iBRoad

Individual Building Renovation Roadmaps

Factsheet: Bulgaria

Current use of EPCs and potential links to iBRoad

Residential buildings account for around 72% of the Bulgarian building stock. Energy Performance Certificates (EPCs) are mandatory for new buildings and for existing buildings undergoing 'major' renovation. The share of residential buildings with an EPC is very small. The market for energy audits, beyond EPCs, is not active in the residential sector.

Overview of the building stock

Total building floor area:
318 Mm² (2013)

Share of residential floor area:
72%

Number of single-family houses:
2.25 million
(50% of all residential buildings) (2014)

Percentage of buildings built before 1990:
78%

Average residential energy consumption:
121 kWh/m²/year in final energy consumption

Average residential envelope performance:
1.35 W/m²ºC (2014)

Renovation rate:
Information not available

All data is from the EU Building Stock Observatory

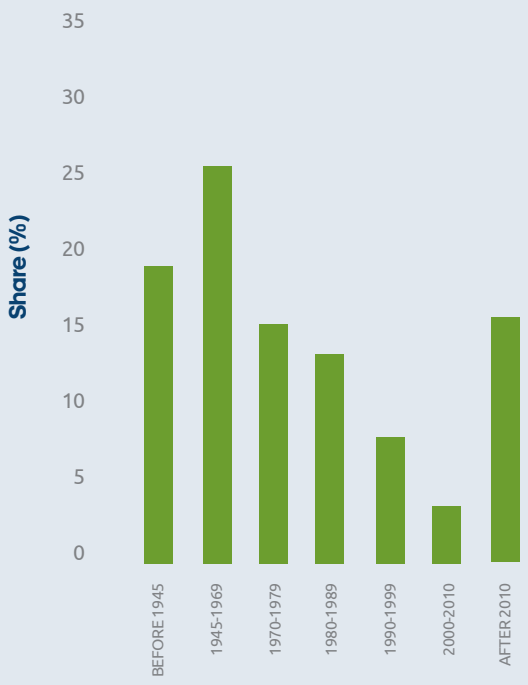

Figure 1: Bulgarian building stock per construction year (Source: EU Building Stock Observatory)

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The typical energy consumption of the Bulgarian building stock is below the average (121 kWh/m²/year, compared to 188 kWh/m²/year). The relatively low energy consumption can be partly explained by the desire of individuals to reduce thermal energy costs and the high levels of energy poverty in the country, which results in under-heating/cooling and poor living conditions [1] [2].

The substantial share of solid fuels and electricity used to heat Bulgarian homes, together with a widespread use of burners with low levels of efficiency, create serious environmental and health problems [1]. 70% of the energy consumption in buildings is used for heating purposes [3].

Overview of existing policies and financial schemes

Upgrading the building stock to a higher energy efficiency level is a priority for the Bulgarian authorities. Minimum requirements for the energy performance of buildings have been gradually tightened since the Energy Performance of Buildings Directive (EPBD) was first transposed into national law in 2005 [4].

The Bulgarian building regulation has different energy performance requirements for new and existing buildings; new buildings must comply with the EPC rating B, while existing buildings must comply with a C-label. Requirements also differ among building typologies: residential, non-residential and public [4].

No reliable information on the development of highly efficient buildings is available at this point. The database of the Sustainable Energy Development Agency does not include any building listed as nearly Zero-Energy Building (nZEB) yet. Only 24 buildings, in the whole country, have been reported to comply with the EPC rating A [5].

A big source of funding for energy efficiency in Bulgaria comes from EU Cohesion Policy Funds. Bulgaria allocated almost 4% of the funds (more than €288 million), to building renovation over a seven-year period (2014-2020). Most of these funds are intended to be used as grants [6].
The two most important schemes for residential buildings are:

National Programme for Energy Efficiency of Multi-Family Residential Buildings
This scheme is managed by the Bulgarian Development Bank and provides financial assistance to owners in private residential buildings of at least 36 units. The programme aims to reduce electricity bills and extend the life of the buildings. If approved, the owners receive a non-repayable grant of 100%. The Bulgarian government provides one billion leva (around €500 million) in the form of a bank guarantee. The building should be renovated to, at least, an EPC class C (210 kWh/m²/year primary energy consumption) [7].

Residential Energy Efficiency Credit Line (REECL)
This scheme provides loans and grants through local banks to all types of residential buildings. Loans are provided by the European Bank of Reconstruction and Develoment and grants are provided by the Kozloduy International Decommissioning and Support Fund. The grant can cover up to 35% of the loan. Eligible measures include insulation of the building envelope, various heating systems and on-site renewables (photovoltaics and solar thermal) [8].

