



THE ENERGY IN ALBANIA



Qendra e Eficiencës së Energjisë Shqiptëri-Ë
Albania-EU Energy Efficiency Centre



THE ENERGY IN ALBANIA (NEWSLETTER)

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PROJECT “INSTALLATION OF SOLAR SYSTEMS FOR CAPACITY BUILDING, TECHNOLOGY DEMONSTRATION AND RESEARCH WORK AT P.U. OF TIRANA - ALBANIA”

(.....Continued from previous issue.....)

3. Activities under the Project

The project will consist of the following main activities:

1. Preparation and organization of the training course on “Basic, Commercial and Advanced Course in Thermal Solar Energy” - Responsible institution: the Spanish Expert and EEC staff;
2. Preparation and organization of the training course on “Basic, Commercial and Advanced Course in Photovoltaic Solar Energy” - Responsible institution: the Spanish Expert and EEC staff;
3. Definition of type, size, components as well as the measuring points and equipments of the Solar Thermal System (Pilot Plant) - Responsible institution: the Spanish Company and EEC staff;
4. Definition of type, size, components as well as the measuring points and equipments of the Solar Photovoltaic System (Pilot Plant) - Responsible institution: the Spanish Company and EEC staff;
5. Installation of the Solar Thermal System (Pilot Plant)-Responsible institution: the Spanish Company, EEC staff as well as the technicians at Polytechnic University of Tirana;
6. Installation of the Solar Photovoltaic System (Pilot Plant)-Responsible institution: the Spa-

nish Company, EEC staff as well as the technicians at Polytechnic University of Tirana;

7. Development of simple methodologies and/or simple software on the evaluation of the data downloaded from the monitoring/measuring points and other equipments, which are already installed on both Solar Energy Systems - Responsible institution: the Spanish Company and EEC staff;
8. Final project report, evaluation of the cooperation and perspectives of further dissemination/development of Solar Energy Utilization in Albania - Responsible institution: the Spanish Company and EEC staff;
9. Awareness campaign on the benefits of Solar Energy Utilization in Albania - Responsible institution: the EEC staff.

4. Final Remarks

The project has started in June 2007 and it is expected to be implemented within 12 months. This project can be considered as an important step in introducing to the Albanian education system the issues such as utilization of clean energy, efficient management of energy resources, environment protection and consequently bring steady improvements in the long term. The EEC will promote and advocate, throughout the country, the utilization of solar thermal and photovoltaic systems in residential, hotelery and industry sectors.

The successful implementation of this project is crucial to the further development of solar thermal market and improvement of energy supply situation in Albania.



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SECURITY OF THE HYDROPOWER SECTOR IN THE FACE OF THE CLIMATE CHANGE

As a Party not included under Annex 1 of the United Nations Framework Convention on Climate Change (UNFCCC) and Kyoto Protocol, the Government of Albania is committed to fulfill all the obligations, deriving from such global UN treaties. Albania is implementing a program of activities aiming to reduce the growth rate of greenhouse gas emissions, adapt to negative impacts of climate change and enabling the carbon financing mechanisms under the coordination and support provided from the United Nations Development Program.

Climate change studies performed so far for Albania, with the support of the United Nations, show that Albania's carbon footprint is very small. More specifically, Albania contributes to the global GHG emissions with an average value of 7.5 million tones of CO₂/year. The above figure indicates relatively low levels of emissions compared to other developing and industrialized countries because Albania's electricity is mainly produced from hydro sources and due to the shortage

of high-energy-intensity industries. Despite of that predictions of future emissions indicate higher growth rates of emissions - at the rate of five times higher, if no reduction measures are undertaken on time. In June 2003, Albania developed a National Strategy of Energy which is under the review phase along with an investment plan for the power sector. It states that only 35% of Albania's hydropower potential has been exploited so far. The strategy acknowledges the impact of recent droughts on the supply of electricity, however it does not consider the climate risks under the future scenario development for the hydropower sector.

Although Albania does not have any commitments for GHG emission reduction, a set of measures identified as technology needs have been identified and assessed through a needs assessment exercise. The proposed technology measures and options include introduction and implementation of measures focused on energy saving through implementation of energy efficiency measures and promotion of renewable energy sources such as hydro, solar thermal and wind. Adaptation technology options, both hard and soft have also been assessed with the aim of coping with the current and expected climate variability and change.

While bearing a small responsibility for the global greenhouse gas emissions, Albania is bearing the majority of the environmental, social and economic consequences caused from climate change. Climate change has affected Albania with increased temperatures, less precipitation and other consequences. Less rain means less water, more droughts, less hydroelectricity, which is affecting the economic development. Despite of that, the existing policy and strategic documents for the power sector do not address the climate risk. There is a significant need for the country and specifically for the policy and decision makers of the power sector to address this issue in terms of the energy security for Albania. Climate change will affect Albania with increased temperatures less precipitation and sea level rise. More specifically, the impact of climate change is found to be significant in water resources and in turn for the Albania's power sector which is more than 90 % dependent on hydropower for the energy and electricity supply, therefore on climate conditions. Albania has currently experienced less rain than ever. Albania is currently undergoing the deepest energy crisis reflected with shortage of energy supply by meeting only 50 % of the needs.

