The French solar thermal market is only slowly recovering from the market decline of recent years. The industry’s best hopes are large domestic hot water systems for apartment buildings along with a new Renewable Energies Heat Act.

The solar storage tank belongs inside the home and not out in the garden. After all, we want to heat the house and not the garden.” It was the client Jean Frédéric Stambach from Rœschwoog in Alsace who had to tell this to the architect planning his largely solar-heated single-family home in 2005/2006. Back then, heating concepts involving large solar thermal systems were a new frontier for the architect. This is why he initially wanted to install the 11,000 l storage tank out in the open. Neighbours and acquaintances also had their doubts. “You’re crazy. That will never work.” He often heard sentences like these, Stambach recalls. The 39-year-old, whose parents already had a small hot-water system installed in 1981, followed through with his ideas. He cheerfully says that the system with a collector area of 36 m² has been working flawlessly since its installation in 2006. His motivation to focus on solar thermal energy despite all odds? “Environmental awareness, and we wanted to save costs,” he answered without further ado.

As it is now, the French solar thermal industry would certainly wish for more people like Stambach and his parents. Ever since the record year 2008, the market for solar thermal systems has been in a state of decline. Only the collective systems segment for apartment buildings is continuing to grow thanks to the Fonds Chaleur funding programme. This is where the industry now places its hope – and on a new Renewable Energies Heat Act.
Since the record year of 2008, the French solar thermal market suffered its second consecutive decline. Only the segment of large solar thermal systems for multi-family homes, apartment buildings and service sector facilities continues to grow thanks to the Fonds Chaleur funding programme.

Photo: Viessmann

Market growth thanks to Plan Soleil

“The solar thermal market restarted from nothing in 1999, with a global approach: subsidies, training of installers to become members of the Qualisol-network, selection of whole systems and marketing,” says Richard Loyen, Managing Director of the French solar energy business association Enerplan, in retrospect. “At that time, solar thermal applications were considered a new solution for housing. The trend was to install a solar thermal system.”

The measures named by Loyen were launched as part of the Plan Soleil. The French government initiated this national solar thermal campaign in 1999; the environmental and energy agency Ademe implemented it. Up until the 1990s, many swimming pools were still being constructed in France. They were heavily promoted in the 1980s. Then the domestic hot water systems market was to be developed.

Plan Soleil had two main pillars. With a grant towards the investment costs for hot water and combined systems, Ademe initially tried to create a buying incentive.

A new, prosperous market attracts many players, in many cases also non-qualified craftsmen. To ensure a sufficient installation quality, Ademe set up the quality offensive Qualisol together with the French inter-trade organisation Enerplan. Its goals were advanced training of installers and quality control.
This is a typical collective installation as it is supported by the Fond Chaleur since 2009. The construction of public housing was built in Strasbourg in 2010. 300 solar collectors are installed on the roof.

The measures worked. Between 2000 and 2005, the number of new installations rose continuously. As Richard Loyen reports, over 500,000 m² in collector surface area (about 350 MWth) was installed during the duration of the campaign.

**Continuation under own auspices**

When the campaign ended in 2005, the organisations and the newly created institutions continued the successfully launched measures under their own auspices. To continue Qualisol, Enerplan created the organisation Qualit’EnR together with three organisations from the trade and building industry (CAPEB, UCF-FFB und UNCP-FFB) and the French Renewable Energy Industry Association SER.

This organisation is dedicated to further quality assurance. A measure to this end is the label Ô Solaire. The certificate attests that the components in the certified small hot water systems and combined systems meet the requirements of all relevant EU standards and French regulations. Many manufacturers have agreed to comply. There already were precursors of Ô Solaire during the Plan Soleil. At that time, Ademe determined the criteria for the components of eligible systems in private households.

Qualit’EnR also has the aim that every interested system operator ought to be able to find a skilled craftsman in the vicinity. These certified craftsmen are to be found via the Internet portal of the same name. According to the website, more than 13,000 businesses now belong to the Qualisol network.

Qualit’EnR continues to provide craftsmen with training materials and assistance for controlling their work. In addition, experts instruct trainers for advanced solar thermal training and they supervise the training facilities.