The experts' opinion*

- **The main barriers to energy efficiency improvements are described as uncertainty about which measures to implement and a lack of awareness about available financial support.**
- **The relatively low requirement for existing buildings, of EPC class C, can create 'lock-in effects', making the path to a highly-efficienct building stock less cost-effective.**
- **The current schemes do not effectively incentivise deep energy renovation, as 100% grants are given to renovate to class C. There is a particular public interest in the renovation of buildings to higher energy classes, B, A or A+, and for the owners to provide the necessary additional funding to reach them.**
- **Focus should not just be on quantity, but also on the quality of the works. This is especially important in the case of more comprehensive renovation projects.**

* based on interviews and feedbacks received from national experts

The implementation status of the EPC

The current Bulgarian EPC system was implemented in 2013, replacing the old system from 2009. The regulation sets out specific conditions for (i) certification for energy performance of buildings at the design stage, (ii) certification for energy performance of existing buildings, (iii) calculations of energy savings, and (iv) rules for submission and acceptance of EPCs [4]. An energy inspection and issuing an EPC are mandatory for large-scale building renovations and for new buildings after completion [4].

The assessment of compliance with the energy efficiency requirements is undertaken for each individual building by the certifying companies, which have been registered with the Sustainable Energy Development Agency (SEDA) [4]. All data is reported to and handled by SEDA. The SEDA database is freely accessible to the public [4].

At the moment, SEDA does not carry out any controls to check if an EPC is not delivered, and the ordinance does not set any penalties if an owner does not transmit an EPC to the SEDA [4].

There are two types of EPCs in Bulgaria: one for buildings under construction and one for buildings undergoing renovation. For new buildings, the EPC is based on the energy characteristics of the project, while for existing buildings it is based on an energy check.

When selling/renting a property in a public building, the seller/leaser is obliged to provide a copy of the EPC to the new occupant. In 'all advertisements', the annual consumption of primary energy (kWh/m^2/year) must appear, yet no effective controls, or penalties, for non-compliance with this requirement exist [4]. Multi-family buildings, with a central heating system, only have one common EPC, which is valid for all apartments in that building [4].

According to the Energy Efficiency Act, if a building with an EPC is either sold or rented, the energy performance level must be indicated in the contract.

FACT BOX
EPCs in Bulgaria

Responsible authority:
Sustainable Energy Development Agency

Availability of a central registry of EPCs:
Yes, basic information is publicly available (location of the building, current and potential energy class), while more detailed data can be obtained upon request.

Number of EPCs issued:
5,467 (2017)

Percentage of buildings with EPCs
1%

Period of validity of an EPC:
6 years

Recommendations included in the EPC:
Yes

Energy label/continuous scale:
Energy label

Price range for an EPC:
from €0.2 to €1 per m^2

Median EPC class:
>D

Body responsible for performing quality checks:
Sustainable Energy Development Agency

Penalties for qualified experts for non-compliance:
Monetary and administrative penalties

Number of certified energy experts:
292 companies (no data on the number of certified experts)

Requirements to become a certified energy expert:
Certified companies must have at least three energy experts (architect, civil engineer, HVAC engineer or electrical engineer) and all of them must be certified to conduct energy inspections.

Indicative cost of training for energy experts:
3 training sessions x €1,000

The experts' opinion

- **Building owners do not have a good understanding of their building and its energy performance, or how it can be improved. This is slowly starting to change, partly due to the launch of the EPC system.**
- **The usefulness of the information in the EPC is considered to be 'fairly useful', when planning renovation measures. Yet, often due to financial constraints, all prescribed measures are not being implemented simultaneously and in full.**
- **The current EPC system does not incentivise deep energy renovations.**

Current status of energy audits and potential market for iBRoad

This section is about energy audits and tools, which are not included in the EPC framework. The audit described here is not identical to the energy check needed to produce an EPC.

The energy audit market for residential buildings is very limited in Bulgaria. This can be explained by the relatively high cost for this service and the low awareness of the benefits it could bring. Not all building owners consider themselves as the 'possessor' of their renovation process, due to the generous financial support, ranging up to non-repayable grants of 100%. An expert mentioned: "Why should you question something you are getting for free?" [5]

No tools exist for end-users/home-owners to make simplified energy calculations and estimations of renovation measures by themselves. "There is a need to better inform the public about the opportunities for deep renovation and that it is more economically sound than several smaller renovations." [5]

The individual building renovation roadmap (iBRoad) could support Bulgarian building owners and public authorities to strive for more comprehensive renovations. A first step could be to visualise the energy performance and the related benefits to generate interest in energy efficiency and deep energy renovations.

iBRoad could help solve (with better homes, lower energy bills and mitigation of fossil fuel dependency) two of the most important societal problems in Bulgaria: energy poverty and air pollution. To be successful, the iBRoad tool must bring real benefits to the end-users (owners, real-estate buyers, as well as public authorities).

