



penelope bacchus

Promoting Energy efficiency to Local Organisations  
through dissemination Partnerships in Europe  
Best Actions for Collaboration in Countries  
for a High efficient Use of energy in Structural funds

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## Alternative energies promotion in public school buildings - Lazio - Rome Province - Italy

Implementation of a strategy within the public administration aimed at finding public funds and their optimization to introduce renewable energy in the local school system.

Target Groups	Sector	Field
<ul style="list-style-type: none"> <li>- Local authority</li> <li>- Regional authorities</li> <li>- Energy utilities</li> </ul>	<ul style="list-style-type: none"> <li>- Energy supply</li> <li>- Buildings (including municipal properties)</li> </ul>	<ul style="list-style-type: none"> <li>- RES</li> <li>- Information</li> <li>- Education and training</li> </ul>

### ANALYSIS

#### BACKGROUND OF THE PROJECT

The School Metropolitan Office of the Administration of Rome Province (covering an area of approximately 5 ml. inhabitants) has been acting since 1994 to:

- arise awareness and training of public schools administrators, teachers and students on urban sustainability and on renewable energies issues,
- promote the use of renewable energies in public buildings.

In 2001, the School Metropolitan Office started a new and more comprehensive project to provide additional support to public schools administrators in the framework of the new Italian "Photovoltaic Roofs" Programme which is intended to promote and fund the installation of photovoltaic systems (from 1 to 50 kW each) both in public and private buildings.

## PROJECT DESCRIPTION

Aim of the Project is:

- to provide public schools administrators with the legal and administrative support to get access to the "Photovoltaic Roofs" Programme fund and speed up bureaucratic formalities;
- direct and targeted links have been set up among the relevant public Offices and Administrations acting within the framework of the "Photovoltaic Roofs" Programme;
- to provide additional funds;
- to provide school administrators with the needed technical support;
- to train teachers and students by involving them in the assessment of consumptions, savings and results.

A specific Working Group within the School Metropolitan Office has been set up to act also as a "help desk" for Public Schools Administrators.

A first phase of the Project started in 2001; 15 Public schools joined the Project and are now installing photovoltaic systems.

The project presented by ITIS Marconi of Civitavecchia was selected as a pilote case. It will be endowed with a set of evaluations tools, (sensors/converters, data logger and a transmission data system). ENEA will perform the functional technical testing. Once activated, the plant will be used as a didactic and training site to be visited also by students of other schools and promote other initiatives to install similar plants. The School Metropolitan Office is planning to start a second phase within 2002, to involve more schools.

## COST AND BENEFITS

### COSTS

The total budget, partly covered by the Province of Rome through the School Metropolitan Office, used in the first phase (15 public schools) is of 839.000 EUR to install 98.6 photovoltaic kW.

### BENEFITS

The monitoring system (sensors, data logger and PC connected to School Metropolitan Office Headquarters) installed in Institute Marconi of Civitavecchia will allow to evaluate benefits from the School Metropolitan Office perspective and photovoltaic plants efficiency.

As for the other schools, a survey will be carried out regularly to collect all the relevant data to evaluate photovoltaic systems efficiency and costs (maintenance, etc.).

At the moment, benefits can be estimated only on the basis of models, taking into account the total budget already used, an estimate of the foreseen energy consumption and the average price per one kWh.

The energy saved in the next 10 years should be approximately 1.332.800 kW; the CO2 emissions decrease should be approximately 932.960 kg. Over the next 30 years, the energy saved should be 3.998.400 kW and approximately 2.798.880 kg CO2 emission decrease, corresponding to 218.800 EUR saved at the actual average price per kWh.

The break even point will be reached after the 17 years.

In most of the schools involved in the Project, the photovoltaic plants are replacing obsolete and inefficient energy systems, which contribute heavily to the air pollution in the Roman urban area. A value of 0.7 kg of CO2 per each kWh by renewable sources is assumed.

Other additional benefits are: students awareness of photovoltaic systems and on energy saving issues in general, an incentive to other Public Administrators to switch to renewable energy sources in the buildings they are responsible for.

## PARTNERSHIP

The training activity on renewable energy promoted by the School Metropolitan Office and the possibility to implement photovoltaic plants in other provincial school offices, created the presupposition for a future collaboration between provincial and school Institutes.

Students are the main stakeholders. They will be given practical lessons on renewable energy technology such as: instrument maintenance, functioning of the generator, insulation, energy production and CO2 emissions avoided, stressing the results in terms of energy saving and environmental impact. Courses and training activities will give to some of them future professional opportunity in this field.

## RECOMMENDATIONS

In these kind of initiatives, economic evaluations must be considered together with the didactic aspects. The training impact on students and the stimulus for teachers to update their environmental educational background must be kept into the utmost consideration.

Specialistic technical/practical courses on the implementation and managing of photovoltaic technology at different level (from a photovoltaic cell to a more complicated generator) will be promoted.

## TO KNOW MORE

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## USEFUL INFORMATION

List of Publications

<b>ENERGIA ELETTRICA DAL SOLE /</b>	<b>Mauro Spagnolo - Francesco Paolo Vivoli /</b>	<b>x /</b>	<b>Italian /</b>	<b>x</b>
<b>L'INTEGRAZIONE FOTOVOLTAICA NEGLI EDIFICI /</b>	<b>Francesco Paolo Vivoli /</b>	<b>x /</b>	<b>Italian /</b>	<b>x</b>

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