

## **COUNTRY REPORT: Sweden**

Prepared by:

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This short report includes a brief description of the most important elements in Swedish regulations and certification/subsidy schemes related to solar thermal products. The description is valid for April 2011<sup>1</sup>.

## **Regulatory Framework**

### Building Regulation (general)

- Building regulations are national (BFS 1993:57 with changes to 2010:29). The municipal building department is responsible for making sure that they are followed.
- There are no special rules/regulations for solar thermal systems/components in the building regulations but it is beneficial to install solar thermal or PV with respect to energy requirements. A clause stating that useful energy generated by such equipment (mounted on a building or within the building plot) may be deducted from the specific energy requirement of the building. The general regulations for installations shall of course be followed (concerning e.g. freezing risks, roof tightness, etc.).
- The current building regulations do not include any calculation procedure to assess savings by solar thermal.
- Sweden is developing guidelines to realize the EU directive on nearly zero energy buildings. SP has a major role as a consultant to the Swedish Energy Administration in this work.

### Registration

- A solar energy system shall in many municipalities be registered to the local authorities. This is sometimes connected to an administrative cost (approximately 100-200€).

### Safety control and comfort

- The building regulations require that all components in a fresh water installation shall withstand at least 10 bars.
- Temperatures at the hot water tap exceeding 60 °C are not allowed, and the system must be able to deliver at least 50 °C at the tap.

## **Public Incentives (subsidies, ordinances or other)**

### **Relevant incentives:**

- There is a national subsidy scheme for installation of solar heating systems with glazed collectors (both for individuals and companies, and

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<sup>1</sup> The original report was published in 2007 and was developed in the framework of the project Solar Keymark II with the support of the Intelligent Energy Europe programme.

both for residential buildings, pool or camping sites and for industrial processes. It is based on the calculated gross annual energy output of the solar collectors in the system. The collectors must be certified according to Solar Keymark or equivalent certification scheme in order to be eligible for subsidies.

- The maximum subsidy limit is about 800 € (7 500 SEK) per apartment/single-family house and 330 000 € (3 million SEK) for a project. There is a limited total amount available for these subsidies.
- The subsidy is given for the complete installation independent of location of the solar collectors.
- The present subsidy scheme is from January 2009. The Swedish Government has announced that the scheme will most likely be terminated in December 2011, since the market is considered strong enough without it. There are ongoing negotiations between the Swedish Solar Energy Association and government representatives.
- The interest in large solar heating plants has increased noticeable after the latest solar heating subsidy. The Swedish Solar Energy Association suggests that the subsidy remains for larger installations.
- There is another national subsidy given as tax reductions corresponding to 50 % of the cost for labor for actions on a building (at maximum 5 400 € per person and year). It cannot be combined with the solar heating subsidy, but can be used to support installations of small solar heating systems when the solar heating subsidy is terminated.
- Another national subsidy is given for grid-connected PV installations from July 2009 until December 2011 covering 60 % of the total cost (55 % for large companies) and at maximum 200 000 € per building. There is a limited total budget available for these subsidies and the applications already greatly exceed available funds. It is at present unclear what will happen to the PV subsidy, but new subsidies will be given for PV and biogas systems (limited to a total amount of about 6.4 million €) in 2012.
- The Swedish property tax does not include solar energy installations, which means that the present taxation rules do not punish solar installations in single-family houses.
- The Swedish National Board of Housing, Building and Planning and the Swedish Energy Agency realize an information campaign on solar heating towards sports associations, camp sites, tenants' associations and small industries.

**Requirements for support schemes:**

- There is no efficiency requirement for the solar heating subsidy scheme but it is performance related based on calculated gross annual energy gain from the collector. The requirements are that the collector is tested according to EN 12975 and certified according to Solar Keymark, or that

it fulfils the requirements of Solar Keymark, and that an accredited laboratory has performed the annual energy gain calculations. There are also requirements of an installer manual in Swedish in accordance with the EN 12975 requirements.

- There are no specific quality requirements for the PV support scheme.

## Testing

- SP Technical Research Institute of Sweden is the only test institute in Sweden accredited to perform tests according to EN 12975, EN 12976.
- There are no accredited laboratories for PV in Sweden.

