Decarbonising heat with Solar thermal

Market outlook 2024/2025

Solar Heat Europe

43.6 GW_{th}

Cumulative capacity in operation in Europe

+ 1.2 million m²

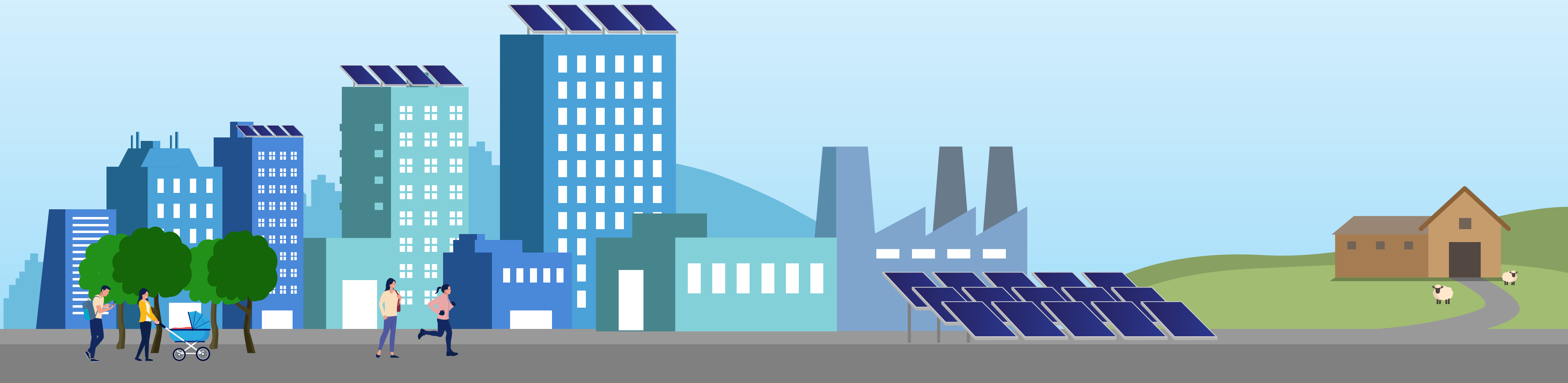
newly installed in 2024

+0.4%

total installed capacity in operation in 2024 vs 2023 with very different country variations year on year

5 Main Market Segments:

- Residential Buildings
- Tertiary Buildings
- District Heating
- Industry
- Agriculture & Farming



Heat is half of our current energy needs
We need to give heat the priority it deserves...

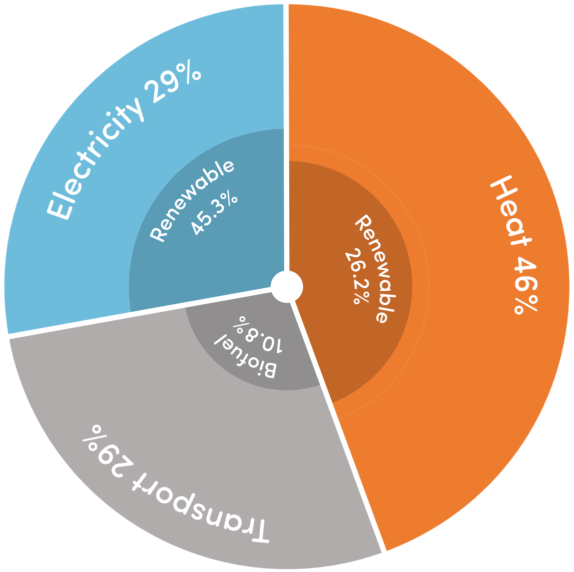
Heat is half of the total energy that we need – far more than the energy required for fuel/ transport and electricity.

Despite this, only 26% of our heat in Europe is generated from renewable sources.*

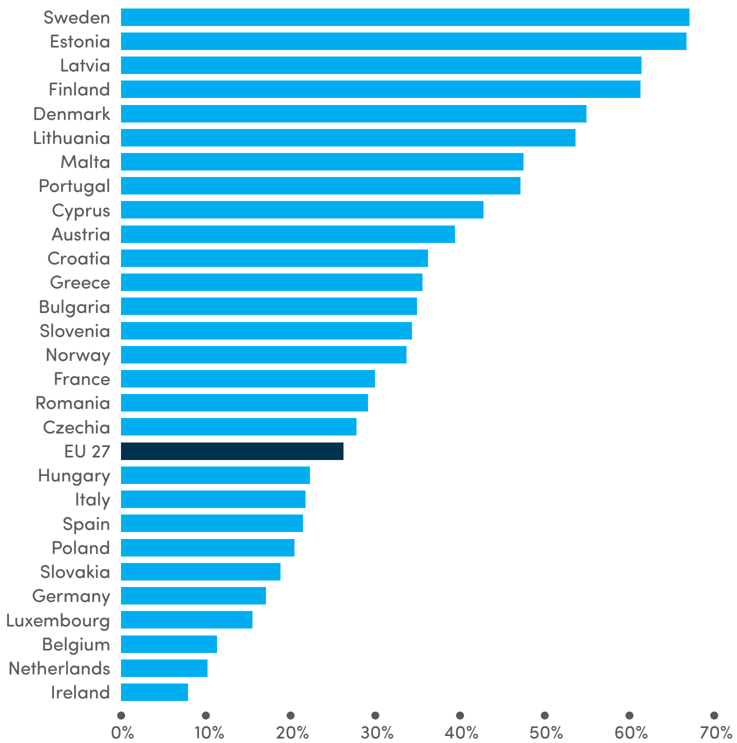
* Essentially biomass

#Heatishalf

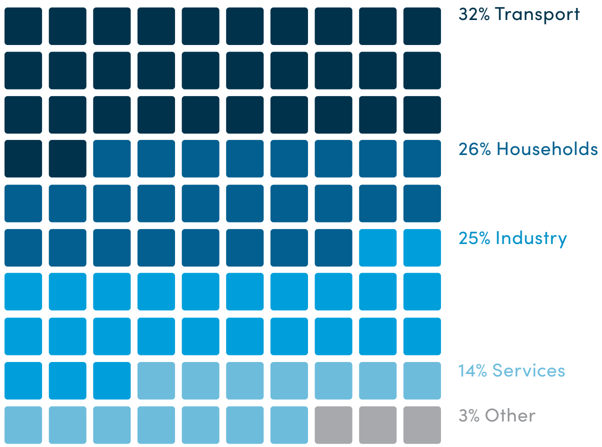
Total final energy and total modern renewable energy share, by energy carrier, European data (Source: Eurostat for year 2023)



Share of energy from renewable sources for heating and cooling 2023 (Source: Eurostat)



Energy users
Source: Eurostat (2023)



EU Renewable Energy Directive (RED) targets (2023):

- Art. 3: Total share of RES sources in 2030: 42.5%, aiming for 45%
- Art. 23: Binding target for the share of RES for heating and cooling: Member States to increase by at least 0.8 percentage points annually (for 2021-2025) and by at least 1.1 percentage points annually (for 2026-2030)

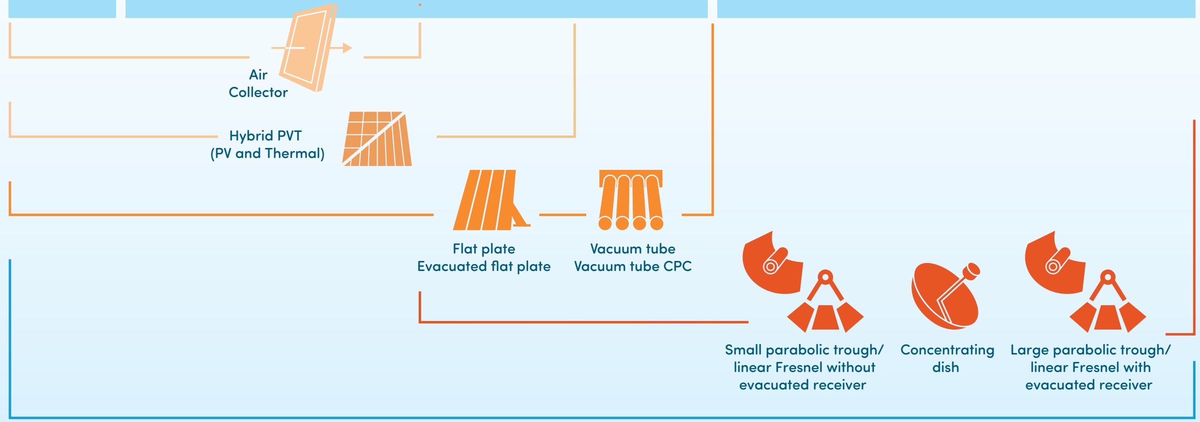
Giving more priority to heat and its decarbonisation, notably through direct renewable heat sources such as Solar Thermal, is therefore urgent and of utmost importance to:

1. **relieve pressure on the grid**
2. **create a level playing field for all technologies.**

Solar Thermal:
An obvious source of energy to provide hot water and heating for millions of applications, from residential to commercial and industrial users...

