

ALBANIA-EU ENERGY EFFICIENCY CENTRE AND ITS ACTIVITIES FOR IMPROVEMENT OF ENERGY EFFICIENCY IN ALBANIA



ALBANIA-EU ENERGY EFFICIENCY CENTRE

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1.0 ESTABLISHMENT OF ALBANIA-EU EEC (1)

1.1 Why was the EEC Created?

The improvement in the supply security, the reduction of the energy consumption in industry, the increasing of energy efficiency in the buildings, the reduction and control on energy losses, and significant economic and environmental gains that will result from the implementation of such measures are very important for the reconstruction of the Albanian Economy. In this framework, the establishment of the "Albania-EU Energy Efficiency Centre" (EEC) is a good premise for:

- Implementing the above mentioned Energy Policy,
- Increasing the co-operation between Albania and other countries,
- Strengthening the co-operation between all Albanian institutions of the energy field.

The vision of the EEC is to become a self-financed institution with continuing support from Albanian Government and European Commission.



1.0 ESTABLISHMENT OF ALBANIA-EU EEC (2)

1.2 Objectives of the EEC

- Promotion of the Efficient Use of Energy, Exploitation of Renewable Energy Resources, Energy Conservation and Energy Management in Albania,
- Organisation of different training seminars in order to transfer the know-how in the above mentioned fields,
- Increase and strength of the co-operation between different Albanian Institutions that work in the Energy Field, and between Albania and other countries,
- Launch of different Public Awareness Campaigns for the Promotion of Efficient Use of Energy in various sectors of the Albanian Economy,
- Promotion of Implementation of Several Projects for Exploitation of Renewable Energy Resources.



2.0 IMPROVEMENT OF ENERGY EFFICIENCY

Activities for Improvement of Energy Efficiency

- Organisation of Regional and National Seminars,
- Organisation of National and International Workshops and Conferences,
- Publications in Albanian Language,
- Organisation of Public Information / Awareness Campaigns,
- Production of Television Documentary Films and TV-Spots,
- Energy Surveys and Audits,
- Feasibility Studies,
- Project Implementation,
- International Collaboration.



3.0 SEMINARS AND CONFERENCES (1)

List of Seminars and Conferences (1)

- Energy Charter Treaty - held on 1995 and 1999,
- Efficient Use of Energy in Hotels, Hospitals and Food Industry - held on 1995,
- Energy Efficient Use in Households - held on 1996,
- Albanian Energy Policy for a Common Future - held on 1996,
- Energy Efficient Operation of Boiler Plant - held on 1996,
- Non-Payment of Electricity Bills and Non-Technical Losses - held on 1998,
- Refurbishment of the Existing Buildings - for a New Energy Conservation Policy - held on 1998,
- New Energy Building Code - a Real Need for Albania - held on 1998,
- Albanian Energy Policy for a Sustainable Economic Development of the Country - held on 2000,
- Energy Management in Enterprises - held on 2000,



3.0 SEMINARS AND CONFERENCES (2)

List of Seminars and Conferences (2)

- Energy Auditing Techniques and Methodologies - held on 2000,
- Media Training on Efficient Use of Energy - held on 2001,
- Energy Payment, Efficient Use of Energy, Alternative Energies Utilization - A Necessity for Overcoming the Energy Crisis in Albania - held on 2001,
- Municipal Energy and Water Management - held on 2003,
- Impact of the Withdrawal of Modern Energy on Urban Poor - held on 2004,
- Increasing Energy Efficiency in Public Buildings of Korça Region - held on 2004,
- Energy Efficiency in Albanian Buildings - Training of Trainers, Training Session No. 1" - held on 2007,
- Energy Efficiency in Albanian Buildings - Training of Trainers, Training Session No. 2" - held on 2008.



4.0 TELEVISION DOCUMENTARY & TV-SPOTS

List of Television Documentary Films & TV-Spots

- Television Documentary Film "Non-Payment of Electricity Bills and Non-Technical Losses" - 1997,
- Television Documentary Film "Energy Efficiency in Buildings" - 1998,
- TV-Spot for promotion of "Energy Efficiency in Buildings" - 1998,
- TV-Spot for promotion of "Payment of Electricity Bills and Electricity Savings" - 2000,
- TV-Spot for promotion of "Payment of Electricity Bills and Alternative Energies Utilization" - 2001,
- TV-Spot for promotion of "Benefits from Thermal Insulation of Buildings Stock in Albania" - 2006/2007.



