



**SOLARGE**

Enlarging Solar Thermal Systems in Multi-Family-Houses,  
Hotels, Public and Social Buildings in Europe

**WP 5: Formulation of Proposals for Effective Policy**

**Task 5.2: Editing of National Position Papers**

**Partners: ESTIF in co-operation with the SOLARGE project consortium**

## **Common Position Paper on Collective Solar Thermal Systems**

**Target group: European and national policy makers and political multipliers**

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**Intelligent Energy**  **Europe**

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## Common Position Paper on Collective Solar Thermal Systems

### Backgrounds

SOLARGE is a European co-operation project to open up markets for large solar thermal plants, focussing on installations from 30 sqm collector surface area upwards for e. g. hot water supply, heating system support and cooling for multi-family buildings, hotels, public and social buildings (for example old people's homes and hospitals). Partners from eight different EU countries collaborate in this project which is co-funded by the European Communities' "Intelligent Energy – Europe" programme.

These partners have each developed national position papers aimed at providing policy makers and political multipliers with clear proposals for effective policies to support collective solar thermal systems (CSTS). This document abstracts from the national specifics and distils the common recommendations applicable everywhere in Europe and beyond.

### Collective Solar Thermal Systems in Today's Market

The European solar thermal market is still dominated by individual water / space heating systems supplying just one household. So far, less than 10 % of the market is in collective systems, supplying several households with hot water / space heating. However, two very positive trends can be observed:

- the share of combisystems (solar thermal systems supplying domestic hot water and space heating) is increasing
- solar thermal systems supplying multi-family houses, office buildings are also increasing (collective solar thermal systems)

### Reasons for the Lower Development of the CSTS Market Segment

A series of reasons combined are responsible for the small share of CSTS amongst all solar thermal systems today. Additionally, national / local framework conditions can play an extra role, such as support policies, which are designed in a way, that they – often inadvertently – favour individual systems.

Generally, the following reasons contribute to the lower interest in CSTS so far:

- They are technically more complex: It is obvious that a system supplying heat not to one but to several apartments is more complex. Better planning and installation is needed to reach a good result.
- The owners of such systems are different, and they have different motivations: Multi-family houses, office and other commercial buildings typically have commercially interested owners. They decide differently from a single family, which has to choose a heating system just for their own one-family house.
- Low awareness for solar thermal options: Amongst the target group, the awareness of solar thermal options is sometimes even lower than in the individual system market (mostly individual private households).
- Owner-tenant-dilemma: CSTS are often installed in buildings, which are rented out. In such situations, the interest of the owner and the tenant often diverge. While the tenant would benefit from a lower consumption of conventional energy, it is the owner, who must decide about the heating system. But the owner has to bear the higher initial investment cost and – depending on the local laws – may not be able to recover the cost for the solar thermal installation from his tenants.
- Higher absolute initial investment costs: While the costs per kWh can be dramatically lower than for individual systems, the larger size of CSTS means also higher absolute

investment costs. This lets many owners think twice before choosing this option, especially if he has to take on a loan to pay for the system.

- Commercial payback times: While private householders often invest into their houses as a long-term investment, commercial building owners often expect short payback times. In most Central and Northern European countries, payback times of solar thermal systems are typically longer than those expected by the building owners.

## **Overcoming the Barriers**

### **Overcoming the barriers: CSTS technology**

The technology is largely available but know-how is missing amongst professionals. This often results in:

- Insufficient marketing: Professionals (architects, planners, installers) do not promote the solar thermal option to their clients. And because of the higher technical complexity of CSTS, this is even stronger in this market segment than for individual solar thermal systems.
- Possible problems in planning and installation: Solar thermal does not require “rocket science” but it is also not the same as the typical gas heating system. The hydraulic layout of the system is more complex, the heating system must be connected with the collectors on the roof, and temperature levels can be higher. Planners and installers, who have never received training in solar thermal, run a higher chance of making mistakes.

While there is quite a choice of “package” or “kit” systems for small domestic hot water systems, there is little standardisation in CSTS yet. This puts a higher burden on the planner / installer.

Recommendations:

- Training of professionals (architects, planners, installers)
- Support for the development of standardised systems, thus simplifying planning and possibly also installation
- Support of further R & D to enhance CSTS, and their integration with conventional building technology

### **Overcoming the barriers: (commercial) owners**

The ownership of buildings suitable for CSTS (multi-family houses, public buildings, office and other commercial buildings) is different from that of individual solar thermal systems, which are most often installed in one- or two-family houses. The different ownership creates additional challenges for CSTS, the most important ones being:

- More complex decision-making process: A family deciding about their own heating systems can decide more easily about their heating system. Housing companies, owners of office buildings etc. typically face more complex, technical and commercial options, which has a direct effect on the decision-making process.
- Commercial considerations often more important than for private individuals: Owners of multi-family houses, office or commercial buildings often have a strong focus on the economic aspects. For example, payback times of more than ten years are often not attractive to these owners.
- Energy independence and environmental benefit less of a selling point: For private individuals, the choice of their heating system is sometimes more based on non-commercial considerations, such as the sustainability of their heating supply or the independence from fossil fuels. Owners of multi-family houses, office and other commercial buildings often do not believe that a solar thermal system increases the attractiveness of their buildings.

