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PROGRESS AND CHALLENGES IN THE AREA OF ENERGY EFFICIENCY IN HEATING & COOLING IN BUILDINGS IN THE REPUBLIC OF MOLDOVA



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ENERGY SECTOR REVIEW

- The Republic of Moldova is highly dependent on energy imports, 86,3 % of the energy consumption is covered from import
- Very high energy intensity (roughly 3 times over EU average)
- The share of RES in final energy consumption is about 14 % (according to the 2015 Energy Balance)

The lack of own resources and high energy intensity sets the energy efficiency and renewable energy sources as a top priority



EE & RES PROMOTION INSTITUTIONAL FRAMEWORK

Ministry of Economy –
public central authority in the energy sector

Government Decision
No. 690 of 13.11.2009

**Ministry of Regional Development and
Construction –**
public central authority in the construction and
regional development sector

Government Decision
No. 662 of 10.11.2009

Energy Efficiency Agency –
administrative authority in the field of EE & RES

Government Decision
No 1173 of 21.12. 2010

Energy Efficiency Fund –
institution focused on identification and financing
of EE & RES projects

Law
No. 160 of 12.07.2007

National Agency for Energy Regulation –
institution focused on energy sector regulation

Government Decison
No. 767 of 11.08.1997

EE & RES PROMOTION LEGAL FRAMEWORK⁽¹⁾

