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## technical informations

Running time : **8'30**  
 Format : **Beta/SP/DV Cam**  
 Versions : **EN/FR**



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## Barcelona : Sustainable Energy City

### Barcelona, city of sun and sustainable energy

Everywhere in Europe, energy consumption increases, yet our supply of fossil fuels will not last forever and we need to find sustainable solutions. Several European cities have focused on renewable energies and have developed global concepts of sustainability. One of these, Barcelona has a unique regulation in the area of solar energy: the "Solar Ordinance". This decrees that all new buildings should use thermal solar energy for their hot water use. But that's not all. Everywhere around the city, the municipality promotes photovoltaic energy, a technology which allows the generation of electricity through the conversion of sunshine. Thanks to a collective political ambition, this Catalan capital is achieving a far more rational use of energy. This kind of initiatives is supported by different programmes of the European Commission, including the Campaign for an Energy Sustainable Europe 2005-2008. This Campaign will give a strong signal to political opinion makers, to private and public investors as well as to European citizens: to invest in renewable energies.

### Article

Barcelona counts amongst Europe's exemplary cities due to its handling of energy matters and their effects on the environment. It's general energy strategy is based on the promotion of renewable energies and on measures aiming at reducing consumption through efficient energy use. Thanks to the climate (2 800 hours of sunshine per year) , the city is especially committed to the use of solar energy (solar photovoltaic and solar thermal). However, besides solar other renewable energy sources are developed and used in different sectors, such as buildings, power generation, heating & cooling, public transport.

The city has a global [energy improvement plan](#), which forms the general framework for the work of the Barcelona City Council in matters of energy policy and its environmental impact on the city. This energy plan comprises a total of 55 projects establishes as well as a set of local action measures addressed to the achievement of a more sustainable city model, whilst reducing environmental impact through energy savings, an increase in the use of renewable energies and energy efficiency.

At the same time, Barcelona is the only European city having special legislation concerning the use of solar energy. [The Solar Ordinance](#), which went into force in August 2000, affects newly built, rehabilitated



and fully reformed buildings. The law obliges the use of solar energy for 60% of their sanitary hot water supplies. This regulation applies to buildings intended for residential, health-care, sports, commercial and industrial use and, generally, any activity involving the existence of dining rooms, kitchens, laundries or other circumstances that lead to a large consumption of hot water.

For its sustainable energy policy and urban development policy, the project Barcelona Renewable 2004 has been awarded in 2001 under the "Campaign for Take-Off" 2000-2003, an EU initiative to accelerate and substantially improve market penetration and investment in renewable energy sources. These challenges are carried further with the new European campaign Sustainable Energy Europe 2005-2008.

### **What is Sustainable Energy Europe 2005-2008?**

**Sustainable Energy Europe 2005-2008 is a four-year Campaign that aims to raise public awareness and act as a catalyst for the continued development, promotion and market uptake of sustainable energy technologies. The Campaign seeks to bring about a genuine change in behaviour by the actors concerned, in that they commit themselves to a move towards efficient, clean and sustainable energy production and consumption.**

The task ahead of this new Campaign is to persuade both consumers and key decision-makers of the benefits of sustainable energy production and use. Europe is a leading developer of technologies in the fields of renewables and energy efficiency. Wind and photovoltaic energy are growing faster while combined heat and power technologies, solar thermal technologies, bio-fuels, energy efficient building applications and renewable powered or high efficiency district heating applications are all gaining new markets.

The Campaign for Sustainable Energy Europe 2005-2008 offers a strong signal of support to all sustainable energy actors to assist them to valorise and disseminate their results and campaign for increased investment from key decision-makers across Europe.

### **Why do we need a Sustainable Energy Europe Campaign?**

Energy consumption in the European Union continues to rise, and we are becoming increasingly dependent on imported fossil fuels, which affects negatively the security of our energy supply in Europe. This increase in the use of fossil fuels also has a negative environmental impact and, unless we change our behaviour, it is now clear that we will not be able to reduce the rate of increase in energy consumption, nor to reduce our carbon dioxide emissions and will fail in our attempts to slow down the process of global warming.

**Present EU energy policy aims for an increase of the share of renewables to 12% by 2010, together with a substantial reduction in energy intensity, achievable by an annual improvement in energy efficiency of 1% per year. Reaching the target of 12% means that the share of electricity generated from renewables should rise to an estimated 21.1% and the share of biofuels to 5.75% within the 25**

member States of the EU by 2010. The energy efficiency goal outlined in the *Green Paper on Energy Efficiency* adopted on 22th June 2005 is to save 20% of energy consumption by 2020 in a cost effective way through changes in consumer behaviour and energy efficient technologies. This would allow the EU to save an estimated €60 billion on its energy bill.