**Advanced training is effective**

According to Richard Loyen, there are now over 70 training facilities for Qualisol. They are commonly located at the manufacturers. “We have a training
Thirty years of manufacturing Solar Water Heaters, means thirty years of innovating in the field, and introducing new technologies.

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The solar water heaters are offered in both closed and open circuit, in a range varying from 120 to 300 liters.

The forced circulation systems are offered from 150 liters up to 1000 liters, and they are offered as complete units or separately.

Each systems consists of:

- a storage tank with 1 or 2 heat exchangers (coils)
- Collector(s) of 2,10m or 2,60m
- Support base of the collector for flat roof or tiled roof
- A carton box which includes all the connection accessories, the differential thermostat, the pump, the expansion pot, the antifreeze liquid, valves… etc.

### Instantaneous efficiency curve of collector

![Efficiency Curve](image)

Rend. = 0,767 - 0,37

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**INTERNATIONAL RECOGNITION**

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In France, roof-integrated installations are more common than in other countries.

Photo: Giordano Industries

centre in the Giordano group called BE Solar that organises training for installers,” says Pascale Bonnoure, Vice President of Giordano Industries, one of the four major manufacturers in France.

When asked whether she considers measures such as Qualisol meaningful and successful, she answers with a resounding yes. Nicolas Flament, Marketing Manager of the Saunier Duval brand within the Vaillant Group, says: “Regarding the individual residential segment, Qualisol and Ô Solaire are appropriate tools for facilitating users’ decisions.”

But there are also voices that criticise the fact that the Qualisol label is sometimes too easy to obtain. As the training facilities are often located at the manufacturers and their participants are also their customers, the companies will hardly deny them the certificate if they check the wrong boxes here and there.

With the end of the Plan Soleil, eligibility requirements changed as well. Instead of subsidies provided by ADEME, system operators were issued credit notes on their income tax. Initially, the tax allowance was at 40 % of the investment costs, in 2006 it was increased to 50 %.

Since April 2009, investors in the domestic sector also benefit from an interest-free loan for the renovation of existing buildings. In addition, buyers can take advantage of lucrative regional and municipal subsidies.

Since 2006, direct grants from the central government are only available for large-scale solar thermal systems for multi-family homes, apartment buildings and service sector facilities (collective systems). The term large-scale system usually denotes systems with 25 m² collector area and upwards.

In 2008, the annual installation of new collectors reached its peak for the time being. According to the European Solar Thermal Industry Federation ESTIF, 313,000 m² collector area was newly installed in that year. The Europe-wide slump in the solar thermal market in the following year also hit France. The newly installed collector area dropped to 265,000 m² in continental France in 2009. Against the trend, the market for collective systems grew in 2009. According to Enerplan, 68,000 m² of collector area (47.6 MWth) was installed in that year. That was about 10,000 m² more than in the previous year.

In 2010, the French industry had to cope with a further decline to 256,000 m² (179,200 kWth). This corresponded to a decline of 3.4 % compared to the previous year.

Collective systems as a ray of hope

The growth in the collective systems market segment is mainly based on the Fonds Chaleur (heat funds). The funding programme for solar thermal, geothermal, biomass and biogas plants was established in 2009. As with the Plan Soleil, the energy agency Ademe are responsible for its implementation.

Funding is open to owners of apartment buildings and system manufacturers in the service sector, for example in hospitals, nursing homes and buildings on camping sites. With these funds, 70 to 80 % of the project costs are reimbursed, and 70 to 80 % of the investment costs. “For the collective residential segment and for specific applications like agriculture and industry, some operations took place thanks to the Fonds Chaleur,” Nicolas Flament affirmed the effectiveness of this measure.

The market trend that has emerged since 2009 continues. While the market for single and combined systems is declining, the collective systems segment continues to grow (see also the interview with Richard Loyen on page 82). Flament confirms this: “We witness a declining market for solar-supported heating. For domestic hot water, we see a positive trend for collective applications.” Gilles Walterspieler, PR Director at Viessmann France in Faulquemont also says that systems on medium-sized and large residential buildings and new buildings are the segments in which the company was currently experiencing growth.
Many reasons for decline

There is consensus as to why the market is in a state of decline. The surveyed companies and Loyen from Enerplan agree that one of the main reasons is the economic crisis of 2008 and its consequences such as the decline in the construction sector.

