Train-to-NZEB
The Building Knowledge Hubs

On the TRAIN-TO-NZEB: The correlation between NZEB support programmes and training demand …are we on the same train?

READY FOR NZEB?

INGREES INTERNATIONAL CONFERENCE ON NEARLY ZERO ENERGY BUILDINGS, PRAGUE, 24TH JANUARY 2018

SESSION "SUPPORT FOR IMPLEMENTATION OF NZEB IN EUROPE"

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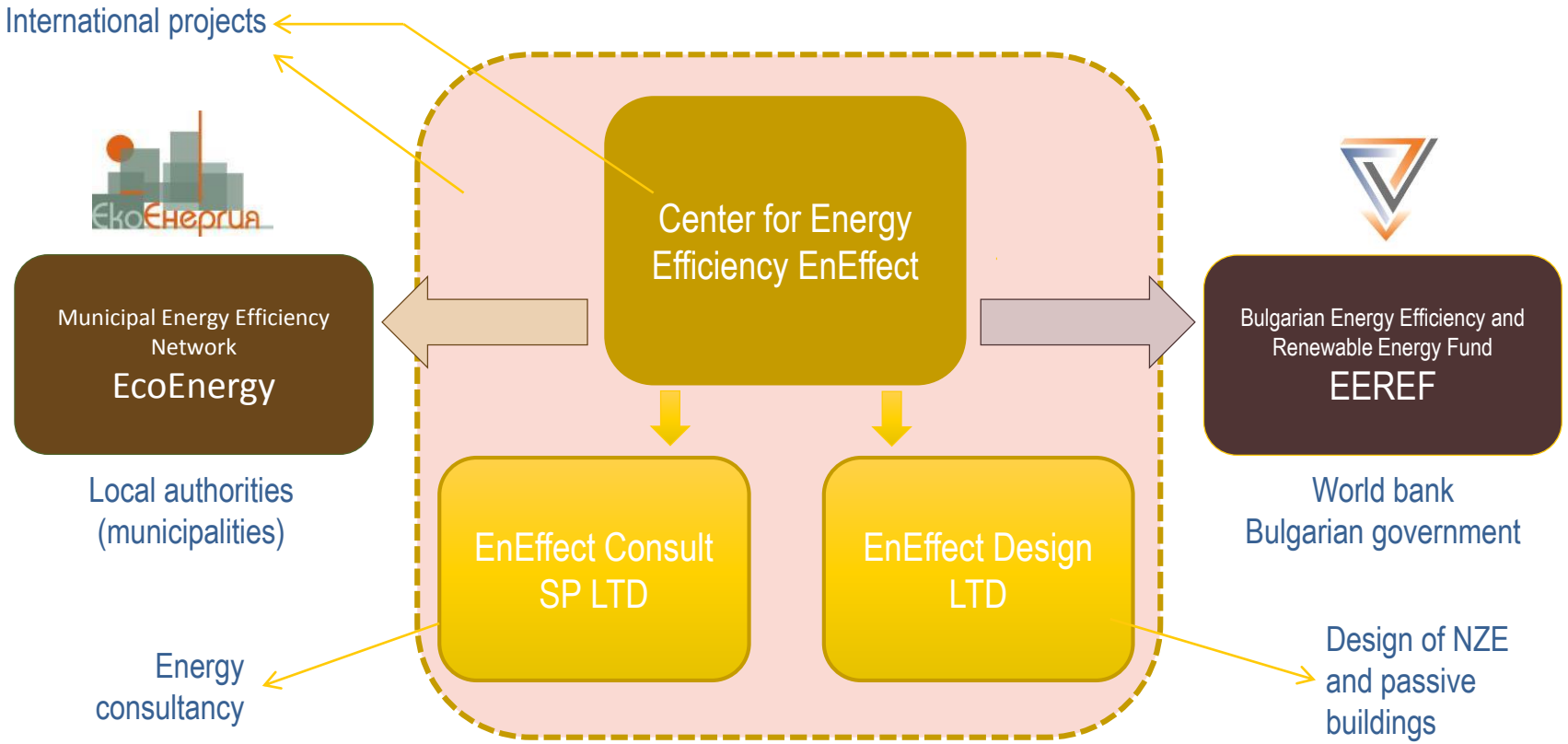
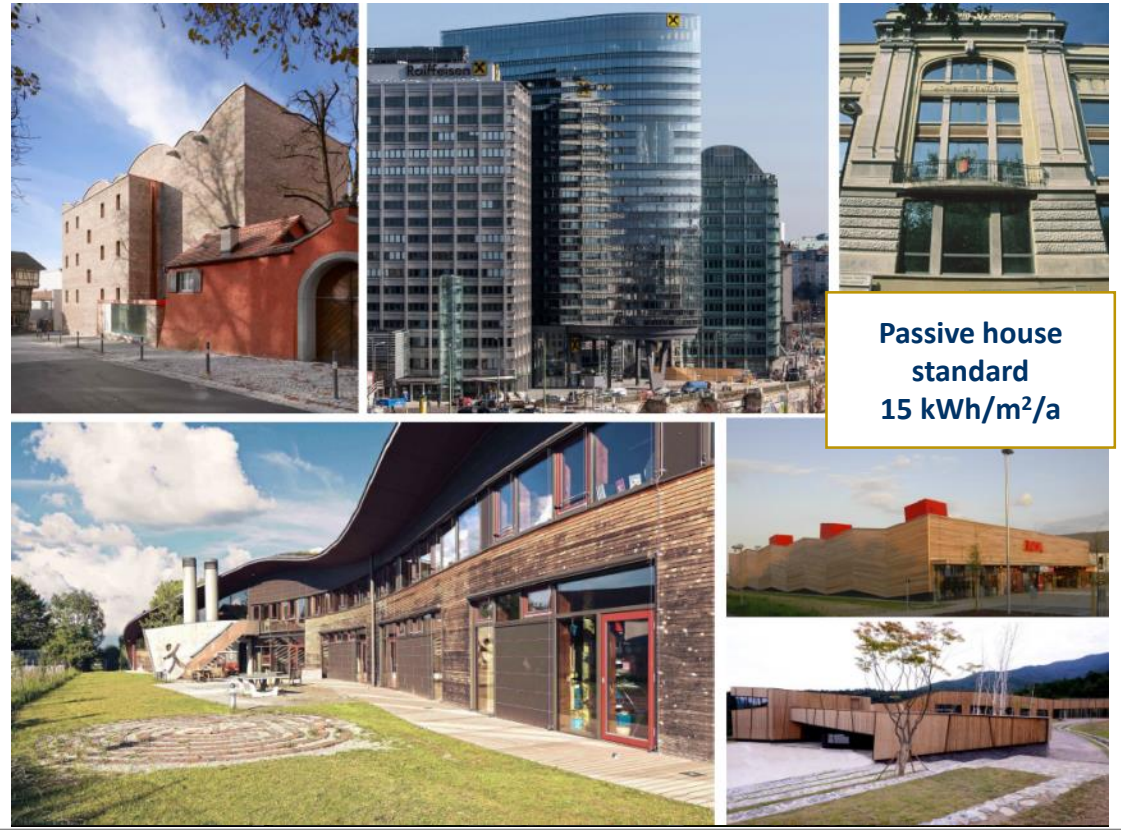
What to expect?