### What are the objectives of the Campaign?

The objectives of the Sustainable Energy Europe 2005-2008 Campaign are to raise the awareness of decision-makers (at local, regional, national and European level), spread good and best practices, ensure a strong level of public awareness, understanding and support, and stimulate an increase in private investment in sustainable energy technologies by encouraging the commitment of Partners and other stakeholders from local to European levels.

There are a number of achievable benchmarks by 2008. In the area of **renewable energy sources** these benchmarks are in line with the EU 2010 targets and/or estimates (i.e. during the period 2005-2008 the installation of 15000 MW new capacities of wind turbines and the construction of 450 new combined biomass heat and power plants). In the area of fuels for **transport**, the Campaign hopes to encourage a fivefold increase in the production capacity of bioethanol, as well a threefold increase in the production of biodiesel in order to meet the EU targets. Amongst benchmarks relative to energy performance in **buildings**, during the Campaign around 5 million inspections and assessments of heating systems will take place, 2 million new Energy performance certifications on smaller buildings will be assured and the construction of 50 000 'very low' energy houses is expected. The Campaign also will promote that all EU homes are furnished with at least 1 low-energy appliance and 1 low-energy light source.

### What is the Sustainable Energy Partnership?

The Sustainable Energy Partnerships is the main instrument of the Campaign and a European network, specially designed to actively involve and promote a wide range of projects and programmes in the context of the Sustainable Energy Europe 2005-2008 Campaign. By incorporating a large number of sustainable energy initiatives into a common dissemination action, the aim is to ensure greater visibility and more efficient spread of know-how on sustainable energy implementation at a European level.

The **Sustainable Energy Partnership** is made up of organizations that are currently implementing, or planning to implement, a project or programme intended to have a significant impact upon the related energy environment in the European Union.

Becoming a Partner of the Campaign is essentially a voluntary expression of commitment to the objectives of the Campaign by sustainable energy promoters, which provides them with a number of benefits, including a variety of promotional services and tools made available by the European Commission, as well as co-operation

schemes between Sustainable Energy Partners.

In principle, every institution, company or organization, **both public and private**, planning to implement sustainable energy actions or programmes can contribute to the **Sustainable Energy Europe Campaign** and is invited to join the Partnership.

### **What are the main areas of the Campaign?**

**The Campaign will specifically promote sustainable energy actions in the regions, cities, islands and rural areas as well as in the areas of transport, buildings, lighting systems and appliances, co-operation with developing countries and sustainable energy promotion. In all these areas, the aim is to encourage partners to become a part of the Campaign, to showcase and disseminate the results of their successful projects and pioneer programmes.**

In **Sustainable Energy Communities in Cities, Regions, Islands and Rural Areas**: throughout Europe, a number of pioneer regions, cities and areas have already successfully achieved a genuine change in their energy supply. The Campaign will encourage the local authorities to implement ambitious energy plans for sustainable energy development, including improved energy end-use efficiency and promote successful projects to stimulate their replication across Europe.

It is in the **transport** sector that 30% of the total EU energy consumption is used. The transport sector currently relies on mineral oil for more than 90% of its energy. It is predicted that CO<sub>2</sub> emissions from EU transport in 2010 will be 39% higher than in 1990. The objective of the Campaign is to promote actions and policy measures that lead to the reduction of CO<sub>2</sub> emissions from transport.

The total energy demand of **buildings** accounts for 40% of all energy needs within households and the tertiary sector. According to the Commission's Green Paper at least 20% of the energy in buildings could be saved by profitable investments in viable technologies such as thermal insulation, efficient heating and cooling systems or air circulation. The objective of the Campaign is to promote energy efficient technologies and products and to see small-scale renewable energy use increase within this sector.

The consumption for **electric appliances and lightning** comprises 17% of the total EU electricity consumption and 11% of the total energy consumption of private households in the EU. While the share for space heating has decreased over the last 15 years, the share of electric appliances has increased. The Campaign will seek to promote more efficient equipment and products and to accelerate its market penetration.

The Campaign also aims to foster future co-operation projects with **developing countries and to support local and regional promoters** in the field of sustainable energy.