“The solar thermal market has been surpassed by the photovoltaics market,” Pascale Bonnoure from Giordano added as another reason. That competition with photovoltaics, which has been booming in France due to lucrative feed-in tariffs since 2008, is an important aspect that is also seen by Wilfried Renker, Managing Director at Wagner & Co. Solar France SARL in Simandre and by Walterspieler from Viessmann. Flament from Saunier Duval and Loyen consider heat pumps another competing technology in the renewable energy sector. In addition, electricity rates in France are very favourable. This is one of the reasons that electric heaters are the most common heat source.

“The main obstacles are the stop-and-go policy of the government and the persistently long return on investment of the systems due to product costs compared to traditional energies,” Bonnoure from Giordano explicates. Gilles Walterspieler also mentions falling oil and gas prices as another barrier.

He also believes that the image of solar energy systems has been damaged. Pascale Bonnoure from Giordano agrees to this sentiment. “There was a negative media campaign in France at the end of last year, featuring defective photovoltaic installations,” she says. “Most consumers still cannot tell the difference between solar collectors and photovoltaic panels.” The negative image of PV systems had now been transferred to solar thermal systems.

Growth expected

At the moment, the hope is that the market may at least stay at the same level as in 2010. For the following years, however, the industry expects growth again. Richard Loyen is betting on the objective of the RES Directive: by 2020, 20 % of the total energy is supposed to come from renewable energy sources.

A first implementation of the EU Directive would already be the Grenelle de l’Environnement. This environmental law provides that the total housing stock of council flats, with around 4.2 million flats, is to be renovated by 2020. For large-scale systems on council flats, there would be the funding provided by the Fonds Chaleur. This is why the solar thermal market ought to profit from this.

Another glimmer of hope for the industry is the Heat Act RT 2012. Depending on the usage of the building, the law enters into force at different times. For residential buildings, this is the case on 1st January, 2013. The law states that by then, new buildings may only have a primary energy demand of maximally 50 kWh/m²a. The predecessor RT 2005 only required 150 kWh/m²a. This was to benefit solar energy systems in the construction sector because such a low primary energy demand requires efficient hot water heating.
New certificate

Manufacturers regard another innovation with mixed feelings. A new certification, named NF CESI, for solar hot water systems is in preparation. For manufacturers, this means that they have to have a complete solar energy system certified including collectors, storage, controller, expansion tank and lines. As soon as they make changes to one component, the test – at least in part – has to be repeated.

Critics of this new certification just see another cost factor and time costs for manufacturers. They compare this with the CSTB institute certifications that are often required in France in addition to the European collector certification Solar Keymark. Flament from Vaillant, however, considers the new certificate a good thing. He believes it is another building block in quality assurance and assumes that it will make it easier for end users to make a choice.

More roof-integrated systems

But there are also other issues with which manufacturers have to deal. In France, the proportion of roof-integrated solar thermal systems is higher than in other countries. This applies particularly to the south of France. Here, very flat roofs with Spanish style tiles are widespread. Roof integration, which is also guaranteed water-tight, is significantly more demanding than a conventional roof-mounted system. It also requires a roof-integrated mounting system. Manufacturers who were so far specialised in systems for conventional roof-mounted systems must now also deal with the question whether they want to develop and offer systems for the growing roof-integrated segment. Systems for roof-mounted systems in standard formats are more economic.

In addition, the solar thermal market in France is highly differentiated. The product range encompasses high-performance systems, whether with flat or tube collectors, and thermosiphonic systems that are cost-effectively manufactured in overseas departments. The market for thermosiphon systems is also mainly located in the overseas departments. Industry insiders say the market is “small and difficult”. Although the number of systems is “not insignificant” from a revenue perspective, the overseas market remains “negligible”. A manufacturer will nevertheless have to decide which segments in the solar thermal market ought to be covered in the future.