SECTOR	Cooling	LOW: Below 75 ºC	LOW: 75 to 150 ºC	MEDIUM: 150 to 400 ºC
Agriculture	ST + chillers	• Greenhouse heating • Drying		
Buildings		• Space heating • Washing • Showering • Cleaning		• Cooking
District heating		• Feeding into new, fourth generation heat networks	• Feeding into existing heat networks	
Industry		• Washing • Heat treatment • Drying	• Boiling • Bleaching • Pasteurising • Dyeing • Sterilising	• Distilling • Pulping • Nitrate melting • Drying of paint

COLLECTOR TYPE



Solar thermal is based on a simple principle: capturing the free energy of the sun to deliver hot water and heat.

Technological innovation has resulted in various ways to harness solar heat for domestic and industrial use. Certification, including the Solar Keymark, provides quality assurance to consumers and public authorities.

The Solar Keymark
CEN Keymark Scheme

- Over 20 years of certification standards
- More than 1 150 certificates granted
- CEN scheme
- Transparent and open
- More than 300 stakeholders

Solar Thermal:

A ready-to-deploy technology, from

30°C to **400°C**

A strong European manufacturing base:

- able to meet the EU demand for solar thermal systems
- net exporter worldwide
- able to triple EU based manufacturing by 2030, provided proper incentives are in place

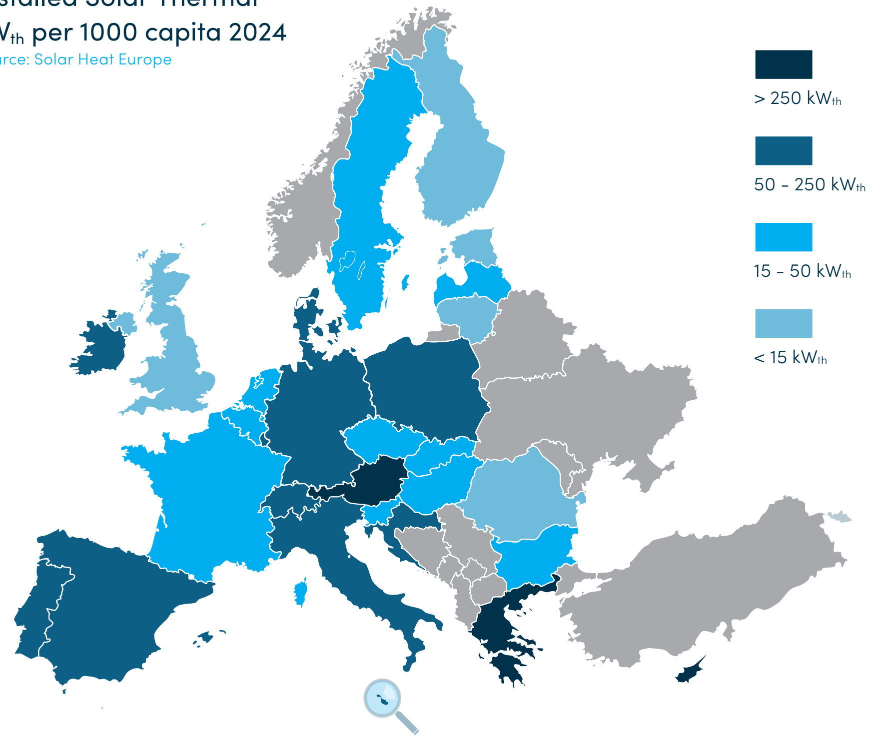
153.5 million tons of CO_2 saved per year thanks to 126 million solar thermal systems installed worldwide

> 90% recyclable (copper, glass, stainless steel, aluminium)

Solar Thermal 2024

Market overview - All market segments

Installed Solar Thermal
kW_{th} per 1000 capita 2024
Source: Solar Heat Europe

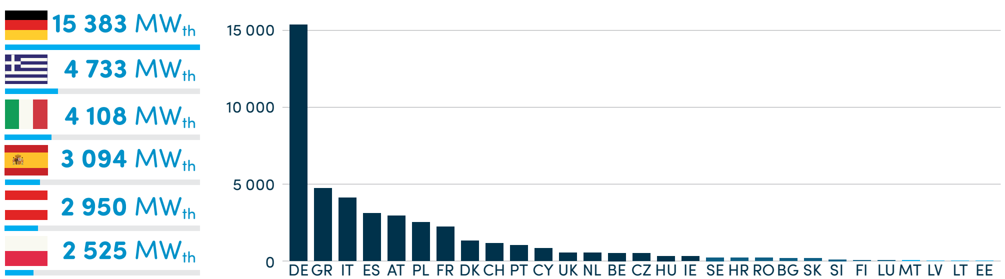


Country	Use of Solar thermal per capita	Cumulative installed capacity in operation (MW_{th})	Annual evolution Total Installed Capacity 2023/2024	New installed capacity in 2024 (in m²)	New installed capacity in 2024 (MW_{th})	Annual Evolution New Installed Capacity
AT		2 950	-2.2%	45 085	32	0.2%
BE		522	0.3%	4 715	3.3	-64%
BG*		178	5%	15 600	11	13%
HR*		223	2.7%	9 978	7	-20%
CY		833	3.3%	68 124	48	2%
CZ*		501	1.5%	15 846	11	-29%
DK		1 322	-1.2%	1 495	1	-89%
EE*		18	0%	880	1	-35%
FI*		65	0%	5 120	4	-30%
FR		2 223	1.7%	56 000	39	-36%
DE		15 383	-0.9%	216 524	152	-42%
GR		4 733	2.4%	343 100	240	-27%
HU*		326	0%	33 600	24	-20%
IE*		295	0%	893	1	-13%
IT*		4 108	2.1%	156 500	110	-33%
LV*		32	2.4%	1 120	1	-28%
LT*		21	0%	1 120	1	-34%
LU*		59	0%	2 197	2	-35%
MT*		42	0%	1 000	1	-19%
NL*		539	-2.8%	6 265	4	-86%
PL		2 525	2.0%	74 890	52	-43%
PT*		1 035	2.8%	45 000	32	8%
RO*		206	0.0%	10 800	8	-31%
SK*		173	2.5%	10 240	7	-34%
SI*		98	-1.4%	1 015	1	-20%
ES		3 094	3.3%	78 920	55	-39%
SE*		229	0%	3 680	3	-20%
CH		1161	-0.6%	15 590	11	-34%
UK		551	0.8%	15 394	11	0%
EU27 + CH + UK		**45 653**	**0.4%**	**1 240 691**	**868**	**-32.3%**

0 400 800
kW_{th} per 1000 capita

* Source: EurObservER

Cumulative Installed Capacity in Operation in 2024 (MW_{th})