- nZEB definition and national goals
- Public support programmes
- Impact on training practices
- Priority actions


International projects
Center for Energy Efficiency EnEffect
Municipal Energy Efficiency Network
EcoEnergy
Local authorities (municipalities)
Bulgarian Energy Efficiency and Renewable Energy Fund
EEREF
World bank
Bulgarian government
EnEffect Consult SP LTD
EnEffect Design LTD
Energy consultancy
Design of NZE and passive buildings

Applicability of the PH standard

Applicability of the PH standard



Passive house standard
15 kWh/m²/a

The shortest way to NZEB

Certified Passive House
Passive House Institute

The National NZEB definition

Class	EPmin, kWh/m2	EPmax, kWh/m2	Residential buildings
A+	<	48	A+
A	48	95	A
B	96	190	B
C	191	240	C
D	241	290	D
E	291	363	E
F	364	435	F
G	>	435	G

+ 55% RES = Nearly **zero-energy** building

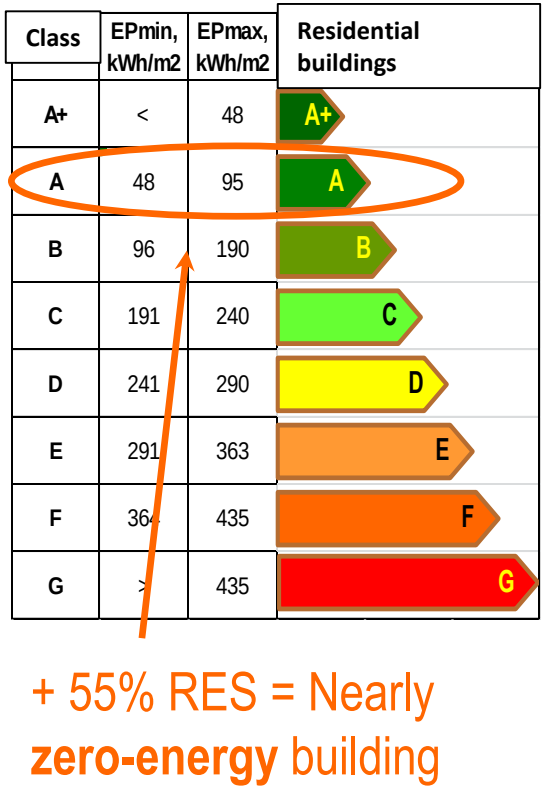
Energy Performance of Buildings Directive

After 01 January 2019 all new public buildings should be designed and built according to the nZEB standard

After 01 January 2021 all new buildings, public and private should be designed and built according to the nZEB standard