Energy suppliers join the fray

The number of manufacturers and suppliers of components for solar thermal systems is still moderate in France.

Well-known French manufacturers of solar collectors have been around for decades. As early as 1965, Jacques Giordano established the company of the same name. Giordano Industries manufacture solar thermal systems, swimming pool absorbers, heat pumps and PV modules. The company has 350 employees in France, the overseas departments and countries of exportation. The headquarters and a factory are located in the south of France in Aubagne. In addition, Giordano operates factories in the southern French port of La Ciotat, Tunisia and Réunion Island. In 2009, the production capacity was at 200,000 m².

ESTEC moves south

Since 2003, the European Solar Thermal Industry Federation has been organising the biennial European Solar Thermal Energy Conference (ESTEC). Up until now, the conference was held in Germany as part of Intersolar. This year, ESTIF is in Marseille in France to organise the ESTEC with the French inter-trade organisation Enerplan on the 20th and 21st of October. The French energy and environmental agency ADEME support the conference.

Fitting the venue, the solar thermal markets in the Mediterraneans are one of the focuses of the programme. What is happening in Turkey, Tunisia and Morocco? What are the prospects offered by Lebanon? Another focus is directed towards the Eastern European region. What are the markets in Hungary and the Czech Republic doing? Traditionally, markets are a core issue at the ESTEC. However, also questions of quality assurance and technical developments are raised.
of collector area per year. In the overseas depart-
ments such as La Reunion, Giordano along with the
Dijoux Group are the most important manufacturers
of solar hot water systems.

Giordano is an example of how the big energy
suppliers do not want to waste the opportunities of-
fered in the new markets. The electricity group EDF
owns nearly 25% of the shares. The founding family
Giordano still holds almost 65%.

The French energy company GDF Suez has bought
itself into Clipsol, the second major French manufac-
turer. Clipsol was established in Aix-les-Bains in the
Savoie in 1979 and manufactures components for so-
lar thermal systems. This year, the company had 125
employees; in 2010 revenues were at €39 million.

Other well-known manufacturers in the country
are Viessmann and Vaillant. The Viessmann Group,
headquartered in Germany, has been represented in
France with an own factory since 1972. The factory in
Faulquemont, Lorraine, manufactures flat plate col-
collectors and hot water storage tanks. The produc-
tion capacity is 130,000 flat plate collectors and 200,000
hot water storage tanks per year.

The Vaillant Group France SA presents itself on
the market with two brands: Saunier Duval and
Vaillant. Vaillant France has 175 employees. The fac-
tory in Nantes manufactures wall-hung gas boilers
and heat pumps. Since 2009, this location has also
been used to manufacture solar collectors. The annu-
al production capacity is 125,000 collectors.

The market leaders would be Viessmann and BDR
Thermea. The BDR Thermea Group, also one of the
world’s leading manufacturers of heating and hot
water systems, includes the French subsidiary of De
Dietrich Thermique in Mertzwiller and Baxi S.A. in Le
Blanc Mesnil. Other, mostly German and Austrian
companies such as Sonnenkraft, Schüco, Wagner &
Co., Bosch Thermotechnik, Roth and Weishaupt, also
sell their products in France via subsidiaries.

Regarding further developments, considerations
are heading towards large systems. Here, the special
characteristics of heat supply present manufacturers
with a challenge. In large apartment buildings and
tower blocks, many residents have their own hot wa-
ter system that they heat with electricity. If their heat-
ning systems are to be supported by solar energy, the
question arises of how and where they are best in-
stalled.

Solar house owner Jean Frédéric Stambach, how-
ever, is not interested in these considerations. The
Alsatian is fully satisfied with his system. When he
recently reconstructed his house, he simply placed
the collectors on top of the new roof. For the additional
heating of 200 m² living space, he only needs three
steres of wood per year.

Ina Röpcke

Further information:
Ademe: www.ademe.fr
Enerplan: www.enerplan.asso.fr
Qualit’EnR: www.qualit-enr.org
SOCOL: www.solaire-collectif.fr