Law on Adherence of the RM to the Treaty establishing the Energy Community

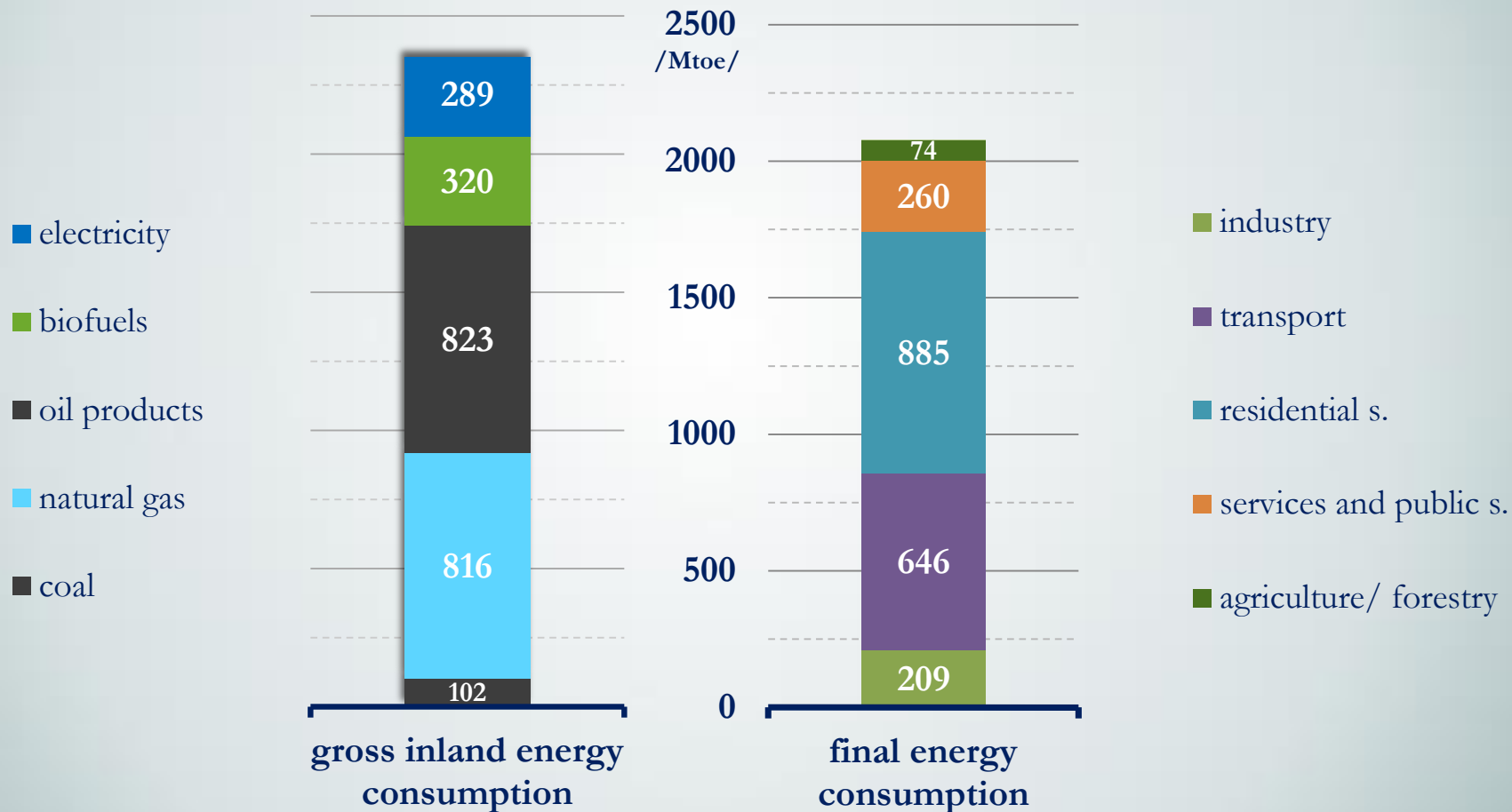
Law No.117 of 23.12.2009

- | | |
|--|-----------------------------|
| • Energy Strategy 2030 | Gov. D No.102 of 05.02.2013 |
| • <i>Renewable Energy Law (to be substituted)</i> | <i>No.160 of 12.07.2007</i> |
| • Law on the promotion of the use of energy from renewable sources | No. 10 of 26.02.2016 |
| • <i>Law on Energy Efficiency (to be substituted)</i> | <i>No.142 of 02.07.2010</i> |
| • Law on the energy performance of buildings | No. 128 of 10.10.2014 |
| • Law on heat and cogeneration promotion | No. 92 of 29.05.2014 |
| • Law on eco design | No. 151 of 17.07.2014 |
| • Law on energy labelling | No. 44 of 02.07.2014 |

EE & RES PROMOTION LEGAL FRAMEWORK⁽²⁾

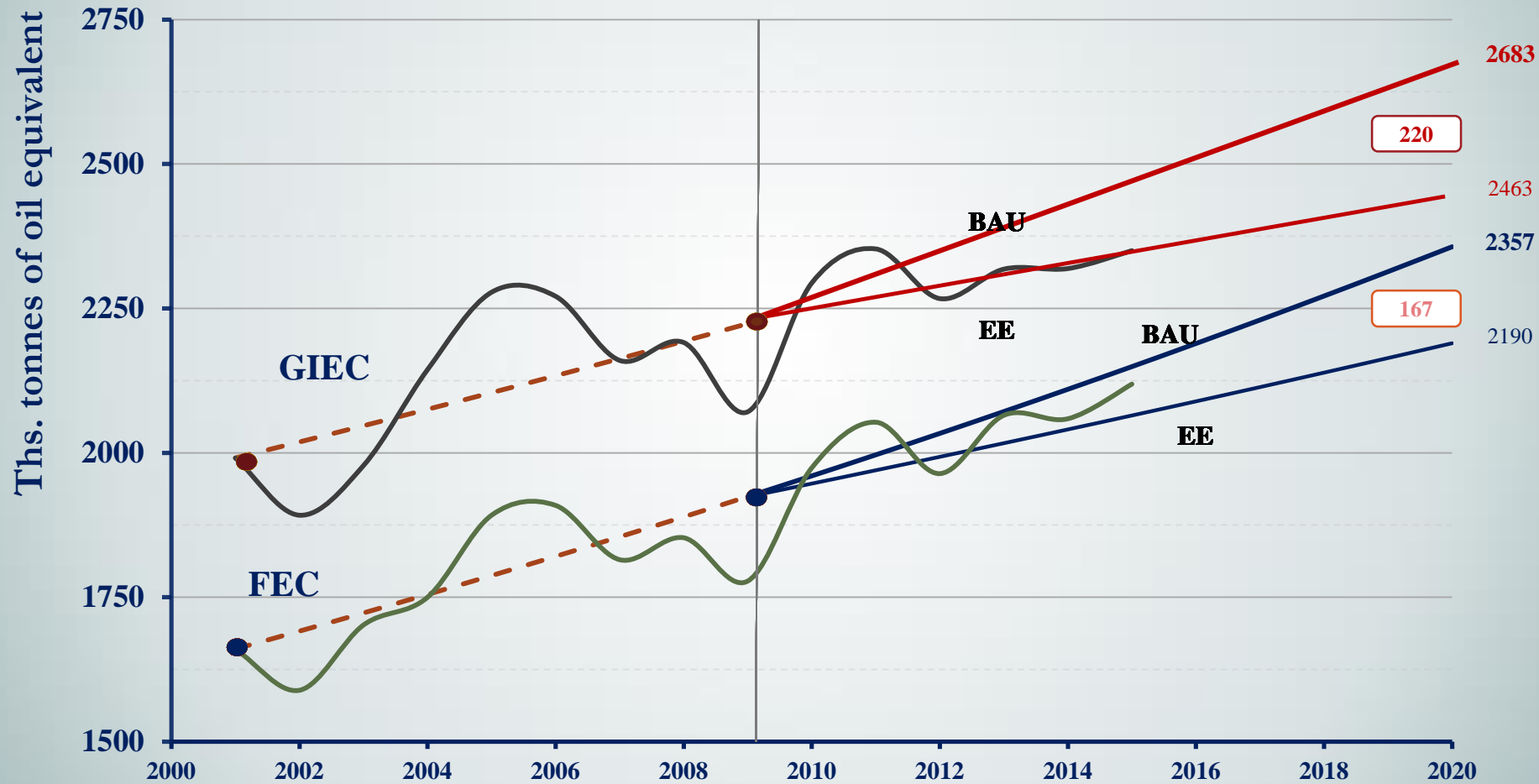
• Regulation on energy services	GD No. 1093 of 31.12.2013
• National Energy Efficiency Program 2011-2020	GD No. 833 on 10.11.2010
• National Renewable Energy Action Plan until 2020	GD No. 1073 of 27.12.2013
• National Energy Efficiency Action Plan 2016-2018	to be approved
• Law on energy efficiency (transposes the Directive 27/2012 /EU)	
• <i>Secondary legislation</i> <ul style="list-style-type: none">- <i>under the</i> Law on energy efficiency- <i>under the</i> Law on the promotion of the use of energy from renewable sources- <i>under the</i> Law on energy performance of buildings	to be elaborated