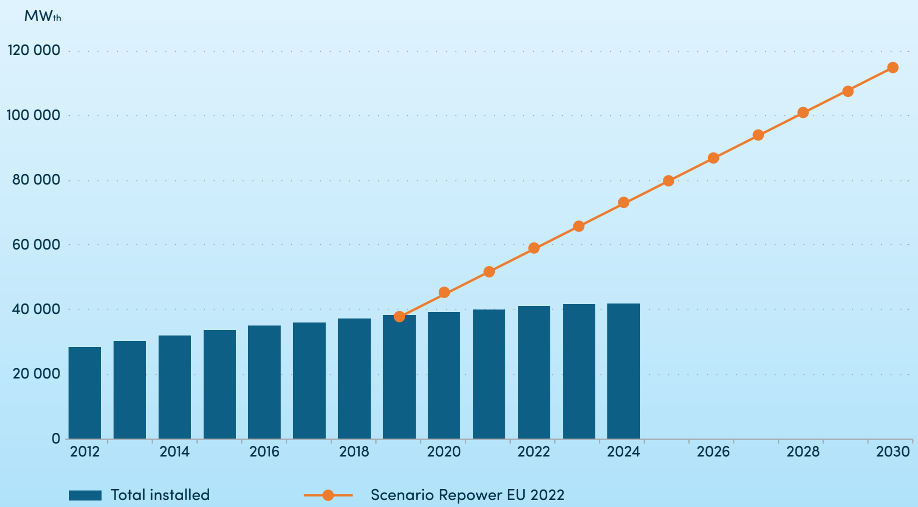
Note: the methodology used by Solar Heat Europe to calculate the total installed capacity has been adapted for this year's edition, moving from a life time of 20 to 25 years to ensure consistency with other experts' methodologies and better reflect market reality (applying it as from 2023).

Key learnings from 2023-2024

These last two years were marked by:

- Lower investments due to higher interest rates leading also to a lower-than-expected pace of heat modernisation across Europe
- Unstable policy signals regarding fossil fuels and the decarbonisation of heating and cooling
- Stop/Start market effect in some countries, due to inconsistent public policies and subventions/incentives
- A reduction of the gas prices and of the ETS carbon price (for industry), hampering the transition towards more sustainable supplies
- Fierce competition amongst heating and cooling technologies
- Dumping practices of solar PV panels, with very low prices indirectly affecting solar thermal sales
- Despite this backdrop, there is a growing installed capacity for all Solar Thermal market segments and significant new large scale projects commissioned, including a growing share of innovative solar thermal technologies (e.g. solar PVT)

Solar Thermal vs RePower EU ambition: EU 27 sales are not on track



Our call to support Solar Thermal market growth is to:

- Prioritise the decarbonisation of heating and cooling, with a greater focus on the decentralised supply of heat
- Give clear political signals to market players calling for a faster transition to renewable energy sources
- Recognise and raise awareness of the value of Solar Thermal to balance the grid (i.e. every system comes with heat storage built-in and onsite heat generation reduces heat pump power consumption)
- Stop incentivising new fossil-fuel only systems
- Ensure Solar Thermal is granted with similar incentive conditions as other RES technologies (e.g. VAT rebate, building obligations/ solar mandate, access to funding, etc.)
- Have stable, predictive financial support for Solar Thermal systems at levels allowing competitivity against fossil fuels, both for new systems in buildings and in industry
- Support EU Solar Thermal manufacturers on new investments to help protect them from unfair competition from Asian manufacturers, mainly those supplying solar PV and, in some cases, Solar Thermal
- Ensure Solar Thermal and hybrid solar PVT are well covered within one-stop shops (EPBD) and single contact points (NZIA)
- Ensure the development and availability of skilled workforce at local level on heating and cooling, including Solar Thermal, for public entities, consultancies and installation companies

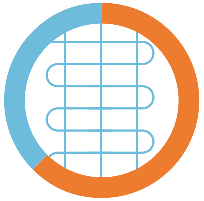
Europe Market growth trends	2022 (vs 2021)	2023 (vs 2022)	2024 (vs 2023)
Newly installed capacity	+ 12%	- 22%	- 32.3%
Total installed capacity	+ 2%	+ 0.6%	+ 0.4%

Residential and tertiary buildings
The needs

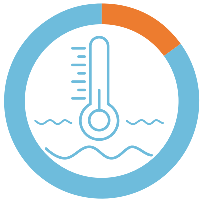
≈ 80%

of the energy needs by EU households relate to space heating/cooling and water heating. Both can be addressed by Solar Thermal but only a fraction (1.5%) currently are.

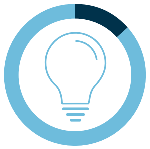
Space heating
62.5%



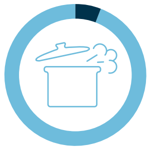
Water heating
15.1%



Lighting & electrical appliances 14.5%



Cooking
6.5%



Other uses
0.8%

Space cooling
0.6%

Energy consumption in EU households 2023 (% of total energy use) Source Eurostat

EU Renewable Energy Directive (RED) targets (2023):

- Art. 15a (new): sub-sectoral target for the share of RES in buildings: 49% in 2030
- Art. 15c: introduction of renewable acceleration areas, where permit-granting shall be further streamlined
- Art. 16d: specific provisions regarding permitting for the installation of solar energy equipment and co-located energy storage assets

Energy Performance of Buildings Directive (2024):

- Solar Mandate applicable as from Dec. 26
- Minimum energy performance standards (MEPS)
- Zero emissions buildings
- Phase out financial incentives for stand-alone fossil boilers by end 2024

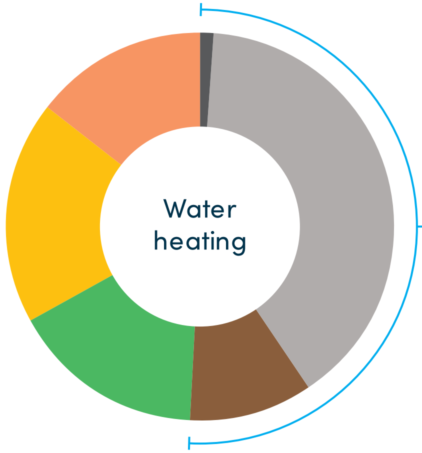
Emission Trading Scheme for Buildings (ETS 2- 2023):

- Buildings will fall under the ETS and will have to report about their emissions as from 2027
- Member States shall use their revenues for activities that contribute to addressing social aspects, e.g. measures to decarbonise heating and cooling or reduce energy consumption in buildings, particularly for low-income households and worst-performing buildings

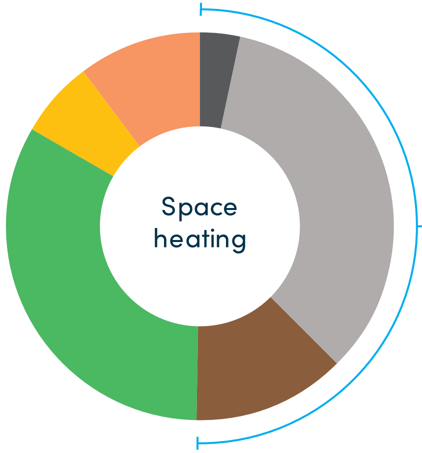
Energy Efficiency Directive (2023):

- 11.7% reduction of energy consumption by 2030 (vs 2020)
- National comprehensive assessments for efficient Heating & Cooling (H&C)
- Mandatory H&C plans for cities above 45 000 inhabitants
- Efficient District Heating & Cooling criteria

Share of fuels in the energy consumption in the residential sector, EU 27- 2023 (Source Eurostat)



50.3%
fossil fuel



50.5%
fossil fuel

- Solid fuels, peat, peat products, oil shale and oil sands
- Natural gas
- Oil and petroleum products
- Renewables and biofuels
- Electricity
- District heating

Residential and tertiary buildings

The solution: Providing hot water and heat directly from the sun's energy with Solar Thermal

12 million
rooftops in Europe are equipped with solar thermal & thermal storage

Total installed capacity in Europe (mainland): **43.6 GW_{th}**
That's **62 million m²** of collectors

Newly installed capacity in 2024: **+ 0.87 GW_{th}**
– 32.3% of newly installed capacity vs 2023, an **increase of +1.24 million m²** sold in 2024

All is relative – Varying country dynamics in Europe in 2024 vs 2023:

CY + 2%
+ 47 687 m²
A relatively stable year in 2024, and similarly expected in 2025, with potential further increases due to new constructions being developed.