A methodology for calculating the integrated energy performance of buildings is introduced

The National NZEB goals



+ 55% RES = Nearly **zero-energy** building

Table 2.2.2-1. National interim targets for setting up nearly zero energy new buildings

Year	Target as per cent of all newly constructed buildings		
	office buildings	residential buildings	other buildings
2015	-	-	-
2016	5 %	-	-
2017	15 %	0.2 %	1 %
2018	35 %	0.5 %	1.5 %

Year	Target as per cent of all newly constructed buildings		
2019	100 %	1 %	2 %
2020	100 %	1.5 %	2.5 %

The National NZEB goals

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+ 55% RES = Nearly **zero-energy** building

Table 2.2.2-2. National interim targets for renovation of existing public service buildings (state- and municipality-owned) into nearly zero energy buildings

Year	Target as per cent of all renovated buildings
2015	-
2016	-
2017	0.50 %
2018	1.00 %
2019	1.22 %
2020	1.54 %

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What we've achieved so far?

Class	EPmin, kWh/m2	EPmax, kWh/m2	Residential buildings
A+	<	48	A+
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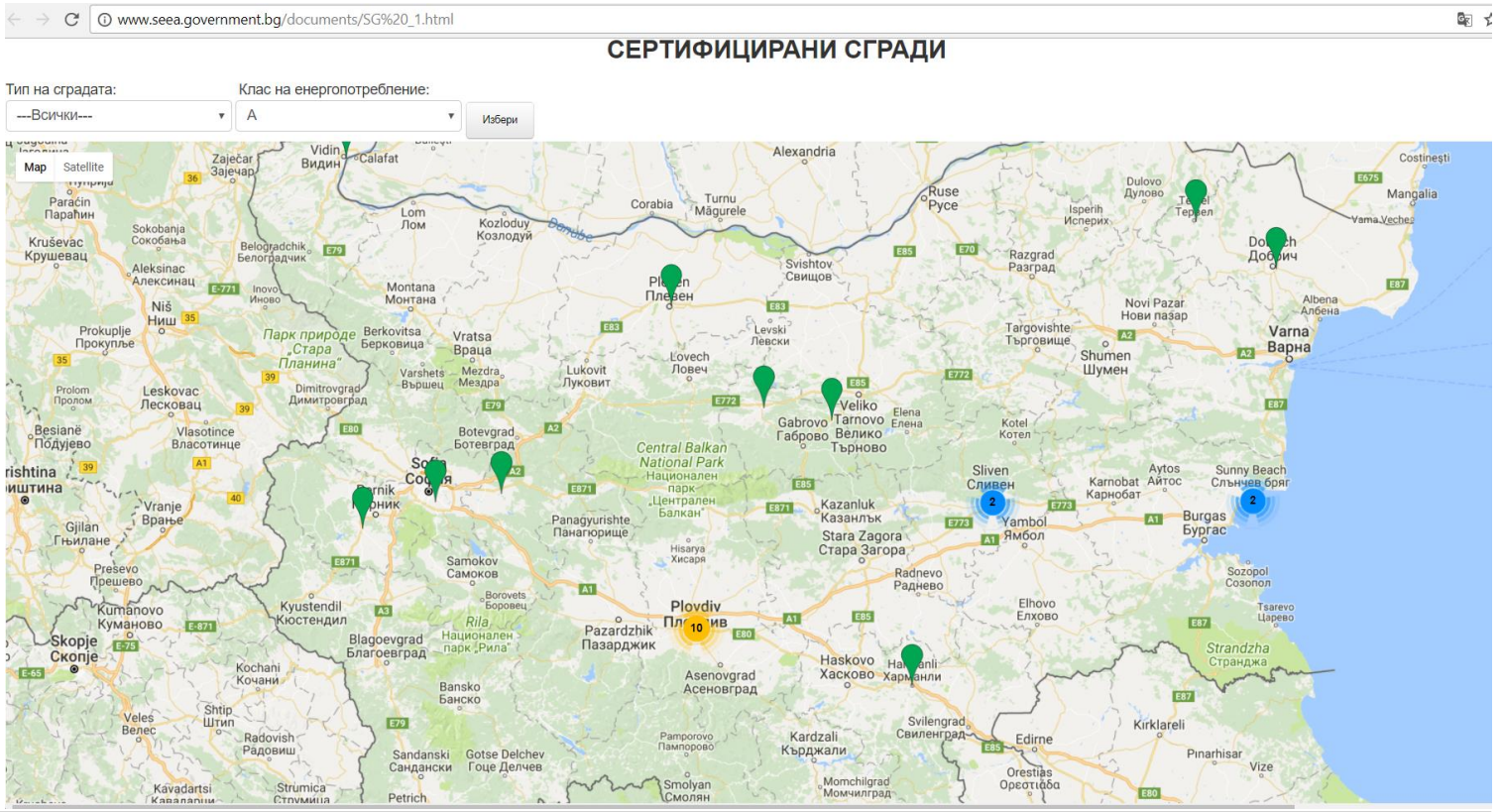

