PROJECT

PRO-ENERGY

Work Package:	**4 Capacity Building for Energy Managers**
Activity:	**1.1 Capacity Building for Energy Managers**
Activity Leader:	**Region of Epirus - Regional Unit of Thesprotia**
Deliverable:	**4.6.3 Training seminars**

Version:	**Draft 1.0**	**Date:**	**30-10-2022**
Type:	**Report**		
Availability:	**Confidential**		
Responsible Partner:	**National Agency of Natural Resources**		
Editor:	**Roalb Studio shpk** 		

DISCLAIMER:

The common challenge of PRO-ENERGY is to improve energy efficiency of public buildings (municipal/provincial/regional buildings, schools, universities, health centers, hospitals, museums, sports facilities etc.). This is a common problem faced by the territories participating in the project characterized by old facilities, outdated/degraded building façades, materials & equipment (insulation, electrical appliances, cooling/heating systems etc.), low energy consciousness & awareness, lack of skilled civil servants, etc. leading to high-energy consumption & CO2 emissions.

IDENTIFICATION SHEET

Project Ref. No.	***BMP1/2.2/2052/2019***
Project Acronym	***Pro-Energy***
Project Full Title	***Promoting Energy Efficiency in Public Buildings of the Balkan Mediterranean Territory***

Security (distribution level)	**Confidential**
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ACTIVITY contributing to the deliverable	**1.1 Capacity Building for Energy Managers/ Training seminars**
Responsible partner	**National Agency of Natural Resources**
Editor	**Roalb Studio shpk** 

INTRODUCTION

The common challenge of PRO-ENERGY is to improve energy efficiency of public buildings (municipal/provincial/regional buildings, schools, universities, health centres, hospitals, museums, sports facilities etc.). This is a common problem faced by the territories participating in the project characterized by old facilities, outdated/degradated building façades, materials & equipment (insulation, electrical appliances, cooling/heating systems etc.), low energy consciousness & awareness, lack of skilled civil servants, etc. all leading to high energy consumption & CO2 emissions. Combined with the fact that participating territories are energy import dependent it is more than evident that there is room for improvements in energy consumption & more efficient use of energy. More importantly, the exemplary role of the public sector should be promoted by increasing energy savings in public buildings. PRO-ENERGY aims to address these issues by developing & implementing a Joint Strategy & Action Plan, increasing competences of buildings' owners & operators, developing& applying technologies& tools to reduce energy consumption in public buildings,& promoting generated good practices& results to local/regional/national entities in the Balkan-Med region. The project addresses the policy & institutional level (Joint Strategy& Action Plan),human resources level (Capacity Building of Energy Managers)& the managerial systems level (ICT Platform&CBA Modeller&Energy Performance Contracting-EPC). The novel energy saving technologies promoted by PRO-ENERGY refer to Behaviour-based Energy Efficiency. Behavioural efficiency programs introduce cost-effective ways to reduce energy consumption, as literature & practice suggests. The overall objective is to promote Energy Efficiency in public buildings in the Balkan Med area & to create a practical framework of modelling & implementing energy investment interventions through specific ICT monitoring & control systems,& through EPC. The innovativeness of PRO-ENERGY lies on the EPC use, a proven in EU projects, practical& effective "creative financing" tool enabling funding of energy upgrades& on the fact that most energy efficiency measures involve technological interventions but equally have to rely on people adjusting their energy consumption behaviour. To do so, consumers should be provided with meaningful, clearly communicated&continual feedback. PRO-ENERGY focuses on non-domestic consumers (employees/visitors etc. of public buildings), because in this segment initiatives are normally delivered at the organisational level & there is no direct link to personal wealth of the individual users. Motivation for those users to engage in energy efficiency behaviours is therefore very different from domestic users& must rely on corporate & social responsibility objectives & societal norms' reinforcement. Behaviour change measures at work may inspire consumers to act differently at home increasing thus multiplier effects.

Based on the above, Work Package 4 (WP 4) “Capacity Building for Energy Managers” aims at sustainability of project results is also self-evident since PRO-ENERGY involves activities that directly impact & reduce energy consumption in public buildings leading to the coverage of an apparent need of project partners & stakeholders to keep applying & trying to extend the applicability of these activities.

More specifically, Activity WP4 Del. 4.6.3 “Training seminars.” aims to:

1. Joint Strategy & Action Plan contributing to developing effective energy efficiency policies & measures & to defining pilot actions for the reduction of energy spending in public buildings.
2. Joint Cost-Benefit Analysis Modeller (open to all) supporting decision-making for retrofits, renovations etc. which lead to increased energy efficiency.
3. Energy Performance Contracts through open-tendering procedures to finance energy upgrades from cost reductions & contribute in this way to increased energy savings & increased energy efficiency.
4. Framework for energy-related interventions in public buildings which includes the implementation of Energy Audits in selected public buildings enabling through smart sensor systems the recording of energy consumption & the measurement of the impact of behavioural change measures.

SECTION 1: Training Nr.1

1. Training Info

First Session Project Training: "Promote Energy Efficiency in public buildings" ENERGY EFFICIENCY IN BUILDINGS

Pro-Energy «Promoting Energy Efficiency in Public Buildings of the Balkan Mediterranean Territory », of the European Territorial Cooperation Programme (INTERREG V-B) Balkan-Mediterranean 2014-2020»

WP4 – Del.4.6.3 **Capacity Building for Energy Managers**

Date	18 March 2022
Venue	National Agency of Natural Resources, Blv. Bajram Curri Bll. Vasil Shanto Tirane, Albania
Host	**Pro-Energy «Promoting Energy Efficiency in Public Buildings of the Balkan Mediterranean Territory », Directory of Renewable Energy**
Link	http://www.akbn.gov.al/category/energjite-e-rinovueshme-projektet/projekte-te-huaja/projekti-re-source/

1.1. Participants.

The number of participants: 22 (Directory of Renewable Energy)

Their background:

The attendees of the event were mainly composed by representatives of National Agency of Natural Resources, responsible for the sustainable resources development of Albania.

1.2. Topics and outcomes

The purpose of the local Trsaining was to initiate a constructive dialogue among different stakeholders and local authorities as well as increase the public awareness of citizens, groups of interest, stakeholders and local authority about the energy efficiency and renewable energy development at local level and enable the community to actively participate in public consultation processes on planning and development at the local level.

This Trsining sets forth a suite of existing energy efficiency policies that stand out as best practices. The policies identified in this report include exemplars of best practices in energy efficiency policies from around Albania, drawn from respected and objective policy evaluations and databases.