BREAKDOWN OF THE COUNTRY'S ENERGY CONSUMPTION



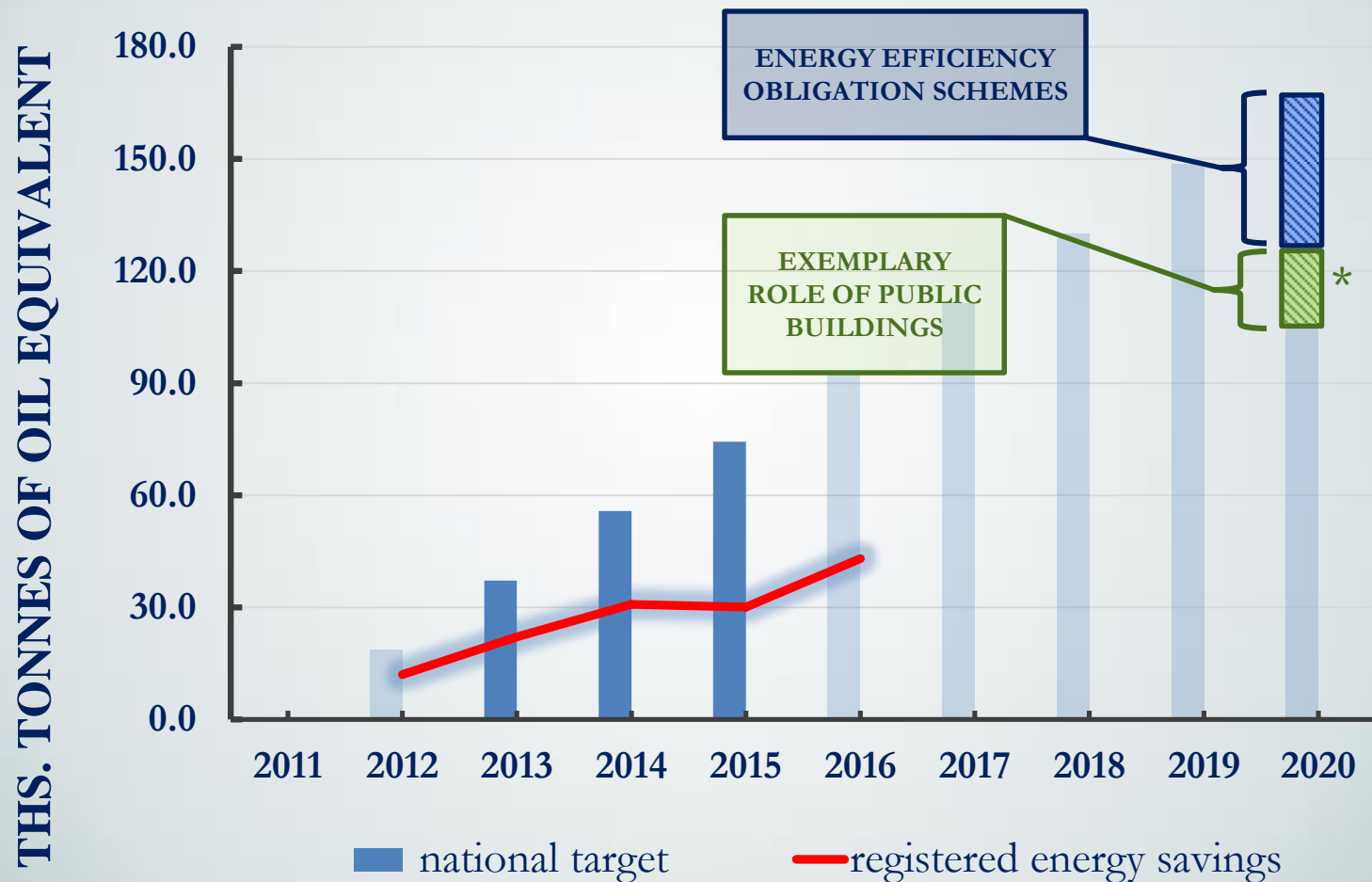
FULFILLMENT OF NATIONAL EE TARGETS

ESTABLISHED FOR 2020 / ACCORDING TO DRAFT NEEAP 16-18 /



NATIONAL ENERGY EFFICIENCY TARGET BY 2020

IN ABSOLUTE VALUES, ACCORDING TO NEEAP 2016-2018 VS ACHIEVED SAVINGS



Note: Energy savings to be achieved under art. 5 of the EED are yet to be assessed