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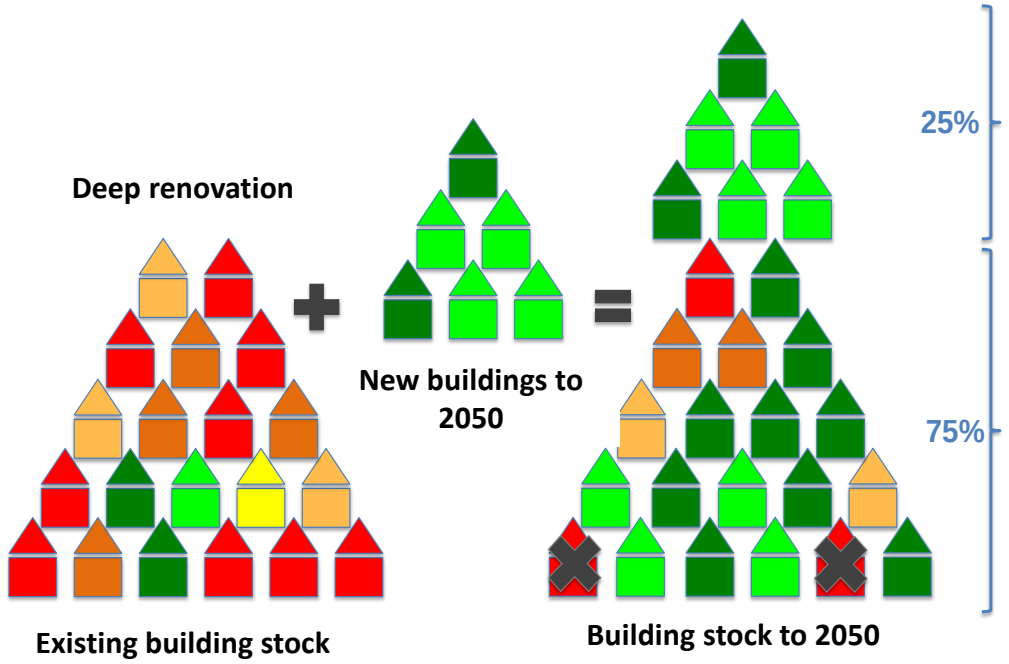
The new EPBD



- "Energy efficiency first" is a key element of the Energy Union
- About 75% of buildings are energy inefficient
- Only 0.4-1.2% of the stock is renovated each year
- The main objective is to accelerate the cost-effective renovation of existing building, which is a 'win-win' option for the EU
- Renovation work and energy retrofits add almost twice as much value as the construction of new buildings

Fit-to-NZEB
Innovative training schemes for retrofitting to nZEB-levels

The story of the renovation progammes

- UNDP demonstration programme “Renovation of Multifamily Residential Buildings”: 2008
- 20% financing in the beginning
- Gradually raised to 50%...
- …and then to 80%
- 23 projects executed