### **What are the main actions of the Campaign?**

**The Campaign will disseminate, communicate and promote amongst all Campaign partners, the wider public, authorities and businesses the importance of sustainable energy and the spread of good and best practices. It will also open the floor to debating and sharing experiences between active partners.**

The main dissemination tool of the Campaign is the web-site, which provides up-to-date information about the Campaign and all of its activities. This web-site [www.sustenergy.org](http://www.sustenergy.org)

has a Citizen Area where the wider public can find out more about the objectives of the Campaign, its partners and projects. A dedicated Press Corner will provide journalists and media with the latest information on sustainable energy issues, information fact-sheets and access to audio-visual materials. In the context of the Campaign, a wide range of sustainable energy activities, such as the Annual Conference will be organised and the most significant energy partner frontrunners will be recognised at an Annual award ceremony.

In addition to these tools and actions, Partnership projects and programmes can benefit from active-participation and increased visibility at high-level European and national events. European Sustainable Energy Days and Weeks will be organized in a decentralized way, building upon the experience of existing initiatives and encouraging the development of new Sustainable Energy Days or Weeks, particularly in the new Member States.

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## Documentation

### Commission Européenne

[Homepage of the Energy Commissioner](#)

[Relevant Legislation](#)

[European Commission, Directorate-General Transport and Energy](#)

### Pages internet et Reseaux utiles

[Intelligent Energy Europe 2003-2006 \(EIE\)](#)

[ManagEnergy](#)

[Renewable Energy for Europe - Campaign for Take-Off \(2000-2003\)](#)

[6th Framework Programme 2003-2006 \(FP6\)](#)

[Organisations for the Promotion of Energy Technologies \(OPET\) Network](#)

[European Local Transport Information Service \(ELTIS\)](#)

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## Description of content

**This video report filmed in Spain in June 2005 illustrates the sustainable energy policy of Barcelona, one of the pioneer European cities, which has already achieved a genuine change in its energy supply.**

### Interviews:

- *Imma Mayol, Deputy Mayor and Chair of the Sustainability, Barcelona*
- *Toni Pujol Barcelona Energy Agency*
- *Pilar Blanco, une habitante de Barcelona*
- *Fernando Torras, Patronat Municipal*
- *Ignacio Doval, Manager Technologies, Barcelona Infrastructures*
- *Josep Acebillo, Commissioner for Infrastructures and Urbanism, Barcelona*
- *Patrick Genard, Architecte*

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## Comments

**Barcelona : Sustainable Energy City**

**Commentary**

Barcelona has on average 2.800 hours of sunshine every year. At the start of the new century, the city administration decided to make the most of this major energy advantage and become the first European city with bylaws to promote the use of solar thermal energy. Since then, the city has developed an overall strategy for sustainable energy – a great illustration of the new “Sustainable Energy for Europe Campaign”.

An example of this overall strategy is the Sustainability Barcelona 2004 project which won an award for best urban development project during a previous campaign. Now the new European campaign for 2005 to 2008 is inviting others to take inspiration from the Catalan capital with its intelligent use and production of energy.

***ITV Imma Mayol, Deputy Mayor and Chair of Sustainability (SP)***

*For the last five years we've had a solar thermal energy bylaw. It's a regulation which insists on the incorporation of solar thermal energy in all new buildings as well as those being comprehensively renovated.*

**Commentary**

To manage this overall policy, the administration turned to the Barcelona Energy Agency. A consortium made up of a number of local institutions directly involved in sustainable energy and environmental management.

***ITV Toni Pujol, Barcelona Energy Agency (SP)***

*To promote solar energy in the city of Barcelona the Energy Agency is supporting both solar photovoltaic and solar thermal energy. First of all, the municipal agency is leading by example in that all municipal buildings are equipped with solar receptors. Secondly, the agency is available to advise anyone who wants to use this sort of energy. And lastly, we get the word out to individuals, organisations and associations so that they can do their bit to promote solar energy.*

**Commentary**

Since the solar regulation came into force, the fitting of solar thermal installations has increased by 1.400%. The bylaw states that all social housing in Barcelona must use solar power.

Pilar Blanco lives in social housing in the city centre. Solar energy provides most of her hot water requirements.

