

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

SMALL HYDRO ENERGY		NATIONAL SITUATION
General description of the technology		There is 20 MW installed capacity from small hydro (83 small hydro). Only 8 small hydro are in use. The technology is an old one. That is one of the reasons they are out of use.
General information of the resource to be exploited		The total capacity of the resource to be exploited is given to be 140 MW with an annual generation of 680GWh. Taking in concern the territory disperse, it results that 28 plants with capacity 100 MW can be constructed in northern area(65% of total power) while 13 plants with capacity 40 MW can be constructed in southern area (35% of total power).
Possible application and routes	Estimated power to be installed	From 41 studied plants: <ul style="list-style-type: none"> • 4 plants have a capacity up to 0.5 MW; • 8 plants have a capacity of 0.5-1 MW; • 8 plants have a capacity of 1-2 MW; • 15 plants have a capacity of 2-5 MW; • 3 plants have a capacity of 5-10 MW; • 3 plants have a capacity of 10 MW.
	Estimated energy production	Estimated energy production is about 680 GWh per year.
	Estimated energy distribution all year round	Energy distribution is affected by the rain distribution throughout the year.
General data on costs		<ul style="list-style-type: none"> • Average production costs: 0.035 Euro/KWh; • Range of investment costs: 1400 Euro/KW; • Compensation scheme: Feed in tariff.; • Payback time on investment is about 18 years.
Energy objectives		No renewable energy objectives at the state level.
Environmental & sustainability issues		<ul style="list-style-type: none"> • Reduced emissions in the atmosphere and efficiency; • It is renewable; • It is important defining the minimum reserve flow; • The lack of investment money and land property rights.
Socio-economic benefits		Grid stability, secured supply, food control.

SOLAR ENERGY		NATIONAL SITUATION
General description of the technology		Glass shielded plate collector basic technology in use.
General information of the resource to be exploited		<ul style="list-style-type: none"> • Solar exposure: 2440 h/y; • Mean solar power: 0.6 KW/m²; • Mean annual energy: 1.5 MWh/m² per year.
Possible application and routes	Estimated power to be installed	<ul style="list-style-type: none"> • Mean Solar Power: 0.6 KW/m²; • Area of installed solar collectors: 750m²;
	Estimated energy production	Estimated annual production of energy: 1100 MWh/y
	Estimated energy distribution all year round	
General data on costs		Approximate cost: 0.114 Euro/KWh.
Energy objectives		No defined energy objectives at the state level.
Environmental & sustainability issues		<ul style="list-style-type: none"> • Largely accepted implementation in urban and also rural areas; • Reduced maintenance cost; • Minimum environmental pollution.
Socio-economic benefits		<ul style="list-style-type: none"> • Security of energy supply; • Rural development; • Local market opportunities; • Income for government through taxes.

WIND ENERGY		NATIONAL SITUATION
General description of the technology		There is no wind generation installed in Albania.
General information of the resource to be exploited		The wind intensity is different and it depends from regions. Mean wind speed (in region) is 6.4 m/sec
Possible application and routes	Estimated power to be installed	There is no state plan for installation of wind turbine.
	Estimated energy production	Not applicable.
	Estimated energy distribution all year round	No data on disposal.
General data on costs		<ul style="list-style-type: none"> • Installation cost: 1000-1200 E/KW; • Production cost: 0.057 E/KWh.
Energy objectives		No defined energy objectives at the state level.
Environmental & sustainability issues		Highly economically and environmentally sustainable. It has no widespread implementation.
Socio-economic benefits		Wind farms can satisfy energy needs of local communities.

BIOMASS ENERGY		NATIONAL SITUATION
General description of the technology		<ul style="list-style-type: none"> • Solid Municipal and Industrial waste management; • Refuse derived Fuel (RDF) production. RDF will be used for electricity production in the central power station of the region.
General information of the resource to be exploited		Solid waste produced per year (municipal and food Industries in region) is estimated to be 650t/year.
Possible application and routes	Estimated power to be installed	It is not estimated.
	Estimated energy production	It is not estimated.
	Estimated energy distribution all year round	It is not estimated.
General data on costs		It is not estimated.
Energy objectives		There is no energy objectives.
Environmental & sustainability issues		<ul style="list-style-type: none"> • Minimization of waste generation; • Material recovery for recycling; • Land filling under controlled conditions.
Socio-economic benefits		Energy cost reduced at local level.