Solar Heat Europe
ESTIF

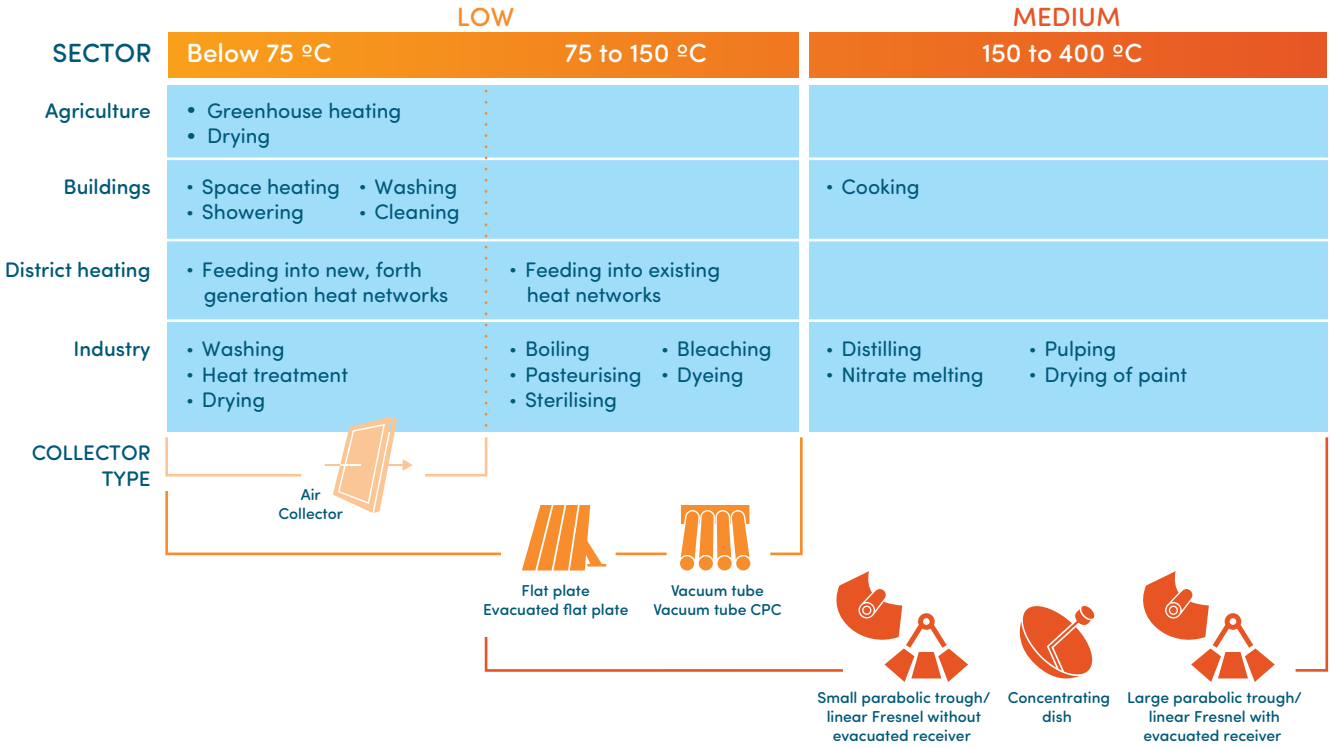
Solar Heat is

SMART

Manifesto for the Incoming European Legislators

Solar Thermal: A ready-to-deploy technology to provide heat from 30°C to 400°C

An obvious source of energy to provide hot water and heating for millions of applications, from individuals to professional users...