***ITV Pilar Blanco, tenant (SP)***

*I use solar energy for everything. This is real progress. For washing vegetables, washing fruit too, potatoes, for washing up, for cooking. It saves time and for people who work it's a fast system and it's a real saving as you don't use electricity.*

**Commentary**

100% of Pilar's hot water requirements are met in the summer. In winter she has to rely partially on electricity. At that time of year, the solar installations cover 40% of her needs. This considerable energy contribution is provided through the receptors positioned on the terrace of her apartment block.

***ITV Fernando Torras, Housing Department, Barcelona (SP)***

*When the temperature of the hot water inside the homes is lower than*

*the temperature we have in the receptors, a pump starts up which sends the water into the apartments.*

### **Commentary**

It's important to distinguish between solar thermal systems and solar photovoltaic systems. The first are used to heat water. The second to generate electricity. Photovoltaic systems are normally connected to the grid and in Spain, just as with hydroelectricity or wind power, the energy produced is sold to electricity companies at a higher price than non renewable electricity.

To promote its use, the city has built one of the largest urban power stations in Europe: the "solar pergola". Overlooking the sea, it's 112 metres long, 50 metres wide. It works on the principle that photovoltaic cells are able to convert the photons in rays from the sun into electrical tension.

### ***ITV Ignacio Doval, Technology Manager, Barcelona Infrastructures (SP)***

*How's it done? Well, there are a number of very small cells inside this photovoltaic panel which, because of the materials they're made from, these components are stimulated electronically and that produces a current. A current which at the moment is a continuous current equivalent to any battery. 1 or 2 volts for each of the photovoltaic cells.*

### **Commentary**

Alongside the large pergola there are two other smaller pergola shaped structures also covered in photovoltaic solar panels. In all, enough electricity is generated to supply around a thousand homes. These three energy generators are the centre pieces of a new district known as the Barcelona Forum. A totally renovated urban zone of around 100 hectares, which integrates both clean energy production and intelligent energy use.

### ***ITV Josep Acebillo, Commissioner for Infrastructures and Urbanism (SP)***

*We have created an urban network which provides hot water, heating and cooling- all from the residual heat from the municipal waste treatment plant. The result is that all the buildings in this new area, all the public buildings, are heated and cooled by this plant.*

### **Commentary**

Let's take another example of the promotion of photovoltaic energy- this time from the private sector.

On the outskirts of Barcelona in Esplugues de Llobregat, the Imagina TV studios have a semi transparent roof of around 1000 square meters. This is a novel architectural and engineering approach- to not use solar panels but instead, integrating silicon sheets in the shell of the building by means of double glazing. This covers the restaurant, the patio and the top storey offices.

### ***ITV Patrick Genard, Architect (FR)***

*Here we've tried to use one single element which is effective but, much more interestingly, has different functions. It's watertight, air tight,*

*transparent, it filters light, transforms excess light into energy and even conditions the air through this sort of air chamber, which functions as an evacuation channel to evacuate the excess energy which accumulates in the solar panels.*

### **Commentary**

There are many examples of buildings using solar photovoltaic energy in this integrated way in the Barcelona region. Take for instance the library in Mataró.

A real commitment has been made to use this kind of energy in an urban environment in the Catalan capital. Even though the production of photovoltaic elements involves state of the art technology, which does not come cheap.

### ***ITV Toni Pujol, Barcelona Energy Agency (SP)***

*One particular point to remember when considering solar photovoltaic energy is that we're looking at something long term. There's no point in looking at short term costs, you must consider its viability from a perspective of 10, 15, or 20 years. Just as we have to do with sustainable development. It's no use just looking at the instant benefits but rather the long term benefits.*

### **Commentary**

In Europe, energy consumption is increasing. Our dependence on fossil fuel with its mounting cost is having a big impact on our economy and on the environment. Sustainable solutions such as the use of renewable energy and energy saving are vital.

### ***ITV Imma Mayol, Deputy Mayor and Chair of Sustainability, Barcelona (SP)***

*We have a 10 year energy plan, from 2002 to 2012. The aim is to reverse current trends and reduce energy consumption by 17% as well as reducing green house gas emissions by 20%. There are 56 programmes in this plan which range from transport to waste disposal, including buildings and policies to reduce household energy consumption- while also increasing awareness among citizens.*

### **Commentary**

The efforts of Barcelona and other cities and towns committed to a policy of sustainable development are encouraged and supported by the European Commission through its campaign: Sustainable Energy for Europe 2005-2008.

A campaign which aims to persuade political decision makers, public and private investors and European citizens to invest in renewable energy and energy efficiency and to manage energy in an intelligent and sustainable way.

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