The primary audience is policy makers from the Albania Government, though this exploration of best practices should be useful in regions. For Albania local Authorities starting to develop energy efficiency programmes, the policies outlined offer guidance into what works and can offer confidence when exploring and selecting options. For Albania with established and proficient energy efficiency programmes, this conference can assist by validating policies and offering a set of policy benchmarks. In many of these exemplars, implementing government are already being rewarded with high rates of return from lower energy costs, reduced health costs due to better living conditions, improved productivity for businesses, and improved access to energy. In order to tap into the vast reserve of potential efficiency improvements, governments need to commit to sound governance, improved data, and enabling policy frameworks that lead to efficient investment decisions. An enabling framework of governance and financial policies remains the key challenge in most Albania Regions.

Summarizes this Training's findings and presents cross-sectorial policies as foundations for energy utility policies and operational policies in households, transport and business sectors. Best practice policies can only be effective if they are fully applied in a local context. Policies that have worked well in one setting do not automatically work well in another. The exemplars that are offered as concrete examples of policies and measures are best in the settings for which they have been designed. All Albania regions should reflect carefully on their respective development needs, the local conditions that need to be recognized and motivated, and the priorities for tailored energy efficiency policy.

Government has choices in how to approach energy efficiency and which policies and measures to pursue. No local authorities can ignore the development, social and economic opportunities that are being unleashed by relevant energy efficiency policies and measures around Albania.

This Training highlights that capacity in governance and finance underpins and enables all energy efficiency policies and measures. Energy efficiency is not 'nice to have' or ancillary to mainstream policy functions. It is necessary for governments to fundamentally rethink energy efficiency and treat it as an energy source in its own right, representing the value of energy saved. Therefore it must be given primary consideration in national policies, and be integrated into mainstream economic planning, local government and business development processes in general.

Concerted regional efforts like Albania plans and the European Union's Energy Efficiency Directive and successful energy efficiency strategies are based on collective learning and shared efforts to develop effective policy implementation.

The local Training organisation was to inform representatives from public sector and local authorities as well as other local stakeholders about project PRO-ENERGY, planned project activities to be realised in the public building stock and to draft possible joint interventions, taking into the consideration present legal frame and financial incentives and funds. The organisation of the event enabled us to increase the interest of Albania municipalities and other stakeholders toward the project and to enhance the importance of their involvement within the project which will consequently facilitate a successful implementation of project activities and obtainment of EU goals.

The project Training was organised in order to understand the current state, the challenges and the assets of the energy efficency in the Albania area, as well as to formulate recommendations for the improvement of the capacity of the public administration in relation to Sustainable Territories-Fostering Transnational Cooperation for Resource Efficiency and Climate Change since it contributes to the increase of energy efficiency in the participating territories as well as in the reduction of CO2 emmissions.

Workshop's objectives:

1. Joint Strategy & Action Plan contributing to developing effective energy efficiency policies & measures & to defining pilot actions for the reduction of energy spending in public buildings.
2. Joint Cost-Benefit Analysis Modeller (open to all) supporting decision-making for retrofits, renovations etc. which lead to increased energy efficiency.
3. Energy Performance Contracts through open-tendering procedures to finance energy upgrades from cost reductions & contribute in this way to increased energy savings & increased energy efficiency.
4. Framework for energy-related interventions in public buildings which includes the implementation of Energy Audits in selected public buildings enabling through smart sensor systems the recording of energy consumption & the measurement of the impact of behavioural change measures.

A significant number of soft activities will develop the PRO-ENERGY project. The project does neither prerequisite the development of studies (i.e. environmental impacts study etc.) nor is it in need of specific licenses as the case might be with projects related to infrastructures and investment. The PRO-ENERGY project does not include interventions such as construction of buildings, infrastructures or other technical works, rather only soft actions, such as studies, plans, web tools development etc. Therefore, external bodies need no specific licenses or other approvals.

The activities to be developed fall within the scope of partners' jurisdiction/mandate according to the national legislation. Preparatory administrative activities referred to the approval of the participation of the project partners by their Presidents and collective bodies, where required. The organizations of project partners have already developed synergies with entities relevant to Energy Efficiency, Energy Management Processes, Energy Auditing etc. & they all have

established networks of relevant stakeholders from previous projects who will be invited to participate in project activities, while two of the project partners being such entities. Furthermore & in relation to the pilot actions in the 5 project areas, project partners have already examined public buildings in the areas which are suitable for the scope of the pilot actions & which do not require any kind of investment. Following the definition of criteria for the selection of the pilot public buildings within WP3, the selection will be made among these buildings & the pilot actions will be implemented.

On top of the plans & the ICT tools, the project foresees the supply of small scale & low value equipment which is connected to the platform & will be installed in the pilot buildings of project partners, equipment which due to the low value does not require any special license or permit to be issued or process to be completed. Finally, if the project will be approved, during its implementation public procurement shall take place for specific tasks / actions identified in the Application Form. The tender documents for those tasks / actions cannot be prepared at this early stage of the project, because they will be drafted on the basis of a) the findings in the course of the project, and b) the cross-border cooperation of project partners.

The opening session (promoted Pro-energy Project), was attended by the Director of Energy Efficiency Agency, the representative of National Agency of Natural Resources Mr. Artan Leskoviku. The session counted then with several reference speakers in various areas (AKBN, ERE, OSHEE), as well as representatives of the pilot projects presented in the field of energy efficiency (Municipalities of Gjirokastra, Permet, Vlora and Sarande).
At the conclusion of the event was pointed out that energy efficiency is one of the most cost-effective measures to achieve the reduction in greenhouse gas emissions and increase the share of renewable energy sources in gross final energy consumption.

The degree to which these perform as best practices is very dependent on how they are implemented. Albania will have to ensure:

- Effective governance, accountabilities and resourcing;
- An active process of performance evaluation;
- ensuring complementarity with other infrastructure and energy policies;
- That utilities support and complement energy efficiency policies;
- Timely review and refinement of policies.

