

R.E.S. INTEGRATION

RURAL SUSTAINABLE DEVELOPMENT THROUGH INTEGRATION OF RENEWABLE ENERGY TECHNOLOGIES IN POOR EUROPEAN REGIONS

Specific Targeted Research Project (FP6-509204)

WORK PACKAGE 2: Identify schemes for IRES implementation

Project Acronym	R.E.S. INTEGRATION	
Project Full Title	Rural sustainable development through integration of renewable energy technologies in poor European regions	
Contract number	FP6-509204	
Type of action	Specific Targeted Research Project	
Project duration	1 st November 2004 – 31 st October 2007	
Project coordination	AUA – Agriculture University Of Athens, Greece	
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Document's title	Deliverable n. 4: Inventory of pathways for the sustainable development of the region	
Date	12 October 2005	
Notes	Energy sustainability pathways, as by D5-Table 3	

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**Specific measures in support of
International Co-operation - Western Balkan Countries (INCO-WBC)**

<http://www.cordis.lu/fp6/inco.htm>



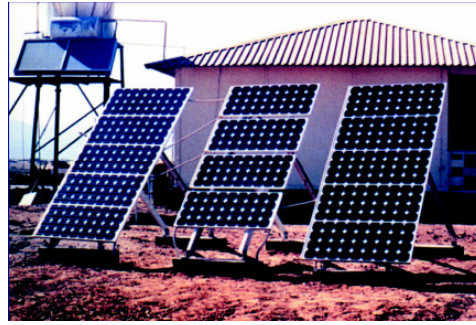
Project title	SOLAR BUILDINGS
Short description of intervention	Promote the realisation of solar systems (solar collectors for hot water production) and grid-connected PV plants to be installed on public and private buildings
Driving forces	<ul style="list-style-type: none"> • European directive 2002/91/EC of 16 December 2002 on the energy performance of buildings • European directive 2001/77/EC on the promotion of electricity produced from renewable energy sources in the internal electricity market • Legislative decree 387/2003 • Decrees on “White certificates”
Supporting instruments	<ul style="list-style-type: none"> • PV feed-in tariff (now in operation) • White certificates (solar thermal) • Structural funds
Identification of local actors	Local administrations, local installers, education sector
Description of the project	<ul style="list-style-type: none"> • Identification of integrable buildings • Identification of available support instruments • Submission of applications • Tendering • Realisation of solar systems, equipped with specific visualisation and monitoring system to improve <i>visibility</i> <p>Critical issues are the availability and the continuity along time of proper financial incentives, especially for PV</p>
Energy objectives	<ul style="list-style-type: none"> • Satisfaction of 100% electric and hot water needs in identified buildings
Environmental benefits	<ul style="list-style-type: none"> • Avoided fossil fuels • Avoided GHG and other noxious emissions
Socio-economic benefits	<ul style="list-style-type: none"> • Local market opportunities • Education sector; solar energy is an effective “vehicle” for a message of “environmental awareness”

Environmental & sustainability issues	None, only, in some cases, visual impact of solar systems
Economics	Not available at this stage (usually PBT = 10-12 years for PV, 4-6 years for solar thermal, in case of adequate financing incentives)



Project title	SOLAR PARK
Short description of intervention	Realization of considerable size grid connected PV plant (some hundreds of kW)
Driving forces	<ul style="list-style-type: none"> • European directive 2001/77/EC on the promotion of electricity produced from renewable energy sources in the internal electricity market • Legislative decree 387/2003 • Ministerial decree 28 Jul. 2005 (feed in tariff) • Decrees on “green certificates”
Supporting instruments	<ul style="list-style-type: none"> • PV feed-in tariff (now in operation) • Regional funds • Structural funds
Identification of local actors	Local administrations, local installers, pv manufacturers
Description of the project	<ul style="list-style-type: none"> • Identification of suitable area in the community territory • Identification of available support instruments • Identification of public funds and/or investing private subjects • Obtaining the necessary authorizations • Tendering (if provided) • Submission of investors agreement • Realisation of solar systems, equipped with specific visualisation and monitoring system to improve <i>visibility</i> <p>Critical issues are the availability and the continuity along time of proper financial incentives, especially for PV</p>
Energy objectives	<ul style="list-style-type: none"> • Satisfaction of a significant quota of local energy needs
Environmental benefits	<ul style="list-style-type: none"> • Avoided fossil fuels • Avoided GHG and other noxious emissions
Socio-economic benefits	<ul style="list-style-type: none"> • Local market opportunities, if agreement can provide the use of local workforce and installers in system’s erection • Education sector; solar energy is an effective “vehicle” for a message of “environmental awareness”

