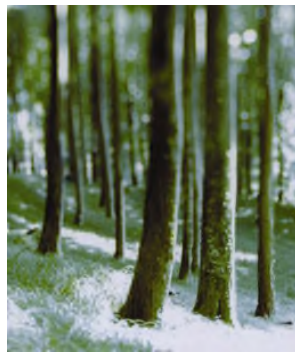


4th Summer School on Sustainable Energy Management Systems (SEMS)

Regionale Energiekonzepte

Dr. Michael Stöhr, B.A.U.M. Consult GmbH
Słubice, 29. April 2011



Inhalt der Vorlesung

1. Integration Erneuerbarer Energien
2. 100% Erneuerbare Energie Regionen
3. Regionalwirtschaftliche Effekte



Teil 1

INTEGRATION ERNEUERBARER ENERGIEN



Die Erkenntnis Anfang der 90er Jahre des 20. Jhrd.

Die entscheidenden Gründe für den Erfolg
oder Nicht-Erfolg erneuerbarer Energien
sind NICHT technischer Art.



Das neue Stichwort: Integration

Integration erneuerbarer Energien
bedeutet die gemeinsame Betrachtung
von Technologien und des Kontextes
ihres Einsatzes.



Verschiedene Aspekte des Kontextes

- Technisch
- Architektonisch/ künstlerisch
- Gesellschaftlich/ sozial
- Administrativ/ legislativ
- Finanziell
- Organisatorisch
- Systematisch



PV-Dach des Solarzentrums Mecklenburg-Vorpommern

Integration ist:

- Technisch
- Architektonisch



Solare Fensterläden von Astrid Schneider

Integration ist:

- Technisch
- Architektonisch



Kunstwindpark Lübow

Integration ist:

- Landschaftlich
- Künstlerisch
- Sozial: Schüler



Solarverordnung Barcelona

Integration ist:

- Administrativ
- Legislativ

ORDINANCE ON THE INCORPORATION OF SOLAR THERMAL ENERGY COLLECTION IN THE BUILDINGS.
<p>Article 1.- Object</p> <p>The object of this Ordinance is to regulate the incorporation of systems of collection and use of active solar energy of low temperature for the production of sanitary hot water in the buildings located within the municipality of Barcelona.</p>
<p>Article 2.- Habitable uses</p> <p>The assessments of this ordinance are applicable to the cases in which the following circumstances meet:</p> <ol style="list-style-type: none">a) The realization of new buildings or constructions, or rehabilitation, integral reform or change of use of the solidity of the building or existing constructions, whether they are of public or of private ownership. The independent buildings belonging to couples facilities are included.b) In the case the use of the building corresponds to one or some of the uses contemplated in the following article.c) When a volume of daily demand of sanitary hot water is foreseeable, the heating of which involves an expense above 200 useful MJ (Mega-joule) in the annual average calendar.
<p>Article 3.- Affected uses</p> <p>1. The uses for which the installation of collectors of active solar energy of low temperature for the heating of sanitary hot water must be foreseen are:</p> <ul style="list-style-type: none">- housing- residential barracks and prisons included- sanitary- sporting- commercial, referred only to the class 3 establishments of the Ordinance of Public Concurrence- services- industrial, in general (hot water is needed for the process and, also, when the installation of showers for the staff is mandatory.- any other which involves the existence of dining rooms, kitchens or collective laundries. <p>2. All these uses must be understood in the sense in which the articles 2.16 to 2.84, both included, of the Urban Rules of the Metropolitan General Plan, in force in the moment of enacting this ordinance, are defined.</p> <p>3. The ordinance will also be applied to the installations for the heating of the water in the vessels of the conditioned covered swimming pools with a water volume above 100 m³. In these cases, the energy contribution of the solar installation will be, at least, of 60 % of the annual energy demand coming from the heating of the vessel's water. The heating of the uncovered swimming pools will be only allowed with a system of solar energy collection.</p>
<p>Article 4.- Habitable persons for the fulfillment of this ordinance</p> <p>The promoter of the construction or reform, the owner of the building affected, or the professional who projects and conducts the works in the ambit of his facilities are responsible for the fulfillment of what this ordinance prescribes. The holder of the activities taking place in the building or construction which have solar energy at their disposal is also liable by this ordinance.</p> <p><i>Clàssic 73. Housing Law (24/01)</i></p>