GR - 27%
+ 240 170 m²
2024 was marked for the first time by a degrowth of the market (vs 23). Normally relatively stable, 2024 and 2025 have been subject to lots of uncertainties in Greece due to a new subsidy programme poorly executed. Exports outside Greece/EU have helped the local manufacturers.

FR - 36%
+ 56 000 m²
2024: the market suffered from a lot of "stop and go" effect linked to changes from the authorities on the conditions to access subvention (MaPrimeRenov). The "Fonds Chaleur" though has recently been simplified, which is encouraging for medium and large installations, and for district heating and industry. NB: a large scale industry project (15 000 m²) had also been commissioned in 2023, meaning that the "year-on-year" comparison for the buildings market would in fact be -23%.

DE - 42%
+ 151 567 m²
2024 was an overall very bad year for all heating market including solar heat. Many plans put on hold due to the Heating Law debate and status quo linked to heating plans. Still, 3 new Solar thermal district heating plants were commissioned in 2024. In 2026: the commissioning of the largest district heating (65 000 m²) is expected though

The REDI4HEAT project's analysis of National Energy and Climate Plans (NECPs) in Europe revealed that the limited ambition regarding renewable heat across most Member States affected the deployment of RHC solutions in general, and solar thermal in particular, in 2024.
https://redi4heat.ehpa.org/

Solar Photovoltaic Thermal (PVT):

Total installed capacity in Europe:
1.08 million m²
= 65% of all PVT installed worldwide

FR	DE	NL
629 136 m²	184 869 m²	141 769 m²

2024 vs 2023:
Germany: + 46% (+ 22 320 m²)
Netherlands: + 39% (+ 14 466 m²)
Austria: + 524% (+ 4 186 m²)
UK: + 66% (+ 2 125 m²)

UK: All England Lawn Tennis and Croquet Club (AELTC), Wimbledon 97.5 m²

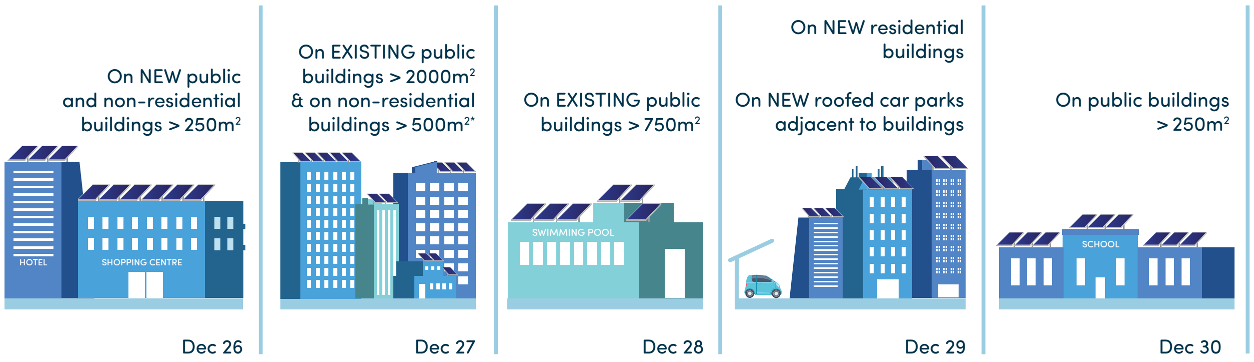
Austria: Newly built sports arena 1 130 m²

Buildings: The opportunity of the Solar Mandate (in EPBD) for Solar Thermal and Solar PVT

The Energy Performance of Buildings Directive, published in May 2024, foresees the requirement that:

“Member States shall ensure that all new buildings are designed to optimise their solar energy generation potential on the basis of the solar irradiance of the site, enabling the subsequent cost-effective installation of solar technologies”.

Member States shall ensure the deployment of suitable solar energy installations, if technically suitable and economically and functionally feasible, as follows:



* in case of major renovation, action requiring a permit, works on the roof, or installation of a technical building system (i.e. heating system)

Out of the buildings stock above, the following have **HIGH HEAT NEEDS** and should prioritise the use of Solar Thermal technologies:

Public Buildings
eg: swimming pools, sports centers, elderly houses, public hospitals.

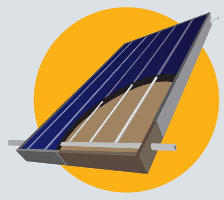
Non-residential buildings
eg: private hospitals, hotels, leisure centers (private or public).

Residential buildings
eg: single family houses, multifamily apartment blocks, social houses, elderly houses.

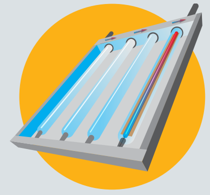
Solar Thermal collectors

Providing hot water and heating

Evacuated flat plate

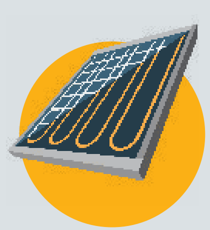


Vacuum tube CPC



Solar heat

PVT: A hybrid technology combining both PV and thermal



Solar electricity + Solar heat

Solar Thermal and/or solar PVT:

An obvious technology to implement the Solar Mandate

- ✓ Made in Europe
- ✓ Off grid
- ✓ 3 X more efficient than PV in terms of space
- ✓ Efficient heat storage comes as standard with every installed system
- ✓ A one-off capital investment, free energy for > 25 years and independence from energy price inflation
- ✓ Can hybridise easily with other energy supply or storage solutions

An adequate energy transition should foster a balanced approach including:

- Energy Efficiency
- Insulation
- **Solar Thermal & Thermal Energy Storage**
- Other RES, clean and efficient heat sources, etc
- Efficient district heating

Solar thermal can easily hybridise with a Heat Pump:

- Hybrid HP + ST has more efficiency than a standalone heat pump
- Reduces the electricity consumption of a heat pump
- Solar thermal produces zero carbon (or CO_2) energy, reducing the impact of the carbon content in the electricity supplied to the heat pump
- Reduces the stress on the heat pump, hence increasing its lifetime

HP + ST =

Higher efficiency

Lower operating costs

CO_2 reduction

Higher longevity

Guidance from Solar Heat Europe

(May 2025) for the adequate transposition of the Solar Mandate into national law:

Please download SHE's guidance on EPBD Article 10 here:

SHE's key points:

- Reflect the spirit of EPBD and promote the uptake of **ALL solar technologies** (PV/ST/PVT)
- Identify the **buildings' energy needs first** to select the most appropriate solar technology/ies
- Encourage **EU-made clean technologies** (eg in public procurement with non price criteria)

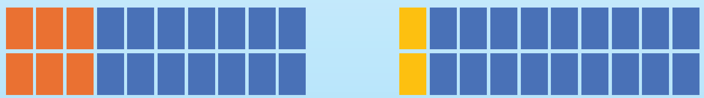
SHE's proposed 3 options:
National laws should refer to either:

- A percentage of the buildings' domestic hot water needs to be met by solar thermal
- A mandatory energy generation capacity from all solar technologies per m^2
- A minimum %ge of the rooftop to be used by the different solar technologies

Case study (roof 100m², no minimum percentage requirements):