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Fit-to-NZEB
Innovative training schemes for retrofitting to nZEB-levels

The story of the renovation progammes

- "Energy Renovation of the Bulgarian Homes" Programme, financed through Structural Funds
- 75% financing in the beginning
- Raised to 100% in 2015
- 299 projects (still not) executed

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Fit-to-NZEB
Innovative training schemes for retrofitting to nZEB-levels

The story of the renovation progammes

- “National Programme for Energy Efficiency of the Multifamily Residential Buildings”
- 100% financing since the beginning
- Total budget of 1 billion Euro
- 266 projects executed
- 2022 contracts concluded
- Renovation to energy class C

Focus on renovations

Клас	EPmin, kWh/m2	EPmax, kWh/m2	Residential buildings
A+	<	48	A+
A	48	95	A
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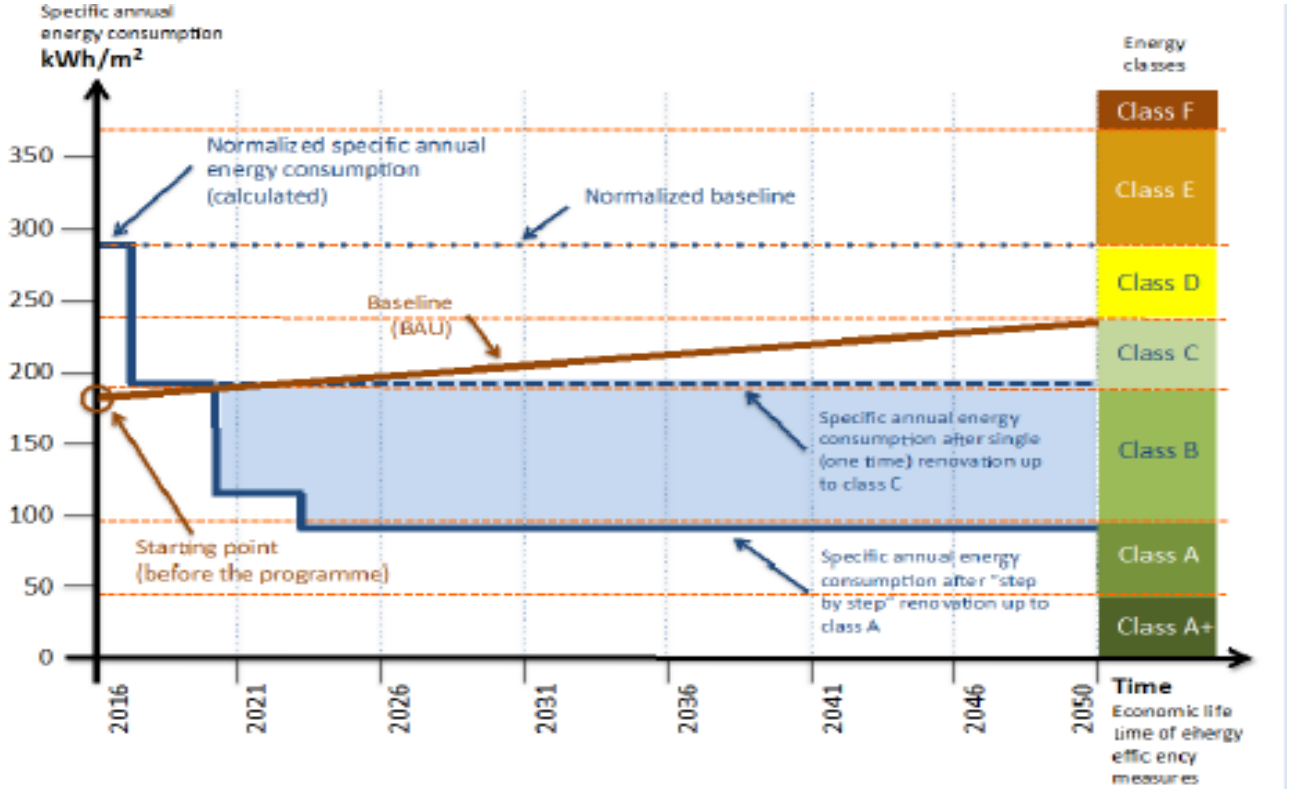
100% grant for renovation to energy class C!