ORDINANCE ON THE INCORPORATION OF SOLAR THERMAL ENERGY COLLECTION IN THE BUILDINGS. 1

<p>Article 5.- The best technology available</p> <p>The application of this ordinance will be done in each case depending on the best technology available. The Mayor will define the appropriate provisions to adapt the technical contemplation of this ordinance to the technological changes that may take place.</p>
<p>Article 6.- Formal requirements to be incorporated to the building or activity license</p> <p>With the application of building license or environmental license it will be necessary to enclose the basic project of the installation with the appropriate analytical calculus to justify the fulfillment of this ordinance.</p>
<p>Article 7.- Adopted system</p> <p>1. The system to be laid on will consist of the collection subsystem, by means of solar collectors with water in closed circuit, of the subsystem of interchange between the closed circuit of the collector and the water of consumption, of the solar storing up subsystem, of the support subsystem with other energies and of the circulation and consumption system.</p> <p>Exceptionally, in the case of swimming pools, a collector subsystem in open circuit will be possible to be used without interchanger and without storage tank when the vessel of the swimming pool fulfills its functions.</p> <p>2. In the installations only collectors properly homologated by duly authorized organism or entity will be allowed to be used. The characteristic curve and the performance data will have to be furnished to the project.</p> <p>In all cases the Regulation of Thermal Installations in Buildings -RITE adopted by the Royal Decree 1753/1998 of 21st July have to be fulfilled and especially its chapters: ITE, 10.1. Resolution of SHW by means of Active Solar Systems and ITE 10.2. Conditioned swimming pools, as well as the Quality and Design Criteria for the Solar Energy Installations of Hot Water and Heating, of AFERCA -Asociació de Professionals de les Energies Renovables de Catalunya.</p>
<p>Article 8.- Demand calculus: Basic parameters</p> <p>1. The parameters to be used to calculate the installation are the ones following:</p> <ul style="list-style-type: none">- Cold water temperature whether coming from the public network or from own supply: 10° C, aside from the fact that the actual usually water temperature of the network can be reliably proved, by means of certification of homologated entity.- Minimum temperature of the hot water: 45° C- Temperatures of design for the water of the vessel of the conditioned covered swimming pool, the ones adopted on the Regulation of Thermal Installations in the buildings -RITE, ITE 10.2.1.2. Water Temperature.- Percentual fraction (DA) of the whole annual energy demand for sanitary hot water to meet with the installation of solar collectors of low temperature: 60%, in accordance with the following expression: $DA = [A \cdot (A + C)] \times 100$ (where: A is the thermal solar energy furnished to the water consume places, and C is the additional thermal energy coming from traditional energy sources of support furnished to meet the needs.- Percentual fraction (DA) of the whole annual energy demand for the heating of the conditioned swimming pool's water to be met with the installation of solar collectors of low temperature: 60%. <p>2. According to the circumstances the Mayor may increase these parameters in connection with the degree of coverage of the sanitary water demand by the solar energy collection system to achieve an 80%.</p>
<p>Article 9.- Specific parameters of consumption for housing</p> <p>1. In the project it will be considered a minimum consumption of hot water, at a temperature of 45°C or above, of 140 l. per standard dwelling and day (annual average, from a consumption of 45 litres/dweller day) equal.</p>

ORDINANCE ON THE INCORPORATION OF SOLAR THERMAL ENERGY COLLECTION IN THE BUILDINGS. 2

