Towards nearly zero-energy buildings

Solar Thermal Ordinances = Making a commitment to local sustainable energy

A cost-effective energy policy for sustainable municipalities
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Heating with fossil fuels is becoming more expensive and represents an economic risk factor for citizens and business. Although stricter insulation standards and greater efficiency in heating and cooling are urgently needed, they will not alone offset the ever increasing future energy demand. This is when renewable energies come into play for heating and cooling of buildings. There are already plenty of arguments to accelerate the inevitable transition to sustainable heat and cold supply.

Solar Thermal Ordinances (STOs) proved to be a very powerful support measure for boosting the introduction of solar thermal in national markets or at local level. In 1980, the City of Barcelona enacted its first STO after replicated by many Spanish local councils. This paved the way for the STO to be included in the national technical building code (CTE), approved in 2006. In Israel, the mandatory installation of solar thermal systems in buildings is part of new buildings and major refurbishment. The owner must then install a solar thermal system meeting legal parameters. Similar to the CTE, the STO is also included in the municipal building codes. A growing number of European municipalities, regions and countries have adopted solar thermal obligations. Already today, more than 150 million people live in regions covered by a STO.

What is a Solar Thermal Ordinance (STO)? Solar Thermal Ordinances (STOs) are legal provisions making mandatory the installation of solar thermal systems in buildings. The obligation in many cases to new buildings and minor refurbishment may be extended. The owner must then install a solar thermal system meeting legal parameters. Similar to the CTE, the STO is also included in the municipal building codes. A growing number of European municipalities, regions and countries have adopted solar thermal obligations. Already today, more than 150 million people live in regions covered by a STO.

Your commitment to use sustainable and renewable energy at local and regional level

Beside the Gouvern Mayors - a commitment signed by town and city leaders to accelerate EU energy policy objectives in terms of reducing CO₂ emissions - local production and use of renewable energies, are ever more considered as unavoidable measures to meet the necessary transition to a sustainable energy future. In countries, where solar thermal ordinances exist, projects, energy efficiency measures and other energy-related activities are introduced in various areas of local and regional governments. Local and regional authorities play a vital role in setting up and implementing solar thermal ordinances and when introducing a solar thermal ordinance they should take the opportunity to initiate a multi-stakeholders consultation.

More Information available at: www.solarordinances.eu

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For the first time, the European Directive on the promotion of the use of energy from renewable sources (2009/28/EC) covers the heating and cooling sector, which is responsible for nearly half of Europe's energy demand.

**Direction on the promotion of the use of energy from Renewable Energy Sources (RES):**

Following the adoption of the RES Directive, the 2021-2030 Member State National Renewable Action Plans (NAPs) need to address the heating and cooling sectors. These plans set out what each Member State has to achieve to ensure that energy from renewable sources covered for 2030 includes at least 20% of all energy consumed in transport, electricity, and heating and cooling in 2020 as well as adequate measures to reduce these targets, including the introduction of renewable heat solutions.

**New buildings to the ‘nearly zero-energy’ construction by 2020:**


Up to now, only a handful of Member States had definitions for low-energy/plus energy, or zero carbon buildings, and these were different. Nearly zero-energy buildings are now defined in the EPBD as construction that have “very high energy performance” and meet the energy performance requirements of buildings in both the small and the non-small building sectors. This is supported by a mandatory inspection of buildings and an achievement of high energy performance.

For the first time, the Renewable Energy Directive and the EPBD paving the way for a gradual phase-in of renewable energy in buildings, Member States will need to ensure that new buildings meet these standards by 2020.

Any energy they use should come to “a very significant extent” from renewable energy sources. New buildings will have to be nearly zero-energy buildings by 31 December 2020 with public buildings by 1 January 2021.

A major benefit of solar thermal ordinances is their effectiveness combined with low costs and limited administrative overheads for public authorities. As part of the building renovation process, incentivised installation of solar thermal systems will also contribute to meeting EU targets.

In a future fossil-free energy economy, solar thermal can potentially contribute at major shares of the heat and cold supply, a general introduction of this technology now will deliver your community to save costs and greenhouse gas emissions, improve energy security and resilience of the energy system, and cut public spending on energy subsidies.

