Fit-to-NZEB: Policy implementation and innovative training schemes for retrofitting to nZEB-levels

ENERGY RENOVATION OF BUILDING STOCK TOWARDS NZEB LEVELS
BUCHAREST, ROMANIA, 28TH MAY 2019
DRAGOMIR TZANEV, CENTER FOR ENERGY EFFICIENCY ENEFFECT
The story of the renovation programmes

- 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
The story of the renovation programmes

- “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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The story of the renovation programmes

- “National Programme for Energy Efficiency of the Multifamily Residential Buildings”
- 100% financing since the beginning
- Total budget of 1 billion Euro
- 1364 projects executed
- 2022 contracts concluded
- Renovation to energy class C
Issues: stability & engagement

- Long-term vision: defining of concrete energy savings goals and priorities
- Technical assistance and specialized consulting at municipalities
- Professional capacity building
- Quality assurance and monitoring
- Engagement and responsibility of the beneficiaries / consumers
- Systematic communication campaign
## iBROAD Survey in Bulgaria

<table>
<thead>
<tr>
<th></th>
<th>Very easy</th>
<th>Rather easy</th>
<th>Rather difficult</th>
<th>Very difficult</th>
<th>I don't look for this type of information</th>
<th>Don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heating system and other equipment</td>
<td>21%</td>
<td>55%</td>
<td>17%</td>
<td>4%</td>
<td>2%</td>
<td>0%</td>
</tr>
<tr>
<td>Energy renovations completed in the past</td>
<td>18%</td>
<td>47%</td>
<td>26%</td>
<td>6%</td>
<td>2%</td>
<td>0%</td>
</tr>
<tr>
<td>Specifications of the building construction</td>
<td>16%</td>
<td>46%</td>
<td>27%</td>
<td>7%</td>
<td>12%</td>
<td>0%</td>
</tr>
<tr>
<td>Energy bills cost and heating bills cost</td>
<td>14%</td>
<td>43%</td>
<td>32%</td>
<td>8%</td>
<td>2%</td>
<td>0%</td>
</tr>
<tr>
<td>Comfort conditions</td>
<td>9%</td>
<td>28%</td>
<td>45%</td>
<td>12%</td>
<td>3%</td>
<td>0%</td>
</tr>
<tr>
<td>Energy performance certificate</td>
<td>9%</td>
<td>21%</td>
<td>41%</td>
<td>14%</td>
<td>11%</td>
<td>4%</td>
</tr>
<tr>
<td>Results from an energy audit</td>
<td>7%</td>
<td>14%</td>
<td>37%</td>
<td>21%</td>
<td>14%</td>
<td>7%</td>
</tr>
<tr>
<td>Building’s features</td>
<td>7%</td>
<td>25%</td>
<td>45%</td>
<td>17%</td>
<td>3%</td>
<td>4%</td>
</tr>
</tbody>
</table>
Respondents are most likely to trust their friends, family or colleagues when asking for advice about renovation measures (67%), followed by internet search (37%), or a builder or contractor (29%) or a bank (18%). 9% would trust the energy performance certificate.

When asked about who they would consult for information on energy performance, the most common response was to use a general internet search (36%) followed by consulting with the builder or contractor (26%), or the previous owner or occupier (20%).

Only 3% of homeowners said that they had had an energy audit. Of those who had not considered having an energy audit, the main reason was that they had not thought about it (43%). Around one in five respondents did not know who would conduct the audit or thought it would be too costly (22% and 18% respectively).
Echoes findings

✓ The consumer has made a remarkable journey from being conceived a passive actor responding to policy to the center of the focus of policies; this process culminated in the “Clean Energy for All Europeans” package

✓ However, the policy documents display a rather simplistic understanding of how consumers make energy decisions

✓ One main assumption is that consumers make rational, economic decisions and thus need to be provided with good financial incentives

✓ The second main assumption is that consumers lack information and providing them with more information will change their behaviour to the better

✓ Both assumptions neglect many other relevant influences on people’s choices, such as habits, social norms and values, trust, focus on comfort, emotions, etc.
ECHOES conclusions

✓ The reflection of social processes needs to be better in policy documents
✓ Policy documents seem overly focused on individual behavior and oversee the impact of group processes
✓ The embeddedness of energy behavior in lifestyles and culture is underrepresented
✓ This also opens the question of diversity of consumers, which is not well reflected
✓ Policy-makers should make their assumptions about human decision-making explicit
✓ Social scientist should dare to give clearer policy advice
Make a party!
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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2020 and 2030 objectives represent a major challenge

Inclusion of training on intelligent EE and RES solutions in building renovation

Accessibility and quality of educational programmes

Increase of the number of construction specialists at all levels

READINESS OF CONSTRUCTION SECTOR TO DELIVER HIGH LEVEL ENERGY RENOVATIONS AND nZEB

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Learning Outcomes

Energy retrofit nZEB

- Planning and design instruments
- Project management Quality assurance
- Step-by-step retrofit plans
- Ecology and Sustainability
- Conservation of historic building fabric
- Achieving measurable results
- RES • Energy storage
- Optimal solar gains • Passive house principles
- Building Envelope • Thermal insulation
- Building services • Thermal insulation
- Minimizing thermal bridges
- High efficiency windows
- Cost effectiveness
- Building services • MVHR
- Heating and Cooling
- DHW
- Control & Automation
- Lighting
- NZEB Neighborhoods • Distributed energy production & EMS
- Energy cooperatives
- Airtightness, vapour and moisture movement, windtightness
- Comfort, health and safety (incl. IAQ)
- Fire safety
- Energy efficiency and building renovation policies
- Engaging stakeholders
Fit-to-NZEB: Programs

1) For institutions of higher education (EQF 6-7): **60 h** (30 h lectures & 30 h seminars)

2) For professional high schools
   - "Construction" professional direction (EQF 3-5): **60 h** (24 h lectures & 36 h practical lessons)
   - "Electrical engineering & energy sector” prof. direction (EQF 3-5): **36 h** (12 h lectures & 24 h practical lessons)

3) For Vocational Training Centres (incl. on-site, EQF 2-5): **12/16/40 h**
   - Building Envelope,
   - Mechanical Systems
Fit-to-NZEB: Pilot training courses

1) Train the trainer – completed for more than 150 lecturers/trainers

2) For institutions of higher education (EQF 6-7): Bulgaria, Croatia (completed), Czech Republic (ongoing),

3) For professional high schools (EQF 3-5): Italy (completed), Romania (ongoing), Bulgaria (ongoing), Czech Republic (MoUs)

4) For Vocational Training Centres (incl. on-site training, EQF 2-5): Ireland, Italy, Bulgaria, Greece, Romania, Czech Republic (ongoing)

5) Validation schemes: Bulgaria (x2 - ongoing)

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Another step: CraftEdu

- National qualification & training scheme in the Czech Republic; market development in Slovakia, Austria and Bulgaria;
- 7 new VET programmes in the CZ and 5 in SK
- Elaboration of common learning outcomes leading to mutual recognition of the acquired qualification;
- Piloting of the courses with 100 participants in the Czech Republic and Slovakia and 40 in Austria and Bulgaria;
- Mass rollout within the VET systems of the CZ and SK
- Development of new e-learning programmes
Communication

It’s never, never enough...

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Craft the message
SOME SIGHTS YOU NEVER FORGET.
Craft the message

You know you're not the first.
But do you really care?
Personal Engagement

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Thank you for your attention!

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