## Certification

### Product certification:

- A certification scheme for solar collectors, the P-marking, is running since 1991. Certificates are issued by SP Certification. Requirements are basically EN 12975 for solar collectors and EN 12976 for systems.
- SP Certification is the only organization in Sweden empowered to certify collectors and factory made systems with the Solar Keymark since the beginning of 2004.
- Since 2011 solar collectors must fulfil the requirements of Solar Keymark to achieve governmental subsidies.

### Installer certification:

- The Solar Energy Association of Sweden introduced a certification scheme for installers in the solar business in 2010, which is now running and extending from a regional pilot project to a national level. Installer certification is not a requirement.
- The ambition of the Swedish Solar Energy Association is to extend the certification scheme to eventually include installers of PV systems as well.

## Insurance

- Leakages through the roof is normally not covered by the insurance if it is a result of poor collector mounting, but damages due to leaking pipes are covered.
- The solar collectors are included in the house insurance.
- There are no particular rules for vacuum tube collectors.

## Other relevant information

- The Eco Design Directive as well as the Energy Labelling Directive will have a great impact on the solar energy industry. SP Technical Research Institute of Sweden performs testing and product certification of DHW and combi tanks according to its own certification system (P-marking), but it is not a requirement. SP also performs system testing of combined bio energy and solar heating systems according to the 6 days method.
- Energy labelling of a building is mainly based on information given by the owner. The information is authorized by an independent energy expert, who in turn registers the information at the Swedish National Board of Housing, Building and Planning. Action proposals, along with the energy label, are sent to the building owner.
- Research related to solar thermal energy is mainly conducted at SP Technical Research Institute of Sweden and at SERC, Dalarna University. SP mainly works within quality assurance of solar heating technology and development related to EU directives.
- Solar thermal collectors for hot water production are more or less standard in Swedish passive houses and in some nearly zero energy buildings.
- In recent years, solar heating has been highlighted in the building codes as a means to reduce the amount of purchased energy and to fulfil the requirements of the building regulations.

## Trade Barriers

- The Swedish district heating companies have monopoly on the distribution networks. Third party access (TPA) to the district heating network, prescribed by law, would be favourable for the development of solar thermal applications in Sweden. TPA is currently under investigation by the Swedish Government.
- In general, there is only a limited of interest in solar heating technology among installers and system designers.
- Uncertainty regarding the national subsidies influences the market, and thereby the solar trade, negatively.
- Quality assurance of solar heating systems is to a large extent still missing in Sweden. The customers thereby have limited access to reliable information on system performance. System testing as well as tests for combi tanks and other system components are, however, presently offered by SP.
- Net debiting would increase the profitability of domestic PV systems. The issue has been investigated by Swedish authorities, but no further actions have been taken so far. At present some Energy Utilities are offering net debiting on a voluntary basis.

## Actions needed

- Regulation
  - A European standard procedure for calculating of the influence of solar thermal systems on the energy performance of buildings has been prepared by CEN (EN 15316-4-3). In Sweden a further promotion of this procedure is needed so that it will actually be used during the declaration of buildings' energy performance.
  - Examples of practical use of the building regulations on how solar thermal energy can be deducted from the specific energy requirement for the building should be given. The regulations should also allow for collectors not mounted directly on the building to be eligible for this kind of deduction.
  - Registration rules: Work for removal of extra costs (where such exists) connected to building application at local authorities.
- Subsidies
  - Get inspiration from other countries concerning effective subsidy or promotion schemes.
  - Investigate possibilities for implementing a "green heat certificate" scheme allowing also small solar heating systems to trade CO2 emission allowances. This certification should make use of the European standards and the Solar Keymark.

- Testing
  - Promoting the use of EN testing to the Swedish manufacturers and to manufacturers in the neighbouring countries. In particular, system testing according to EN 12976 should be encouraged.
  
- Certification
  - The industry should be encouraged to perform system testing (e.g. hot water systems, combined bio energy and solar heating) as well as testing other components in solar heating systems (e.g. combi tanks).