ENERGY SAVINGS

ACHIEVED ENERGY SAVINGS VS. SECTORIAL TARGETS

National indicative target in 2020 (ktoe)			167.2 ktoe (not calculated in the 1 st NEEAP)	
National intermediate indicative target in 2016 (ktoe)			92.9 ktoe (adjusted value from the 1 st NEEAP)	
Sector division of target	Sector target (ktoe)		Achieved energy savings in 2015 (ktoe)	Estimated energy savings in 2020 (ktoe)
	2016	2020	From measures (BU)	From measures (BU)
Residential	40.1	72.2	1.2	77.3*
Public (services)	27.8	50.0	18.6	50.1
Industry	8.3	15.0	10.1	15.2
Transport	16.7	30.0	0.12	33.7
Total (ktoe):	92.9	167.2	30.0	176.3
Total (GWh):	1,080.4	1,944.5	348.9	2,050.0
<i>Percentage (%) (compared to ESD reference consumption)</i>	5.0%	9.0%	1.6%	9.5%



- figures which require attention

EE&RES PROJECTS/ INVESTMENTS

CURRENT AND FURTHER ACTIVITIES

World Bank project on Chisinau DHS modernisation	40 MUSD	initiated
EBRD Project on CHP North (Bălți City) modernisation /partially financed by E5P/	10 MEUR	initiated
Chisinau City Hall project on existing public buildings and residential/ housing fund rehabilitation /EBRD and EIB financing, E5P grant component/	25 MEUR	approved
EE and RES projects pipeline with E5P financial support	150 MEUR	under development
EBRD's SEFF financing Programme /with GCF contribution/	72,8 MEUR	under evaluation
EBRD's Green Cities Programme /with GCF contribution/	~30 MEUR	under evaluation
UNDP's project "De-risking and unblocking EE investments in public and residential buildigs in the RoM" /with GCF contribution/	100 MEUR	under evaluation

PROMOTION OF EE AND RES IN THE ROM

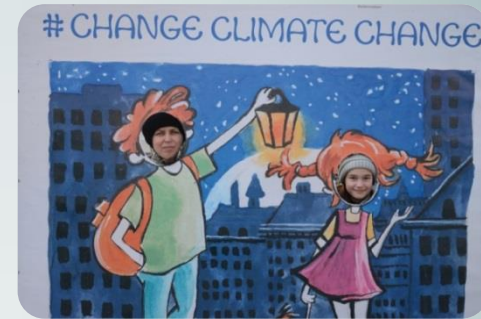
PALITRA OF THE COMUNICATION TOOLS BEING USED

1. Consultancy/ informational support
2. Mass-media campaigns
3. Mobile exhibitions
4. Radio and TV interventions, interviews
5. Audio and video spots, infographics
6. Leaflets, brochures, guidelines, instructions, etc.
7. Public events:
 - contests;
 - festivals, concerts feed by solar energy, flashmobs;
 - exhibitions;
 - national and regional Energy Days;
 - round tables, workshops, seminar, etc.