Agenda

Interreg
Balkan-Mediterranean
PRO-ENERGY

Agenda

National Agency of Natural Resources

1st First Session Project workshop (1 Days)
17 March 2022

Pro-Energy «Promoting Energy Efficiency in Public Buildings of the Balkan Mediterranean Territory », of the European Territorial Cooperation Programme (INTERREG V-B) Balkan- Mediterranean 2014-2020»

VENUE: National Agency of Natural Resources, Blv Bajram Curri Bll. Vasil Shanto Tirane, Albania

First Day 17.02.2020 (Participants Directory of Renewable Energy)

9:00	Arrival and registration of the participants	
9:15	Welcome and presentation of the participants.	Mr. Artan Leskoviku, AKBN
9:30	Introduction and the general information about the training course, objectives and expectations	Mr. Artan Leskoviku, AKBN
10:00	**Energy Efficiency Legislation in Albania**	Z. Kamberi, Energy expert
11:00	Energy Efficiency Performance in Albania and Evaluation of the interventions & Issuing of new energy certificates for the pilot public buildings	T. Thimjo, AKBN
11:30	**Coffee Break**	
12:00	**Energy Efficiency integration in Public Building**	E.Cano, AKBN
13:30	**Lunch**	

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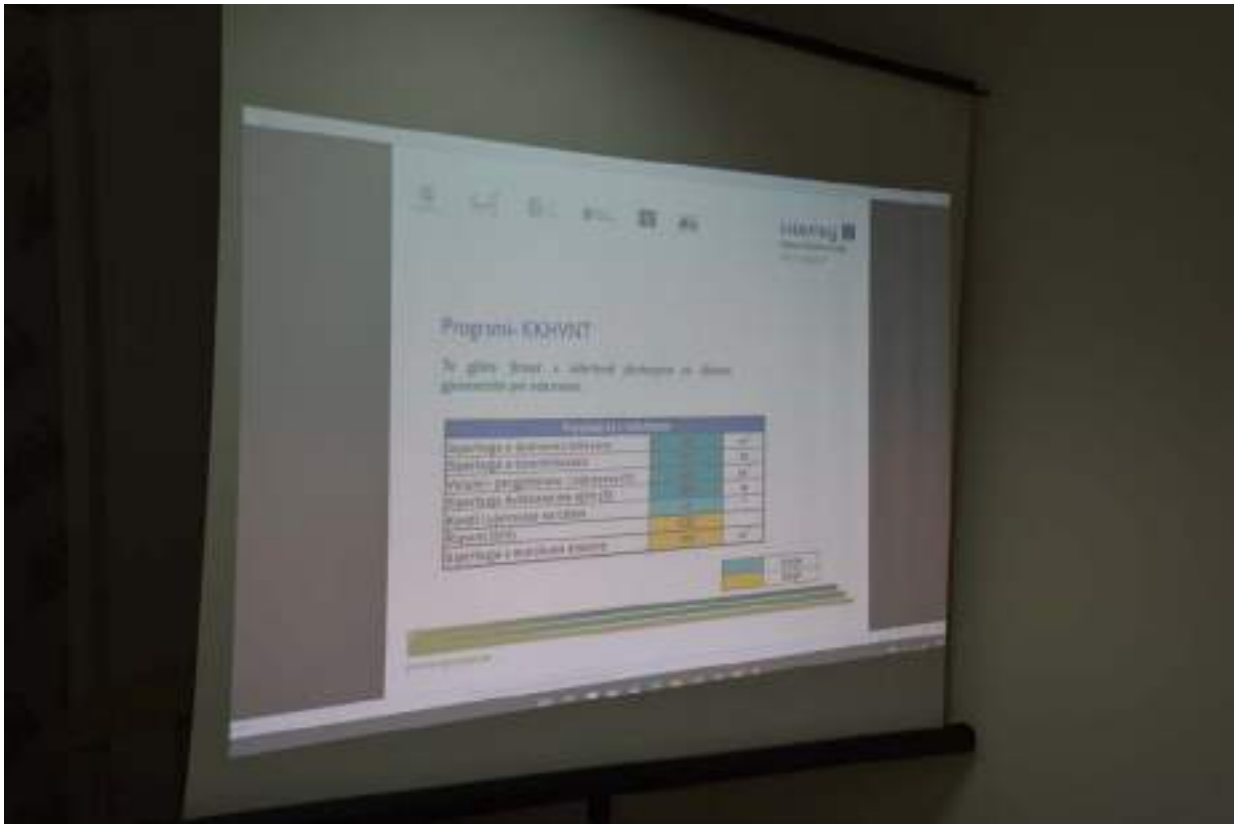
14:30	Energy Performance in building Sector in Albania	V.Hita, AKBN
15:30	What is new about energy efficiency in public buildings	R.Aliko, AKBN
16:00	**Coffee Break**	
16:15	Design and development of advanced modules and integration to BMS	H. Kazia, Energy Expert
17:00	**Discussions**	

Photos


Program KKHVNT

List of Participants

Interreg
Balkan-Mediterranean
PRO-ENERGY

Meeting 18/3/2022

Participants list

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PRO-ENERGY

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SECTION 2: Training Nr.2

2. Training Info

Second Session Project Training: "ENERGY EFFICIENCY IN BUILDINGS" (HOW TO USE ENERGY MORE EFFICIENCY and CHARACTERISTICS OF ENERGY SAVING)

Pro-Energy «Promoting Energy Efficiency in Public Buildings of the Balkan Mediterranean Territory », of the European Territorial Cooperation Programme (INTERREG V-B) Balkan-Mediterranean 2014-2020»

WP4 – Del.4.6.3 **Capacity Building for Energy Managers**

Date	8 April 2022
Venue	National Agency of Natural Resources, Blv. Bajram Curri Bll. Vasil Shanto Tirane, Albania
Host	**Pro-Energy «Promoting Energy Efficiency in Public Buildings of the Balkan Mediterranean Territory », Directory of Renewable Energy**
Link	http://www.akbn.gov.al/category/energjite-e-rinovueshme-projektet/projekte-te-huaja/projekti-re-source/

1.3. Participants.

The number of participants: 20 (Directory of Renewable Energy)

Their background:

The attendees of the event were mainly composed by representatives of energy companies, local authorities, the Higher Education Institution of Albania, as well as representatives of several companies responsible for the sustainable development of Albania.

1.4. Topics and outcomes

The Training was organised in order to understand the current state, the challenges and the assets of the energy sector in the Albania area, as well as to formulate recommendations for the improvement.

Info's objectives:

- Show project's solutions for an efficient, inclusive and renewable energy model in the Albania area,
- Meeting of experts from energy/environmental sector to explore new synergies, share best practices and innovative ideas,
- Understand the current state, the challenges and the assets of the energy sector in the Mediterranean area,
- Formulate recommendations for the improvement of the energy sector in the Albania area,
- Meeting of decision makers to share political news, information and ideas, especially for goal and activities post-2030.

The objectives of the training energy approached for Albania energy policy in order to implement a transition to a sustainable energy system, This means moving towards an environment-friendly energy system, which denotes broad reliance on renewable energy sources. Measurers to induce or support energy conservation and develop and use sustainable, renewable energy resources thus play key role energy policy in Albania

The purpose of the training was to initiate a constructive dialogue among different stakeholders and local authorities as well as increase the public awareness of citizens, groups of interest, stakeholders and local authority about the energy efficiency and renewable energy development at local level and enable the community to actively participate in public consultation processes on planning and development at the local level.

