



# IX Energy saving and renewable energy

The impacts associated with energy consumption are varied in accordance with their origin. In the city of Barcelona, 49% of energy consumption is of nuclear origin, 46% corresponds to fossil fuels, 4% to hydraulic energy and just 1% comes from renewable energy sources. In order to encourage saving, energy efficiency and the use of renewable energy, in 2002 the Barcelona Local Energy Agency - Agència Local d'Energia de Barcelona was constituted →[www.barcelonaenergia.com](http://www.barcelonaenergia.com)

More efficient vehicles for local services ↓



**Energy consumption at local authority offices is split into almost equal parts between lighting, office equipment and heating, cooling and ventilation. Final consumption depends to a great extent on our individual behaviour: turning off lights, computers and regulating heating and air conditioning.**

## Investments

Some of the improvements that have been introduced to local buildings are the investments in the fields of energy and water. The most significant for rationalising consumption and promoting renewable energy are: →

- The change of lighting and the installation of electronic metres that help to keep an accurate track of supplies.
- The installation of photovoltaic solar panels in council buildings.
- The incorporation of thermal solar collectors for the production of hot water at nurseries and sports facilities is one of the oldest measures within the field of promoting renewable energy.

### RESOURCES OF THE + SUSTAINABLE CITY COUNCIL PROGRAMME

#### No et quedis gelat! – Don't freeze!

In 2005 a Guideline for Services was passed by the Mayor's Office in order to promote the rational use of air conditioning at local authority offices: the instruction concreted that the comfort temperature inside municipal buildings should not be below 24 oC. This year a poster has been issued to all local authority offices and buildings with the slogan "No et quedis gelat!" or "Don't freeze!", in order to remind us of this good practice, good for the environment, for our health and for the efficient use of public resources. If you would like one, you can request one by writing to:

→ [ajuntamentsostenible@bcn.cat](mailto:ajuntamentsostenible@bcn.cat)

#### Training session on energy

→ Energy and its environmental consequences...  
What can we do?

In 2005, a training session on energy was held for the staff of the Urban Services and Environment sector at which an explanation was given on which are the renewable energy sources, the Barcelona Energy Improvement Plan, and how our behaviour vis-à-vis energy can be improved.

→ [www.bcn.cat/agenda21/ajuntamentsostenible/energia/Formacio\\_Energia.pdf](http://www.bcn.cat/agenda21/ajuntamentsostenible/energia/Formacio_Energia.pdf)



## GREENED-UP REGULATIONS AND SPECIFICATIONS

- Solar ordinance (1999)
- The contracting of computer equipment (2002) by the Municipal Computing Institute
- Specifications on lighting (2005)
- Instructions from the Mayor's Office concerning the rational, efficient use of air conditioning in summer (2005)



## GOOD PRACTICES ↓

### Use renewable energy

#### → Photovoltaic solar energy at local buildings

There are currently 19 local buildings (including the City Hall) with photovoltaic solar installations that transform solar energy into electricity. Altogether this accounts for a surface collection area of over 5,875 m<sup>2</sup> producing some 868,000 kWh/year, which in turn means an economic saving of about 235,000 € per annum.

#### → Thermal solar energy at schools and sports facilities

The existence of thermal solar collectors for the production of hot water at schools and sports facilities (Guinardó Sports Complex, Picornell Swimming Baths...) dates back to 1995 with the installation of 6 nurseries. But now there are 52 municipal facilities covering 4,341 m<sup>2</sup> producing energy estimated at over 3,545,000 kWh per annum.

### Use energy efficiently

#### → The replacement of lighting at the City Hall

The replacement of ordinary lighting with energy efficient lighting has led to a reduction in energy consumption through the illumination of buildings. The saving of over 350,000 kWh per annum is not the only environmental benefit from this initiative since the emission of 40.10 t of CO<sub>2</sub> a year is also saved, not to mention the economic saving brought about by the consumption of less energy (some 25,000 € per year).



NOTE!



### Housing development projects by the Municipal Housing Trust

#### → Criteria concerning the environment and efficiency

Since 1998, the Barcelona Municipal Housing Trust has been incorporating criteria concerning energy efficiency, water saving, the collection of rainwater and the choice of building materials that meet environmental criteria. All housing development projects include solar energy, water saving devices in taps, showers and WCs, and a great many other measures that lead to increased eco-efficiency.



## FOLLOW-UP INDICATORS ↓

### → Local facilities with solar energy

	Nº.	Surface area (m <sup>2</sup> )	Estimated energy generated (kWh/year)	CO <sub>2</sub> saving (tonnes)
Thermal energy	52	4.341	3.545.818	604
Photovoltaic energy	19	5.875	867.939	93
<b>Total</b>	<b>71</b>	<b>10.215</b>	<b>4.413.757</b>	<b>697</b>

## PRACTICAL ADVICE ↓

### LIGHTING

- Make the most of natural light: raise the blinds during the hours the sun isn't shining straight in.
- Turn off the lights when leaving meeting rooms, toilets and empty offices! Avoid switching lights on unnecessarily.
- Some offices have too many light points: disconnect lights we do not need on.

### Office machinery

- Switch off the computer! A great many computers are left on day and night. If we switched them off at the end of each day, we could save up to 75% of energy! We recommend at least you switch off the screen each time you leave the office for more than 20 minutes, and switch off the whole set at the weekend.
- Do not use animated screensavers. They consume a lot of energy! Originally, we used them to protect old-style screens, not to save energy.
- Look for and programme the minimum times for the "sleep off" features of our machine and this will mean saving energy and money.

### Heating, cooling and ventilation

- Adjust the temperature properly if you have devices with individual settings. A temperature difference of around 5oC shall suffice. Heating the air one extra degree in winter or cooling it one extra degree in summer represents a 6% increase in economic expenditure!
- Create a good working atmosphere! If the air in the office is very stuffy, air it for a while: 5 minutes is enough. Do not leave windows ajar with heating or air conditioning switched on.

### Further advice...

- Instead of regular batteries, we can use rechargeable batteries which can be recharged by plugging a device into a socket, or even better, a solar charger.
- Electronic devices, such as hi-fis, TVs and videos permanently consume energy when on "stand-by" (at rest with an LED on). This equipment must be switched off at the ON/OFF switch and not with the remote control in order to avoid continuous, unnecessary consumption of energy.