Moldova
Eco Energetică

În spiritul dezvoltării durabile

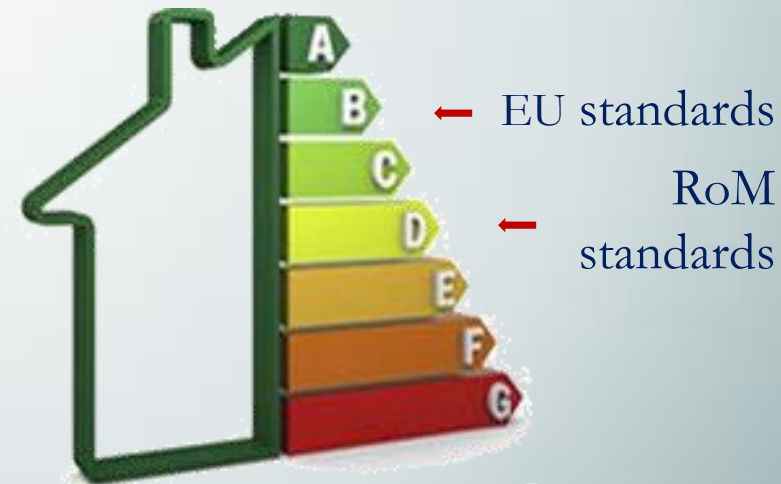


CURRENT SITUATION OF THE ROM BUILDING STOCK



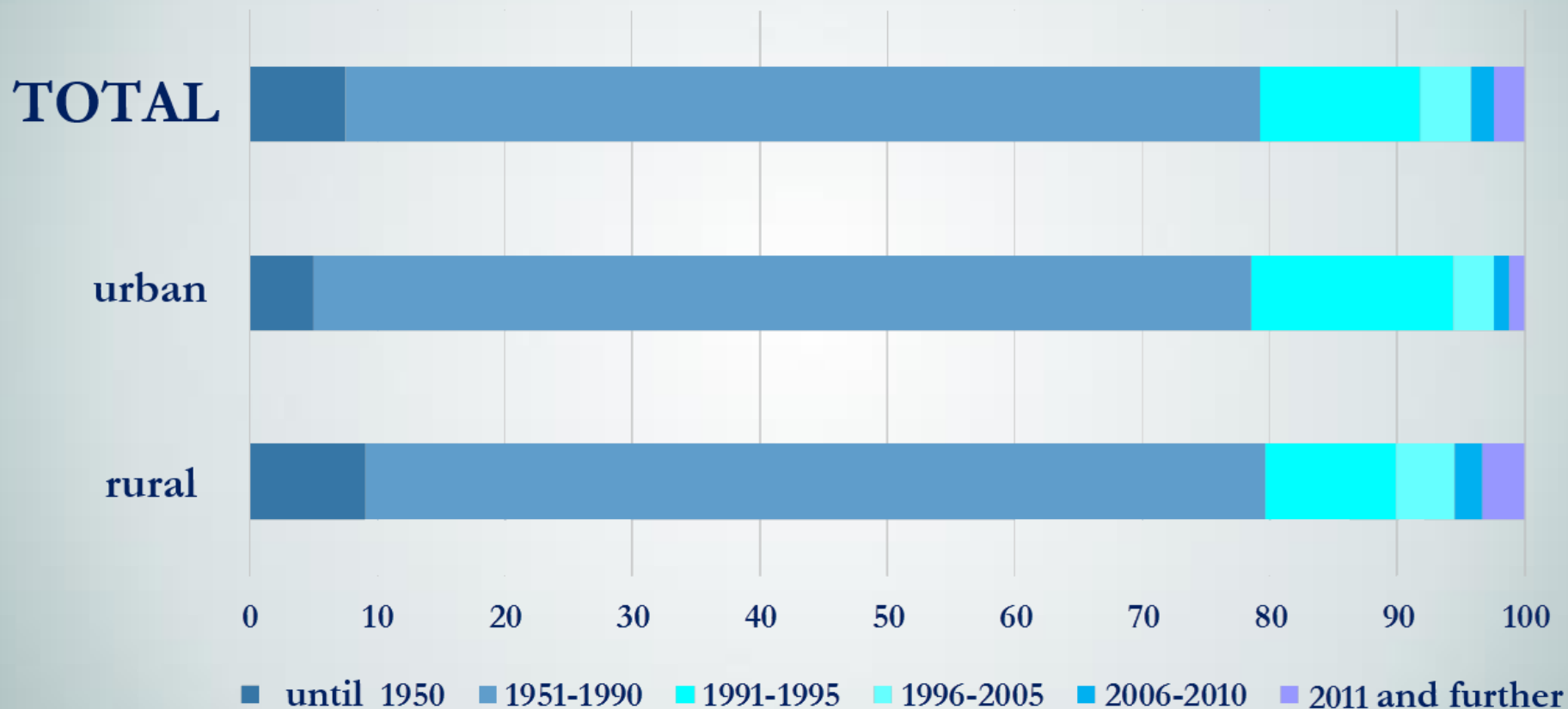
- the main part of the building stock doesn't comply with EE in buildings standards, being 20-60 years old
- 45% of the country energy consumption goes to building

- almost 75% of the buildings sector energy consumption is used for heating purposes
- current construction standards of the Republic of Moldova corresponds to D class