Fit-to-NZEB
Innovative training schemes for retrofitting to nZEB-levels

Issues: Long-term vision & engagement

- Long-term vision: defining of concrete energy savings goals and priorities
- Technical assistance and specialized consulting at municipalities
- Quality assurance and monitoring
- Engagement and responsibility of the beneficiaries / consumers
- Systematic communication campaign

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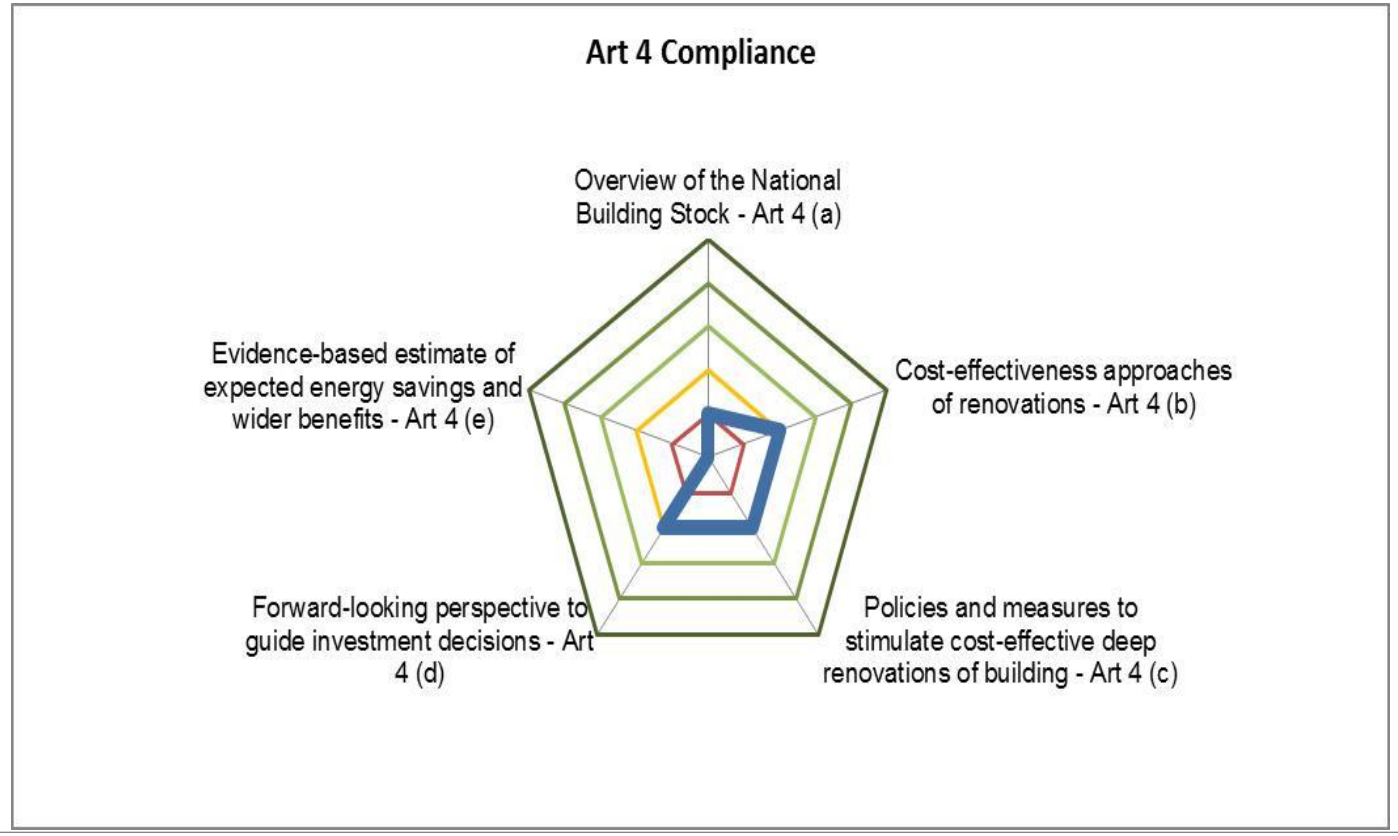
Issues: Long-term vision & engagement



Център за знания
за енергийноефективни сгради
с ВЕИ

BUILD UP Skills I: The Challenges

- Deficiencies in the training programmes
- Need for professional training of trainers
- Outdated training facilities
- Monitoring of training demand
- Engagement of stakeholders
- Communication: improving the image of the construction sector
- Broad endorsement campaign

Център за знания
за енергийноефективни сгради
с ВЕИ

BUS EnerPro II: Results

- 12 new training programmes (40-60 hours)
- 6 new programmes for professional high schools and VTCs (120 hours)
- 29 training courses conducted;
- 433 building specialists and workers trained;
- 6 active training centers;
- 43 MoUs with external partners;
- 2 new projects on Horizon 2020: Train-to-NZEB and Fit-to-NZEB.