The introduction of a solar thermal ordinance prevents market fluctuation caused by inconsistent incentive programmes. It provides a stable planning environment for market actors and investors, bringing the possibility to coordinate the implementation of such projects across regions.

Solar thermal can play a crucial part in reducing CO2 emissions and improving the quality of life in your community. Almost half of the energy consumed in Europe is used for providing heat and冷 in buildings, and this will only increase if we do not take action now.

**Benefits of a solar thermal ordinance for your community:**

- **Reduce costs:** In a future fossil-free energy economy, solar thermal can potentially contribute at major shares of the heat and cold supply. Solar thermal can be a stable and predictable source of energy.
- **Improve energy security:** Solar thermal can help reduce dependence on fossil fuels and enhance energy security.
- **Increase job opportunities:** The solar thermal industry offers many job opportunities, from installation to maintenance.
- **Improve the environment:** Solar thermal can help reduce CO2 emissions, improving the quality of life in your community.
- **Energy savings:** Solar thermal systems can provide energy savings for homeowners and businesses.

The image of your community will be improved by adopting the modern, forward-looking and ecological energy policies, especially as the need for sustainable energy policies is evermore pressing.

Building the future today!

The building stock in your community must meet the post-oil and gas era challenge. Buildings constructed today will use energy for decades. In future fossil-free energy economy, solar thermal can potentially contribute at major shares of the heat and cold supply. A general introduction of this technology now will deliver your community to save costs and greenhouse gas emissions, improve energy security and resilience of the energy system, and cut public spending on energy subsidies.
Some sustainable cities and towns have already implemented a solar thermal ordinance.
Lazio Region: solar thermal ordinances, urban sustainability and green building

In the middle of 2008 and within the scope of the ProSTO project, the Lazio Region adopted a new law concerning regional provisions on sustainable architecture and green building. This is a “framework law” on urban sustainability and building which includes solar thermal obligations for the production of hot sanitary water in new buildings and those undergoing refurbishment. This is the first time that solar thermal obligations have been introduced in this legislation, which has a holistic approach to energy saving in buildings and use of renewable energy to produce heat and electricity, in the promotion of training courses targeted at industry operators, technicians and local authority staff as well as the trainer workshops.

The law is helping to spread STOs in the territory and raise awareness on environmental issues among the population.


Israel, 30 years of experience with solar thermal ordinances

Thirty years ago, Israel was the first country to pass legislation on solar thermal installations. With the second oil crisis on the end of the 1970s, members of parliament examined ways to make their country less dependent on imported energy. The result was a law which made solar water heaters mandatory in new buildings such as residential housing, hotels, guest houses and old people’s homes up to 27 metres high. The legislation entered into force in 1980. Nowadays over 80% of Israel’s households get their domestic hot water from solar rooftop heaters. A typical domestic unit consists of a 150 litre insulated storage tank and a 2 m² collector. Those hot water heaters save the country the need to import about 4% of its energy needs, and replace about 9% of the electricity production. The law has now become redundant. More than 90% of the solar systems are installed on a voluntary basis, i.e. they are installed in existing buildings, or the systems are larger than required by the obligation.

Solar thermal ordinances and building codes in Europe - Some Examples

Spain
Every new building should have an energy performance of 50KWth/m² by 2012.

Germany
At least 15% of the heating demand has to be covered by renewable energy technologies in new buildings only.

Switzerland
Shares of up to 20% of the heating demand of new buildings are required from renewable energy sources.

France
Each year, irrespective of the total building heating and cooling requirements, the demand for 10 KWth/m² of floor space to be met by renewable energy sources in new buildings and those undergoing major renovations.

Portugal
1 m² of collector area per capita for the production of domestic hot water in new buildings and those undergoing major renovations.

Ireland
Each year, irrespective of the total building heating and cooling requirements, the demand for 10 KWth/m² of floor space to be met by renewable energy sources in new buildings and those undergoing major renovations.

