





- 1. Support in updating the methodology for calculation of energy performance of buildings in Moldova followed by the Minimum Energy Performance requirements development
- 2. Support in development of Regulation on Energy Performance Certification of Buildings to implement the EPBD in Georgia – building on methodology development
- 3. Support in development of the National Energy Efficiency Action Plan 2019-2030 for Ukraine

- All the activities described in the presentation were finalised in course of the second year Work Programme (May 2018 – April 2019)
- EU4Energy Programme is funded by EU





Support in updating the methodology for calculation of energy performance of buildings in Moldova





Support in updating the methodology for calculation of energy performance of buildings in Moldova

Update of methodology / regulation for calculation of energy performance in buildings:

- Built on methodology for space heating heat and domestic hot water and added energy requirement calculations for:
 - Ventilation
 - Cooling
 - Lighting systems
 - Impact of external energy sources
- Built an open-source excel-based tool based on the methodology to calculate energy consumption which could be used for other countries





Support in updating the methodology for calculation of energy performance of buildings in Moldova - Structure of updated calculation tool for EPB calculation

The calculation tool is based on three interconnected types of calculation sheets:

I. Calculation sheets for required energy

they are calculation sheets for calculation of energy requirement for several energy consumption types

II. Auxiliary calculation sheets

- sheets for calculation of thermo-technical characteristics of building structures (U-value, thermal coupling coefficient)
- database of constructions materials with thermal-technical parameters
- conversion factors for primary energy and CO₂ emissions

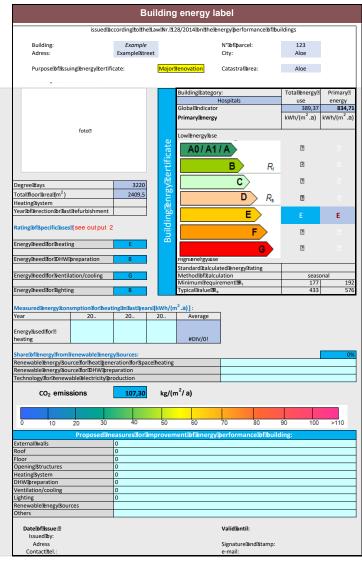
III. Pages of certificate

- summarization of results from calculation sheets into form of certificate
- short description of actual building state of building and proposed energy saving measures





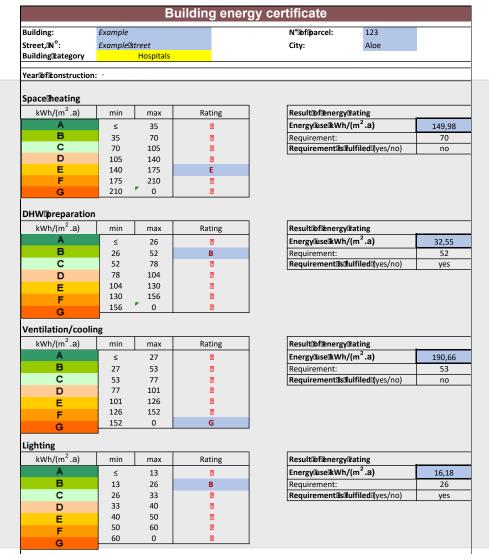
Moldova: Pages of certificate (1/7)





EU4Energy

Moldova: Pages of certificate (2/7)





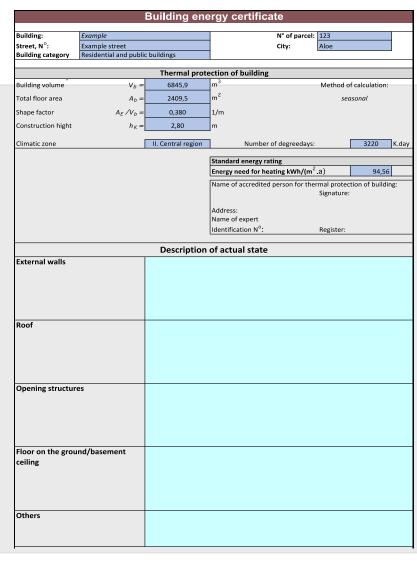


Moldova: Pages of certificate (3/7)

Total@energy@use					
kWh/(m ² .a)	min	max	Rating	Result@fi@nergy@ating	
Α	≤	101	?	Energy@use@kWh/(m2.a)	389,37
В	101	201	?	Requirement:	201
С	201	293	2	Requirement@s@fulfiled@yes/no)	no
D	293	385	?	·	
E	385	481	E		
F	481	578	?		
G	578	0	?		
	_				
Primary energy	Ι.			n 115 for 5 11	
kWh/(m².a)	min	max	Rating	Result®of®energy@ating	
A	≤	192	2	Energy@use@kWh/(m ² .a)	834,71
В	192	384	2	Requirement:	384
С	384	576	2	Requirement@sffulfiled@yes/no)	no
D	576	769	?		
E	769	961	E		
F	961	1153	?	Namelloflaccreditedlapersonliforlithern	mal@protection@
G	1153	0	?	of@buildings:	
·				Signature@and@tamp:	
				Address:	
				Identification N°:	
				Register:	



Moldova: Pages of certificate (4/5)





Moldova: Pages of certificate (5/5)

Description of proposed measures for improvement of energy performance				
External walls				
Roof				
Opening structures				
Floor on the ground/basement ceiling				
Others				

Other sheets also for type of measures and savings...