Train-to-NZEB
The Building Knowledge Hubs

Train-to-NZEB: The Building Knowledge Hubs

- Improving the training facilities: new BKHs in Bulgaria, Romania, Czech Republic, Turkey and Ukraine
- ToRs for equipment and services,
- Business plans
- Innovative training programmes
- Qualified and attractive trainers
- Trainings for 2400 construction workers, 480 designers and 720 non-specialists

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Train-to-NZEB
The Building Knowledge Hubs

The BKHs

Train-to-NZEB
The Building Knowledge Hubs

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The Building Knowledge Hubs

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The Building Knowledge Hubs

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The Building Knowledge Hubs

The BKHs

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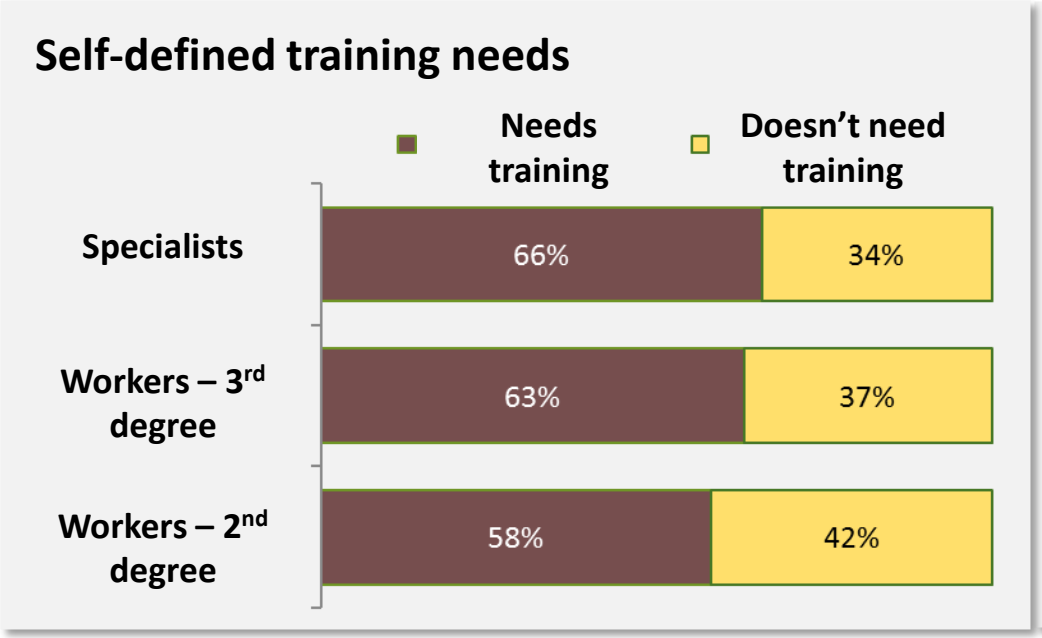
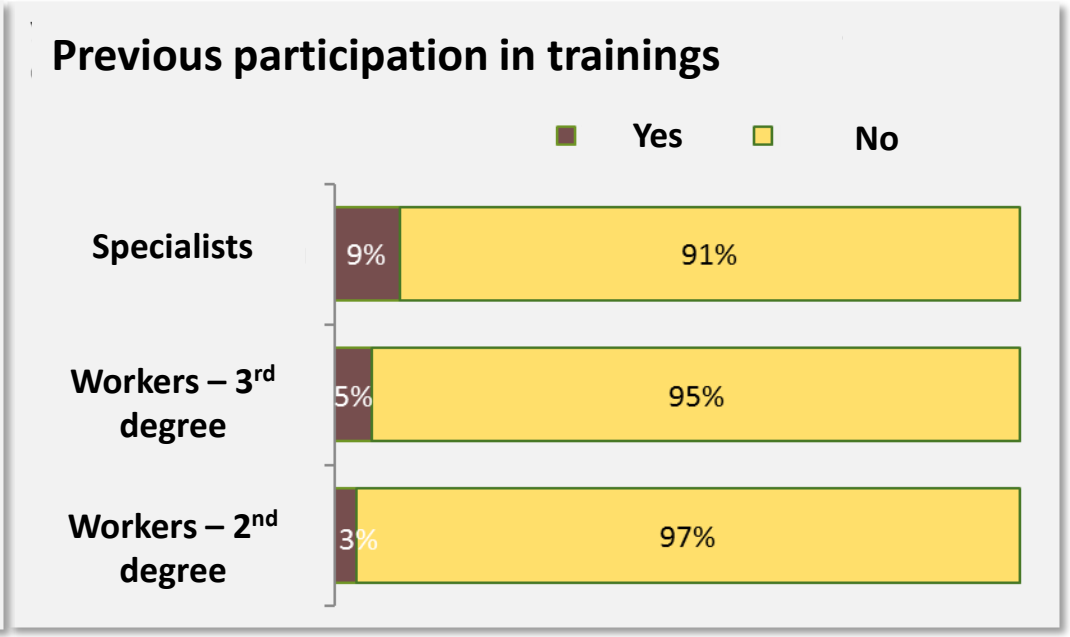
Training demand