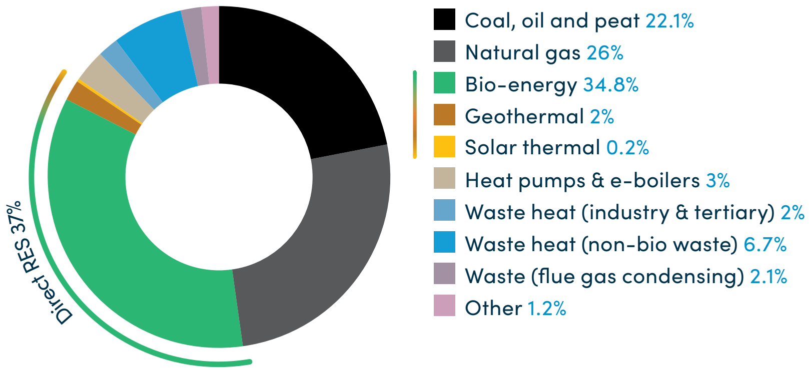
PV only: 30m² = 7kW = 70W/m²

ST/PV only: 10m² = 7kW = 70W/m²



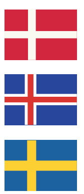
19 000* district heating networks now in Europe, looking for decarbonisation solutions & new ones keen to be developed

Energy sources in European district heating
(2023- Source EHP)



Share of DH heat demands from residential and service sectors
(Source: EHP and Eurostat 2022)

> 50%



10 - 50%

< 10%

Did you know?

Germany
> 35 000 kms of DH

Denmark
> 33 000 kms of DH

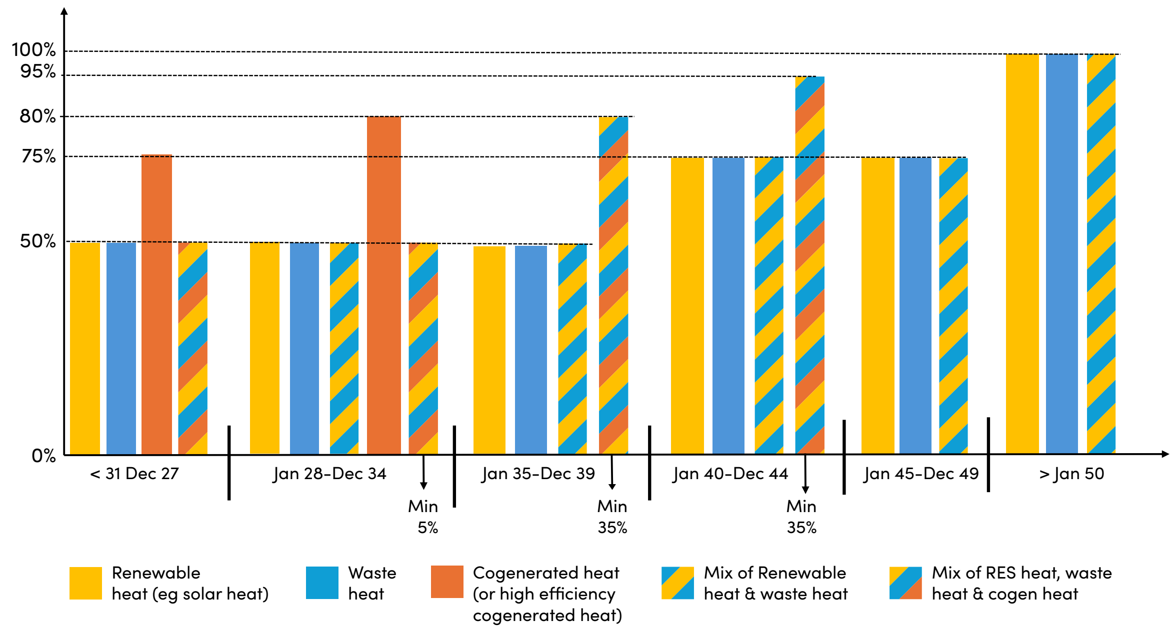
Poland
> 22 000 kms of DH

France
> 7 500 kms of DH

SHE is a proud partner of the Bring Heat Home campaign

*Source EHP 2024 Market report, in all these countries AT, BE, BO, BU, HR, CZ, DK, FI, FR, DE, GR, HU, IS, IT, KO, LT, LV EE , NO, PL, PT, RO, SK, RS, SI, ES, SE, CH, NL, UK.

The path towards “efficient district heating”, as per the requirements of the 2023 Energy Efficiency Directive



By specific deadlines, district heating networks will need to comply with any of the above options i.e. containing an increasing minimum share of RES heat (or others), reaching 100% in 2050, as required under Article 26 of EED.

How to interpret the graph?
Example (for the first deadline): "By 31 Dec 2027 at the latest, district heating networks will need to use as source of energy: either minimum 50% of renewable heat, OR minimum 50% of waste heat, OR minimum 75% of cogenerated heat OR min 50% of a combination of renewable/waste/cogenerated heat".

Energy Efficiency Directive (2023):

- 11.7% reduction of energy consumption by 2030 (vs 2020)
- National comprehensive assessments for efficient district heating & cooling
- Mandatory H&C plans for cities above 45 000 inhabitants
- Efficient District Heating & Cooling criteria for new or substantially refurbished systems

(See also ETS for buildings as from 2027)

Solar Thermal District Heating (SDH)

Solar Heat Europe

Solar Thermal has great potential to be the route towards district heating decarbonisation.

262

towns and cities in Europe use solar heat[1], with

1 415 MW$_{th}$

in operation

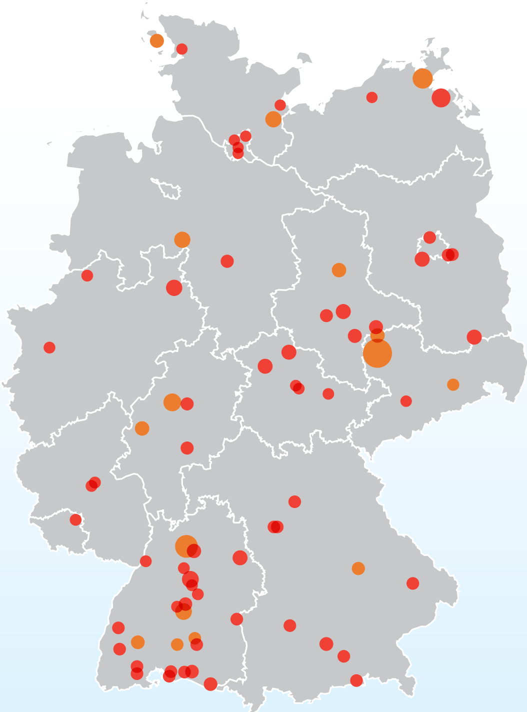
Of the 20 largest solar district heating systems in the world....

The **biggest is in Denmark,** Silkeborg (**110 MW$_{th}$**)

10 are in Denmark, **8** in China, **1** in Saudi Arabia, **1** in the Netherlands

Current SDH projects in Germany

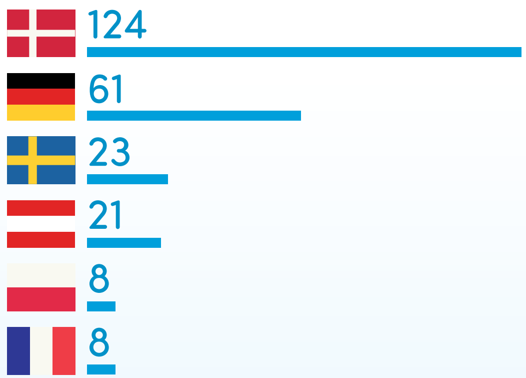
(Source: Solites, March 2025)



Operational – 61 DH ca. 173 275 m²

In planning and construction – 16 DH ca 193 108 m²

Solar thermal district heating networks in operation by European country (> 350 kW$_{th}$, 500 m²)*:



Did you know?

