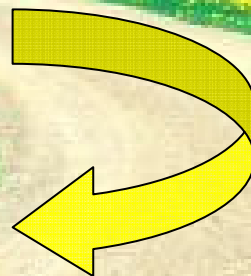


Towards the ideal Solar Thermal Ordinance...

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Ambiente Italia

pro  STO



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Background: the new EC Directive

- STOs will spread very quickly in the next years from now on since...
- ...the draft Directive on renewables (2008/01/23), in Art. 10.2, states that *“In their building regulations and codes Member States shall require the use of minimum levels of energy from renewable sources in all new or refurbished buildings.”*
- ...*“Solar obligations fundamentally change the way the solar thermal market functions”* [European Solar Thermal Industry Federation, 2007]

This quite good general framework needs a remarkable effort in order to be implemented fruitfully at national level

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Previous experiences with STOs

- **Israel** (1980) - target: new buildings
Israel is currently the second country per installed solar thermal collector area per capita.
- **Spain** (1999 -2006) - target: new and renovated buildings
Barcellona experienced a growth of ST market of factor 20 within 5 years.
- **Germany** (2001): STO in Vellmar (20.000 inhabitants)
Possibility of exemption by paying a fee.
- **Ireland** (2005): STO in different Irish Counties
Targets differ from County to County.
- **Portugal** (2006): STO at national level
It affects certain types of buildings (ST: 1 m²/p).

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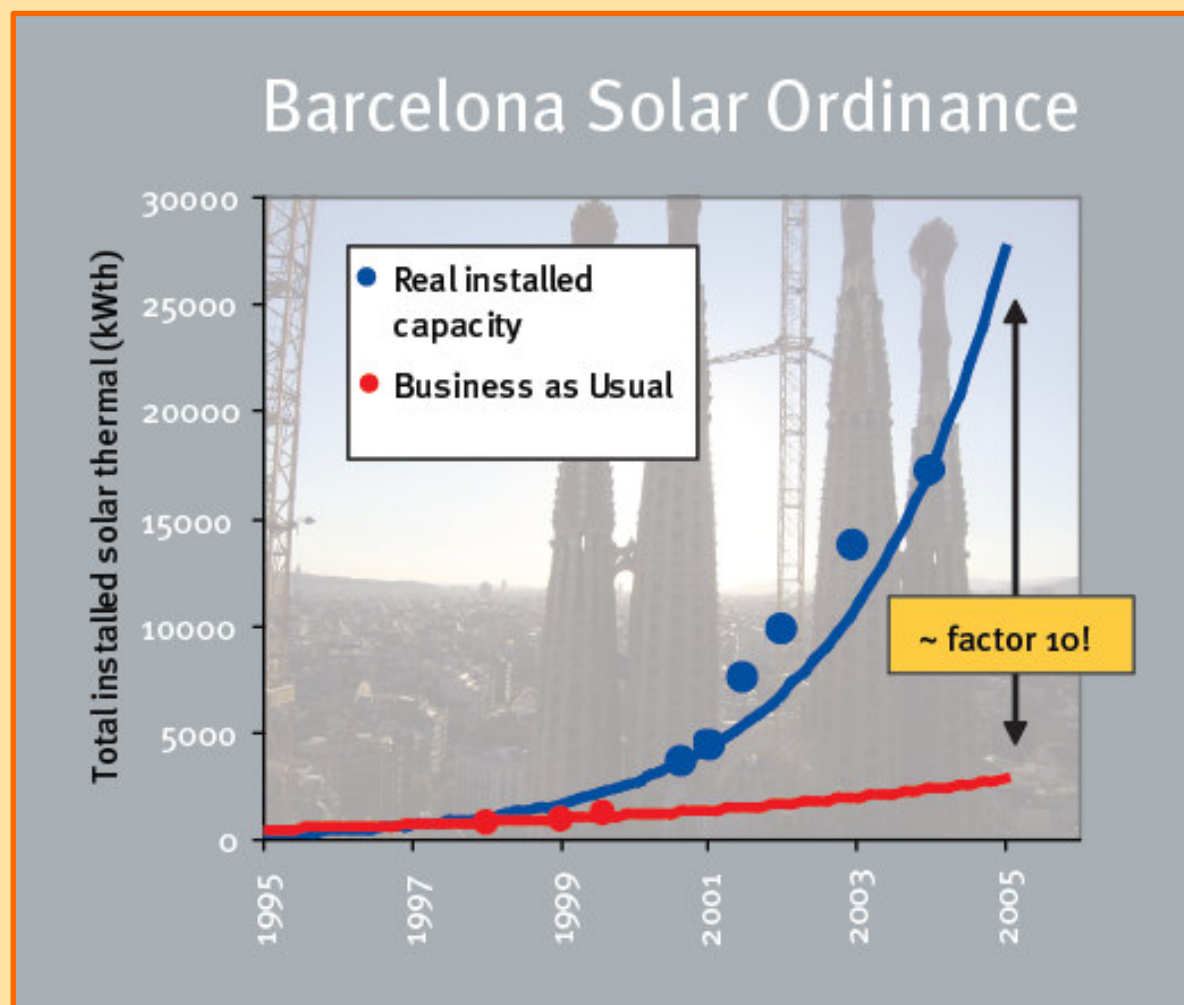
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The Barcelona “boom”



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Benefits of STOs...boosting solar thermal!