Summarizes this training's findings and presents cross-sectorial policies as foundations for energy utility policies and operational policies in households, transport and business sectors. Best practice policies can only be effective if they are fully applied in a local context. Policies that have worked well in one setting do not automatically work well in another. The exemplars that are offered as concrete examples of policies and measures are best in the settings for which they have been designed. All Albania regions should reflect carefully on their respective development needs, the local conditions that need to be recognized and motivated, and the priorities for tailored energy efficiency policy.

Albania after this meeting will create links between energy efficiency and renewable energy policies. We will do it as part of an overall energy strategy, combining all elements of the energy policy. Others link energy efficiency and renewables as part of their climate change strategies, where we are making this linkage through sustainable energy strategies. Integrating energy efficiency and renewable energy into both energy and environmental policies is important for establishing a framework for ripping the practical benefits of the integration opportunities.

The training informed Energy Efficnecy in building as follows:

Saving energy and its efficient use begins with raising awareness that energy should not be taken for granted and that it is not available in unlimited quantities. Its production requires relatively high costs and has a big influence on the environment. One has to take into consideration that thoughtful and planned use of energy not only affects the family budget but also the whole economy, public sector and the environment.

Most of public buildings, above all older ones, have a great potential for the efficient use of energy. The reduction of energy consumption by 10% could be achieved without bigger investments, with a more rational use of energy and better organisation. This mostly means the energy needed for space heating, electrical energy and water. Further 5% of energy consumption could be saved by better organisation of work and better awareness of end-users.

According to the estimates appropriate technical investment measures could bring the potential of efficient use of energy up to 30%.

The consumption of energy depends on external factors such as changeable weather conditions and temperature oscillation, the price of energy sources, plus the number, structure and mentality of users change. The awareness of users for the efficient use of energy, renewable sources of energy and ecology also have a big influence on energy consumption. Great improvement is the introduction of regular monitoring of current consumption and energy costs in buildings. The monitoring can be carried out with auditing and verifying the accounts for individual energy sources, or with computer-aided energy bookkeeping.

Energy efficiency: transposition of the energy performance of buildings directive, Directive (2010/31/EU of 19 May 2010), Transposition date: 9 July 2012.

- What is the cheapest measure for reduction of energy consumption? (a more rational use of energy and better organisation)
- Does the energy consumption depend on the weather conditions? (Yes)
- Does the behavior of users affect the energy consumption in the building?

FURTHER SUGGESTIONS FOR TRAINERS:

- Energy efficiency is a broad term, specifically in a manner of public buildings. Perhaps it should be presented in a more detailed way for specific buildings, for example sports facilities. Their energy cards are calculated in the same way as any other public building, but the problem is the working hours. These facilities are often closed for some periods and energy class of the building is calculated based on consumed energy per year per square meter. It is obvious that the facility might not be so energy efficient as the card states, since the facility is not in use for a longer period of time.

Agenda

National Agency of Natural Resources

2st Session Project workshop
8 April 2022

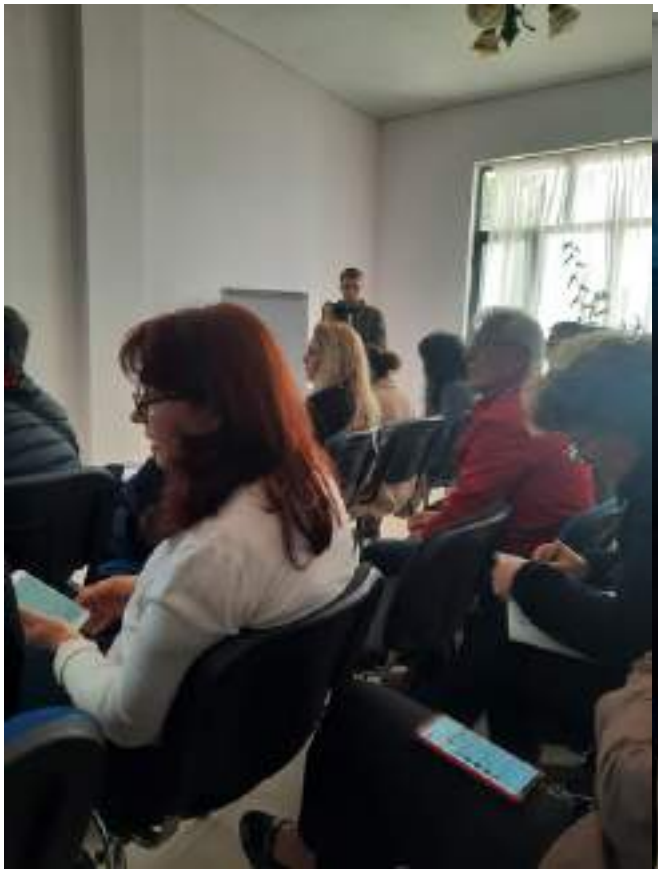
Pro-Energy «Promoting Energy Efficiency in Public Buildings of the Balkan Mediterranean Territory », of the European Territorial Cooperation Programme (INTERREG V-B) Balkan- Mediterranean 2014-2020»

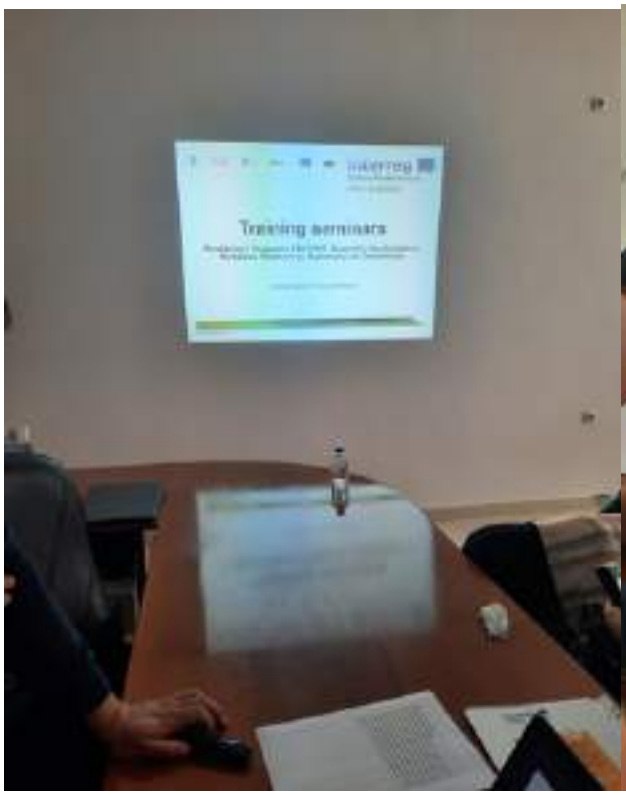
VENUE: National Agency of Natural Resources, Blv Bajram Curri Bll. Vasil Shanto Tirane, Albania