BREAKDOWN OF THE BUILDING STOCK

BY YEARS OF CONSTRUCTION AND AREA



EVOLUTION OF THE U-VALUE REQUIREMENTS

Building element	U value, W/m ² K							
	SniP II-3-79		NCM G.04.04-99		NCM E.04.01-2006		New regulation /under EPB Law/	
	Residenti al and social build.	Public and admin. build.	Residenti al and social build.	Public and admin. build.	Residenti al and social build.	Public and admin. build.	Residenti al and social build.	Public and admin. build.
Wall	1,19-1,26-	1,04-1,96	0,35-0,43-	0,36-0,5	0,36-0,48	0,42-0,56	0,32	0,34
Roof	0,79 - 0,83-	1,04-1,96	0,25-0,29	0,31-0,37	0,24-0,31	0,31-0,42	0,20	0,28
Roof slab /on unheated spaces/	1,04-1,96	1,04-1,96	0,28-0,33	0,37-0,44	0,27-0,36	0,37-0,5	0,20	0,2
Windows and doors	1,88-5,55-	2,08-6,66	2,38	2,56	2,22-3,33	2,5-3,33	≤1,7 2.2	≤1,7 2.2



improved by 70%

BUILDINGS ENERGY PERFORMANCE CLASSIFICATION

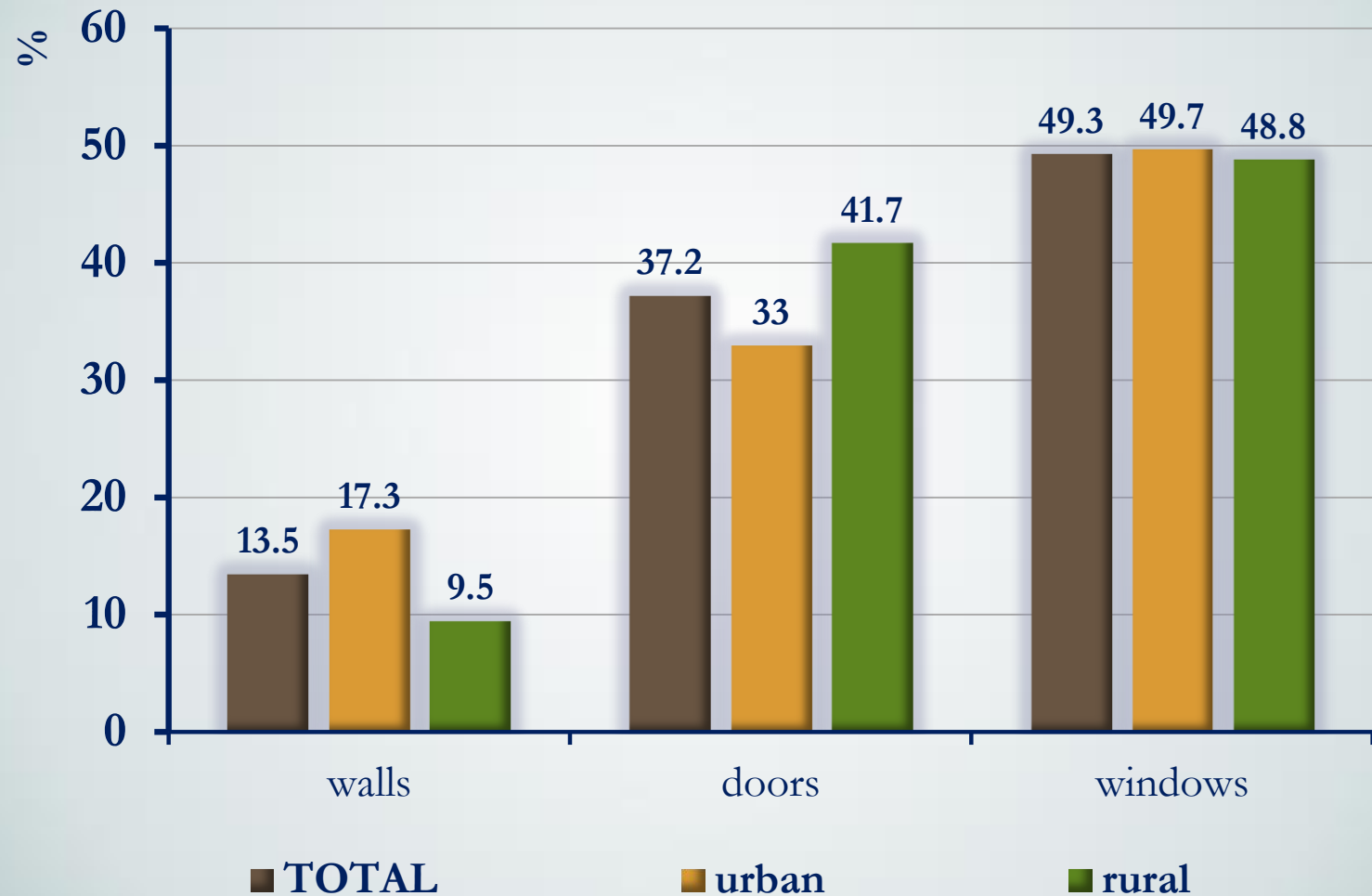
ACCORDING TO THE DRAFT REGULATION

	Type of building	Buildings energy performance classification, kWh/m ² yr.							Actual values
		A	B	C	D	E	F	G	
heating	Unifamilial houses	≤ 47	47-93	94-190	191-287	288-359	360-431	> 431	~125
	Multi-store buildings	≤ 22	22-44	45-102	103-159	160-199	200-239	> 239	~145
	Offices buildings	≤ 25	25-49	50-94	95-138	139-173	174-207	> 207	~200
	Social. Educational buildings	≤ 25	25-50	51-102	103-154	155-193	194-231	> 231	~180

