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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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Wood Waste Utilisation for District Heating -

Campeni town, Alba County - Romania

In the 1999 year was implemented the project which comprised the replacement of two light fuel oil fired boilers from Themal Plant no 1 with two biomass fired boilers, in Campeni town, Alba County

Target Groups	Sector	Field
<ul style="list-style-type: none"> - Local authority - Energy utilities - Domestic consumers 	<ul style="list-style-type: none"> - Energy supply 	<ul style="list-style-type: none"> - RES

ANALYSIS

BACKGROUND OF THE PROJECT

A study undertaken with PHARE Funding (completed in January 1996) 'Strategy on Renewable Energy Sources in Romania' investigated the potential for renewable energy in Romania and proposed a strategy to increase the use of RES.

Based on the list of potential demonstration projects which were identified in the study, one project has been selected for detailed study and implementation. This project was located in Cimpeni, which is a small town of approx. 10,000 inhabitants, located in the Western part of Romania, on Aries Valley, at the feet of Apuseni Mountains, in one of the largest forestry areas of the country. The reasons for this selection were:

- high amount of wood residues from the Arie• Forest Basin - about 54 000 tons/year;
- high cost of heat generation by light fuel burning and the increased level of State subventions;
- high pollution level of Arie• River by dumping of wood residues and sawdust resulted from wood procesing units;
- deep concern and cooperation of local authorities represented by Câmpeni town council and prefect's office of Alba county as well as by district heating compenies GOTERM SA for the project implementation.

OBJECTIVE OF THE PROJECT

The general objective of the project was to promote the wider use of biomass in general, and wood waste in particular, as a cost effective and environmentally beneficial energy source for Romania.

The specific objectives were:

- Utilisation of wood waste instead of fossil fuels for the generation of heat;
- Reduction of environment pollution due to the dumping of this residue to the rivers;
- Reduction of costs for heat generation .

PROJECT DESCRIPTION - INITIAL SITUATION

The project comprised the replacement of the light fuel oil fired district heating boilers for biomass fired boilers in thermal power station no.1. This thermal plant was equipped with four hot water boilers type PAL running on CLU (light fuel oil) and producing heat in amount of 2175 Gcal/year (8 h/day) and domestic hot water (2 h/day) with a consumption of about 324 t CLU/year. Boiler efficiency was max. 70%.

PROJECT DESCRIPTION - SITUATION AFTER MODERNISATION

Two boilers type PAL 15 made in Romania by an original concept, running on sawdust with calorific power of 2100 Kcal/kg.

The efficiency of the boilers measured after the test period is of 83% producing 4087 Gcal/year, that is 88% higher than old thermal power station operated in 1998. Moreover, the boilers are each provided with aspre burner on CLU being completely automated. This thermal power station is provided with all new systems suitable for wood waste burring; unloading platform, silo, inclined belt conveyors, exhaust plant and automation.

COST AND BENEFITS

REDUCTION OF ENVIRONMENTAL POLLUTION

- Utilisation of about 2345t wood waste/year
- Reduction of CO2 emissions released when burning fuel oil by some 1000 t/year
- Reduction of SO2 emissions in the open by some 14.5 t/year

OTHER ADVANTAGES

- The increase of available heat in the thermal station with about 88% represents the IMPROVEMENT OF POPULATION WELFARE.
- A SUBSTANTIAL REDUCTION OF SUBVENTIONS from the Local Council for the covering of heat costs.
- The replacement of the fossil fuels of which cost will increase further by CHEAP LOCAL FUEL will be in the benefit of population of wich living conditions are low.
- THE REDUCTION OF POLLUTION due to the dumping of wood residues in the rivers will increase the tourism potential and consequently will help the economic development of this area.
- The use of EQUIPMENT DESIGNED AND PRODUCED IN ROMANIA will reduce markedly the investment costs.

Project features	Initial situation	After modernisation
Calorific power of fuel - Hi [Kcal/kg]-	CLU 9600	Sawdust 2100
Specific consumption - ecc/Gcal	0.204	0.172
Heat generation - Gcal/an -	2175	4087
Cost of heat generation - Euro/Gcal	26.45	15.20
Subvention - Euro/Gcal	18.0	3.1

ENERGY SAVINGS AND REDUCTION OF FUEL COSTS

PARTNERSHIP

THE FINANCING OF THE PROJECT

The project was financed by:

- Phare 100.000 EURO
- and local authority 20.000 EURO

The funding by PHARE grant was aimed at the implementation of a priority project within the strategy of utilisation of renewable energy resources drawn up by experts from Romania and EU and specially the biomass utilisation for district heating.

RECOMMENDATIONS

RECOMMENDATIONS

This project demonstrates its technical and economic advantages from wood waste utilisation as fuel for district heating (see the diagram: Energy savings and reduction of fuel costs).

The project has also a large potential of replication in a large number of urban areas with woodworking industries and district heating systems: Vatra Dornei, Gheorgheni, Vlahita, Intorsura Buzaului, Huedin, Nehoiu, Busteni, Campulung Moldovenesc, Abrud, Biczaz, Tg. Neamt, Campina, Gura Humorului etc.

RESULTS

The results of the project implementation were:

- demonstrate efficient replacement of oil fuel (expensive and pollutant) by wood waste to produce heat
- assist local communities in mitigating pollution from wood processing, train local operators in using energy efficient technologies and practices
- increase awareness of the economic, social and environmental benefits of using wood waste

TO KNOW MORE

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USEFUL INFORMATION

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