A study has been undertaken recently with the joint support of the UNDP and the Regional Environmental Center (REC) aiming to analyze the current and future impact of climate system to the hydropower generation sector and identification of the adaptation measures in response to such an impact. The study is carried out in the frame of the project namely "*Enhance regional South East European (SEE) cooperation in the field of climate policy*" funded by the Regional Environmental Center (REC). The study is also in line and complements the ongoing studies on Vulnerability and Adaptation for Albania carried out under the national communication exercise with the support of the United Nations Development Program (UNDP). The findings of the study have been elaborated under a technical paper, namely: "*Security of the hydropower sector in the face of the climate change*". A pilot area has

been selected for such a purpose through a broad consultation and evaluation process with relevant stakeholders and experts. Given the significant potential for electricity generation and high likelihood of significant potential impacts from climate change Mati River Catchment's Area (MRCA) has been selected for this study. The paper summarizes the findings of a study carried out with the aim to analyze the impact of climate change to the hydropower generation and identification of the response adaptation measures. The study is focused on the Albania's power sector, more specifically on Albania's hydropower sector, which is a key sector for the country development. The reason for such a selection derives from the significant impact of climate variability and its extreme events on Albania's hydropower generation, which is currently dominated by hydropower output. The study considers findings from previous studies showing severe impacts of climate change on water availability due to decreased total runoff formation by 10 % and decreasing as low as by 30 % by mid century. This definitely has an impact on electricity generation of the country and will continue to have as such.

The study shows that climate change is significantly affecting Albania's energy sector and its security. Experts have found a correlation between the impact of climate change to the river flow and the hydropower generation while analyzing this for two hydropower plants located in the MRCA (Ulza and Shkopet), which are in the same time the oldest hydropower plants having a significant generation capacity for the whole country. Reduction of the river flow which in turn results in the reduction of the power generation from the hydropower plants is the most important finding from this analysis.

The study shows that there is a significant need to support a well informed decision making for a long term development plan by sensitizing the investment scheme to climate change risks. It can be done by addressing and considering a set of interventions, which include combination of alternative options such as maximizing the share of hydropower potential in the face of current and future vulnerabilities and filling the remaining gap through other alternative sources, based on the assessment of the other alternative sources of energy, associated with effective actions for raising awareness of decision makers of energy sector. This will help execute the most viable investment options for sustainable energy sector development in Albania in the face of climate change. A good start up may be the piloting of the implementation of the identified measures from such a study after their refinement and further in depth review and validation.

The package of adaptation response measures for the power sector aiming to cope with climate change has been proposed. The adaptation measures ordered according to their priority are as follows:

1. Building of new and very efficient Thermal Power Plants (TPP) (combined cycle) in order to fill the remaining gap in power supply.
2. Maximize the share of Hydropower Plants (HPPs) in the face of climate change impacts through the rehabilitation of Ulza HPP and Shkopet HPP (located in MRCA).
3. Maximize the share of HPPs in the face of climate change impacts through the construction of Small HPPs (most of

Small HPPs will be run-out-of-river type they will be much more impacted than medium and big HPPs with reservoirs).

4. Integrate climate change risk to regional development, plans and policies (as described in the baseline section, there are several projects underway in the MRCA for promoting sustainable development of the region) in the MRCA.
5. Maximize the share of HPPs in the face of climate change impacts through the construction of new medium and big HPPs shall take into consideration the climate risk.
6. Building of capacities of MRCA to monitor and respond to anticipated climate change risk in the power generation at the community level.

The whole set of measures must be integrated with an effective awareness raising campaign targeting the decision makers of the power sector to address climate impact and risk into the planning process for the power sector. The interventions will have both short/medium and long term implications on development agenda in the country, including poverty reduction, gender empowerment, and improved environmental management.



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TESTING AND CERTIFICATION OF SOLAR WATER SYSTEMS IN ALBANIA

1. Background

Since September 2005, the Austrian Development Cooperation (ADC) is financing the implementation in Albania of the project entitled "Solar Water Heaters - Albania". Among other objectives, this project has foreseen the implementation of a national labeling scheme for solar thermal collectors and systems. In order to achieve that, the project "Solar Water Heaters - Albania" aims to establish a national "Solar Test Centre" which will be responsible for operation of the labeling scheme and also will carry out the product tests that are the basis for the labeling. For the implementation of this task, the responsible organizations are Institute for Sustainable Technologies (AEE INTEC) of Austria, Solar - und Wärmetechnik (SWT) of Germany, as well as Albania-EU Energy Efficiency Centre (EEC).