5.0 PROJECT IMPLEMENTATION (1)

List of Implemented Projects

1. Energy Efficiency in Enterprises - Tirana - 1998/1999,
2. Feasibility Study on Combined Heat and Power Generation for University Hospital Centre "Mother Teresa" & Student Campus - Tirana - 2001/2002,
3. Energy Planning and Energy Efficiency in Local Level - District of Korca - 2003/2004,
4. Thermal Insulation of Buildings Stock - A Way Towards Energy Conservation in Albania - Tirana - 2005/2006,
5. Introduction of Low-cost Energy Efficiency Measures in Residential Low-income Building No. 105 - Elbasani Municipality and Building No. 84 - Kamez Municipality - 2006,
6. Introduction of Energy Efficiency Measures in Residential Low-income Building No. 624 - Elbasani Municipality - 2006/2007,
7. Energy Auditing of Albanian Buildings - Tirana - 2007/2008.



5.0 PROJECT IMPLEMENTATION (2)

Project 3 - Energy Planning and Energy Efficiency in Local Level - District of Korca (1)

The availability of energy supply in Albania is one of the key limitations on economic growth and poverty reduction. Electricity and other forms of energy are key inputs to support economic growth, income generation and job creation, industrial activities, commerce, services, communications and transport. During the Albanian transition period, the chronically shortage in power supply has taken forms of sharp crisis especially during the winter periods. Energy efficiency issues are currently incorporated in a number of strategies and action plans. However, while strategies and plans are being finalized and fine-tuned, it is of great importance to pilot energy efficiency activities and capacity building for improving the management of energy sources at the local level.

The project has aimed at supporting local level management of energy resources, proposing ways of improving energy availability, pilot implementation of energy efficiency measures in selected public buildings, and improving guidance and capacity building in the energy planning and energy efficiency within the local government level and the communities.



5.0 PROJECT IMPLEMENTATION (3)

Project 3 - Energy Planning and Energy Efficiency in Local Level - District of Korca (2)

Some of the activities under this project are:

- Evaluation of energetic situation in district of Korca,
- Identification of local energy sources and energy efficiency measures including renovation of the buildings,
- Feasibility studies for the implementation of energy efficiency measures in the public building stock,
- Evaluation of GHG emissions without considering/considering energy efficiency measures,
- Pilot implementation of energy efficiency measures in selected public buildings,
- Improving guidance and capacity building in the energy planning and energy efficiency within the local government level and the communities.



Energy Planning and Energy Efficiency in Local Level - District of Korca - 2003/2004

Photos of Inside Wall before and after Renovation





Energy Planning and Energy Efficiency in Local Level - District of Korca - 2003/2004

Photos of Roof before and after Renovation





Energy Planning and Energy Efficiency in Local Level - District of Korca - 2003/2004

Photos of Window before and after Renovation





Energy Planning and Energy Efficiency in Local Level - District of Korca - 2003/2004

Photos of Lighting System before and after Renovation





5.0 PROJECT IMPLEMENTATION (4)

Project 4 - Thermal Insulation of Buildings Stock - A Way Towards Energy Conservation in Albania - Tirana - 2005/2006 (1)

Reduction of electricity consumption in buildings through thermal insulation of buildings stock is one of the priorities of Albania included in its National Strategy of Energy. The main objective of this project is to mark a shift and show the ways to reduce the energy consumed for space heating and cooling in existing buildings stock. The overall objective was the promotion and introduction of thermal insulation of existing buildings stock as a way to reduce the energy consumption for space heating and cooling in existing buildings. Reducing the use of electricity for cooling and heating should reduce the amount of imported electricity.

The project has consisted of the following main tasks:

Task 1 - Feasibility Studies on Energy Savings and GHG Emissions Reduction through Thermal Insulation of Several Types of Existing Buildings in Different Climate Zones of Albania.

Task 2 - Research and Market Survey to Evaluate the Demand in the Country for Installation of Thermal Insulation in Existing Buildings.

Task 3 - Organization of a Public Awareness Campaign on the Benefits from Thermal Insulation of Buildings.



