

Renewable Energy Sources at School

Agencia Extremeña de la Energía (AGENEX), Spain

Summary

During the last years the Spanish Educational System has slightly introduced renewable energies and energy saving contents into its educational programmes. As a result there is a considerable lack of knowledge about the potential use of new energy systems, efficiency and energy saving concepts, among young people. On the regional level, Extremadura presents the same problems and lacks.

Agenex is committed to increase the use of renewable energies and change energy saving behaviour in the region of Extremadura. It is therefore especially important that young people be made aware of these issues. This is the underlying aim of this initiative. The intention is to capture the imagination and interest of scholars by presenting them with a outlook of the current status of renewable energies, efficiency and energy saving, the attractive energetic challenges we face and an optimist vision of the future.

We believe that schools have an important role as disseminators in the process of introducing these concepts so Agenex's initiative focus on primary and secondary schools in the region through information sessions for children.

This initiative is supported by Diputación Provincial of Badajoz and Diputación Provincial of Cáceres as principal associates of the Agency. The financial need of this project is not important since as it can be developed by Agency's staff and material.

End-user area	Target Audience	Technical
<input type="checkbox"/> New buildings	<input type="checkbox"/> Citizens	<input type="checkbox"/> Energy efficiency
<input type="checkbox"/> Refurbishment of buildings	<input type="checkbox"/> Households	<input type="checkbox"/> Heating
<input type="checkbox"/> Transport and mobility	<input type="checkbox"/> Property owners	<input type="checkbox"/> Cooling
<input type="checkbox"/> Financial instruments	<input checked="" type="checkbox"/> Schools and universities	<input type="checkbox"/> Appliances
<input type="checkbox"/> Industry	<input type="checkbox"/> Decision makers	<input type="checkbox"/> Lighting
<input type="checkbox"/> Legal initiatives (municipal regulations, directives, etc)	<input type="checkbox"/> Local and regional authorities	<input type="checkbox"/> CHP
<input type="checkbox"/> Planning issues	<input type="checkbox"/> Transport companies	<input type="checkbox"/> District Heating
<input type="checkbox"/> Sustainable communities	<input type="checkbox"/> Utilities	<input type="checkbox"/> Solar energy
<input checked="" type="checkbox"/> User behaviour	<input type="checkbox"/> ESCOs	<input type="checkbox"/> Biomass
<input checked="" type="checkbox"/> Education	<input type="checkbox"/> Architects and engineers	<input type="checkbox"/> Wind
<input type="checkbox"/> Other	<input type="checkbox"/> Financial institutions	<input type="checkbox"/> Geothermal
	<input type="checkbox"/> Other	<input type="checkbox"/> Hydro power
		<input type="checkbox"/> Other

Context

Agenex is a Save Energy Agency that operates in a large region in the Southwest of Spain, called Extremadura. Although it was recently created, its work programme has been successfully started and the intense activity developed during this initial period it is now offering results.

Agenex, given the task of promoting energy efficiency and renewable energies in the region, came up with the idea of organising lectures in primary and secondary schools.

So it was created “Renewable Energy Sources at School”: An educational scheme included in the work programme of the Agency that it was proposed by the Agency to the Local Authorities in the Region which actively collaborated in the development of the project.



Photo1: presentations

Objectives

The Project is designed to offer information on renewable energy sources and energy saving among teachers and students in the Region of Extremadura, heightening their awareness of the importance of issues related to society, nature and the preservation of natural resources and the environment. So the main objectives are:

- ❑ Show the current energy situation at regional and national level.
- ❑ Demonstrate potential uses of renewable energy sources in the region.
- ❑ Teach student the rational use of energy not only at schools but at home or in any aspect of their life.
- ❑ Establish a collaboration network in the region among educational centres involved in these issues.
- ❑ Provide schools and educational centres with useful information. Motivate all schools to commit themselves to renewables - both by teaching and by running installations and by evaluating the way they work.
- ❑ Promote the activities carried out by the Agency.

Process

The project was focused on students of primary and secondary schools (10 - 17 years old) in the provinces of Badajoz and Cáceres during the 2002-2003 scholar period.

The project was implemented in the following principal stages:

- ❑ Definition of schools involved.
- ❑ Formal introduction of the Project by sending letters of both Presidents of Diputación of Badajoz and Cáceres to schools selected.
- ❑ Meetings with school headmasters and headmistresses presenting the Project. It usually consisted of explanations about project's objectives and contents. At this stage it was also agreed different aspects like number of students, scholar level, visit dates, etc.
- ❑ Lectures in the arranged visit dates. It includes the use of:
 - Power point presentations

- Leaflets about renewable energy sources, energy saving tips and activities carried out by the Agency.
- Solar equipment.
- Portable computer and a projector.



Photo 2. Nazaret School's students. (Caceres)

In every moment it was taken into account that the lectures should not interfere in the development of the educational programme but being a complement to the science lessons. In accordance with the audience there were prepared different tailor-made presentations.

Agency's staff carried out the whole project. Energy specialists from Agenex prepared the presentations, elaborate the leaflets, interviewed principals, got in contact with sponsors and finally spoke to the students.

The handed out material included demonstrative solar thermal panels, photovoltaic cells and different solar toys. Every student received leaflets as a way of sharing the learned knowledge with their families and friends, especially those tips related with energy saving. The Agency handed over a Catalogue book of the "Renewable Energy for Europe. Campaign for Take-Off" to every school library too.

Financial resources and partners

The lead organization is Extremenian Energy Agency (AGENEX) that is working in partnership with Diputacion Provincial of Badajoz and Diputacion Provincial of Caceres as associates of the Save Project. Viessman commercial department in Extremadura collaborated as sponsor. Partners of the project contributed with all the material and computer equipment required.

Results

Our work with schools during the development of the project has shown that many schools are simply lacking adequate information on renewable energies. This lack of information often leads to erroneous perceptions about the potential use of these sources.

On the other hand we can assure that there is a very great potential of schools interested in introducing renewable energies not only in their educational programs but in implementing demonstrative installations. According to the interviewed headmasters and headmistresses, most of them are willing to get engaged in this field. The most relevant figures related with the project are the following:

- ❑ 10 schools visited
- ❑ 29 lectures.
- ❑ 58 persons contacted (among teachers, headmasters and headmistresses, local authority staff, sponsor staff, etc.)
- ❑ 956 Students.

Visit date	School	Town	Number lectures	Number students
28 - 29 /01/03	Colegio Diocesano Virgen de la Montaña	Caceres	8	355
25/02/03	IES Menéndez Valdes	Villafranca	3	115
25/02/03	Colegio Santa Cecilia Hermanas Carmelitas	Caceres	1	32
05/03/03	Colegio Santa Cecilia Hermanas Carmelitas	Caceres	2	58
11/03/03	Colegio Publico Salvador Loaysa	Jarandilla de la Vera	2	50
12/03/03	Licenciados Reunidos	Caceres	2	50
13/03/03	Colegio Nazaret	Caceres	2	52
21/03/03	Colegio María Auxiliadora	Caceres	4	123
08/04/03	IES Jarandilla	Jarandilla de la Vera	2	45
22/04/03	Colegio santo Ángel	Badajoz	1	28
07/05/03	IES Turgalium	Trujillo	2	48

Lessons learned and repeatability

This kind of project has a high level of replication by energy agencies due to the low cost and minimum equipment required. Realisation of educational project like this will increase awareness of renewable energy sources and will engage people in making energy saving not only in schools but in homes and workplaces.

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