

**PROMOTING RENEWABLE
ENERGY SOURCES (RES) USE
FOR SPECIFIC
MEDITERRANEAN
AREA –
BULGARIA CASE STUDY;**

PROJECT PROPOSAL:

RES – Solar Passive and Active System use potential and technical solutions for specific areas in Bulgaria – Region of Sofia, Region of Plovdiv, Region of Burgas;

Priority area –

ENERGY – RENEWABLE
ENERGY SOURCES – PASSIVE
AND ACTIVE SOLAR ENERGY
USE

**Secondary Priority Area: -
CLIMATE CHANGE**

Specific Areas:

Mediterranean Area – Balkan peninsula – Bulgaria Sofia region – plain, semimountain; Plovdiv region – plain; Burgas region – Black Sea shore;

Type of project –

Research&Development Application
- Joint Implementation Project (JIP)

Project Objectives

- Assessment and selecting best technical solution for RES for a Mediterranean area – Bulgaria geographical area;
- Support of the International activities in the frame of Climate Change programs;
- Transfer of knowledge, information, education and technologies in RES for Mediterranean area;
- Preparation of a feasibility study and business plan for application and the Technical Joint Implementation Project (sinks);

Detailed description of the project objectives:

General:

Bulgaria does not have large national traditional energy sources and imports most of the resources for energy uses. Energy is currently generated and distributed in Bulgaria using traditional technology, which is not friendly to the environment and both the generation of energy and the

consumption of energy increases pollution. Now with the decrease of the industrial production the air pollution was reduced. There is great danger for an increase of the volume of greenhouse gases, when the economy starts to rehabilitate, if use of RES and energy efficiency measures and technologies are not accepted as national and municipal policy. Moreover, the efficiency of producing energy is low, and is also accompanied by many losses.

On the other side there is high potential in the RES use, especially solar energy.

New international agreements, such as the Kyoto treaty, or the requirements of the European Union, to implement its regulations and the "Acquis Communautaire", require a change in the energy policy in particular for the countries candidates to the European Union. Efficient energy production would contribute to saving costs in the state or municipal budgets, to the private business, and finally also to the general living standard in the country, both from the side of the environmental context and the income of the population.

Bulgaria has a high *Potential* for the use of solar energy, because of its climate conditions:

SOLAR - average of sunny days between 180-200, use of solar radiation - 2 000 - 2 500 h/year and 1500 kWh/m² average capacity of solar radiation; Still the information is general and does not give possibility to be used as base for project implementation in different regions.

Therefore it is necessary to plan and implement pilot projects that will contribute to the:

- reduction of emissions, accompanying energy production from conventional sources; supporting the efforts on local and national level for the reduction of air pollution, especially CO₂, NO₂, NO_x;
- stimulation and promotion of wider usage of solar energy systems;
- improvement of environmental conditions in the selected regions and in the country;
- reducing the expenditure of the regional and municipal budget for centralized energy

infrastructure, reducing the dependence of the municipality to fossil oil prices and traditional energy suppliers;

- improvement of the quality of life by redirecting the freed sums;
- cheap and independent energy sources for communities and private users, and especially for low income groups;
- support to low income groups by reducing taxes for energy uses and giving possibilities for local RES uses;
- stimulation of the further use of clean energy technologies by strong links to the private sector;
- establishment of new public awareness towards energy efficiency and renewable energy sources;

Expected outcomes

- Best practice and technical solution for RES for a Mediterranean area – Bulgaria geographical area;
- Data base - Assessment and data procurement for the efficient potential use of active and passive solar systems for specific local areas – Sofia, Plovdiv, Burgas;
- Institutions involved - presentation to local authorities, business groups and citizens the positive issues of solar energy use;
- Institution collaboration - providing good relation between governmental authorities – Ministry of Energetics and the Agency for Energy Efficiency, municipalities and NGO, s for promoting and support of RES use;
- Training & transfer of knowledge and technologies - Energy efficiency and RES training of representatives of local municipalities, business companies (especially tourism sector) and public sector;
- Experienced Technical Solution;
- Project Reports and Feasibility Study - Providing reliable data and preparation of Feasibility study and Business Plan for technical Joint Implementation Project;

Project activities

- Studies of European and Italian experience and useful practices
- Determination of the possibilities for adaptation / application in the 3 different Bulgarian areas
- Finding of Italian partner for detailed ToR and feasibility study for practical JIP implementation
- Works on the sinks parameters

Detailed description of the project activities:

Operational Program and Workplan

A **Project Management Unit** is proposed to be established in the frame of ASDE with the support of other partners, for the pilot project implementation. The project implementation unit will also:

- elaborate the base for transfer of know-how and knowledge on solar energy uses, especially the Italian and European practice;
- demonstrate the benefits of use of energy efficiency and renewable energy sources by providing information for solar energy;
- generate change in local and national laws, regulations and financial mechanisms, facilitating the “green” oriented policy;
- provide information and know-how support for small and medium enterprises (SME), developing activities in this sector;
- feasibility study for practical JIP implementation;
- Assess the possibilities of a project under 6 FP or other programs of the European Union, in collaboration with Italian institutes and organisations;

The project's outputs will be unfolding gradually. At the end the collected results will be used in formulating the national policy for strengthening the RES use, energy efficiency and reducing environmental pollution. It is supposed that there will be an more easy access to foreign exchange for the import of solar energy components; low interest credit may be extended to end-users; community activity will be encouraged through

NGOs, district councils and other organizations; RES installers and consumers will be trained.