EU Fit for 55: An opportunity for Solar Thermal

Energy Efficiency Directive	Renewable Energy Directive	Energy Performance of Building Directive
Adopted 09/2023, into force 10/10/23	Adopted 10/2023, into force 20/11/23	Adoption upcoming (Q1 2024)
11.7% reduction of energy consumption by 2030 (vs 2020) (art. 4)	42.5% target for **RES in 2030** (art. 3) Binding target for **RES in H&C** (art. 23)	**Solar Mandate** (art. 10), requiring that rooftops above a certain surface be equipped with solar technologies (photovoltaic, solar thermal or PVT) by specific dates as from Dec. 26
National comprehensive assessments for efficient Heating & Cooling (H&C) (art. 25)	Indicative **sub-sectoral targets** for: • buildings (art. 15a): 49% RES by 2030 • for industry, • and district heating (art., 22a, 24)	Minimum energy performance standards (MEPS)
Mandatory H&C plans for cities above 45,000 inhabitants (art. 25)		Phase out financial incentives for stand-alone fossil boilers by 31/12/2024
Efficient District Heating & Cooling criteria (art. 26) for new or substantially refurbished systems	Streamlined **permitting** procedures for renewable acceleration areas (art. 15c); and provisions for the installation of solar energy equipment and co-located energy assets (art. 16c)	One-stop-shops for the provision of information to citizens and relevant local actors

EU Emissions Trading System (ETS) 2023 revision including Buildings

The energy transition is happening. And rightly so.

The Fit for 55 package negotiated during the 2019-2024 mandate has brought a lot of opportunities and targets for industry, cities and Member Sates: its successful implementation, in an open, objective way across Member States is absolutely key.

The solar thermal technology is based on a simple and obvious principle, yet constantly innovating: harnessing the energy of the sun to provide hot water and heat for our homes, buildings and industries. Consequently, it undoubtedly contributes to achieving energy efficiency targets and complements other renewable and clean technologies.

Visiting TVP Solar, one of the many SMEs of the sector, in Avellino, Italy

The solar thermal industry, based in Europe, offers self reliance and a local, sustainable supply chain. Its deployment does not require huge infrastructural investments but needs however to be supported so that:

- solar thermal companies, proud to manufacture in Europe, can continue to meet a growing demand, exporting worldwide, creating wealth and local jobs;
- project developers, researchers and suppliers are enabled to support their clients on the infrastructural modernisation or the development of new business models around heat decarbonisation;
- citizens, already enjoying solar heat from 10 million rooftops, can further engage neighbours, families and friends to become prosumers and benefit from local, independent energy supplies;
- our industries and our economy, whose heat needs are critical to be met in a reliable, resilient way, can continue producing in Europe and supply key products for society;
- our environment benefits from a resilient, reliable, clean energy supply, independent from political tensions or conflicts as produced locally.

Your support in this new cycle is going to be critical to make this implementation a success. This Manifesto proposes collaborative efforts to enhance the visibility and action towards heat decarbonisation and modernisation. We hope you will enjoy discovering how SMART Solar Thermal is and how, together, we can accelerate the growth of our sector, consequently delivering the win-win benefits that the use of Solar Thermal can bring for all.

The energy transition and the policy that enables it, are a promise to European citizens and call on a firm commitment that must be fulfilled. This will lead to a better environment, a secure and affordable energy supply for our economy, job creation and economic growth.

On behalf of our Board of Directors and our members, we look forward to exchanging on these priorities with you and wish you a successful mandate!

Guglielmo Cioni
President of Solar Heat Europe

Valérie Séjourné
Managing Director

Solar Heat is SMART...

S ecuring the supply of heat, our main energy need

Heat accounts for **50% of our total energy needs** ... and **80% for households**! Solar heat, through its dedicated solar thermal panels provides the hot water and heat to millions of consumers thanks to an obvious, natural and renewable source: free and abundant energy from the sun. Solar heat also applies to many other large-scale markets such as district heating networks and industries, where the demand for modernisation and decarbonisation is huge. 17 000 district heating networks need to be decarbonised. For industry, heat represents **60% of their total energy needs** and half of these needs are below 400°C, a temperature range that solar heat can achieve!

