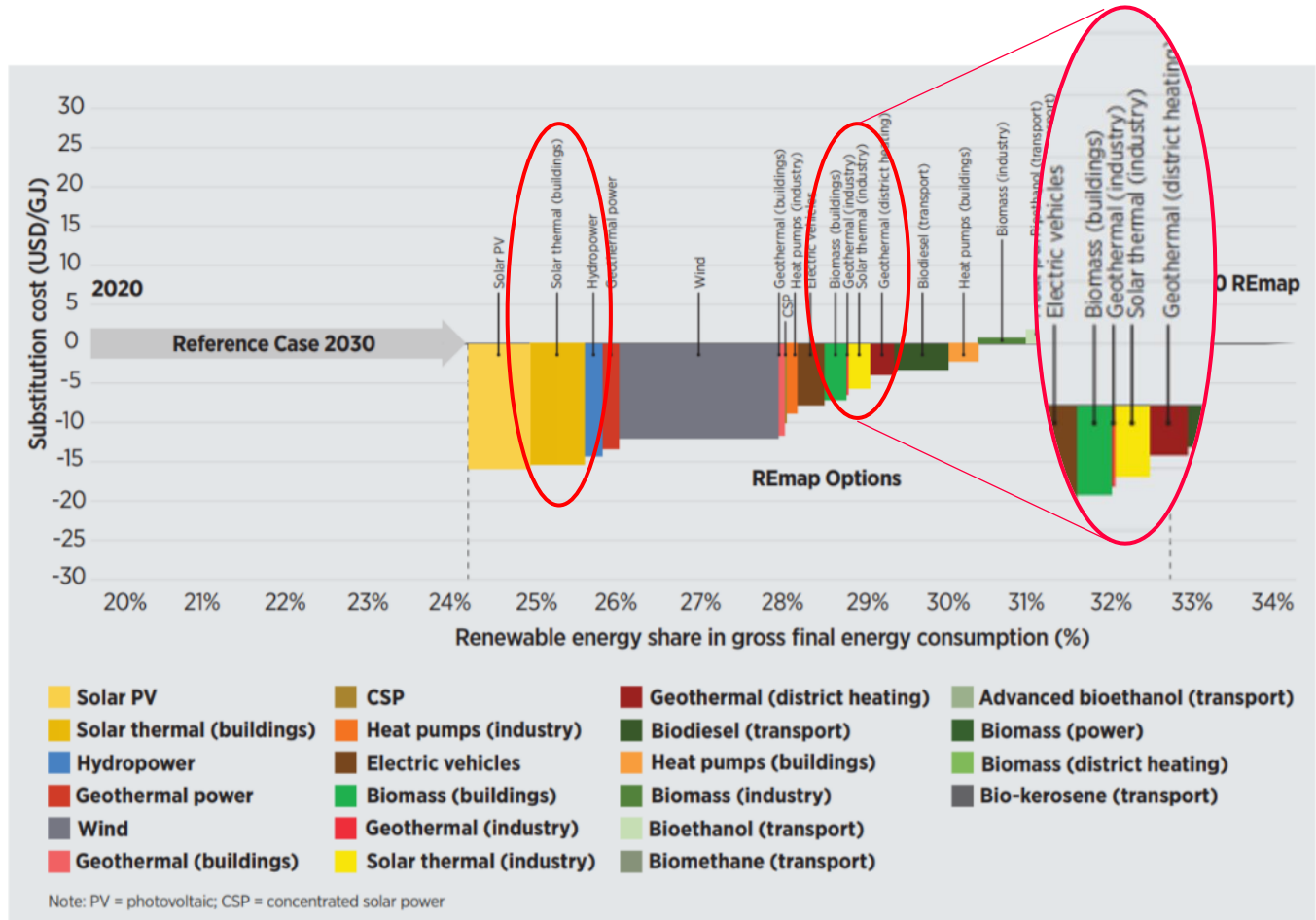


# Renewable in the energy transition

Solar heat recognised for its low costs (negative substitutions costs) and deployment potential. Both for residential and industry segments.