Lessons will be learnt during the execution of the project. Italian experience and practice has a priority. Success of such a project will be ensured through an efficient and effective network of promotional activities such as community/group participation, extended network of the credit scheme, publicity through marketing facilitators, radio/TV programs, articles and trade fairs. The project is regard as promoter of initiatives among the electricity utility, installers, end-users, manufacturers, financing organizations, NGOs, donors and town and district councils.

The Project Implementation Unit may play an important role as business incubator in the selected areas for small and medium sized companies, working in the field of energy efficiency and RES.

Technology transfer will take place in a variety of forms:

- assistance to the local industry with know-how and inputs for manufacturing solar components such as lights, charge controllers, batteries, PV panels, inverters and voltage droppers;
- exhibitions and representative offices of companies with experience in RES;
- promotion and media campaigns, theme brochures;
- Organization of an international workshop, and participation in workshops and conferences in other countries;
- training of installers and users in 3 different Bulgarian areas;
- finding of Italian partner for detailed ToR and feasibility study for practical JIP implementation

Strong collaboration with related organizations and other sectors will be aimed at, in particular a **public-private partnership will be initiated and synergy created** between the public, private and commercial actors. New **technical norms and quality standards** are supposed to guarantee the quality of the systems installed. A **revolving fund** for extending loans to low-income

consumers may be regarded as a new project;

An important target is the use of new methods and tools of **Information Technology** not only for the use of renewable energy, but also for its testing, maintenance and control. It has to be demonstrated that IT will strongly contribute to environmentally friendly and efficient production and consumption of energy. Mobile technology may allow the remote control of the use of energy.

IT may also be used for **demonstration and education purposes**. For example, RES can be demonstrated and taught via Internet to classrooms – experimentally in one school. Virtual world and 3D presentations will render the demonstration realistic. In this field Italian demonstration informative packages will be welcomed.

IT may involve the use of **digital maps (GIS)** to demonstration first of all local solar energy potential, then the flow of energy, or the development of a dependable database; to enforce standards, to manage the monitoring of the implemented systems.

If a JIP implementation phase is approved, a supervisory board will be proposed, including representatives from the:

- Ministry of Energetics;
- Ministry of Regional Development and Public Works;
- Ministry of Environment and Waters;
- State Agency for Energy Efficiency,
- the National Association of Municipalities;
- REC - Sofia;
- The Agency for Sustainable Development and Eurointegration;

This board will help in the preparation of the JIP in the way to be approved as a prototype for other realisations on the territory of Bulgaria.

For the JIP, municipalities, institutions and NGO's will indicate the areas where they could contribute such as administrative support, land, direct funding, training in usage and maintenance of technical systems, monitoring and evaluation, and policy

formulation. The Town/District Councils will be involved at an early stage of the project, will identify the sites and will take part in the management and support. Sub-projects for RES use may be developed in response to needs expressed by the users. Regular meetings twice per year will give possibility for creative control and improvement of the outputs.

The Agency for Sustainable Development and Eurointegration will establish the Project Management Unit in close collaboration with REC-Sofia and holds for permanent contacts with the regions, the municipalities, the Ministry of Energy and State Agency for Energy Efficiency.

The possible states of project execution are the following:

Stage 1: Project establishment; Kick-off meeting;

Stage 2 - 1: Assessment - Selected areas data collection, surveys of existing data, national and local standards and legislation;

Stage 2 - 2: Assessment - Studies and selecting best practice for Bulgaria from European and Italian experience and useful practices;

Stage 3 - 1: I workshop

Stage 3 - 2: Inception Report

Stage 4 - 1: Implementation Phase - Training course and transfer of knowledge

Stage 4 - 2: Implementation Phase - Specific Training Measures – leaflets, brochures, CDs, etc;

Stage 5 - 1: Development of background for practical results - Experience of technical solutions; Matrixes for Business Plans;

Stage 5 - 2: Assessment of received data; Verification; Proposal for GIS and digital data base, for collecting, presentation and monitoring solar energy data, as well as solar passive and active solar system applications, in correlation with Italian and EC standards;

Stage 6 - 1: Midterm Report;

Stage 6 - 2: II workshop – discussion on the results of the previous stages; similarities and differences between Bulgaria and Italy and between Bulgarian and EC standards in the field of solar energy uses;

Stage 7 - 1: Preparation of the frame of the Final Report in collaboration with Italian experts – proposal for

best use of solar energy in selected areas; proposal for local measures for facilitating the solar energy use; package of legal, administrative and financial tools, based on the EC framework and in support of the approximation process in the energy sector; summarise of the gained experience;

Stage 7 - 2: Preparation of Final Report with Feasibility Study for Technical JIP

Links to National and International Priorities, Action Plans and Programs

- Energy and environment policy of the European Union;
- the Kyoto treaty;
- Governmental programs and commitments for the reduction of greenhouse emissions;
- Program of the State Energy Efficiency Agency;
- The Bulgarian energy strategy, including measures for increasing energy efficiency and the percentage of renewable energy sources in the overall consumption - target -10% from the overall consumption in 2005;

Budget estimate

Total Budget – 57 000 EURO;

Expected financing from ITF – 50 000 EURO;

Co-financing from local sources (ASDE) – 7 000 EURO;

Time schedule - 7 months

Bulgarian Project Partners

Beneficiary – REC, ASDE
“ECOREGIONS”

Collaborating partners – Sofia Municipality, Plovdiv Municipality, Burgas Municipality;

Invited Experts – State Agency for Energy Efficiency, “Energy Saving Company”-Sofia, Bulgarian Academy of Science, others.