Note: The **actual values** of buildings specific energy consumption for heating purpose are caused by *energy poverty* phenomenon, being by 30-50% less than normative/required consumption

BREAKDOWN OF THE BUILDINGS EE MEASURES

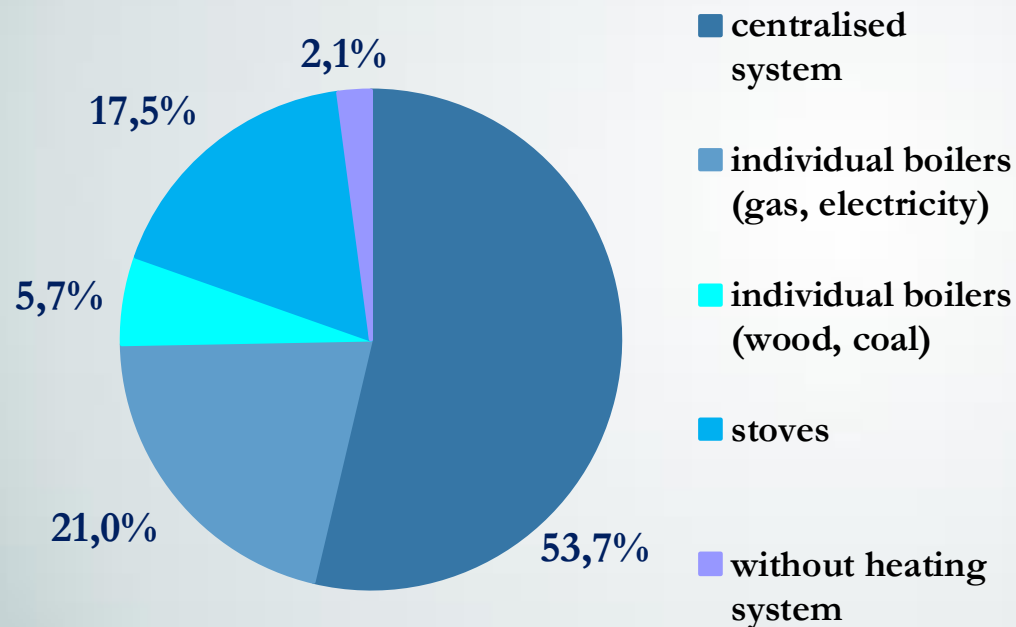
BY AREA OF INTERVENTION



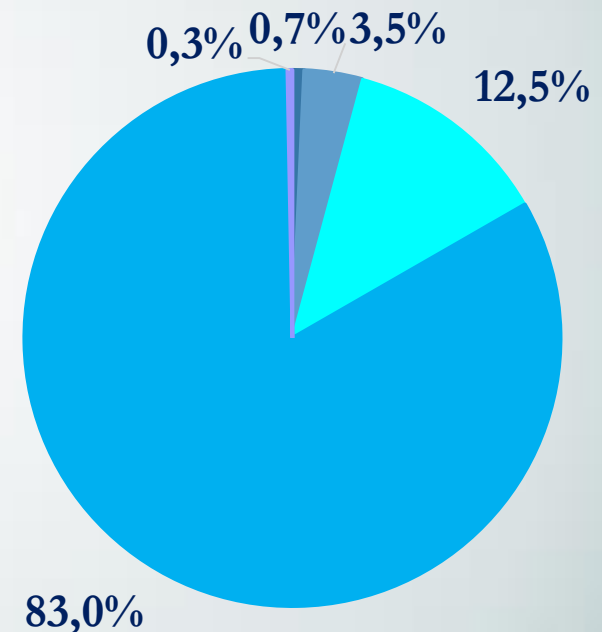
BREAKDOWN OF THE BUILDINGS HEATING SYSTEMS

BY TYPE OF HEATING SYSTEMS

URBAN AREA



RURAL AREA



MAIN PILLARS OF THE MOLDOVAN LAW ON ENERGY PERFORMANCE OF THE BUILDINGS

1. Buildings energy performance certification
2. Cost-optimal level of energy performance of buildings
3. Inspection of ventilation systems
4. Inspection of conditioning systems
5. Promotion of nZEB concept
6. National informational system on energy performance of buildings
7. Promotion of efficient use of energy in the building stock