5.0 PROJECT IMPLEMENTATION (5)

Project 4 - Thermal Insulation of Buildings Stock - A Way Towards Energy Conservation in Albania - Tirana - 2005/2006 (2)

The Task 1 has consisted of conducting of 30 Feasibility Studies in order to evaluate and measure the Energy Savings and GHG Emissions Reduction resulting from introduction of thermal insulation in selected existing buildings. The selected buildings have represented 3 climate zones and 5 cities of Albania.

In Task 2, the EEC has conducted a Market Research to measure the demand in the country for installation of insulation in the old stock of buildings. The Market Research has been conducted through a questionnaire. The process has involved a sample of one thousand households, representatives of 5 cities and of 6 different types of buildings. The sample has also represented all levels of households' incomes.

The Task 3 has consisted of the implementation of activities aiming to raise the awareness among policy makers, local government and business decision makers, general public and individual investors for the environmental and energy costs and benefits from thermal insulation of existing stock of buildings. The EEC has organised a Public Awareness Campaign at the national level.



5.0 PROJECT IMPLEMENTATION (6)

Project 4 - Thermal Insulation of Buildings Stock - A Way Towards Energy Conservation in Albania - Tirana - 2005/2006 (3)

This project had a great impact by communicating to the policy makers, local government and business decision makers, general public and individual investors and making them aware about the building sector situation, energy crisis and the advantages of the thermal insulation of the building stock as one way for changing and improving the situation.

Thermal Insulation of Buildings Stock - A Way Towards Energy Conservation in Albania - Tirana - 2005/2006

Photos of the Poster displayed in Different Cities





5.0 PROJECT IMPLEMENTATION (7)

Project 5 - Introduction of Low-cost Energy Efficiency Measures in Residential Low-income Building No. 105 - Elbasani Municipality and Building No. 84 - Kamez Municipality - 2006 (1)

At the end of 2005, the EEC team has started the work for conducting an Energy Survey and Audit on the low-income Building No. 105 in Elbasani Municipality, where low-cost energy efficiency measures can be applied. At the beginning of March 2006, the EEC staff has received the approval of IRG and USAID for the Report on Energy Survey and Audit on this low-income building and the budget has been allocated for the implementation. The recommended low-cost energy efficiency measures and interventions in low-income Building No. 105 in Elbasani Municipality have included:

- Caulking and weather-stripping of existing windows,
- Caulking and weather-stripping of existing balcony doors,
- Caulking and weather-stripping of existing apartment doors,
- Installation of energy efficient lamps.

Thermal Introduction of Low-cost Energy Efficiency Measures in Residential Low-income Building - 2006

Photos of Caulking of Existing Windows





Thermal Introduction of Low-cost Energy Efficiency Measures in Residential Low-income Building - 2006

Photos of Caulking of Existing Balcony Doors





Thermal Introduction of Low-cost Energy Efficiency Measures in Residential Low-income Building - 2006

Photos of Weather-stripping of Existing Apartment Doors



Thermal Introduction of Low-cost Energy Efficiency Measures in Residential Low-income Building - 2006

Photos of Installation of Energy Efficient Lamps





5.0 PROJECT IMPLEMENTATION (8)

Project 5 - Introduction of Low-cost Energy Efficiency Measures in Residential Low-income Building No. 105 - Elbasani Municipality and Building No. 84 - Kamez Municipality - 2006 (2)

At the end of 2005, the EEC team has started the work for conducting an Energy Survey and Audit on the low-income Building No. 84 in Kamez Municipality, where low-cost energy efficiency measures can be applied. At the beginning of March 2006, the EEC staff has received the approval of IRG and USAID for the Report on Energy Survey and Audit on this low-income building and the budget has been allocated for the implementation. The recommended low-cost energy efficiency measures and interventions in low-income Building No. 84 in Kamez Municipality have included:

- Caulking and weather-stripping of existing windows,
- Caulking and weather-stripping of existing balcony doors,
- Caulking and weather-stripping of existing apartment doors,
- Installation of energy efficient lamps.