Environmental & sustainability issues	None, only, in some cases, visual impact of solar systems
Economics	With such a large scale application, interesting values of PBT (7-8 years) and rates (7-8%) could be obtained



Project title	RES FOR REMOTE AREAS & RURAL DEVELOPMENT
Short description of intervention	Realisation of small scale RES systems for supplying energy to isolated and remote areas, especially for agriculture sector
Driving forces	Energy autonomy, rural development policy
Supporting instruments	Structural funds
Identification of local actors	Farmers, province of Reggio Calabria, not grid-connected users
Description of the project	The objective is to promote the utilization of RES for energy production in rural areas of CML; the first phase is the identification of potential end-users (mainly farmers) in remote area interested to the installation of RES technologies for energy supply; second phase should include identifying of economic supporting instruments of the interventions; the process might end with the implementation of the projects and dissemination
Energy objectives	<ul style="list-style-type: none"> • Provide energy to increase productivity and quality of life of small farms and isolated areas
Environmental benefits	<ul style="list-style-type: none"> • Avoided fossil fuels • Avoided GHG and other noxious emissions
Socio-economic benefits	<ul style="list-style-type: none"> • Rural development • Security of supply
Environmental & sustainability issues	This intervention could be well accepted even with a certain degree of visibility; it might also play a role in the tourist sector (e.g. “total green” agro-biological products)
Economics	Not applicable at this stage



Project title	WIND ENERGY - EOLO 21
Short description of intervention	Realisation of wind farms in the Aspromonte territory for a total installed capacity (it is a project already started (2001))
Driving forces	<ul style="list-style-type: none"> • Legislative decree 387/2003 • European directive 2001/77/EC on the promotion of electricity produced from renewable energy sources in the internal electricity market (“RES-E” directive)
Supporting instruments	<ul style="list-style-type: none"> • Green certificates mechanisms • Structural funds
Identification of local actors	Aspromonte national park, local municipalities, private actors
Description of the project	Installation of 200 MW wind turbines in the Aspromonte national park; 40 MW are expected to be installed within the CML territory. The measurement stations have been installed in 2003; design of the wind plant is on-going. Public acceptability is a critical factor to the development of wind energy in Italy
Energy objectives	40 MW; expected energy production: 60 GWh/year (rough estimation based on wind atlas)
Environmental benefits	<ul style="list-style-type: none"> • Avoided fossil fuels: 15.000 Ton/year • CO2 emissions: 45.000 Ton/year • SOx emissions: 84 Ton/year • NOx emissions: 115 Ton/year
Socio-economic benefits	<ul style="list-style-type: none"> • Job creation • Energy cost reduction at local level • Income for local administrations (park and municipalities) and local land owners
Environmental & sustainability issues	Main critical issues: environmental concern (namely impact on the landscape) and consequently public acceptability
Economics	Not available at this stage

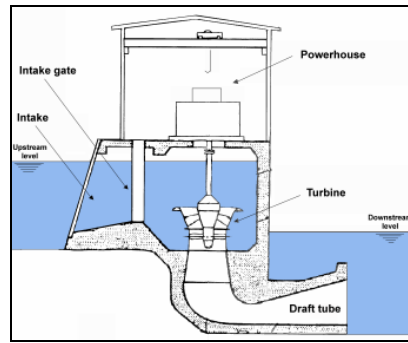
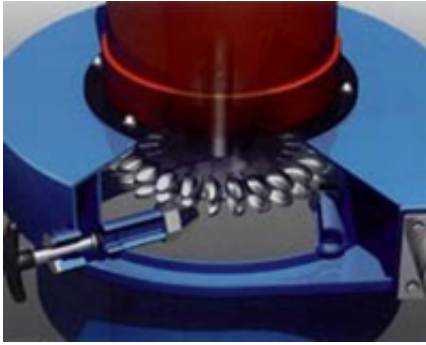


