



Support for low emission development in South East Europe (SLED 1&2): Low-carbon transformation of the Residential and Public Building sector in Albania

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Energy Efficiency on Residential and Public Building

- To assist the design of climate mitigation policies (energy performance) in the Residential and Public buildings of Albania and help developing parts of EE policy:
 - What are the **future trends of energy consumption** and **CO2 emissions**?
 - What are **the key influencing factors on Energy consumption and CO2**?
 - What are **the priority sector segments for EE policies in Albania**?
 - What kind of Energy Efficiency **policy packages should be part of NEEAP 2&3**?
 - what level of policy efforts (measures to be taken) **are required to make** the Public and Private buildings **low energy/carbon in the medium/long term future**?
 - What are the associated costs?
 - What are the possible expectations energy savings and CO2 emission reduction? Setting targets on building renovation strategy.

Energy Efficiency on Residential and Public Building

- The aim of the project SLED 1-2 was not only to supply ready results and policy, but also to increase the capacity of policy-makers and experts to conduct their own assessment with a bottom up approach.
 - There were more than 3+8 local experts involved on energy audit reports and data processing on private and public building stock
 - There were more than 300 typical buildings taken into consideration from the Private/Public building stock
 - There were more than 120 buildings under energy audit, and
 - There were more than 240 data processed and assessed for the projects
- Comparing to the size of Albania the project got the best study for NEEAP development document.
- NEAAP has 2 main priorities: Building (37.4 ktoe) and Transport (49.5 ktoe) out of 123.7 total savings during 2016-2020 period, or 6.8% of 2,245 ktoe consumption on 2020.

Energy Efficiency on Residential and Public Building

- The main output of the project SLED 1-2 is the reflection of the results in the NEEAP 2016-2020.
 - The exemplary role of Government Buildings was reflected with 6 measures in NEAAP document based on the feedback of SLED 2
 - A financial package was assessed as an output of SLED 1 for the low carbon developments for the private buildings. This package will help banks for EE credit lines on building renovation
 - The Public Building Renovation Strategy (2%) was set in NEEAP 2016-2020 as an output of SLED 2
- The outputs for the cost-effective of the building renovation (€/m²) is leading the cost estimation on EE building renovation better than any other study ever done in Albania for the NEEAP 2016-2020.

TASKS:

1. Develop Private and Public building topologies
2. Design a bottom-up simulation model to assess the impact of policy packages
 - working closely with representatives of ministries of energy, environment and other institutions on the design and assumptions of the models.
 - These policy-makers were trained for modelling software.
 - The models with all underlying input data were provided to these stakeholders.

The **REPORT** includes:

- - The design and installations of the reference building;
- - The modernization solutions;
- - The energy performance calculation
- - The optimal cost calculation.

Ongoing Energy efficiency legislation and policies with focus on energy efficiency on private and public buildings

The main policy documents and laws governing the activities in the field of EE in Albania include the following:

- **Law no. 124/2015 regarding the energy services (ESD) and Energy Efficiency Directive (EED)**
- Decision No, 38/2003 approving the Energy Buildin Code (recast)
- draft Decision No, __/2016 approving the **Albania Energy Efficiency Agency**
- draft Decision No, __/2016 approving the **Energy Audit Regulation for Licensing**
- **Draft Law on Transposition and implementation of Directive 2010/31/EC on energy performance on Building.**
- Draft of 2nd and 3rd National Energy Efficiency Action Plans (next NEEAP). The adoption and implementation of NEEAPs was required by ESD (2006/32/EC), and is required, as well, by the EED (2012/27/EU) that repealed the ESD.

There are four stages of elaboration foreseen for 2016th:

- June 30, 2016 – submission of EPBD for Government Decision and than Parliamentary sessions.
- July 15, 2016 - submission of NEEAPs;
- July 30, 2016 - submission of Energy Audit Regulation for Licensing (required by Law on EE 124/2015)
- September 30, 2016 - submission of the draft DCM of EEA
- October 30, 2016 – submission of the DCM of **Energy Efficiency Fund establishment**

Results: building stock database and topology analysis

ALBANIA: Building Category	PUBLIC BUILDING		Area by category (m2)	Total area of public building (m2)		Area of state owned buildings (m2)
	By the total of building stock	By the total of public stock				
Comercial, services	5.70%	21.39%	3,436,900	-		
Offices	2.32%	8.69%	1,397,200	Offices	1,397,200	856,030
Education	10.58%	39.71%	6,382,300	Education	6,382,300	5,014,069
Hotels and restaurants	5.29%	19.85%	3,190,200	-	-	-
Health Facilities	1.49%	5.59%	897,900	Health Facilities	897,900	758,630
Sports	0.26%	1.59%	256,000	Sports	256,000	-
Other	1.01%	3.17%	510,000		-	
Total non-residential	26.64%	100%	16,070,500	Total public	8,933,400	6,628,729

Non residential 16,070,500

Total stock **60,322,000**

- Energy demand could be reduced in case of standard and ambitious retrofits even though these retrofits assume higher thermal comfort.

Scenarios – target group of buildings – baseline

New buildings

- comply with the building codes recently adopted or to be adopted
- these codes correspond to the characteristics of the measures of the “standard” improvement.

Existing buildings

- will be retrofitted by 2030 in Albania to the standard level and will get financial support for that.

Grants will be provided to cover eligible costs for:

- Low income regions
- in large buildings : 90% of the retrofitted during 2018 - 2030 declining to 10% of them by the target year

Low interest loans should be provided to cover eligible costs for:

Ambitious scenario

Additionally to the assumptions of the moderate scenario:

- after 2018: comply with the building codes to be introduced in that year;
- these codes correspond to the characteristics of the measures of the “ambitious” improvement;
- before 2018: are eligible for low-interest loans to cover eligible costs, if their performance achieve that according to the 2018 building code

New buildings

Existing buildings

- will be retrofitted by 2030 in all countries and will get financial support for that (the same structure as in the moderate scenario)
- until 2022, will have to comply with the standard improvement
- after 2023, will have to comply with the ambitious improvement

Results on public buildings:

- In Albania, both moderate and ambitious policy scenarios may deliver significant energy savings .
- Ambitious scenario (improvement 2) only on Kindergarden Dormitories and Hospitals, the rest Improvement 1 only.
- Sector priorities for policy-making and decisions to be taken on Next NEEAP 2-3.
 - In Albania, it is important to ensure that public building built after 1991 will be retrofitted
 - it is important to retrofit the building stock constructed in 1971 – 1990
- For the country it makes sense to focus on energy savings in small buildings like kindergardens and creches and large buildings at Hospitales and Dormitories
- Space heating/cooling is the largest energy use for energy savings.

Results:

- The investment required are high:
 - Need to couple thermal efficiency improvement of existing buildings with their BAU renovation
- The investments into all scenarios are cost-effective or on the border of cost-effectiveness.
 - Saved energy costs are higher than annualized investment costs as a whole on the country level, but not for all building categories in all climate zones.
 - It is important to calculate other benefits additionally to saved energy costs
- The realization of the scenarios requires a careful design and massive provision of financial products for the Public energy efficiency as well as the introduction and enforcement of building codes.