M anufactured in Europe by hundreds of companies

The solar thermal sector is well established in Europe with **hundreds of companies** of all sizes, most of those SMEs established from Finland to Cyprus, Greece and Austria and creating **thousands of jobs**. Producing different state-of-the art technologies according to the temperature levels required, from concentrated to non-concentrated technologies including hybrid solar - PVT (producing both heat and electricity), our members ensure **continuous innovation**, R&I, and work alongside well-established certification schemes guaranteeing the performance of solar thermal collectors across all regions of Europe.

A ffordable energy source, thanks to the sun's energy

Solar heat enables the provision of modern and decent housing and heating supplies for households. It offers an **affordable energy** supply with a **very long lifetime** (25-30 years), providing free energy from the sun's resources and enabling a just transition for EU citizens. This stable solar heat price enables industries to access affordable and predictable energy supplies, especially for low to medium temperature ranges which are the ones needed for industry sectors such as food and beverage, pulp and paper, chemicals, construction to name a few, and where a number of concrete references exist for solar heat in such industrial processes. Thank to this, manufacturing companies can keep their production sites in Europe, remain competitive, whilst decarbonising their energy supplies.

R esilient, reliable and recyclable

Solar heat is a **reliable energy source**, independent from geo-political developments or crises. Based on non-critical raw materials and a reliable supply chain, solar thermal panels are extremely energy efficient and offer one of the fastest CO_2 emissions payback time among renewable technologies. They can be used and coupled with any other technology and have **extremely high recyclability** and circularity rates.

T ripling its deployment is key

Together with other renewable energy sources, solar heat – both concentrated and non-concentrated, and PVT- has its role to **triple up its deployment by 2030**, as referred in the EU Solar Strategy, published by the European Commission in 2022. Also reports and projections emanated from other international institutions such as the International Energy Agency (IEA) and the International Renewable Energy Agency (IRENA) have indicated a strong potential and growth trend for the deployment of solar thermal solutions in buildings, district heating networks and for the supply of industrial process heat.

Our Policy Recommendations:

1

Urgently set a new Renewable Heating & Cooling strategy for Buildings & Industry

We advocate for the implementation of a comprehensive Renewable Heating and Cooling Action Plan, specifically tailored to meet the diverse demands of heating and cooling in both residential and industrial sectors. This plan must prioritise decentralised energy supply through direct renewable heat technologies, notably solar thermal systems, strategically combined to enhance the overall resilience of our energy system.

2

Protect, support and incentivise EU Cleantech SMEs

We call for measures supporting European cleantech SMEs, ranging from direct investment support to new mechanisms aiming at technical and logistical support for new investments, innovation programmes and export activities.

3

Prioritise the deployment of affordable renewable heat solutions

Set up European financial instruments that facilitate an easy access to funding, e.g. through zero-interest rates to European citizens and industry, unlocking public and private financing support to accelerate and support the energy transition.

4

Emphasise positive externalities such as resilience and recyclability

Provide a framework incentivising Members States to complement the EU Emissions Trading System (ETS) with direct support schemes that put a value on additional positive externalities, such as, security and resilience of the energy supply.

5

Enable and support the tripling of the solar thermal roll out

Set up guidance to Members States on flanking measures - complementing the measures above - to boost the deployment of solar thermal systems in Europe, including awareness raising campaigns and re-skilling initiatives for the workforce and fostering fair treatment of all technologies.

1 Urgently set a new Renewable Heating and Cooling Strategy for Buildings & Industry

What:

We call for a **Renewable Heating and Cooling Action Plan** addressing H&C demand from buildings and industry, based on various decentralised solutions and adding resilience to the energy system.

Why:

Heat accounts for 50% of our total energy needs, representing 80% for households and 60% for industry! European citizens and companies need security of supply, based on decentralised solutions, locally providing needs for heat and complementing centralised supply from the power grid.