Project title	BIOMASS
Short description of intervention	Bioenergy chain
Driving forces	<ul style="list-style-type: none"> • Legislative decree 387/2003 • European directive 2001/77/EC on the promotion of electricity produced from renewable energy sources in the internal electricity market (“RES-E” directive)
Supporting instruments	<ul style="list-style-type: none"> • Green certificates mechanisms • Structural funds
Identification of local actors	Forestry workers, agriculture sector (farmers ...), Aspromonte national park, local municipalities, private investors
Description of the project	Valorisation of the local biomass sources for energy production, preferably electricity production; the biomass sources available locally are mainly agriculture woody residues (olive tree, vineyard, fruit trees, mainly orange-tree) and forestry residues potentially available from efficient woods operation maintenance. A detailed analysis of the biomass sources actually available is first step: amount of biomass available in the territory of CML cannot be enough to realize economically convenient biomass based energy plants; utilization of biomass from outside CML can be envisaged.
Energy objectives	Not yet defined
Environmental benefits	<ul style="list-style-type: none"> • GHS emission reduction • Improvement in forests management • Utilization of residues: Lower risks of fires and better environmental conditions
Socio-economic benefits	<ul style="list-style-type: none"> • Job creation (for biomass collection and plant operation) • Additional and diversified income for the farmers • Rural development • Economic valorization of agro-forestry residues • Creation of local market opportunities (Forestry workers)
Environmental & sustainability issues	<ul style="list-style-type: none"> • Combustion of biomass • Sustainability issues related to biomass collection in forestry
Economics	Not available at this stage



Project title	DOMESTIC BIOMASS
Short description of intervention	Replacement of old technology fossil fuels domestic boiler with biomass heater
Driving forces	<ul style="list-style-type: none"> • Legislative decree 387/2003 • European directive 2002/91/EC on energy performance of buildings • Law n. 10/91
Supporting instruments	<ul style="list-style-type: none"> • Green certificates mechanisms • Structural funds • Regional funds
Identification of local actors	Forestry workers, agriculture sector (farmers ...), Aspromonte national park, local municipalities, private investors. Sellers and installers of biomass heaters, preferably local.
Description of the project	<p>Starting from the results achieved through “Biomass” project (see table before) a wide replacement of old fossil fuels boiler with domestic biomass heater could be promoted.</p> <p>First step of the project will consist in inventorying existing boiler, and identifying needs of substitution (e.g. diesel fuelled). Then an information campaign towards residents should take place, taking into account possible advantages for public funding. Particular economical agreements with manufacturer and local installers should be pursued as well.</p>
Energy objectives	Reducing needs of fossil fuels for heating. Improving energy independence of the region.
Environmental benefits	<ul style="list-style-type: none"> • GHS emission reduction • Improvement in forests management • Utilization of residues: Lower risks of fires and better environmental conditions
Socio-economic benefits	<ul style="list-style-type: none"> • Job creation (for biomass collection and heaters' installation and maintenance) • Additional and diversified income for the farmers • Rural development • Economic valorization of agro-forestry residues • Creation of local market opportunities (Forestry workers)

Environmental & sustainability issues	<ul style="list-style-type: none"> • Combustion of biomass • Sustainability issues related to biomass collection in forestry • Enhancement of energy performance of buildings
Economics	Not available at this stage



Project title	MINIHYDRO
Short description of intervention	Exploitation of an existent idric reservoir to generate electricity
Driving forces	<ul style="list-style-type: none"> • Legislative decree 387/2003 • European directive 2001/77/EC on the promotion of electricity produced from renewable energy sources in the internal electricity market (“RES-E” directive)
Supporting instruments	<ul style="list-style-type: none"> • Green certificates mechanisms • Structural funds
Identification of local actors	Local municipalities, and private actors
Description of the project	Evaluation of the water flow and available drop. Draft of a preliminary design identifying main features of the project. Identifying economical resources. Completing design and obtaining authorizations. Tendering and realization of the plant.
Energy objectives	Depending on the available energy source (under evaluation).
Environmental benefits	<ul style="list-style-type: none"> • GHS emission reduction • Improvement in idric resources management • Avoided fossil fuels
Socio-economic benefits	<ul style="list-style-type: none"> • Job creation • Energy cost reduction at local level • Possible income for local administrations
Environmental & sustainability issues	Project should be oriented to minimizing visual impacts
Economics	Not available at this stage