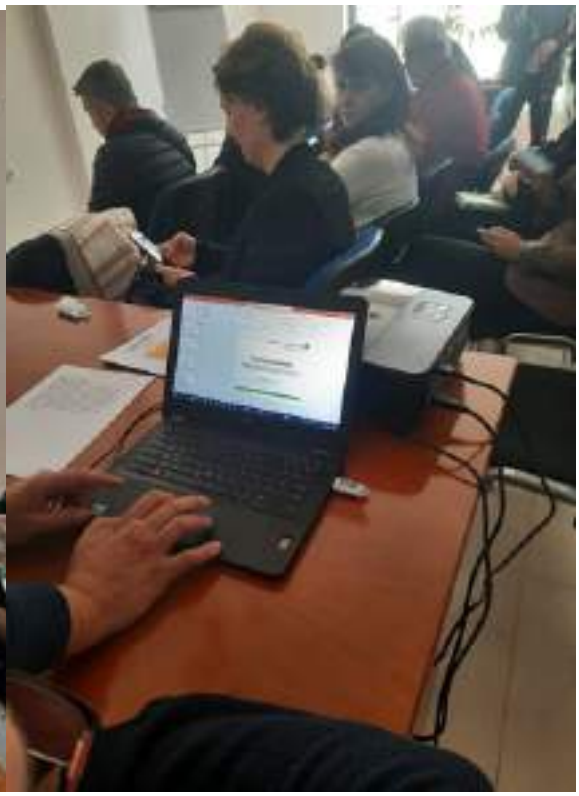
08.30 - 09.00	**Registration**
09.30 – 10.00	**OPENING SESSION**
	Opening Address Teuta Thimjo, National Agency of Natural Resources
10.00 – 11.00	**LEGAL FRAMEWORK, STATUS OF RENEWABLE ENERGY SOURCES AND ENERGY EFFICIENCY, AND POLITICAL TARGETS -** *CHAIR: Zija Kamberi, Legal Expert*
	Legal Framework, of Energy Efficiency and Future Development Ms. Evis Cano, National Agency of Natural Resources **Utilisation of Energy Efficiency in the Building Sector and in the Service Sector and Utilisation of CHP in the Service Sector in Albania** Renata Aliko, National Agency of Natural Resources
11.00 – 11.30	**Coffee Break**
11.30 – 12.30	**LEGAL FRAMEWORK, STATUS OF RENEWABLE ENERGY SOURCES AND ENERGY EFFICIENCY, AND POLITICAL TARGETS - PART 2**

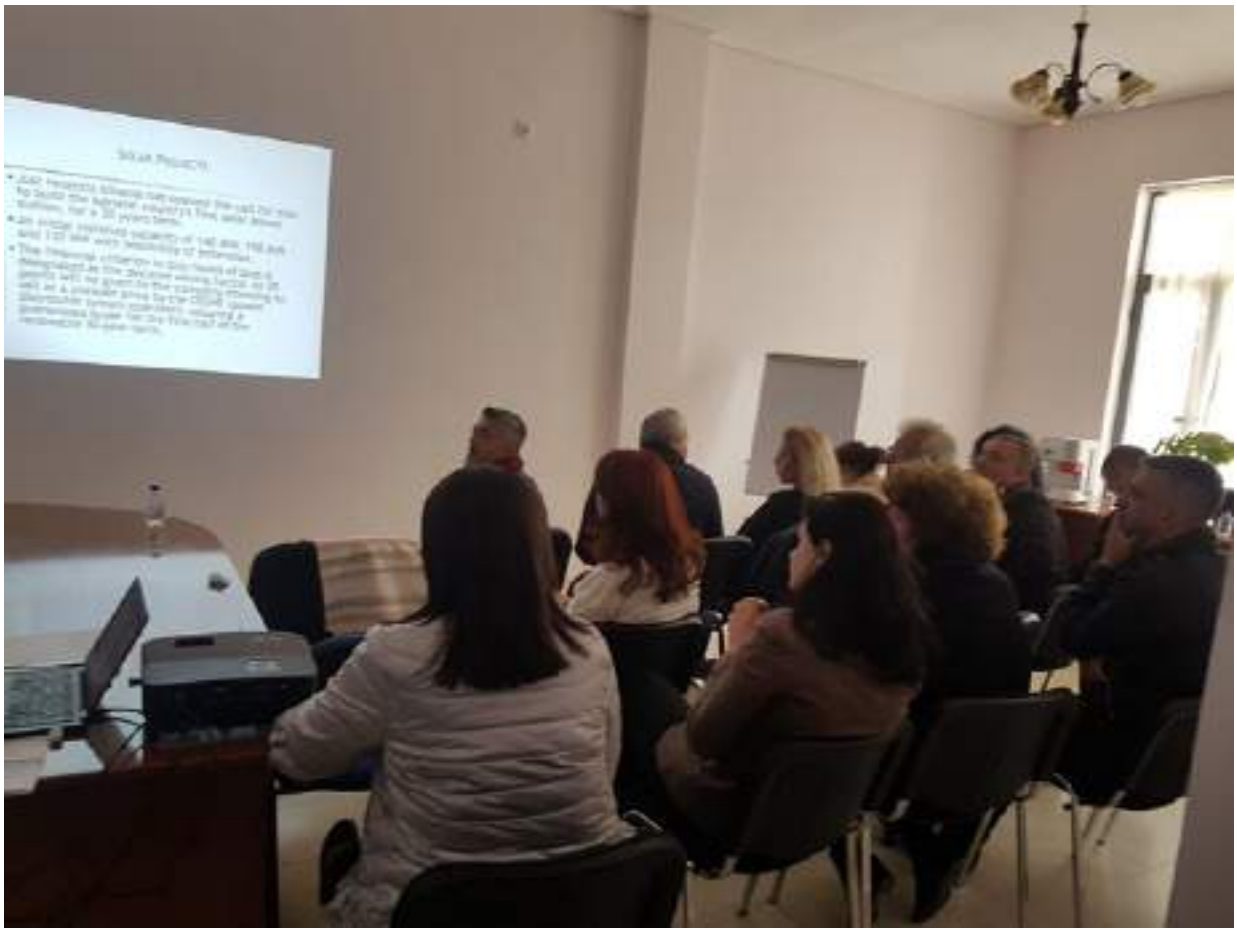
	CHAIR: Evis Cano, National Agency of Natural Resources
12.30 – 14.00	**Lunch**
14.00 – 15.00	**SOLAR ENERGY** *Erald Proko:* Ministry of Infrastructure and Energy
	Solar Energy in Albania and Presentation of the Albanian-Austrian Joint Project on Solar Water Heaters Edmond E. Hido, Albania-EU Energy Efficiency Centre (EEC) **Action Plan of Energy Effciency in Albania** Teuta Thimjo, National Agency of Natural Resources
15.00 – 15.30	**Coffee Break**
15.30 – 16.30	**Pro-Energy project** Artan Leskoviku, National Agency of Natural Resources
	EU project for Energy Efficiency in Albania Ms. Evis Cano, National Agency of Natural Resources