How:

- Urgently develop a holistic and comprehensive Renewable Heating and Cooling Action Plan, highlighting the role of all renewable H&C in the energy transition, complementing the electrification process. This roadmap shall include:
  - A building decarbonisation roadmap
  - An industry decarbonisation roadmap, integrated with already planned industrial policies.
  - Dedicated plans for direct renewable heating solutions, such as solar thermal.
- Effectively foster NECPs implementation, emphasising the heat agenda, combined with the development of RES-Heat gap filling measures.
- Incentivise the combined use of carrot and stick measures at national level for an effective and rapid H&C deployment.

Solar heat contribution:

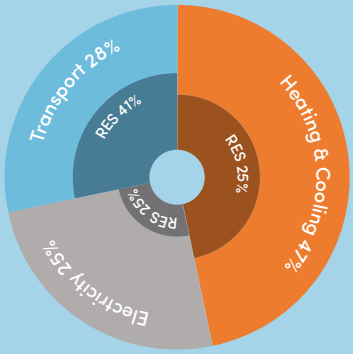
Solar thermal panels provide hot water and heat to millions of consumers thanks to an obvious, natural and renewable source: the sun's energy.

Solar heat is also applied in many other large-scale applications such as district heating networks and industries.

Solar thermal complements electrification; it is an off-grid solution, and provides competitive solutions for heat generation. It also contributes with essential energy storage capacity, included by default in any solar thermal system, domestic or industrial.

S M A R T

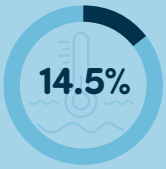
Securing the supply of heat, our main energy need[1]



Energy needs in EU households[1]:

Space heating

Water heating



Industry:

60% of the total energy needs in EU industry apply to process heat[1]. Half of those are low and medium temperatures that can be covered by existing technologies like solar thermal[2].

"Heat is half of the energy consumption in Europe, as well as the main driver of expensive fossil fuel imports, with obvious implications in terms of energy security, competitiveness, and pollution. Modernising this sector must become a priority, and will lead to much needed economic and social benefits, while decarbonisation will come out of it as a positive consequence."

Bertrand Piccard
Chairman, Solar Impulse Foundation

1 Sources: Eurostat
2 www.trust-ee.eu/discovery/process-heating
www.trust-ee.eu/files/otherfiles/0000/0008/TrustEE_D1_1.pdf

2 Protect, support and incentivise EU Cleantech SMEs

What:

We call for measures supporting European cleantech SMEs, ranging from direct investment support to new mechanisms aiming at technical and logistical support for new investments, innovation programmes and export activities.

Why:

SMEs, being the heart of EU's industrial fabric, are often unable to make themselves heard in EU and even national policy making processes or even to benefit proportionally from EU financial packages. SMEs are essential to the onshoring of our energy supply, based on endogenous and clean energy sources due to their agility, their innovative approach and the value they bring to local economies.

How:

- Ensure that at least 50% of EU funds related to the European Green Deal implementation are channelled to SMEs.
- Include requirements for EU based manufacturing and EU-based production on procurement procedures.
- Incorporate in economic stimulus packages an incremental support conditional to investments in EU-made renewable energy equipment.
- Support standardisation and labelling initiatives that provide EU consumers with high-quality and energy efficient solutions, also shielding EU SMEs from unfair competition from abroad.
- Include consistent R&I approach to RES-heating and cooling technologies and to SME participation in R&I initiatives.
- Include EU renewable heat equipment production as a priority for Net Zero industrial valleys.

Solar heat contribution

The solar heat industrial sector leads in the supply of the European market, based on their innovative approach and competitive drive, resulting in the offer of products with an excellent price/quality ratio. This, together with high quality requirements in the European market, have contributed for European SMEs to clearly outstand in supplying the internal market and also export to other regions.

Innovative approaches have also led to the development of new market segments, such as solar heat for industrial processes or hybrid solar panels, producing both electricity and heat (PVT).