*Substitution costs compared to reference technology & potential increase in RES share*

Renewable Energy Prospects for the European Union, EC, IRENA, 2018





# Solar thermal (heat) in Europe

**Average increase in total installed capacity:  
1,5 to 2 GW<sub>th</sub> (+ 2 to 3%)**



Total installed capacity  
in operation:

**36.1 GW<sub>th</sub>**



Total installed  
capacity in 2018:

**1.5 GW<sub>th</sub>**



Estimated number of solar  
thermal systems in operation:

**10.1 million**



Annual energy  
generation (estimated):

**25.6 TWh<sub>th</sub>**



(Estimated)  
sector turnover

**1.85 EUR billion**



Numbers of jobs  
(estimated):

**18 800**



Estimated  
**6.8 Mt CO<sub>2</sub>**  
emission savings



(estimated)  
Energy storage capacity:

**180 GWh**

(connected with solar thermal system)



# Solar Heating & Cooling Applications

*Residential*



*Commercial/Services*



*District Heating (and Cooling)*



*Heat for Industrial Process (SHIP)*

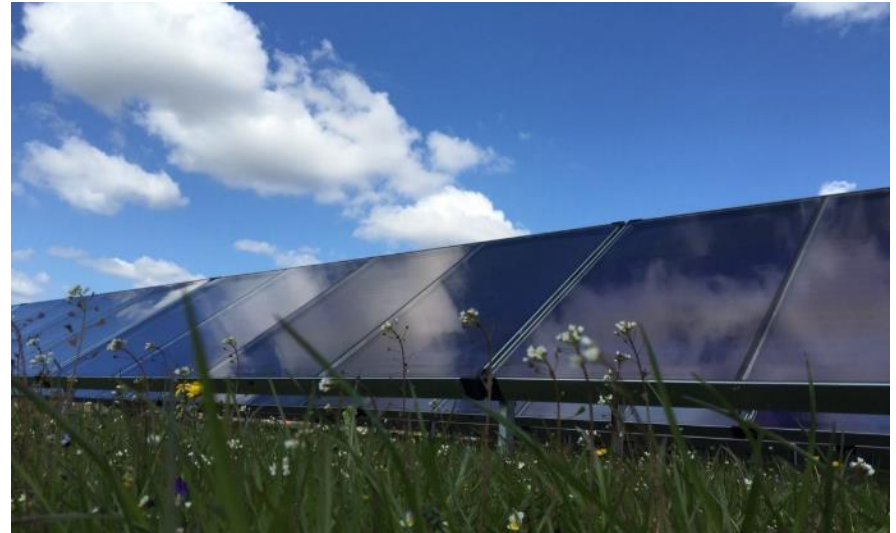






# Large-scale Solar Heat: District Heating

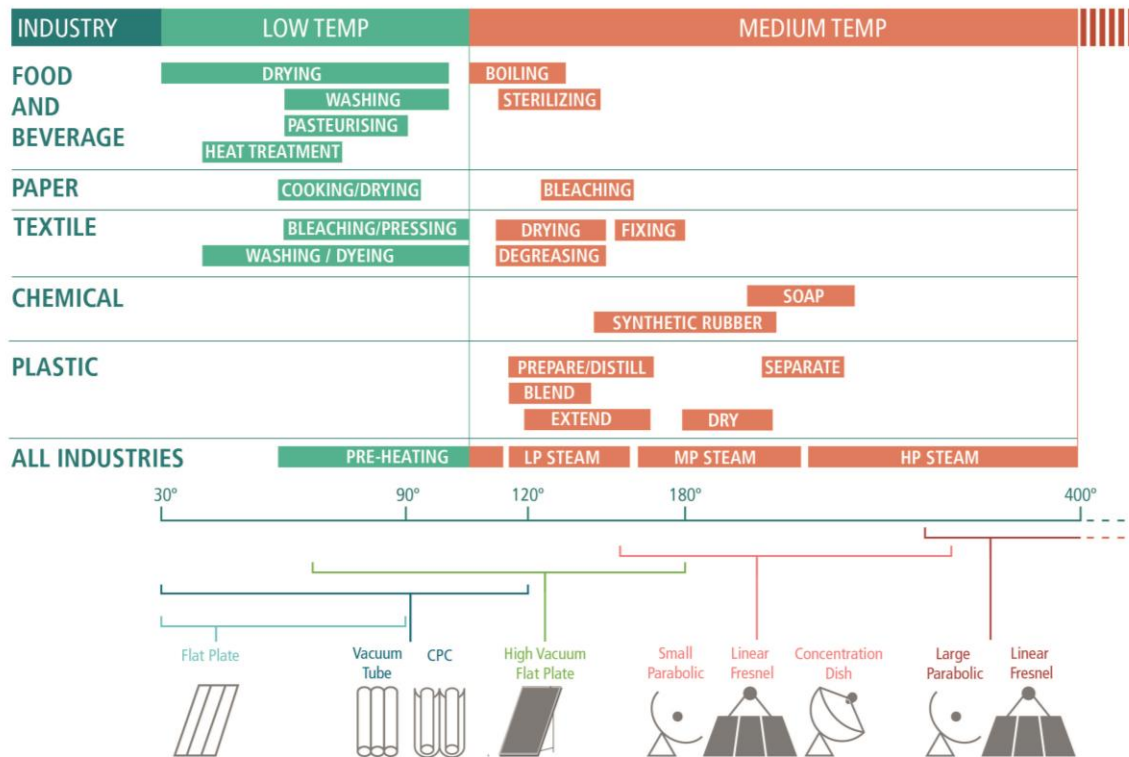
- Large scale, anywhere in Europe
  - Denmark has over 1 GW of Solar District Heating installations
  - Largest solar heat plant in Europe: 120 MW in Denmark