Cod poștal localitate	Nr. înregistrare la Consiliul Local	Data înregistrării	
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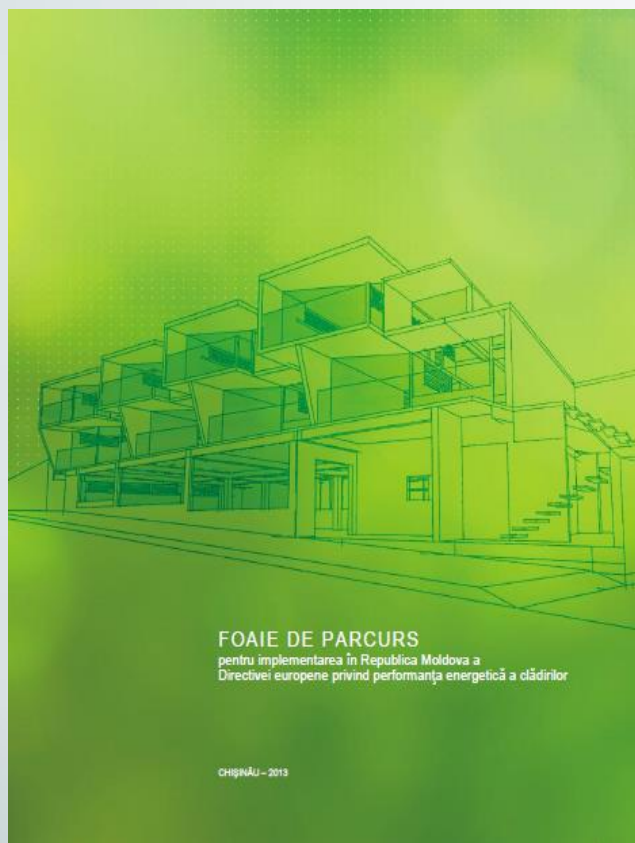
Certificat de performanță energetică	Performanța energetică a clădirii		Notare energetică:	
	Sistemul de certificare: Metodologia de calcul al Performanței Energetice a Clădirilor elaborată în aplicarea Legii		Clădirea certificată	Clădirea de referință
	Eficiență energetică ridicată			
	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="width: 20px; height: 15px; background-color: green; border: 1px solid black; margin-bottom: 2px;"></div> A </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="width: 20px; height: 15px; background-color: green; border: 1px solid black; margin-bottom: 2px;"></div> B </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="width: 20px; height: 15px; background-color: lightgreen; border: 1px solid black; margin-bottom: 2px;"></div> C </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="width: 20px; height: 15px; background-color: yellow; border: 1px solid black; margin-bottom: 2px;"></div> D </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="width: 20px; height: 15px; background-color: orange; border: 1px solid black; margin-bottom: 2px;"></div> E </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="width: 20px; height: 15px; background-color: orange; border: 1px solid black; margin-bottom: 2px;"></div> F </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="width: 20px; height: 15px; background-color: red; border: 1px solid black; margin-bottom: 2px;"></div> G </div>		C	B
	Eficiență energetică scăzută			
	Consum anual specific de energie [kWh/m²an]			
	Indice de emisii echivalent CO₂ [kgCO₂/m²an]			
	Consum anual specific de energie [kWh/m²an] pentru:		Clasă energetică	
			Clădirea certificată	Clădirea de referință
	Încălzire:			
Apă caldă de consum:				
Climatizare:				
Ventilare mecanică:				
Iluminat artificial:				
Consum anual specific de energie din surse regenerabile [kWh/m²an]:				

Date privind clădirea certificată:			
Adresa clădirii:	Suprafața încălzită utilă:m²		
Categorie clădire:	Suprafața construită desfășurată:m²		
Regim de înălțime:	Volumul încălzit util al clădirii:m³		
Anul construirii:			
Scopul elaborării certificatului energetic:			

Programul de calcul utilizat:, versiunea:				
Date privind identificarea evaluatorului energetic pentru clădiri:				
Specialitatea (c, i, d)	Numele și prenumele	Seria și Nr. certificat de atestare	Nr. și data înregistrării certificatului în registrul evaluatorului	Semnătura și ștampila evaluatorului
.....

IMPLEMENTATION OF THE EPB LAW IN THE REPUBLIC OF MOLDOVA

A Roadmap on implementation of the Law on Energy Performance of buildings was signed in March 2015 between Ministry of Regional Development and Constructions and Energy Efficiency Agency



FURTHER STEPS TOWARDS MORE EFFICIENT USE OF ENERGY IN THE BUILDING SECTOR

ROLE OF EPBD AND EED

1. Development of the needed **legal framework**
 - on the energy performance of buildings
 - on condominium
 - on energy efficiency (transposing the 27th EU Directive)
2. Development of a **national strategy on mobilising financial resources** for public and residential buildings
3. Promotion of **high efficient cogeneration** and district heating
4. Improvement of the **residential buildings energy performance**
5. Improvement of the **public buildings energy performance** and strengthening the exemplary role of the public sector
6. Promotion of nearly zero energy buildings - **nZEB**
7. Increasing the **public awareness** about energy efficiency in buildings

THANK YOU!