S M A R T

Manufactured in Europe by hundreds of companies

Hundreds of SMEs are active in the manufacturing of solar thermal panels, storage equipment, project development for Solar thermal in Europe.

Altogether, they meet

90% **of the EU demand**

Did you know that

70%

of the production of solar thermal in **Greece is exported worldwide**?

Quality assurance is an essential pillar of the European solar thermal industry, reflected in the **Solar KEYMARK certification** held by over **1100 solar thermal products** from **17 different countries**.

"It is strategic that the European industry can continue to prosper, developing value-added products such as the ones developed in our company, Abora Solar, whose PVT arises from a Doctoral Thesis in Spain. Our production site based in Zaragoza (Spain) was created in 2017 and we were proud to inaugurate end 2023 our 3rd production line, employing now 40 persons. Our market is growing but we need a supportive policy framework to sustain this growth."

Alejandro del Amo Sancho
Director General - CEO
Abora Solar

3 Prioritise the deployment of affordable renewable heat solutions

What:

Set up European financial instruments that facilitate an easy access to funding, e.g. through zero-interest rates to European citizens and industry, unlocking public and private financing support to accelerate and support the energy transition.

Why:

In general, renewable heat solutions have better levelised costs of energy (and lifecycle costs) than fossil-fuel based solutions. Though they require higher upfront investments, which act as a barrier for most Europeans in the adoption of such solutions. As a consequence, many citizens are trapped into 'low investment/ high operating costs' options, often consisting of fossil-fuel based sources such as gas or even high CO_2 content sources such as electricity. Renewable heat supply provides an alternative to expensive energy supply contracts or expensive power storage solutions.

How:

- Establish a large European Heat Fund, addressing citizens under risk of energy poverty, accessible also to local authorities.
- Establish a European mechanism providing access to EU citizens and companies to zero-interest loans or other attractive financial incentives for renewable heating and cooling solutions.
- Set up an Industry Decarbonisation Fund under the new Multiannual Financial Framework.
- Provide clear market signals and financial instruments to help unlock public and private investments and support.
- Promote the development of National Heat Funds, complementing the European instruments.
- Incentivise Heat Purchase Agreements (HPAs) provide a better solution to address the specificities of heat supply in comparison to PPA's, even more if coupled with de-risking instruments.

Solar heat contribution:

Solar heat solutions generate heat from the sun for over 20 years, on average, offering energy supply starting from:

- For households: 0.03€ per kWh of heat (domestic hot water in Greece), including storage.
- For industry: 0.05€ per kWh, covering low and medium (up to 400° C) temperatures, with stable energy prices for heat supply and low-cost energy storage options, an essential aspect to support the competitiveness of industrial companies.

S M A R T

Affordable energy source, thanks to the sun's energy

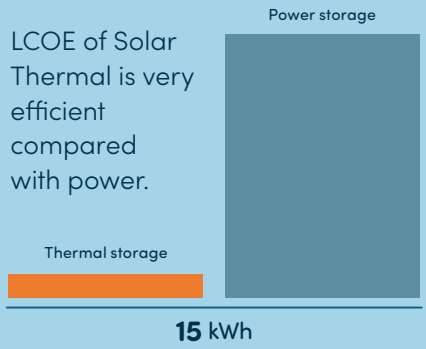
Solar thermal:
1 time installation cost (including storage)

>20 years

using the free energy of the sun

A Levelised Cost of Heat (LCoH) extremely performant and a CO_2 free, reliable, independent energy supply

Comparative storage costs



"The affordability of clean and renewable solutions is key to ensuring that the heating and cooling transition is accessible for everyone. The multiple benefits, including: energy and climate security, jobs and growth, public health, and reduced costs, can be widely shared - provided that lower income households receive targeted support."

Delia Villagrasa
Director, Cool Heating Coalition

4 Emphasise positive externalities, such as resiliency and recyclability

What:

Provide a framework incentivising Members States to complement ETS with direct support schemes that put a value on additional positive externalities, such as, security and resilience of the energy supply, or even air quality, recyclability and circularity.