Photos of Meeting:




Training seminars





SECTION 3: Training Nr.3

Third Session Project Training: "**ENERGY AUDIT AND ENERGY PERFORMANCE CERTIFICATE**"

Pro-Energy «Promoting Energy Efficiency in Public Buildings of the Balkan Mediterranean Territory », of the European Territorial Cooperation Programme (INTERREG V-B) Balkan-Mediterranean 2014-2020»

WP4 – Del.4.6.3 **Capacity Building for Energy Managers**

Date	13 April 2022
Venue	National Agency of Natural Resources, Blv. Bajram Curri Bll. Vasil Shanto Tirane, Albania
Host	**Pro-Energy «Promoting Energy Efficiency in Public Buildings of the Balkan Mediterranean Territory », Directory of Renewable Energy**
Link	http://www.akbn.gov.al/category/energjite-e-rinovueshme-projektet/projekte-te-huaja/projekti-re-source/

Participants

The number of participants: 20

Their background:

The attendees of the event were mainly composed by representatives of energy companies, local authorities, the Higher Education Institution of Albania, as well as representatives of several companies
responsible for the sustainable development of Albania.

Topics and outcomes

The training course was organised in order to understand the current state, the challenges and the assets of the energy sector in the Albania area, as well as to formulate recommendations for the improvement.

Info's objectives:

- Energy efficiency policy and relevant regulation
- Information on existing funds for financing EE
- Energy contracting
- Monitoring
- Information on relevant and suitable technologies
- Instructions on how to use and implement the ENERJ web platform
- Show project's solutions for an efficient, inclusive and renewable energy model in the Albania area,
- Meeting of experts from energy/environmental sector to explore new synergies, share best practices and innovative ideas,
- Understand the current state, the challenges and the assets of the energy sector in the Mediterranean area,
- Formulate recommendations for the improvement of the energy sector in the Albania area,
- Meeting of decision makers to share political news, information and ideas, especially for goal and activities post-2020.

The main pupose of training was to carefully analyse the operating costs of the facility. Typically, the utility data over several years is evaluated to identify the patterns of energy use, peak demand, weather effects, and potential for energy savings. To perform this analysis, it is recommended that the energy auditor conduct a walk-through survey to get acquainted with the facility and its energy systems.

It is important that the energy auditor clearly understand the utility rate structure that applies to the facility for several reasons including:

- To check the utility charges and ensure that no mistakes were made in calculating • the monthly bills. Indeed, the utility rate structures for commercial and industrial facilities can be quite complex with ratchet charges and power factor penalties.
- To determine the most dominant charges in the utility bills. For instance, peak demand charges can be a significant portion of the utility bill especially when ratchet rates are applied. Peak shaving measures can then be recommended to reduce these demand charges.
- To identify whether the facility can benefit from using other utility rate structures to purchase cheaper fuel and reduce its operating costs. This analysis can provide a significant reduction in the utility bills especially with implementation of electrical deregulation and the advent of real-time pricing (RTP) rate structures.

Moreover, the energy auditor can determine whether the facility is a candidate for energy retrofit projects by analyzing the utility data. Indeed, the energy use of the facility can be normalized and compared to indices (for instance, the energy use per unit of floor area—for commercial buildings—or per unit of a product—for industrial facilities).

The training informed for the standard audit provides a comprehensive energy analysis for the energy systems of the facility. In addition to the activities described for the walk-through audit and for the utility cost analysis described above, the standard energy audit includes the development of a baseline for the energy use of the facility and the evaluation of the energy savings and the cost-effectiveness of appropriately selected energy conservation measures. The step-by-step approach of the standard energy audit is similar to that of the detailed energy audit described later on in the following section.

Typically, simplified tools are used in the standard energy audit to develop baseline energy models and to predict the energy savings of energy conservation measures. Among these tools are the degree-day methods and linear regression models (Fels, 1986). In addition, a simple payback analysis is generally performed to determine the cost-effectiveness of energy conservation measures.

Reporting a Standard Audit

The report of a standard audit is more comprehensive than a report for the walk-through audit outlined above. Indeed, a standard audit, as defined in Chapter 1, includes additional tasks and requires more effort and time to complete. This type of audit is typically suitable for large buildings such as those with complex energy systems. Moreover, the utility bills for large buildings such as commercial and institutional are significantly high and can justify the level of detail required by a standard audit. In addition to the tasks described for the walk-through audit, the following tasks can be carried out as part of a standard audit:

- Carry out a detailed survey of lighting and electrical equipment. The main goal of this task is to estimate the lighting and equipment power densities within various spaces of the building.
- Identify heating, ventilating, and air-conditioning (HVAC) systems and their operation schedules. This task is often crucial because energy used by HVAC systems is a significant portion of the total energy consumed in large buildings.
- Determine the main discomfort and complaints of occupants through a well-designed questionnaire. Surveying occupants very often provides valuable information about the performance of the building and its energy systems throughout the year.
- Collect and analyze utility data for at least three years. Utility data for only one year is often insufficient to estimate the historical energy performance of a building. In some cases, certain conditions such as special events or extreme weather may create biases in the energy use of the building.
- Perform any relevant measurements such as lighting levels, IR photos, indoor temperatures, airflow rates supplied by air-handling units, and electrical energy end-uses as well as indicators of electrical power quality.
- Model the existing building using a detailed energy simulation tool. Ensure that the simulation model is well calibrated using utility data. Typically, monthly calibration within 10 percent is required to increase the confidence level in the predictions of the building energy simulation model
- Carry out calculations to estimate energy savings from potential energy conservation measures using both the calibrated energy simulation model and simplified calculation procedures outlined in this book

- Perform an economic analysis using simple payback, net present worth, or life-cycle cost (LCC) analysis methods for all the energy conservation measures. The implementation details and costs should be provided for each measure.