- STOs enhance a steady and long term market, thus creating the preconditions for producers and other market operators to invest.
- This means enlarging production capacity and distribution networks, improving training level and marketing activities.
- Such investments lead to medium-term cost reduction and have positive effects on voluntary market.
- Increasing solar thermal market also means creating jobs at local level.

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The ProSTO project



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Objectives & main steps

- ProSTO final objective is to enhance and promote STOs as a powerful and fruitful measure for increasing the use of solar thermal energy in buildings
- Main steps foreseen:
 - Assessment of existing experiences on STOs in the EU and of the needs of the participating LAs
 - Development and dissemination of tools for the fruitful implementation of efficient STOs
 - Preparation, implementation and monitoring of pilot STOs in the participating LAs; these pilot implementations are show cases and stimulate replication at European level

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Expected outputs

- A set of tools, available for free on the project web site, including:
 - The local law document containing the STO
 - A document specifying the quality requirements on the products or the quality criteria requirements on the installation
 - A document with calculation procedures (e.g. 50 % of the hot water load shall be covered by the solar thermal system and the load shall be calculated according to EN standard)
 - A document with procedures for quality check and sanctioning fees
 - A “blueprint”, which describes a step-by-step process on how to develop and implement a STO on local level
 - A catalogue of flanking measures, which could strengthen the impact of the STOs
- At least 5 new and optimised STOs will be operating fruitfully in the participating LAs

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Analysis of operating STOs

...learn from the past experience to develop ideal Solar Thermal Ordinances (STOs)

To understand:

- ☀ success factors
- ☀ barriers

The ideal model of STO will be implemented by our project partners, according to local conditions

☀ 11 questionnaires collected (4 Italy, 4 Spain, 1 Germany, 1 Ireland, 1 Portugal)



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Success factors - Birth

CAREFUL INITIAL ASSESSMENT

Strong and constant commitment by the promoters and the local politicians and a careful initial assessment of the local situation are needed.

COOPERATION AMONG ACTORS

A key factor for developing an effective STO is to promote networking and cooperation among the main actors.

LET EVERYBODY KNOW WHY

Communicating the STO is a key issue for its success: if you are able to inform people why you are doing that, they will understand and agree and they will end with considering this STO as their law.

Try to address each actor through the most appropriate message.

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Success factors - Development

KEEP IT SIMPLE

The complexity of the law acts as a universal barrier.

WHICH BUILDINGS?

- To reach a high impact, the scope should include a remarkable share of the building stock
- Define which building typologies (different rules are needed)
- Define which refurbishment activities fall under the scope of the law (e.g. when heating plants are concerned? When “refurbished” power is higher than XXX?)

NOT TOO MANY EXEMPTIONS

- Exemptions should be not too many and not ambiguous
- Small buildings
- Special buildings
- Historical areas/buildings: all Cities have, so is it more a matter of positive or negative attitude?

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Success factors – Development (TECHNOLOGIES)

WHICH TECHNOLOGIES?

- Sensitive issue for building companies (Germany, Italy)
- Portuguese RCCTE allows the usage of other renewable technologies (PV, wind, and geothermal), even for other purpose than hot water if they capture, on an annual basis, the same energy as the mandatory solar thermal system
- Should we avoid “borderline” technologies (e.g. heat pumps, district heating, cogeneration)?

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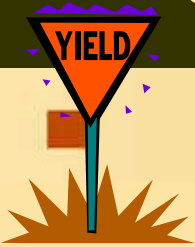
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Success factors – Development (QUALITY)



- ☀ Quality is a key issue when solar is mandatory
- ☀ Product: are EN standards for solar enough? Could not even “cardboard collectors” obtain the certification?
- ☀ Certification scheme for installers: how does it work?
- ☀ Operation: is a “Guaranteed Solar Results” scheme needed? Random inspections for checking the energy yield? Maintenance contract?
- ☀ De or over regulation?

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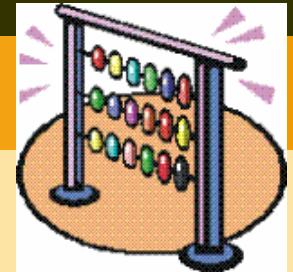
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Success factors – Development (CALCULATION METHODS)



☀ Different approaches:

☀ % basis: we need standards for %, DHW consumption, solar yield; how is solar yield calculated, e.g. in Spain?

☀ m^2 / m^2 or $\text{m}^2 / \text{occupant}$ (Germany, Portugal): not precise, but “user friendly”; is solar technology taken into account?