Why:

Renewable heat solutions have a long and strong track record, representing a reliable option in terms of supply, that allow the EU energy system to become more resilient, namely by decentralising supply. In addition, they provide better quality of life, protecting the environment or helping in improving air-quality in urban areas, while making an efficient use of resources. These positive externalities are a clear added value to our society and our way-of-life and as such need to be incentivised by valorising the benefits they provide.

How:

- Estimate gains for the European economy of reducing the risk of new energy crisis, other energy supply shocks or the relevance to EU's geostrategic stance. Use this information to developed tailored instruments for technologies that improve the resilience of the European energy system and in particular decentralised energy supply.
- Support local authorities in their effort to develop local heating and cooling plans, including the estimation of the positive impact they can bring to local economies and quality of living.
- Include requirements for resilience and reliability on public procurement procedures and support mechanisms for local energy transition.

Solar heat contribution:

For over three decades solar heat systems have been used in Europe. More than 10 million households are benefitting from solar thermal energy and local energy storage capacity (15kWh in average, per household). They have a reliable and resilient supply chain, not depending on critical raw materials or supplies from volatile partners.

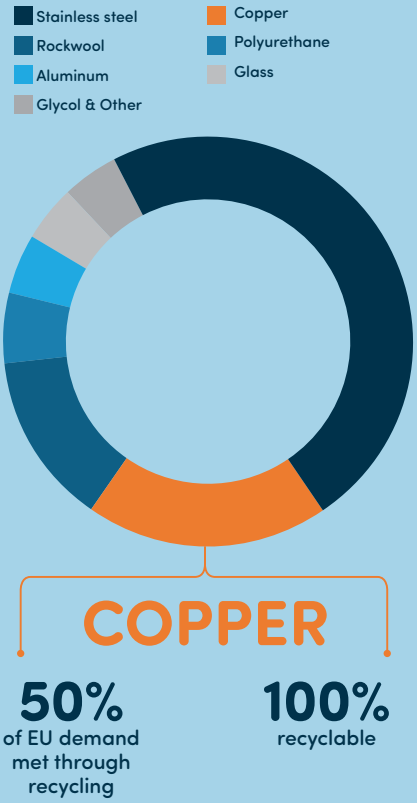
Solar thermal ensures the delivery of energy independently from geopolitical developments in a sustainable way, with high recyclability and circularity rates.

S M A R T

Resilient, reliable, and recyclable

>95%
Recyclability
(Mass & volume)

1 year
Energy Payback time



"Copper, thanks to its excellent thermal conductivity and corrosion resistance is widely used in solar thermal collectors and contributes to sustainability and circularity credentials too - as a durable, versatile and infinitely recyclable material, copper provides longevity to solar thermal systems which can easily be recycled at their end-of-life and reintroduced into productive use."

Quentin de Hults
Director General, International Copper Association Europe

5 Enable and support the tripling of the solar thermal roll out

What:

Set up guidance to Members States on flanking measures (complementing the measures previously presented) to boost the deployment of solar thermal systems in Europe, including awareness raising campaigns and re-skilling initiatives for the workforce.

Why:

Europe must expand the range of options available to consumers and companies, rather than limiting it. Solutions offering similar benefits in terms of decarbonisation and reduced energy imports should compete on equal footing and benefit from a fair treatment in terms of support by public authorities. Consumers, cities, industries, authorities, financial organisations are flooded with diverse (and often contradictory) information about solutions to adopt and support. The availability of clear information as well as reliable, objective and neutral sources are essential to support informed decisions by citizens, for their homes and training by companies for their modernisation strategies and by the financing organisations for their investments.