Thermal Introduction of Low-cost Energy Efficiency Measures in Residential Low-income Building - 2006

Photos of Caulking of Existing Windows





Thermal Introduction of Low-cost Energy Efficiency Measures in Residential Low-income Building - 2006

Photos of Weather-stripping of Existing Apartment Doors





Thermal Introduction of Low-cost Energy Efficiency Measures in Residential Low-income Building - 2006

Photos of Installation of Energy Efficient Lamps





5.0 PROJECT IMPLEMENTATION (9)

Project 6 - Introduction of Energy Efficiency Measures in Residential Low-income Building No. 624 - Elbasani Municipality - 2006/2007 (1)

Around 67 % of electricity and 30 % of all energy sources is consumed only by the residential sector, and most of it (26 %) is used to provide the space heating. During the last years, in Albania, more and more energy is consumed also for air-cooling. Buildings in Albania have been constructed with little concern for energy efficiency, since before 1990 the main driven factor has been the construction of buildings with the lowest costs.

The overall objective is the promotion and introduction of thermal insulation of existing buildings stock as a way to reduce the energy consumption for space heating and cooling in existing buildings. At the end of 2005, the EEC team has started the work for conducting an Energy Survey and Audit on the low-income Building No. 624 “Piro Shuteriqi” Street - Elbasani Municipality, in order to clarify if low cost energy efficiency measures could be applied.



5.0 PROJECT IMPLEMENTATION (10)

Project 6 - Introduction of Energy Efficiency Measures in Residential Low-income Building No. 624 - Elbasani Municipality - 2006/2007 (2)

This building has the highest electricity and LPG consumption per inhabitant among the three surveyed buildings, the first two were low-income Buildings in Korca Municipality. The summary of all the studied and recommended energy efficiency measures together with the calculated data are given in the following Table:



Introduction of Energy Efficiency Measures in Residential Low-income Building No. 624 - Elbasani Municipality - 2006/2007

Energy Efficiency Measure	Installed Cost (US\$)	Yearly Energy Savings (kWh)	Prices (cent/kWh)		Annual Savings (US\$/Year)			Simple Payback (Years)	Net Present Value (USD)	Discount Energy Saving Cost (USD/kWh)	Internal Rate of Return (%)
			Actual Price	Average for Next 5-years	Actual Price	Average for Next 5-years	Average for Next 25-years				
Outside doors	12,320	4,500	8.82	9.26	397	417	624	25	-7,506	0.0913	1.35%
Thermal insulation of the roof	14,607	14,135	8.82	9.26	1,246	1,309	1,960	9	514	0.0344	10.40%
Double glass windows	8,280	8,367	8.82	9.26	738	775	1,160	9	790	0.0330	11.06%
Efficient lighting	1,460	9,489	7.79	8.61	739	817	1,125	1.6	24,114	0.0296	33.43%
Thermal insulation of outside walls	19,516	36,384	8.82	9.26	3,208	3,368	5,044	5.3	19,405	0.0179	20.15%
All Measures	56,185	72,875						8.5	7,002	0.0380	11.12%



5.0 PROJECT IMPLEMENTATION (11)

Project 6 - Introduction of Energy Efficiency Measures in Residential Low-income Building No. 624 - Elbasani Municipality - 2006/2007 (3)

For this building, a total budget of 27,275 USD has been allocated for the implementation of three recommended energy efficiency measures and interventions as it was foreseen in the Energy Survey Audit conducted by the EEC team. The energy efficiency measures and interventions to be implemented in low-income Building No. 624 in Elbasani Municipality have included:

1. Thermal insulation of the outside/external walls,
2. New double glass windows,
3. New double glass balcony doors.

This project can be considered as an important step in introducing to the Albanian residential sector the issues such as efficient management of energy resources, thermal insulation of existing buildings stock and consequently bring steady improvements in the long term. The EEC has promoted and advocated the efficient management of energy resources and the energy conservation in buildings throughout the country.