Based on an analysis of the solar thermal market and the boundary condition in Albania, the above-mentioned project aims to define a labeling scheme for solar thermal collectors and systems. This labeling scheme will be defined in such a way to reflect that the quality of the tested equipment is appropriate for Albanian conditions, even if the key aspects of the labeling scheme will be based on existing European standards. The labeling scheme will contain:

1. Basic requirements on the products such as solar collectors, stores and systems. In order to enable the manufacturers to check if their products are in accordance with these requirements appropriate check-lists will be defined.
2. Requirements on the staff installing and operating the systems.
3. Performance criteria that have to be fulfilled in order to be awarded the label.

The GEF Council approved on August 2006 a joint UNDP/UNEP project entitled “Global Solar Water Heating Market Transformation and Strengthening Initiative” and Albania has been selected as one of the initial 6 countries to participate in this program with a national sub-project, which is building on the earlier, stand alone Albania Solar Water project.

The Global Initiative is expected to start by early 2008. Under the Albanian sub-project, one of the outputs (Output 4) is related to developing a certification and quality control scheme applicable for Albanian conditions and enhanced capacity of the supply chain to offer products and services promoting sustainable SWH market, under which it is foreseen the establishment of a Testing Facility and application of methods to test both Albanian, and as applicable, imported systems according to the adopted standards. The applied quality control system for the testing will be tuned to the demands of the adopted certification system.

From the description of the above-mentioned two projects could be easily understood that both projects aim to help Albanian Institutions to built and develop their capacities in the field of solar energy utilization in Albania. In more details, it is realized that:

- Austrian Development Cooperation and UNDP Albania are exploring /wish to explore the huge potential of solar thermal applications in Albania.
- Set-up and installation in Albania of a “Solar Test Centre” for testing Solar Collectors and Solar Water Heating (SWH) Systems is a core part of both projects.
- Cooperation and possible synergies of both projects are apparent, desirable and with great benefits for Albania.

The discussions have led to the agreement for the purchase of a common “Solar Test Facility”, which will be hosted and managed by the local “Harry Fultz” Institute in Tirana with technical support from the Albania-EU Energy Efficiency Centre.

2. Tasks of the Solar Test Facility

The “Solar Test Facility” will be transformed into a centre of excellence, based on the purchased test equipment appropriate for Albanian conditions as well as on the staff trained in the operation of the equipment. The “Solar Test Facility” will be responsible for the operation of the Albanian labeling scheme and also will carry out the product tests that are the basis for the labeling scheme. This status can be earned by playing a comprehensive role in standards, certification and technical advice. All of these activities generate knowledge that adds to the stature of such institution and will very much add to the work aimed at capacity building in the solar energy business chain. It seems logical to have the “Solar Test Facility” play an important role in the capacity building activities too. The “So-

lar Test Facility” might serve as well as the Focal Point of the future “Albanian Solar Industry & Trade Association”, an association, whose aim will be to organize the efforts and protect the interests of key players or main stakeholders of future Albanian Solar Industry and other R&D organizations related to the solar energy applications.

Based on above, the “Solar Test Facility” will be responsible for the following tasks:

1. Developing the quality control scheme, which implies:
 - a. product and system standards;
 - b. methodology for testing;
 - c. the certification procedure.
2. Yearly performing solar collectors and solar water heating systems tests produced by the Albanian manufacturers.
3. Consultancy services for the targeted group of consumers, as well as practical information for the manufacturers, suppliers, importers, installers (plumbers and mechanical engineers) architects, builders, etc.
4. Public awareness for the policy makers, local governments, business decision makers and other interested public.

The “Solar Test Facility” in Albania will conduct as follows:

- Solar water heating systems tests, which will be according to the Complete System Test Group method:
 - EN 12976,
 - ISO 9459-2.
- Solar collectors tests, which will be according to the Steady-State and the Quasi-Dynamic Test method:
 - EN 12975-2,
 - ISO 9806-1.

3. Final Remarks

It is expected that the “Solar Test Facility” will be installed in Albania in spring 2008. Based on its business plan, the “Solar Test Facility” will start operation and will function by the contribution of the following institutions:

- “Harry Fultz” Institute - Albania,
- Albania-EU Energy Efficiency Centre (EEC) - Albania,
- Solar-und Wärmetechnik (SWT) - Germany,
- Institute for Sustainable Technologies (AEE INTEC) - Austria,
- General Directory of Standardization - Albania,
- General Directory of Accreditation - Albania,
- ADC and UNDP Offices in Tirana - Albania.

The successful operation the “Solar Test Facility” is crucial to the further development and transformation of solar thermal market and improvement of energy supply situation in Albania.



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