How:

- Promote fair treatment of all relevant technologies enabling climate neutrality and fair support.
- Run awareness campaigns at EU level, cascading also into national level, about the energy transition, the decarbonisation of heating and cooling and different renewable heat options.
- Incentivise measures at national level to increase the number of qualified experts in renewable heating and cooling in public authorities.
- Develop national skills agendas for renewable heating and cooling technologies, from researchers to installers. For instance, in order to rapidly increase the number of qualified multi-technology installers, it will be essential to set up modular training and qualification processes, identifying skills and competences common to different technologies.

Solar heat contribution:

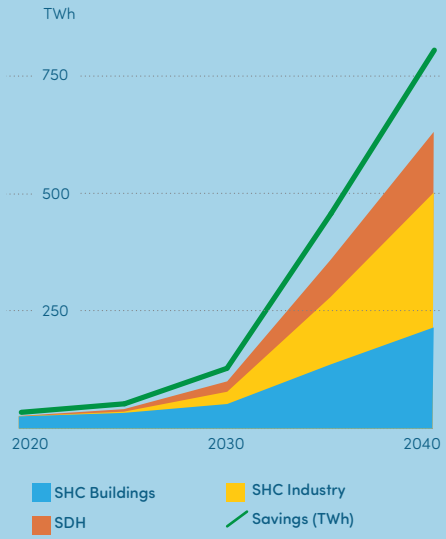
As indicated in the EU Solar Energy Strategy, solar thermal has the potential to triple its capacity in Europe by 2030. This requires an effective effort of awareness raising among public authorities about the potential of this technology, addressing also the main barriers preventing such deployment. It also requires clear signals to the market, increasing the confidence of investors and consumers.

S M A R T

Tripling its deployment is key

Solar heat in Europe by 2040

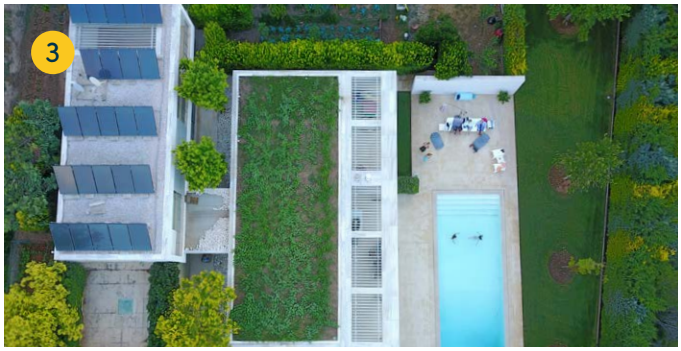
Market development projection by Solar Heat Europe



"EU's climate and energy goals cannot be achieved if there is a lack of workforce in the installation sector. Therefore, the attractiveness and skills' development for our sector must become a priority for the future Commission.
A European "Marshall Plan" should be developed to propose policies commensurate with the needs and responsibilities ahead."

Oliver Jung
Secretary General, GCP Europe (Building services engineering, mechanical contractors, plumbers and HVAC installers)