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How to plan a solar thermal ordinance?
From the baseline assessment to the implementation of the STO

A solar thermal ordinance is developed and implemented in three phases:

1. Baseline assessment
   - A baseline assessment is carried out by a limited promoter group in order to assess the framework for developing a solar thermal ordinance on the territory in question.
   - What can you achieve with the wide introduction of solar thermal? Are there sound legal basics and sufficient support from sponsors for an ordinance in your community?

2. Preparation
   - During the preparation phase the current status, potential and feasibility of a solar thermal ordinance are evaluated.
   - The implementation phase starts with the writing of the first draft ordinance.
   - The ordinance proposal is discussed and refined in a public discussion involving political decision makers, stakeholders and expert advisors.
   - In this phase the solar thermal ordinance is drafted: Keep it simple and smart!

3. Implementation
   - The implementation phase includes the development of a legally binding ordinance.
   - The ordinance is adopted by the appropriate local authority.
   - Flanking measures are proposed to support the implementation of the solar thermal ordinance.
   - Monitoring - this is useful for monitoring the STO's impact. In addition, some assessments of existing projects are available in the project outcomes section under the ProSTO Project tabs.

Interested in setting up a solar thermal ordinance?
Take a look at our online tools and contact the ProSTO HelpDesk

At www.solarordinances.eu you can read all about case studies on the successful implementation of Solar Thermal Ordinances.
You will also find there useful tools to help you plan your local Solar Thermal Ordinance and guide you through the whole process.

STO Developers Toolbox
The STO Developers Toolbox provides useful and practical tools to all those who are preparing, implementing or supporting a STO in their community.

The various tools range from text proposals for the ordinance over background reports and best practice examples to software tools for mapping the potential of solar thermal in your area.

This STO Developers Toolbox includes the following sections:
- Context - gives background information on STOs, their benefits and successes. This section also contains information on how to adapt a STO to your community.
- Baseline Assessment - provides a snapshot of the current status, potential and feasibility of a STO in your area.
- Ordinance Components - provides approved texts and legal approaches for drafting a tailor-made ordinance.
- Flanking Measures - lists supporting activities proposals.
- Monitoring - this is useful for monitoring the STO's impact. In addition, some assessments of existing projects are available in the project outcomes section under the ProSTO Project tabs.

New tools have been developed and already available instruments have been compiled by the ProSTO project partners.

ProSTO Blueprint
This practical working document, available for download at www.solarordinances.eu, provides detailed information on how to plan, implement and promote a solar thermal ordinance in your community.

ProSTO HelpDesk
If you wish to receive some guidance on how to plan a solar thermal ordinance in your community, please contact us at estif.org, tel. +32 2546 19 38, info@estif.org.
The ProSTO project
The objective of the ProSTO project is to boost the use of solar thermal systems in Europe by promoting an efficient implementation of solar thermal ordinances and to support European local authorities in planning, developing, introducing and managing efficient solar thermal ordinances (STOs).

The main stakeholders regarding STOs are local authorities. Within the ProSTO project, the Lazio region and the cities of Lisbon, Murcia, Stuttgart and Giurgiu have come together to showcase best practice examples. They aim at the implementation of optimized solar thermal ordinances, consisting of model regulations, fine-tuned criteria, efficient administrative procedures and flanking measures.

A large number of practical tools are already available on the project website such as the STO database and the STO toolbox. Moreover, a STO Helpdesk shall provide some qualified guidance to local authorities prepared to introduce a solar thermal ordinance. Moreover, the dissemination of project results via the project partners network as well as presentations at international conferences and events should persuade local communities to introduce solar thermal ordinances.

For further information, visit: www.solarordinances.eu

Project consortium

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Solites, Germany
INETI, Portugal
SPES, Portugal
Murcia City Council, Spain
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Energy Days: Turn your city into a frontrunner of Europe’s energy revolution
The Sustainable Energy Europe Campaign is gaining momentum. If you believe in a low-carbon future and want to change the landscape of energy in Europe, you can take an active role in organising an Energy Day in your town or region.

ProSTO is official partner of the Sustainable Energy Europe Campaign: www.sustenergy.org

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