- Select the energy conservation measures to be recommended for implementation. In addition, specify the additional benefits of each measure (such as improving thermal or visual comfort), the implementation costs, and any information to help the client implement these measures.

The report of a standard energy audit should summarize the results of all the completed tasks. A recommended outline for the standard energy audit report is provided below. It should be noted that the same outline can be used to report the findings for a detailed energy audit.

Agenda

Interreg
Balkan-Mediterranean
PRO-ENERGY

Agenda

National Agency of Natural Resources

3st Session Project Training
13 April 2022

Pro-Energy «Promoting Energy Efficiency in Public Buildings of the Balkan Mediterranean Territory », of the European Territorial Cooperation Programme (INTERREG V-B) Balkan-Mediterranean 2014-2020»

VENUE: National Agency of Natural Resources, Blv Bajram Curri Bll. Vasil Shanto Tirane, Albania

9:00 – 9:15	Regjistrimi i pjesëmarrësve
9:15 – 9:20	Prezantimi dhe hapja e takimit nga perfaqesues te Pushtetit Vendor, Agjencise Kombetare te Burimeve Natyrore, Agjencia per Mbeshtetjen e Qeverisjes Vendore, si dhe Ministria dhe Infrastruktures dhe Energjise.

Aksionet e perbashkta te eficenses se energjise ne ndertesa publike

9:20 – 10:00	Eficensa e Energjise, Informimin dhe ndjeshmeria e publikut per investimet e kesaj natyre **zj, Enkejleda Arizaj, Agjencia Kombetare te Burimeve Natyrore**
10:00 – 10:30	Prezantimi i një projekti për eficensën e energjisë në një godinë **Z. Erald Proko, Agjencia Kombetare te Burimeve Natyrore**
10:30 – 11:00	Plani i Veprimit Kombetar i Eficenses se Energjise , **Zj. Entela Cipa, Agjencia e Eficenses se Energjise**

AKBN Page 1 of 2

11:00 – 11:30 Koeficienti i Humbjeve Volumore të Nxehtësisë në Transmetim. **Zj.Evis Brahimaj, Agjencia Kombetare te Burimeve Natyrore**

Politikat e Eficenses se Energjise dhe kuadri ligjor

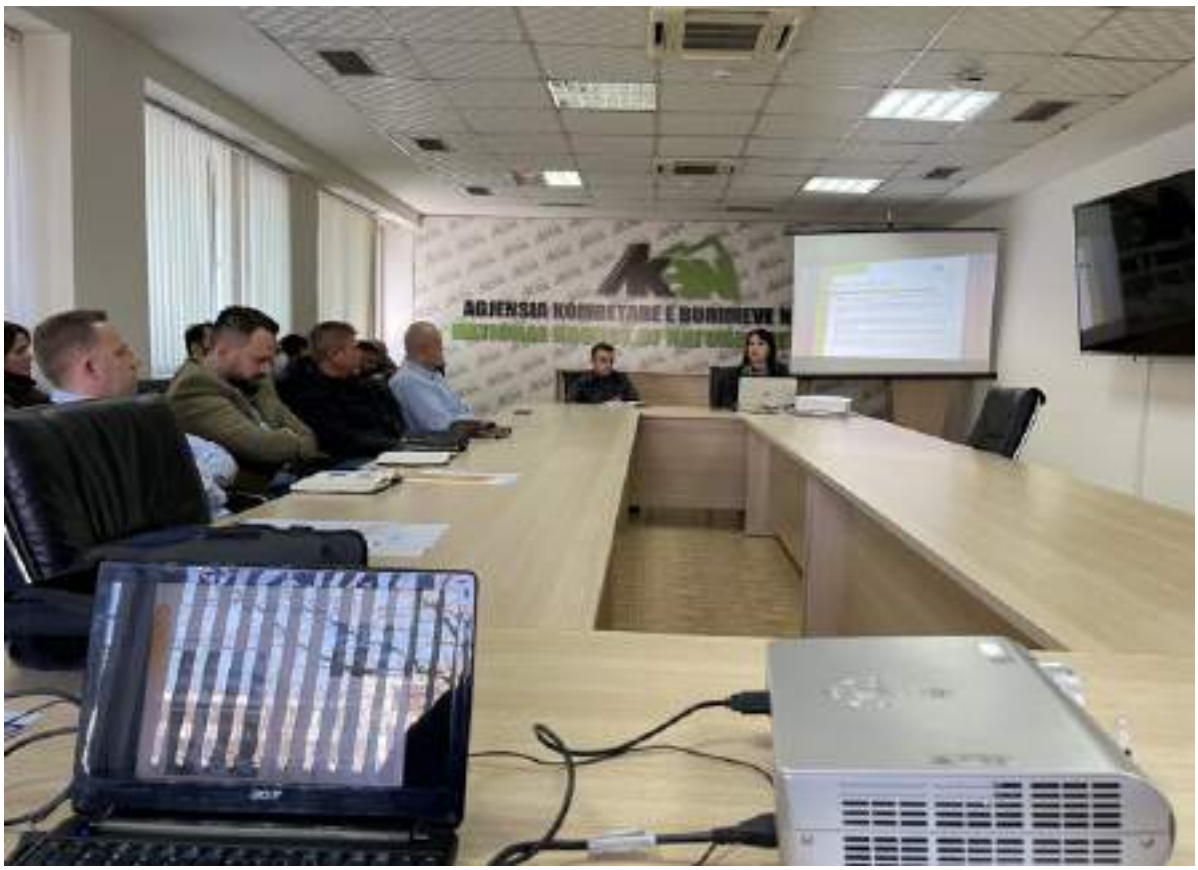
11:30 – 14:00 Karakteristikat strukturore të ndërtesave në vendin tonë, stoku i vjeter dhe i ri i ndërtesave, Ligji "Për ruajten e nxehtësisë në ndërtesa", Kodi energjitik i ndërtesave. **Zj. Teuta Thimjo Agjencia Kombetare te Burimeve Natyrore**

14:00 – 15:30 Programi i Kombeve te Bashkuara per Eficensen e Energjise (A.Leskoviku), **Agjencia Kombetare te Burimeve Natyrore**

Mundesite e Financimit per eficensen e energjise

15:30 – 17:30 Eficenda e Energjise dhe Metodat e Financimit Elvis Jorgji, **Agjencia Kombetare te Burimeve Natyrore**

Photos Training




AKBN

SECTION 4: Training Nr.4

Fourth Session Project Training: **"ENERGY USING PRODUCTS and ENERGY RETROFITTING OF THE BUILDINGS "**

Pro-Energy «Promoting Energy Efficiency in Public Buildings of the Balkan Mediterranean Territory », of the European Territorial Cooperation Programme (INTERREG V-B) Balkan-Mediterranean 2014-2020»

WP4 – Del.4.6.3 **Capacity Building for Energy Managers**

Date	21 April 2022
Venue	National Agency of Natural Resources, Blv. Bajram Curri Bll. Vasil Shanto Tirane, Albania
Host	**Pro-Energy «Promoting Energy Efficiency in Public Buildings of the Balkan Mediterranean Territory », Directory of Renewable Energy**
Link	http://www.akbn.gov.al/category/energjite-e-rinovueshme-projektet/projekte-te-huaja/projekti-re-source/

Participants

The number of participants: 15

Their background:

The attendees of the event were mainly composed by representatives of energy companies, local authorities, the Higher Education Institution of Albania, as well as representatives of several companies responsible for the sustainable development of Albania.