☀ To be avoided: mixing of heat and electricity

☀ Do small Municipalities need a calculation sheet for providing developers with it and also for their own checks?

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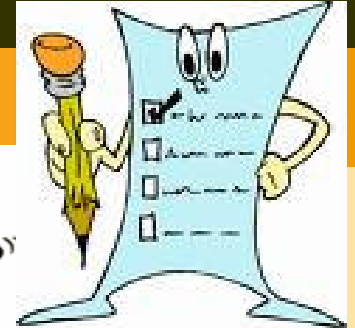
Success factors – Implementation (CHECKS & FEES)

☀ Checks always happen at local level, therefore training is crucial (more than a flanking measure)

☀ Design phase: the check works if calculation method is simple and the personnel is well trained

☀ After construction phase: qualified installer, random checks, more?

☀ Do we need checks after a given time period or random inspections?



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Success factors – Implementation (FLANKING MEASURES)

- ☀️ Need for targeted actions, e.g. training for Municipality personnel, campaigns towards building companies, training on large scale solar plants for designers, etc.
- ☀️ Training for installer if certification is needed (the ideal STO should be consistent)
- ☀️ Communication: “gestor integral” aims at clarifying procedures and do some bureaucratic issues on-line; it also acts as a communication tool (several know-how documents addressed to promoters, installers, architects and engineers)

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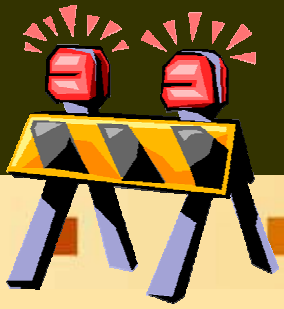
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Barriers...



Complex regulation



Not clear roles of the actors involved



Lack of knowledge of the actors involved



Resistances from the sector of house owners and housing industry

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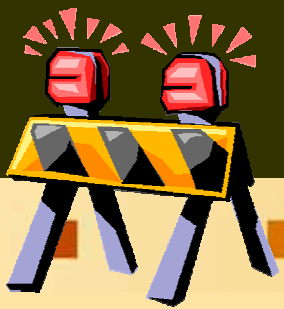
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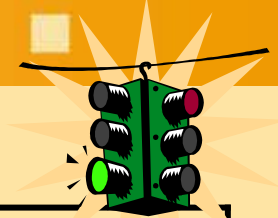
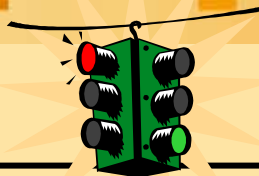


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...and how to overcome them



Complex regulation	Keep it simple! E.g. calculation method, checks
Not clear roles of the actors involved	Separate roles of developing & enacting, operating & monitoring, training, etc.
Lack of knowledge of the actors involved	Hearings, training, information campaign from the beginning (before the STO)
Resistance from "external" sectors	Involve them from the beginning (hearings), offer them enough alternative solutions

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Performance indicators



Following questions should be answered when evaluating a STO:

IS IT WORKING WELL?

Indicators about buildings, checks, acceptance

IMPACT ON THE DEVELOPMENT OF THE SOLAR THERMAL SECTOR

Indicators about installed plants and solar thermal market in general.

IMPACTS ON THE LOCAL ENERGY SUPPLY

Indicators about saved energy and emissions.

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Impact of existing STOs: examples

surplus cost in new/refurbished buildings:

- a) Spain: 0.45-0.59% per m² built
- b) Barcelona: 0.29-0.38% per m² built
- c) Baden-Wuttenberg: 20 to 34 € per m² living area (<1% of the building cost)

installed solar thermal plants thanks to the STO:

- a) Spain: 4,900,000 m² installed by 2010 (estimated)
- b) Barcelona: from 1,350 m² in 1999 to 51,436 m² in 2007 (real)
- c) Ireland: 22,165 m² (estimated)

heat produced by the installed solar thermal systems:

- a) Ireland: primary energy saving of about 270,000 MWh/year (estimated)
- b) Spain: 1,536,500 kWh/year (estimated)
- c) Barcelona: 32,076 MWh/year (summary 2002-2006, estimated)

- CO₂ emissions avoided:

- a) Ireland: 27,000 t/year (estimated)
- b) Barcelona: 5.640 t/year (summary 2002-2006, estimated)

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The next step...ProSTO Toolbox



COMING
SOON!

- STO best practice database: a set of best practices presented and disseminated will create confidence and motivate further communities to replicate STOs.
- Model texts, documents and references which can be easily used as integral part of the STO laws or regulations. Criteria from already existing and harmonised European standards (e.g. EN standards, Solar Keymark) will be investigated, selected and adapted.
- Catalogue of successful cases of flanking measures (e.g. quality schemes, training measures).
- STO development blue print: practical working document guiding communities through the process of developing and implementing a STO (including all the tools).

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If solar thermal is one of the best choices (economic, environmental) for delivering hot water to new and refurbished buildings...

...are we really **obliged to use the word “obligation”?**



THANK YOU!

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