Recommendation:

- Enhancing the value added by a solar thermal system, e. g. in energy performance certificates: The European Energy Performance of Buildings Directive required all Member States to introduce energy performance certificates for buildings. They are implemented in very different ways throughout Europe, but often they do not show the opportunities from the possible use of solar thermal energy in the building. A higher emphasis on the existing or missing solar thermal option would help raise or lower the commercial value of the building, thus internalising non-commercial attributes of the building.

#### **Overcoming the barriers: awareness**

- Awareness raising often targets (only) private households, commercial building owners are sometimes “forgotten”.
- Lack of published examples: While many European citizens already know that they could have a solar domestic hot water system, the availability of CSTS for larger buildings is often much less known. Examples of existing buildings implementing CSTS are less publicised thus hindering its adoption even further.

Recommendation:

- Targeted awareness raising, specifically addressing owners and operators of multi-family houses, office and other commercial buildings. Information material should highlight technical issues and proven solutions as well as discuss financial viability and available financial incentives.

#### **Overcoming the barriers: owner-tenant-dilemma**

Buildings suitable for CSTS are often rented out to households or businesses. Unfortunately, the interests of the owner and the tenant can be quite divergent. In a rented apartment / office:

- the owner decides about the heating system and pays for the investment in a solar thermal system
- the tenant benefits from lower conventional energy demand, but cannot choose solar thermal himself

Recommendations:

- Legislation / regulation must clearly allow passing on the higher initial investment costs. So far, legislation often forbids or makes it difficult for the owner to recuperate the higher initial investment costs, which is a strong barrier for the adoption of CSTS. Over time, the tenant should pay for the solar thermal system, which helps reduce their running costs.
- Well-designed energy performance certificates, which clearly show the lower energy costs of heating systems with CSTS, can help make the object more interesting to potential tenants. Energy performance certificates should make obvious the “saved costs” due to the higher energy performance.

#### **Overcoming the barriers: initial investment costs**

Almost the total costs of solar thermal occur at the beginning, the benefit is realised over time. The additional investment costs for a CSTS can be quite substantial, thus making a decision by the owner more difficult.

Recommendation:

- Public loans with low interest and / or deferred payback can help make the decision for a CSTS. While many private households would not want to take on a loan for a solar thermal system, the situation is quite different for commercial owners. For them, the advantages of a low or no interest loan can make the difference and let them decide for the solar thermal option.

### **Overcoming the barriers: payback times**

Commercial building owners often expect very short payback times. Even a ten-year amortisation of the investment is often not enough to convince them to include solar thermal in their building's heating system.

Recommendations:

- For new buildings and those undergoing refurbishment, the project consortium fully supports the European Commission's proposal to require the use of renewable energy (minimum shares). Already today, solar thermal is one of the most cost efficient options for sustainable heating and the penetration of CSTS in buildings will clearly increase through this measure. Member States and local governments should not wait to enact solar thermal obligations already now (please see "important note" below).
- For existing buildings not undergoing refurbishment, the project consortium recommends to offer financial incentives for the installation of solar thermal systems.

Important note on solar thermal obligations:

Solar thermal obligations radically change the market. They create a strong push, which even goes beyond the obliged market segments (e. g. new and refurbished buildings). But they add a new type of customer: The ones that are not interested in solar thermal at all and who will choose the cheapest systems fulfilling the legal requirements. Therefore, governments introducing solar thermal obligations must foresee mechanisms to ensure a good quality of the hardware and of the planning / installation.

### **Conclusion**

#### **A coherent mix of support measures is vital to the growth of CSTS**

Collective solar thermal systems face various challenges in the market. Addressing only one or two of them often does not have a strong effect. In order to support the wide introduction of CSTS, governments should help overcome the barriers – with a coherent mix of support measures:

- Training of professionals
- Further support of R & D into CSTS
- Energy performance certificates explicitly showing the (missing) solar thermal option – or the lower energy costs with a solar thermal system
- Specific awareness raising targeted at owners of multi-family houses, office and commercial buildings
- Legislation allowing to pass on, over time, the higher initial investment costs to the tenant
- Favourable loans, with low or no interest rates or deferred payback
- New and refurbished buildings: solar obligations
- Existing buildings: financial incentives