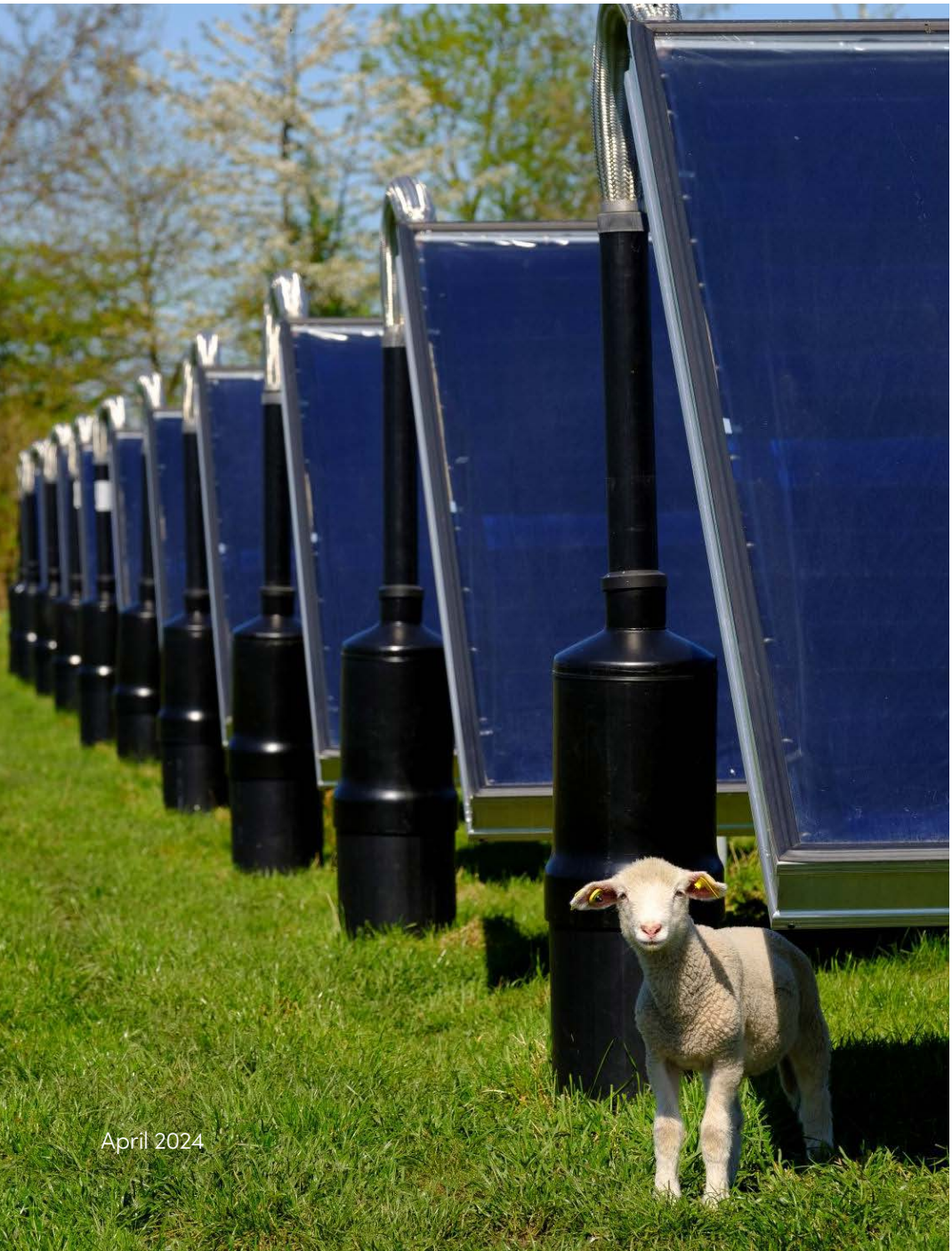
Solar Thermal is happening!



1 Hybrid solar – PVT installation at the Barcelona Olympic Swimming Club, Spain.
2 Solar heat plant feeding into Geneva's district heating network, Switzerland.
3 Solar thermal installation for space and pool heating for a villa in Athens, Greece.
4 Solar thermal and photovoltaic sharing the roof of Westgate Leisure Centre in Southeast England.
5 Solar thermal façade collectors on apartment building in Zurich, Switzerland.
6 Solar heat for Lactalis' industrial processes in Verdun, France.
7 Solar district heating in Almere, Netherlands.
8 Hotel owner with solar heat installation in Vienna, Austria
9 Concentrated solar thermal plant feeding into Högslätten's district heating network, Sweden.

Solar Heat Europe...

- The voice of the solar thermal sector
- Established in 1992
- Members from the whole value chain (suppliers, manufacturers, project developers, research institutes) and National Associations across Europe
- A technology providing clean, renewable heat for buildings, district heating and industry.
- Meeting 90% of the EU demand with a strong EU SME manufacturing base
- A growing installed capacity for over 3 decades, reaching >40.5GW$_{th}$, across 10 million rooftops
- Exporting worldwide



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