In Germany:

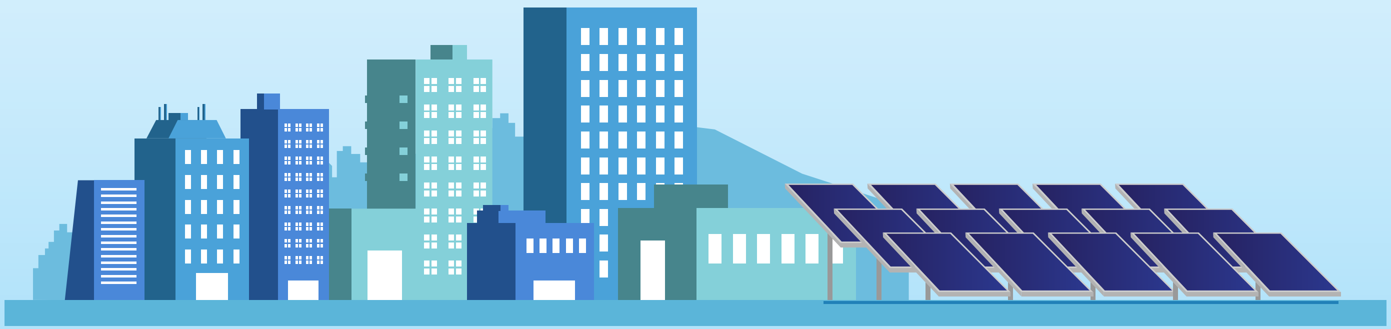
- 61 SDH systems exist
- 16 projects are in construction
- 3 new SDH systems went into operation in 2024 (9,804 m² and 6.9 MW$_{th}$) in Ammerbuch-Breitenholz (2 045 m²), Häusern (1 733 m²), Sondershausen (6 086 m²)

In the Netherlands:

The fourth biggest SDH system in the world (48 000m²) was commissioned in spring 2025 in Groningen. Solar thermal + TES (incl geoth.) + Waste heat (data centers) + HP

In Austria:

New solar thermal district heating network commissioned in 2024 in Unterrabnitz (544 m²) solar thermal field, 381 KW Solar thermal + biomass



1 source IEA SHC, based on district heating definition above*

Industry Decarbonisation
Heat/Thermal requirements

Industry represents

34%

of the energy needs globally

Process heating:
The single largest energy use in the European industrial sector

47% of industrial energy demand

3/4 of the CO_2 emissions generated directly by industry in 2018.

Main energy sources for process heat today:

- **Combustion of fossil fuels** 75%
- **Biomass** 15%
- **District heating** 6%
- **Electricity** 4%

EU Corporate Sustainability Reporting Directive (CSRD):

- Entered into force in Jan. 2023
- Objective: investors and other stakeholders to have access to the information they need to assess the impact of companies on people and the environment and for investors to assess financial risks and opportunities arising from climate change and other sustainability issues
- In scope: large companies, listed SMEs, some non-EU companies
- Reporting will start with new rules gradually as from the 2024 financial year, for reports published in 2025

Emission Trading Scheme:

- Covers greenhouse gas emissions from around 10,000 installations in the energy sector and manufacturing industry as well as aircraft operators and maritime transport
- Includes notably carbon dioxide (CO_2) from electricity and heat generation, from energy-intensive industry sectors, including oil refineries, steel works, and production of iron, aluminium, metals, cement, lime, glass, ceramics, pulp, paper, cardboard, acids and bulk organic chemicals

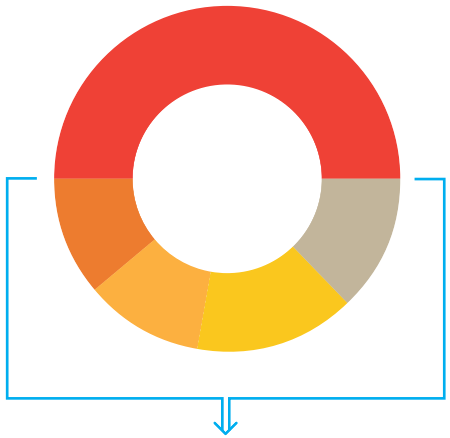
EU Renewable Energy Directive (RED) targets (2023):

- Art.22a: new sub-sectoral target for industry: average increase of 1.6 percentage points for the share of RES (for the periods 2021-25 and 2026-30)

Announced in Feb. 2025 as part of the Clean Industrial Deal:

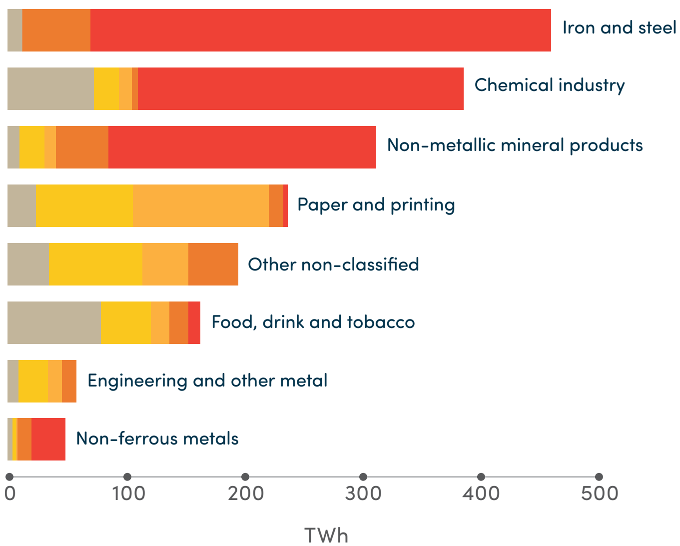
- Lower energy bills: Affordable Energy Action Plan
- Boosting the demand: Industrial Decarbonisation Accelerator Act (incl. "made in Europe" criteria in procurements)
- Financing the clean transition:
  => €100 billion Industrial Decarbonisation Bank
  => strengthening the Innovation Fund
  => adopting a new Clean Industrial Deal State Aid Framework to accelerate roll out of renewable energy, decarbonise industry and ensure manufacturing capacity in the EU
- Support Research and Innovation
- Stimulate investments and promote circularity of raw materials

Estimated total final energy demand for process heating in 2019 by temperature in EU27 (Source: Fraunhofer-Ise)



50%
of the heat needs by temperature **can** be met by solar thermal applications i.e. from low- to medium-temperature

Estimated total final energy demand for process heating in 2019 by temperature & energy carrier in EU-27 (Source: Fraunhofer-Ise)



Industry Decarbonisation

The transition, with Solar Thermal for heating and/or cooling needs

Solar Heat Europe

Worldwide data:

1 315

Solar Thermal systems in operation
(of at least 50 m² collector area or 35 kW_{th})

Covering

1.53 million m²

Representing a capacity of

1 071 MW_{th}

In 2024:

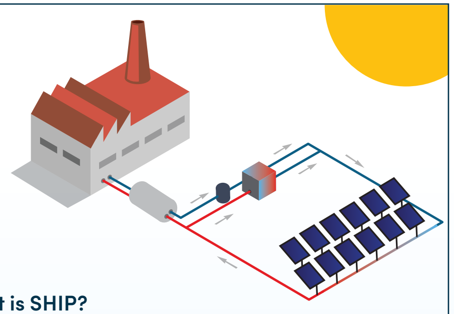
106

new systems were installed worldwide with a capacity of

120 MW_{th}

Find more examples and case studies on the SHE website

solarheateurope.eu/resource-center/case-studies/

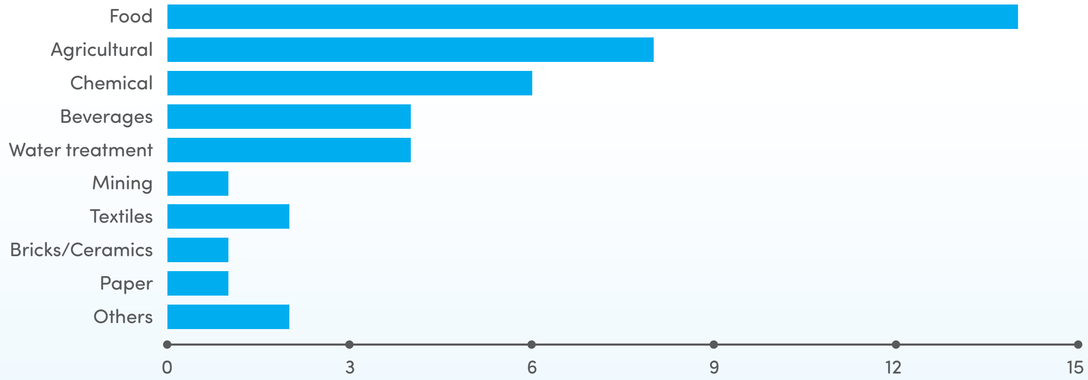


What is SHIP?
SHIP stands for "Solar Heat for Industrial Processes". This technology uses solar thermal collectors to convert solar radiation into heat, which is then used in industrial applications like pre-heating of raw materials, provision of hot water, or generation of steam for various manufacturing processes. The goal of SHIP is to reduce the industrial sector's reliance on fossil fuels for heat demand, thereby cutting down on CO_2 emissions and contributing to industrial decarbonisation.

Did you know that Solar Thermal can also be used in Agriculture and Farming applications, eg to dry crops, to warm food/drinks for animals, to warm greenhouses etc in a CO_2 free way?

43 SHIP projects in the pipeline in Europe in the following sectors

(Source: Solrico following a survey ran in early 2025 among projects developers)



Examples of SHIP projects commissioned in 2024:

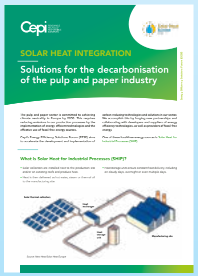
Heineken

Heineken, Valencia, ES 6 000 m²
Fresnel collectors 182 modules
peak output 4.2 MW_{th}
10% of the brewery's steam needs
1.5 MWh storage

Kirchberg am Walde, Austria
Agriculture 336 m² (on roof)
Solar heat used for:
- Heating of a chicken farm
- Drying of wood chips and animal feed

Solar heat energy yield: 182 MWh per year
Annual coverage of heating: approx. 31 %

Partnering to promote Solar Heat for Industrial Processes:



Solar Heat Europe developed a joint brochure in April 2024 with Cepi, the European association representing the pulp and paper sector.

Solar Heat Europe actively contributed to the World Business Council for Sustainable Development Technology Brief on Solar Thermal, released in December 2024.

Fraunhofer ISE and BSW released in May 2025 a brochure "Solar Process heat for the German Industry", demonstrating that solar thermal integration significantly reduces heat generation costs.

Download our reports here:

The upcoming EU Heating and Cooling Strategy (announced for Q1 2026)
A key strategy to boost demand and attract investment

Heating and cooling, representing half of Europe's energy needs, is an essential sector to achieve the EU's ambitious decarbonization targets and ensuring energy security.

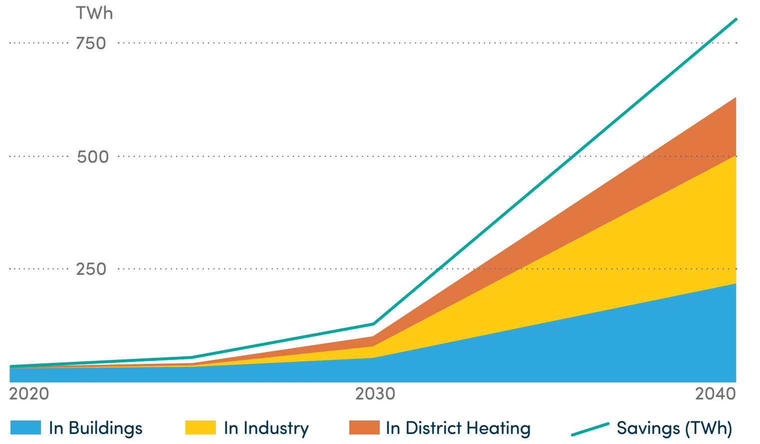
Whilst heat has often been underestimated, Solar Heat Europe is welcoming the announcement made in Feb. 25, in the context of the Affordable Energy Action plan, for a **new EU Heating & Cooling Strategy** (due in Q1 2026). This strategy will be key to give the visibility that heating and cooling deserve to have.

Solar Heat Europe urges the European Commission and Member States to adopt a comprehensive and ambitious approach that prioritizes the deployment of readily available, affordable and EU-made renewable heat technologies.

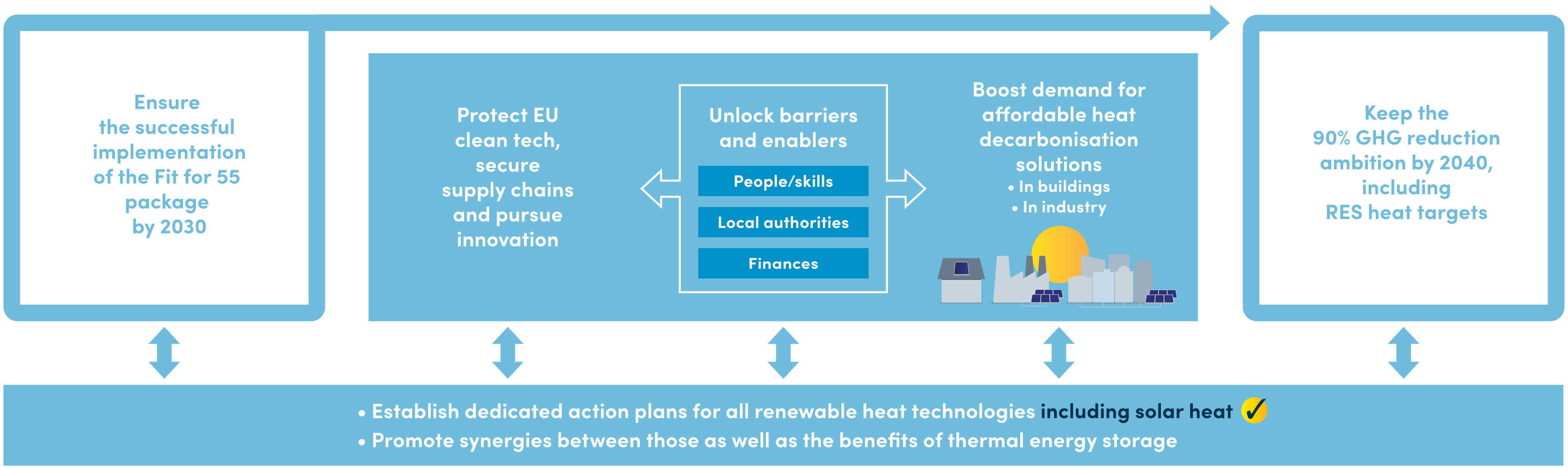
In that spirit, **we are calling for a dedicated Action Plan for Solar thermal technologies** as those are clean, affordable and home grown sources of energy. Giving a strong signal that these technologies can provide heat **for both buildings AND industries** will be key to accelerate their deployment, attract investment, promote EU clean tech businesses and their value chain.