Introduction of Energy Efficiency Measures in Residential Low-income Building - 2006/2007

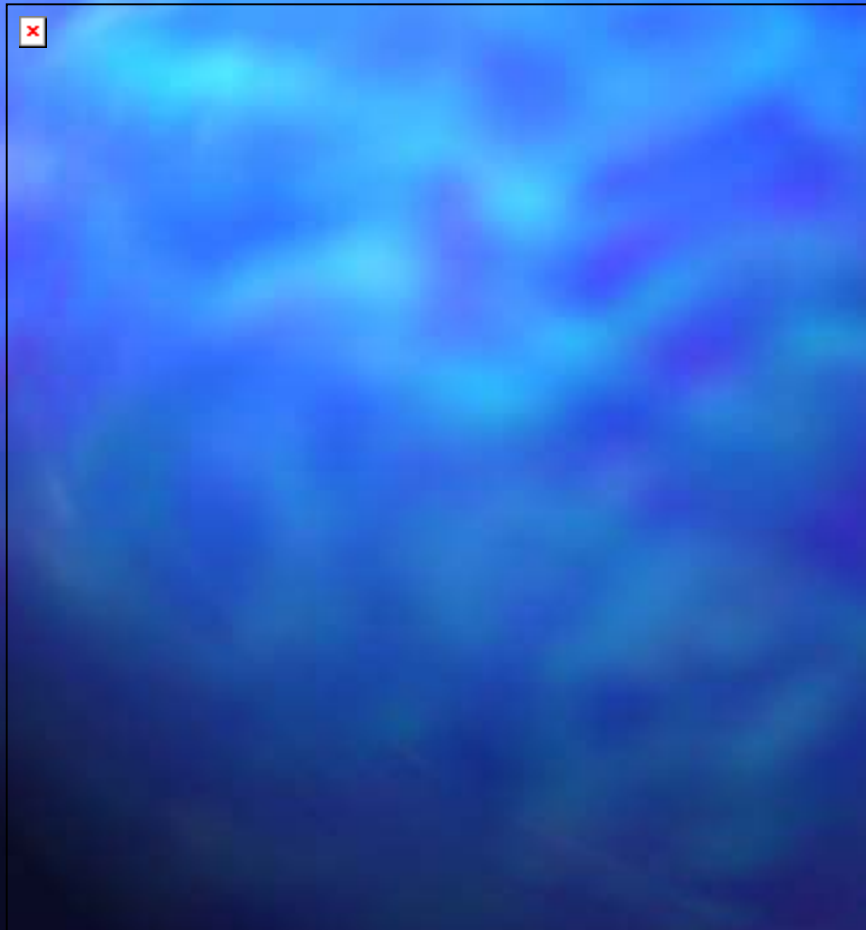
Photos of Thermal Insulation of the External Walls





Introduction of Energy Efficiency Measures in Residential Low-income Building - 2006/2007

Photos of Window before and after EE Interventions



Introduction of Energy Efficiency Measures in Residential Low-income Building - 2006/2007

Photos of Eastern Façade before and after EE Interventions





Introduction of Energy Efficiency Measures in Residential Low-income Building - 2006/2007

Photos of Western Façade before and after EE Interventions





5.0 PROJECT IMPLEMENTATION (12)

Project 7 - Energy Auditing of Albanian Buildings - 2007/2008 (1)

The energy situation in Albania has been difficult throughout the transition period and especially during the last years. The situation aggravates during the winter season, because of the space heating of buildings. Half of the energy required for heating is provided by electricity. Buildings in Albania have been constructed with little concern for energy efficiency, for several years the main driving factor has been construction of buildings at lowest investment costs.

To reduce the energy consumption and costs, and to improve the indoor environment, it is necessary to renovate and implement energy efficiency measures in buildings. Projects should be developed and implemented in a structured and efficient way, requiring good Energy Auditing and Project Management methods and tools, as well as good skills of local specialists. To ensure long-term effects, local engineers, specialists and managers should be trained, and the subject included in the Curriculum of Universities.



5.0 PROJECT IMPLEMENTATION (13)

Project 7 - Energy Auditing of Albanian Buildings - 2007/2008 (2)

The overall objective of the project is to improve and increase the local capacities and skills on Energy Auditing of Buildings, and thus contribute to improved energy efficiency in the Albanian Building Sector. The project also aims at getting “Energy Auditing of Buildings” included as a subject into the Curriculum at Albanian Universities.

The project includes three main tasks:

- Adjustment of ENSI methods and tools on Energy Auditing of Buildings for Albanian conditions,
- Training of trainers in applying ENSI methods and tools in development of real building projects,
- Further training of local specialists and education of University students.



Energy Auditing of Albanian Buildings - 2007/2008



**THANK YOU FOR YOUR
ATTENTION !**