Support in updating the methodology for calculation of energy performance of buildings in Moldova

 Energy classes of buildings were elaborated for each component including total energy use, and primary energy consumption - based on Slovakian classes adjusted for Moldovan climate and using the ratios from heating requirements for each specific element

 A number of examples of energy audits were processed in the tool to show how it works



Support in updating the methodology for calculation of energy performance of buildings in Moldova

 Two workshops to discuss the methodology, calculation tool, and classification system were conducted (completed in February 2019)

 Tool can be used as inputs calculating Minimum Energy Performance requirements





Support in development of Regulation on Energy Performance Certification of Buildings to implement the EPBD in Georgia





Support in updating the methodology for calculation of energy performance of buildings in Georgia

- Expanded / altered the open-source excel-based tool based on the methodology to calculate energy consumption more precision than in the Moldovan example (Georgian and English versions) including more detail on:
 - Shading
 - Opaque elements
 - Unconditioned spaces
 - RES production (solar thermal, PV, wind)
- Based on the methodology and calculation tool, developed a regulation (ordinance) with:
 - Methodology and notes on what information the auditors need to input into the tool (being finalized)
 - Layout of the energy performance certificate
 - Energy classes based on minimum energy performance standards (B class) of buildings elaborated for each component including total energy use, and primary energy consumption - based on Slovakian classes adjusted for Georgian climate and using the ratios from heating requirements for each specific element





Support in updating the methodology for calculation of energy performance of buildings in Georgia



- A number of examples of energy audits are being processed in the tool to show how it works
- Two workshops to discuss the methodology, calculation tool, and classification system were conducted (completed in May 2019) – with potential additional workshop to be undertaken



Support in updating the methodology for calculation of energy performance of buildings – challenges and opportunities

Challenges:

- Each country can choose their own level of precision required and default parameters – makes for a difficult task to create a tool
- Most software tools are proprietary and thus need to be built from zero for a country using standard methodologies
- Developing the detailed methodology and calculation tool is a massive undertaking...

Opportunities:

Many EnC countries are undergoing this process at the moment – so if one
methodology could be agreed upon (for example the Georgia methodology) then
the climate parameters would change, but the rest could remain the same (?)



Support in development of the National Energy Efficiency Action Plan 2019-2030 for Ukraine





Support in development of the National Energy Efficiency Action Plan 2019-2030 for Ukraine

The objective of the project is to develop the National Energy Efficiency Action Plan of Ukraine for period 2019-2030 (draft NEEAP)

- In accordance with Directive 2012/27/EU,
- An intermediate target and reporting on savings every 3 years starting with 2021
- Following developed NEEAP Template which:
 - Reports on accomplishments of the 1st NEEAP
 - Reports on how Ukraine is implementing / will implement the Energy
 Efficiency Directive (EED) 2012/27/EU (as adopted by EnC)





Support in development of the National Energy Efficiency Action Plan 2019-2030 for Ukraine

Task
Task 1. Kick-off meeting with participation of the EnCS and the beneficiaries
Task 2. Review of the current NEEAP
Task 3. Develop a detailed structure and generalised content for the next NEEAP
Task 4. Creation of the list of measures for inclusion in next NEEAP and their associated preliminary forecasted energy saving potential
Task 5. Creation of the list of measures for inclusion in next NEEAP
Task 6. Drafting of the full NEEAP – complete except for calculations
Task 7. Stakeholder consultation on the draft NEEAP report – to be undertaken soon

Task 8. Finalisation of the NEEAP for the governmental approval process

Currently finalizing calculations and the full draft





Support in development of the National Energy Efficiency Action Plans – challenges and opportunities

Challenges:

- Data needs are immense for proper development of a NEEAP that can be monitored on a "per-measure" basis
- Monitoring of measures particularly for Article 7 can be a daunting task and should be planned
- NEEAPs take capacity and time to develop...

Opportunities:

- Updated (EED compliant) template has been developed for EnC countries
- Bottom up calculation tools developed for Ukraine (and Georgia) are available for use – as are calculation tools for ecodesign / energy labelling impact estimates