22% of the construction companies plan to hire managers with specific knowledge in the area of sustainable building, 27% – highly qualified specialists, and 42% will look for construction workers.





Data base: specialists – 201, workers 3rd degree – 73, workers 2nd degree – 129

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Content of the trainings

	Specialists	Workers - III degree	Workers - II degree
New building products, components and technologies	67%	54%	68%
Insulation	62%	59%	67%
Windows and doors	54%	50%	60%
Heating systems suitable for NZEBs	47%	50%	29%
Comfort of habitation	47%	26%	33%
Successful practices for NZEBs and passive buildings	46%	17%	15%
Concepts and solutions for airtightness	45%	41%	36%
EU, national and local NZEB policies	45%	17%	25%
Economic performance of NZEBs	42%	33%	17%
Eliminating thermal bridges	42%	22%	40%
Solutions for RES in buildings	41%	41%	33%
Ventilation systems with heat recovery	38%	24%	36%

NB! Relation between theory and practice

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Price of the training courses

„To pay... Nobody would pay for expensive courses because there is information about energy efficiency everywhere, especially in English. Textbooks – just enter a bookstore, there are at least 30 books about green architecture and energy efficiency. And the internet… you don't even need a bookstore." (quote from an in-depth interview, representative of professional organization)

- **Maximum acceptable prices** for 40 hours theory and practice:
  - Specialists -> 300 BGN (150 EUR).
  - Workers -> 190 BGN (95 EUR)
- **Maximum acceptable prices** for one-day training course for non-specialists -> 20-50 BGN (10-25 EUR)
- Mass expectations for **free training courses:** 39% from the specialists think that it is mandatory that the state should provide financing, 49% - that this is desirable
- 45% from highly qualified specialists **are inclined to pay** for trainings; **only 16% for blue-collar workers** declare the same

Our support: EmBuild

- Analyses of the public building stock and the economic efficiency
- Prioritization of types of renovation projects
- Local renovation strategies
- Trainings and seminars
- Quality energy audits for engaged local authorities

On-field work: iBROAD

iBROAD

- Individual roadmaps for step-by-step deep building retrofit
- Optimal utilization of the buildings' energy saving potential
- Building information database
- Field tests with pilot energy audits
- www.ibroad-project.eu

Fit-to-NZEB
Innovative training schemes for retrofitting to nZEB-levels

The next step: Fit-to-NZEB

- Training programmes on **deep energy retrofit** for all qualification levels (under EQF)
- Innovative concepts as step-by-step renovation, renovation passports and smart buildings considered
- Strong team of 4 universities, 3 VTCs and energy efficiency experts
- Italy, Greece and Croatia joining
- Started on 15th June 2017

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Communication

It's never, never enough…

- Web:

www.busenerpro.com

www.train-to-nzeb.com

www.fit-to-nzeb.com

- Facebook:

https://www.facebook.com/Train-to-NZEB-166976367329866 9/

- Twitter:

https://twitter.com/Train2nZEB

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Engagement of stakeholders

Key messages

- Awareness raising campaign on the benefits of energy efficiency
- Public support programmes targeting high quality and operated at the local level
- Building of administrative and professional capacity
- Active involvement of citizens

Contact Information

Web

www.train-to-nzeb.com

Facebook:
https://www.facebook.com/Train-to-NZEB-1669763673298669/

Twitter:
https://twitter.com/Train2nZEB

LinkedIn:
https://www.linkedin.com/groups/8482751

Train-to-NZEB
The Building Knowledge Hubs

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