Topics and outcomes

The training course was organised in order to understand the current state, the challenges and the assets of the energy sector in the Albania area, as well as to formulate recommendations for the improvement. Focus on the energy-using products, such as electrical and electronic devices or heating equipment, account for a large proportion of the consumption of natural resources and

energy, having also significant environmental impacts. In this context, the EU has published Directive 2005/32/EC for setting eco-design requirements for Energy-using Products. This this training presented and energy retrofitting of the building.

BUILDING ENVELOPE

The building envelope, also known as the building fabric, comprises the roof, walls, floors, windows and doors of a building. Even a properly constructed and well maintained building will lost heat from all these components of the envelope, to a percentage that may reach 10-15% of its total fuel bill.

- **Insulating the roof** reduces the need for heating in winter and cooling in summer, and makes the building a more comfortable place to be. Radiant heat from an uninsulated roof makes the occupants feel uncomfortable, and they will run the air-conditioner at a lower temperature to counteract this problem. If the building is not insulated at all, roof insulation is generally more cost effective than floor or wall insulation.

- Many buildings are built on an uninsulated, suspended slab. In cooler climates this will probably cause occupants to suffer from cold feet. **Insulating the slab** will improve occupant comfort, but is generally less cost-effective than insulating the roof.

- **Insulating walls** will also reduce the need for heating and cooling in your building. The cost effectiveness of insulating the walls depends on the external wall area, the wall-to-window ratio, and the kind of insulation chosen. Generally, wall insulation is less cost effective than roof or floor insulation.

Increase window shading: Both internal and external blinds and shutters are available as shading options. Internal shades are less effective at keeping heat out of a building than external shades. Internal blinds give occupants some control over the light and temperature of their environment. On the east and west sides, vertical shutters may be more effective than horizontal shutters, which are most effective on the north and south.

- **Increasing glazing insulation:** The air layer trapped between the sheets of glass acts as insulation. Thus, an extra layer of glazing decrease heating needs when it is cold outside, and cooling needs when the weather is warm. However, retrofit of glazing is expensive, and may not be cost effective as an energy conservation measure.

- **Increase frame insulation:** Heat can be transferred into (or out of) a building through the window frame itself. Thermally broken aluminium frames contain an insulating layer between the inside and outside layers of aluminium, and conduct less heat than standard aluminium frames. Wood is less conductive than aluminium. Although window replacement is expensive, it is important to consider the frame material when installing new windows or selecting new premises.

- **Install a reflective light shelf:** This is a horizontal shelf about two-thirds of the way up the window. The shelf serves the double purpose of shading occupants close to the windows from glare and distributing daylight to occupants seated a long way from

windows. Light is reflected from the shelf, onto the ceiling and deep into the office.

- Installing a light shelf involves expensive modification of the fabric, and produces significant savings only if there are automatic daylight controls for artificial lighting.
- **Change the roof colour:** Darker colour roofs will absorb more heat from the sun, while lighter colour roofs will reflect more light, leaving the building cooler. Keeping heat out is particularly important for office buildings.
- **Change the wall colour:** Light coloured external walls will reflect more sunlight than dark coloured walls, and may reduce the heat absorbed into the building. Lighter internal walls will also brighten the work areas with reflected light.

Albania after this training will create links between energy efficiency and renewable energy policies. We will do it as part of an overall energy strategy, combining all elements of the energy policy. Others link energy efficiency and renewables as part of their climate change strategies, where we are making this linkage through sustainable energy strategies. Integrating energy efficiency and renewable energy into both energy and environmental policies is important for establishing a framework for ripping the practical benefits of the integration opportunities.

Agenda

National Agency of Natural Resources

4th Session Project Training
21 April 2022

Pro-Energy «Promoting Energy Efficiency in Public Buildings of the Balkan Mediterranean Territory », of the European Territorial Cooperation Programme (INTERREG V-B) Balkan-Mediterranean 2014-2020»

VENUE: National Agency of Natural Resources, Blv Bajram Curri Bll. Vasil Shanto Tirane, Albania

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9:15 – 9:20	Prezantimi dhe hapja e takimit nga perfaqesues te Pushtetit Vendor, Agjencise Kombetare te Burimeve Natyrore, Agjencia per Mbeshtetjen e Qeverisjes Vendore, si dhe Ministria dhe Infrastruktures dhe Energjise.

Aksionet e perbashkta te eficenses se energjise ne ndertesa publike

9:20 – 10:00	Eficensa e Energjise dhe produktet e saj ne konsum te energjise **zj, Enkejleda Arizaj, Agjencia Kombetare te Burimeve Natyrore**
10:00 – 10:30	Prezantimi i një projekti për eficensën e energjisë në një godinë **Z. Erald Proko, Agjencia Kombetare te Burimeve Natyrore**
10:30 – 11:00	Efekti i termoizolimit ne nje godine punlike , **Zj. Teuta Thimjo, Agjencia e Eficenses se Energjise**

11:00 – 11:30 Koeficienti i Humbjeve Volumore të Nxehtësisë në Transmetim. **Zj.Evis Brahimaj, Agjencia Kombetare te Burimeve Natyrore**

Politikat e Eficenses se Energjise dhe kuadri ligjor

11:30 – 14:00 Karakteristikat strukturore të ndërtesave në vendin tonë, stoku i vjeter dhe i ri i ndërtesave, Ligji "Për ruajten e nxehtësisë në ndërtesa", Kodi energjitik i ndërtesave. **Zj. Teuta Thimjo Agjencia Kombetare te Burimeve Natyrore**

14:00 – 15:30 Programi i Kombeve te Bashkuara per Eficensen e Energjise (A.Leskoviku), **Agjencia Kombetare te Burimeve Natyrore**

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15:30 – 17:30 Eficenda e Energjise dhe Metodat e Financimit Elvis Jorgji, **Agjencia Kombetare te Burimeve Natyrore**