The experts' opinion

- **The real estate sector is largely unaware, or uninterested, in energy efficiency.**
- **All experts think including recommendations for deep-staged renovations would be welcomed by the market: a better depiction of the actual final energy consumption and expected consumption after the implementation of measures (including improved comfort) could generate interest among building owners**

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Review: **Sympraxis Team**

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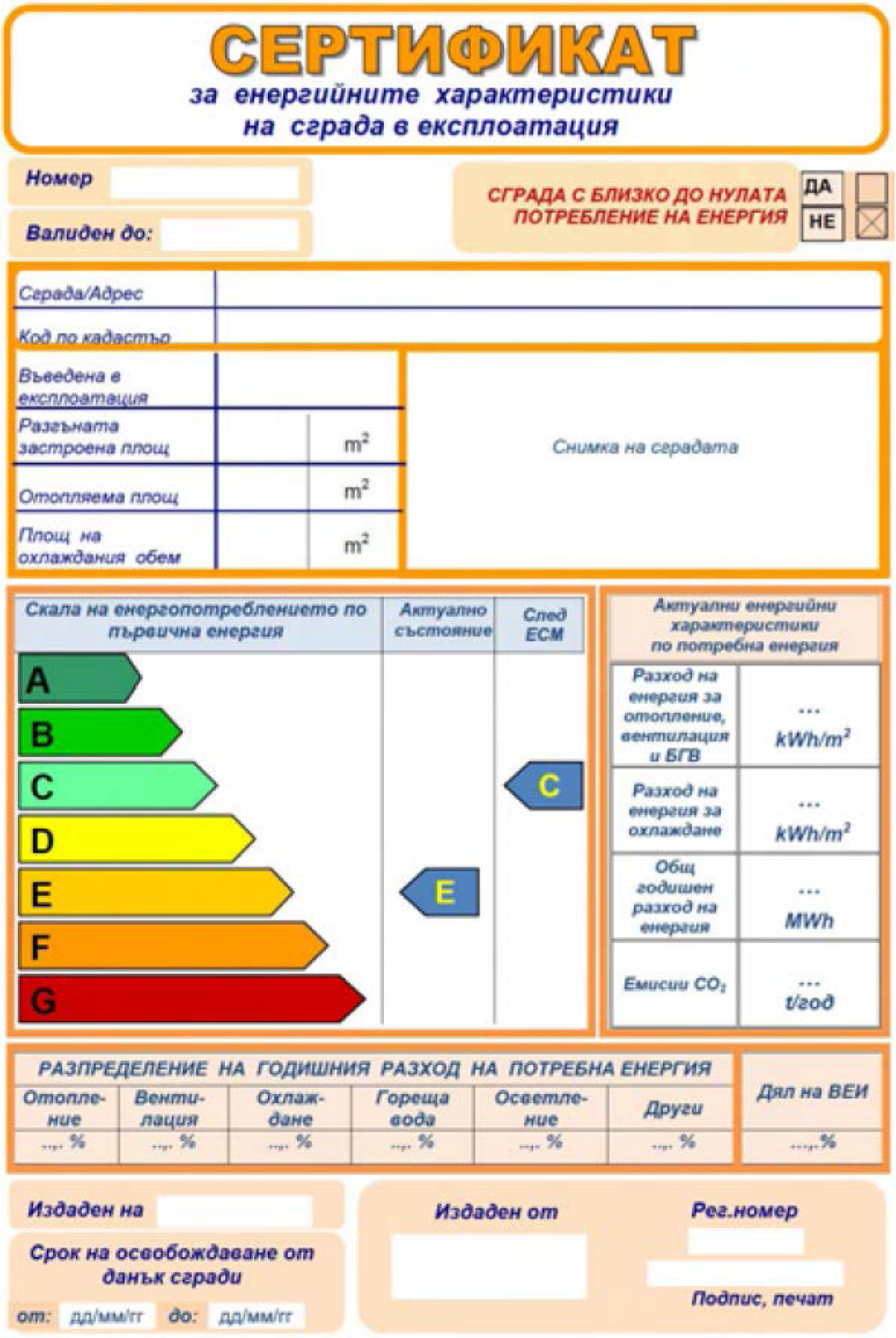
All of iBRoad's reports, analysis and evidence can be accessed from **ibroad-project.eu**.

iBRoad project partners

Annex
Bulgarian Energy Performance Certificate



СЕРТИФИКАТ

за енергийните характеристики на сграда в експлоатация

Номер

Валиден до:

СГРАДА С БЛИЗКО ДО НУЛАТА ПОТРЕБЛЕНИЕ НА ЕНЕРГИЯ — ДА ☐ НЕ ☒

Сграда/Адрес		
Код по кадастъра		
Въведена в експлоатация		
Разгъната застроена площ		m^2
Отопляема площ		m^2
Площ на охлаждания обем		m^2

Снимка на сградата

Скала на енергопотреблението по първична енергия

A
B
C
D
E
F
G

Актуално състояние: E

След ЕСМ: C

Актуални енергийни характеристики по потребна енергия	
Разход на енергия за отопление, вентилация и БГВ	... kWh/m^2
Разход на енергия за охлаждане	... kWh/m^2
Общ годишен разход на енергия	... MWh
Емисии CO_2	... t/год

РАЗПРЕДЕЛЕНИЕ НА ГОДИШНИЯ РАЗХОД НА ПОТРЕБНА ЕНЕРГИЯ

Отопление	Вентилация	Охлаждане	Гореща вода	Осветление	Други	Дял на ВЕИ
...,. %	...,. %	...,. %	...,. %	...,. %	...,. %	...,. %

Издаден на

Срок на освобождаване от данък сгради

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