Solar heat in Europe by 2040

Market development projection by Solar Heat Europe



2026 Heating & Cooling Strategy – Key pillars



Solar thermal:
A proud "EU-made" clean technology

Geographical list of EU-based Solar Thermal Manufacturers/Manufacturing sites (collectors and components) September 2025

Austria
- Cona
- Gasokol
- GREENoneTEC
- Hoval
- Siko Solar
- Solarfocus
- Sonnenkraft
- Technische Alternative
- Winkler Solar

Cyprus
- Arsos Therm
- C & K Kyriakou Bros
- Elcora
- Floga Solar
- Gasos
- Geosun
- Ilisa
- Johnsun Heaters
- Kafson Solar Heaters
- K.Theocharides Eco-Solar
- Lavra Solar Systems
- Metalco (Heaters)
- Solar Heaters Lux
- Sunergy
- Theohalko Solar
- Thriamvos
- Thylen Solar Systems
- Velpa

Czech Republic
- Gasokol

Finland
- Jaspi
- Meriaura Energy

France
- Alto Solution
- Dualsun
- Giordano R Energy
- HelioFrance
- Solisart
- Syrius Solar Industry Group
- Viessmann

Germany
- Akotec
- Alanod
- Almeco
- Aquasol Solar Techniek
- Bosch
- Capito Heiztechnik
- Citrin Solar
- Consolar
- Frenell
- Grammer Solar
- Protarget
- Ratiotherm
- Reinhard Solartechnik
- Ritter Solartechnik
- Solab
- Soliterm
- Solvis
- Sunmaxx
- TWL Technologie
- Wacher Chemie
- Wagner Solar

Greece
- Alpha Therm
- Antonakakis
- Bartec
- Calpak
- Cosmosolar
- Dimas
- Helioakmi
- Helional
- Lato
- Maltezos
- Papaemmanouel
- PrimeLaserTech
- Prisma Therm
- Refenergy IKE
- Sammler
- SIE I.K.E
- Sieline
- Sole
- Sonne Aktion
- Thermicsol
- Thermit Ecology
- Venman
- Xafis

Italy
- Ariston
- Avalen
- EDN Energia
- Immergas
- Naked Energy
- Pleion
- TVP Solar

Netherlands
- Escom
- G2 Energy
- HR Energy
- Solar Energy Booster
- Triple Solar

North Macedonia
- Camel Solar
- EcoSolar
- Euroterm
- Zrak

Poland
- Energetyka Solarna Ensol
- Galmet
- Hewalex
- Sunex
- Kospel
- Projprzem Eko
- Skorut Systemy solarne

Portugal
- Bosch
- Oliveira e Irmao

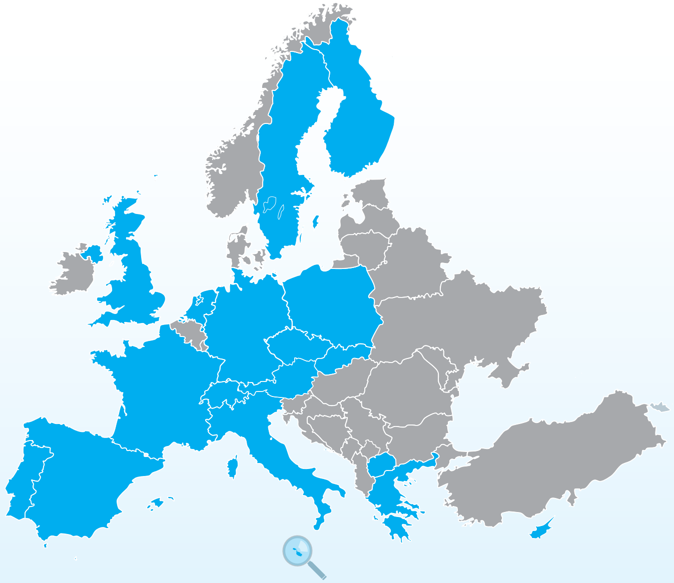
Spain
- Abora Solar
- BDR Thermea
- Delpaso Solar
- ENDEF
- Iaxxon energias
- Lapesa
- Orkli
- Promasol
- Termicol

Slovakia
- Greentechsolar

Sweden
- Absolicon

Switzerland
- Weishaupt
- Soblue

UK
- Naked Energy



The Net Zero Industry Act (NZIA):

- Entered into force in June 2024
- Regulatory framework to boost the competitiveness of EU clean technologies crucial for decarbonisation.
- Objective: scale up the manufacturing of clean technologies in the EU
- **Solar thermal technology clearly listed in scope**; a sector meeting already 90% of the EU demand, exporting worldwide and ready to grow
- NZIA will include streamlined permitting, net zero priority projects, priviledged access to EU products eg via public procurement, measures for SMEs, start ups, skills etc.

By 2030, solar heat in Europe aims to provide:

Annual CO_2 Emissions savings
33.3 Mt CO_2

140 GW_{th}
Cumulative capacity in operation

Annual energy savings
125TWh_{th}

Number of jobs
250 000

Estimated energy storage capacity
750 GWh

Annual Gas consumption avoided
12.1 BCM

Source: Solar Heat Europe Roadmap, June 2022

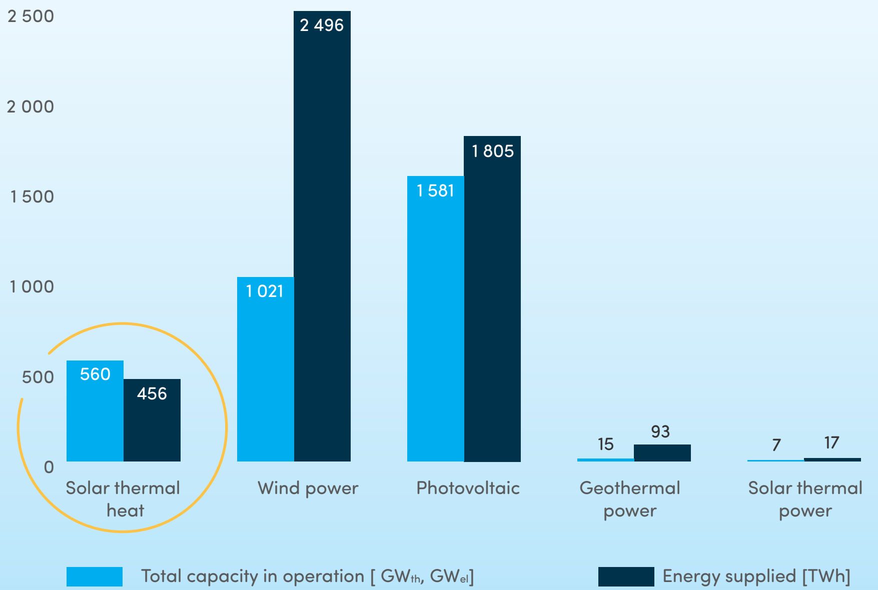
For more info or latest updates, please visit **solarheateurope.eu/market/our-industry/**

Solar Thermal at global level

A key contributor to clean energy everywhere in the world

Global capacity in operation (GW_{el}) (GW_{th}) and Energy supplied (Tw_{el}) (TW_{th}), 2023

Source: IEA SHC Solar Heat worldwide report 2025 and in particular: ST: AEE Intec, Wind Power: Global Energy Council (GWEC), Photovoltaic: IEAC Solar PVPS, Geothermal and Solar Thermal: Irena Energy capacity Statistics 2023



Five top markets in terms of (end 2024):

	1	2	3	4	5
Local capacity in operation:					
Solar water and space heating	China	Turkey	USA	Brazil	**Germany**
Solar district heating	**Denmark**	China	**Germany**	**Netherlands**	**Austria**
Solar Hybrid solutions (PVT)	**France**	S. Korea	**Germany**	**Netherlands**	China
Per capita use:					
Solar water heating collector capacity	Barbados	**Cyprus**	**Greece**	Israel	**Austria**

Solar heat on the global scale (2024 data)

544 GW_{th}
total capacity in operation end 2024

443 TWh
of thermal energy produced

153.5
million tons of CO_2 avoided

126 million
solar heat systems in operation end 2024

318 000
jobs in the global solar thermal sector 2023

1 315
SHIP projects
installed for industry

346 cities
using solar thermal district heating systems

For more information on solar heating & cooling:

Global: **International Energy Agency – Solar Heating & Cooling Programme**
www.iea-shc.org

EU: **Solar Heat Europe**
www.solarheateurope.eu info@solarheateurope.eu +32 2 318 40 60