# Large-scale Solar Heat: Industrial Process (SHIP)

## Market Segments for Different Collectors



© TVP Solar

### Integration

- Pre-heating
- Direct heat

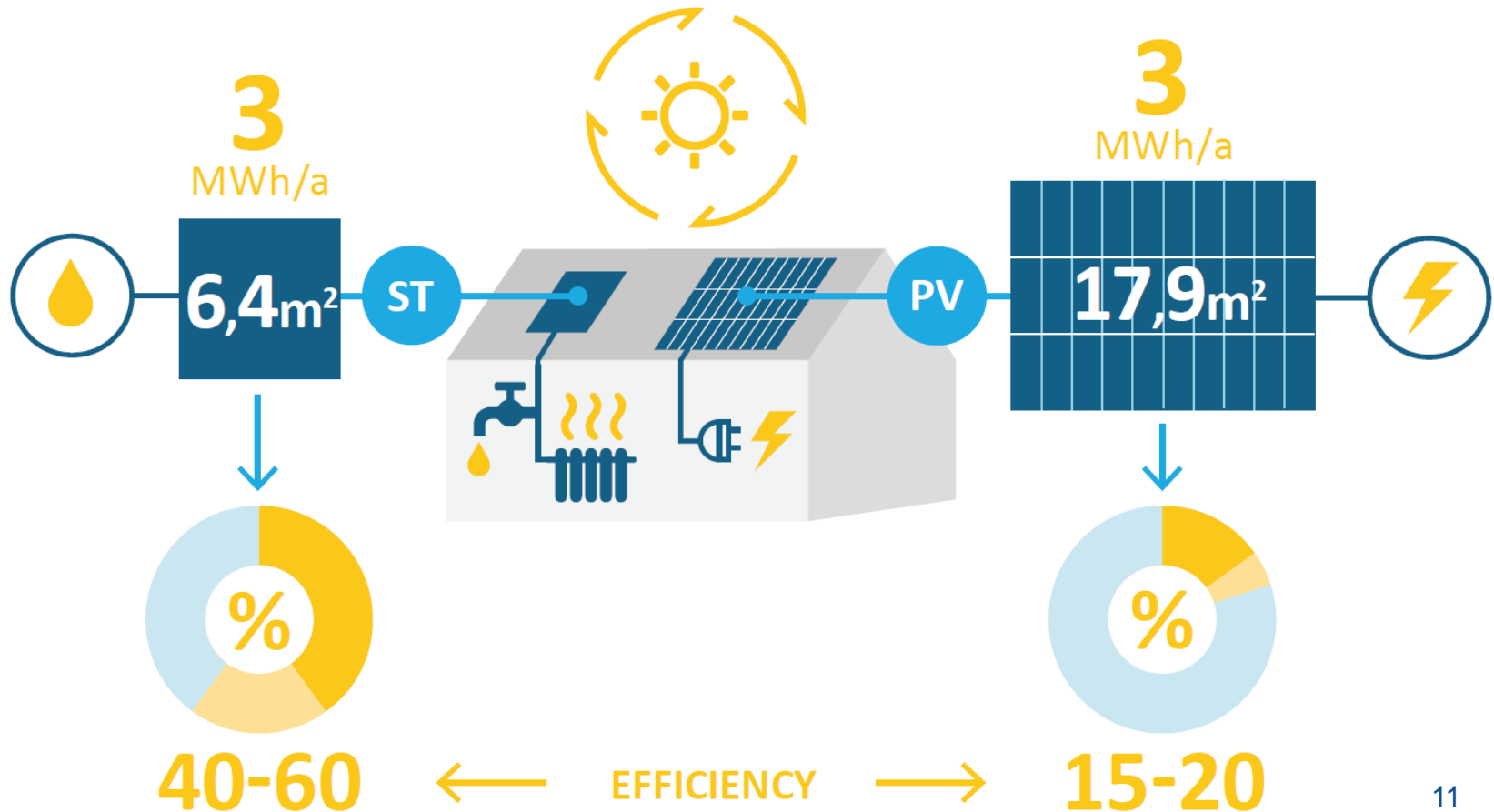
### Other applications

- Desalination
- Water treatment/evaporation



# Higher energy density

**SOLAR ENERGY PRODUCED** | **1 YEAR**

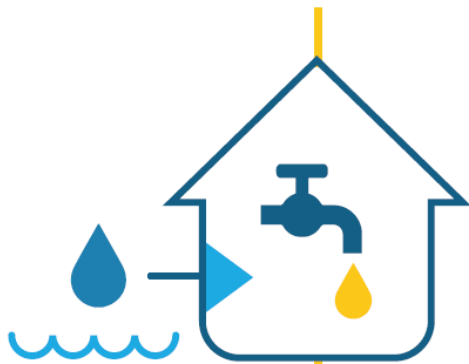




# Higher efficiency

PERFORMANCE OF SOME RES-HEAT SOLUTIONS, BASED ON SEASONAL COEFFICIENT OF PERFORMANCE (SPF)

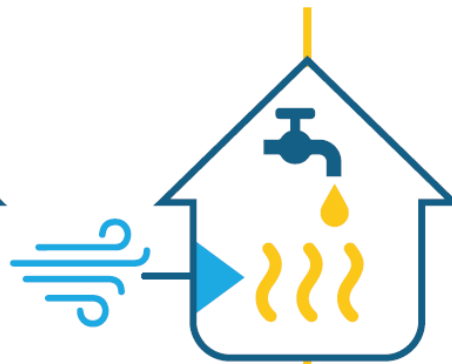
**WATER**  
SOURCE HEAT PUMP



**SPF**  
(average values)

**2**

**AIR**  
SOURCE HEAT PUMP



**3,1**

**GROUND**  
SOURCE HEAT PUMP



**4**

**SOLAR**  
**THERMAL**  
SYSTEM



**60**



## The largest SHIP plants in Europe



**June 2019:** Condat paper mill, 4,213 m<sup>2</sup> (3.4 MW<sub>th</sub>) tracked flat plate collectors

[https://www.solar-payback.com/gallery/gallone\\_en.php](https://www.solar-payback.com/gallery/gallone_en.php)

**October 2019,** 9,300 m<sup>2</sup> (6.5 MW<sub>th</sub>) flat plate collectors supply heat to freesias greenhouse farm



### Upcoming installations

14,000 m<sup>2</sup> for a malting factory planned for 2020 in France

15,000 m<sup>2</sup> for greenhouse farms in the Netherlands



- A clean "**Made in EU**" technology, creating local jobs and net exports
- Excellent carbon footprint, carbon payback time and circularity indicators
- Versatile and scalable, covering from small hot water systems to large steam-grade systems





Contact us!

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