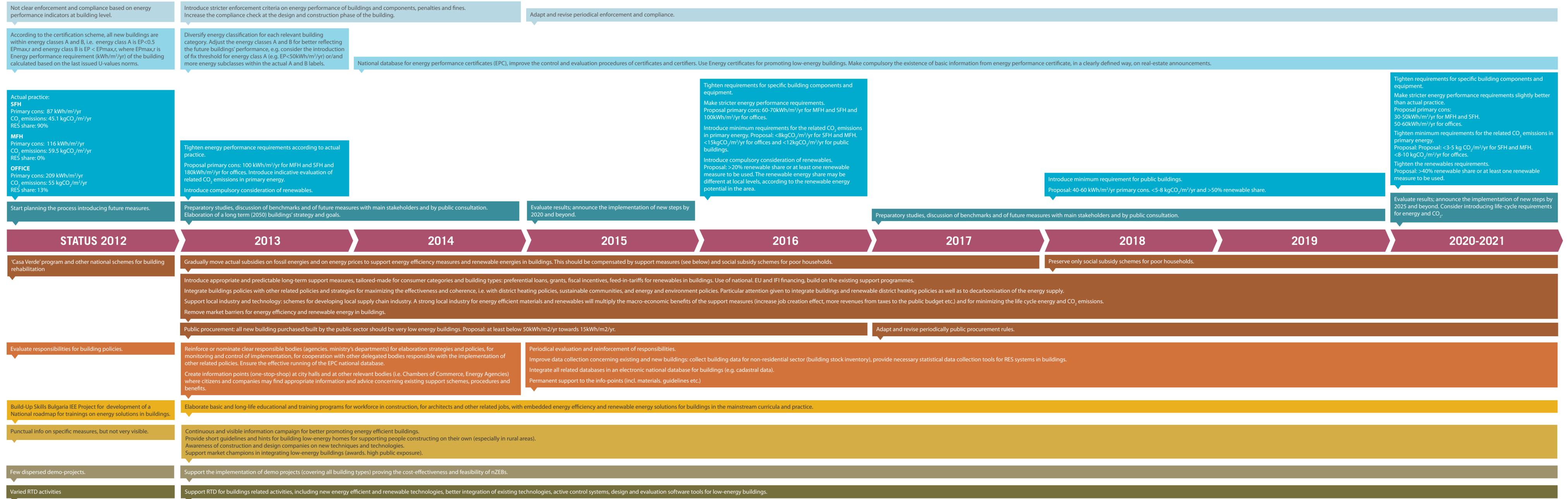


# A policy roadmap for implementing nZEB buildings in Bulgaria



Not clear enforcement and compliance based on energy performance indicators at building level.

Introduce stricter enforcement criteria on energy performance of buildings and components, penalties and fines. Increase the compliance check at the design and construction phase of the building.

Adapt and revise periodical enforcement and compliance.

According to the certification scheme, all new buildings are within energy classes A and B, i.e. energy class A is EP < 0.5 EP<sub>max,r</sub> and energy class B is EP < EP<sub>max,r</sub>, where EP<sub>max,r</sub> is Energy performance requirement (kWh/m<sup>2</sup>/yr) of the building calculated based on the last issued U-values norms.

Diversify energy classification for each relevant building category. Adjust the energy classes A and B for better reflecting the future buildings' performance, e.g. consider the introduction of fix threshold for energy class A (e.g. EP < 50 kWh/m<sup>2</sup>/yr) or/and more energy subclasses within the actual A and B labels.

National database for energy performance certificates (EPC), improve the control and evaluation procedures of certificates and certifiers. Use Energy certificates for promoting low-energy buildings. Make compulsory the existence of basic information from energy performance certificate, in a clearly defined way, on real-estate announcements.

**Actual practice:**  
**SFH**  
 Primary cons: 87 kWh/m<sup>2</sup>/yr  
 CO<sub>2</sub> emissions: 45.1 kgCO<sub>2</sub>/m<sup>2</sup>/yr  
 RES share: 90%  
**MFH**  
 Primary cons: 116 kWh/m<sup>2</sup>/yr  
 CO<sub>2</sub> emissions: 59.5 kgCO<sub>2</sub>/m<sup>2</sup>/yr  
 RES share: 0%  
**OFFICE**  
 Primary cons: 209 kWh/m<sup>2</sup>/yr  
 CO<sub>2</sub> emissions: 55 kgCO<sub>2</sub>/m<sup>2</sup>/yr  
 RES share: 13%

Tighten energy performance requirements according to actual practice.  
 Proposal primary cons: 100 kWh/m<sup>2</sup>/yr for MFH and SFH and 180 kWh/m<sup>2</sup>/yr for offices. Introduce indicative evaluation of related CO<sub>2</sub> emissions in primary energy.  
 Introduce compulsory consideration of renewables.

Tighten requirements for specific building components and equipment.  
 Make stricter energy performance requirements.  
 Proposal primary cons: 60-70 kWh/m<sup>2</sup>/yr for MFH and SFH and 100 kWh/m<sup>2</sup>/yr for offices.  
 Introduce minimum requirements for the related CO<sub>2</sub> emissions in primary energy. Proposal: < 8 kgCO<sub>2</sub>/m<sup>2</sup>/yr for SFH and MFH. < 15 kgCO<sub>2</sub>/m<sup>2</sup>/yr for offices and < 12 kgCO<sub>2</sub>/m<sup>2</sup>/yr for public buildings.  
 Introduce compulsory consideration of renewables.  
 Proposal: > 20% renewable share or at least one renewable measure to be used. The renewable energy share may be different at local levels, according to the renewable energy potential in the area.

Tighten requirements for specific building components and equipment.  
 Make stricter energy performance requirements slightly better than actual practice.  
 Proposal primary cons: 30-50 kWh/m<sup>2</sup>/yr for MFH and SFH. 50-60 kWh/m<sup>2</sup>/yr for offices.  
 Tighten minimum requirements for the related CO<sub>2</sub> emissions in primary energy.  
 Proposal: < 3-5 kg CO<sub>2</sub>/m<sup>2</sup>/yr for SFH and MFH. < 8-10 kgCO<sub>2</sub>/m<sup>2</sup>/yr for offices.  
 Tighten the renewables requirements.  
 Proposal: > 40% renewable share or at least one renewable measure to be used.

Introduce minimum requirement for public buildings.  
 Proposal: 40-60 kWh/m<sup>2</sup>/yr primary cons. < 5-8 kgCO<sub>2</sub>/m<sup>2</sup>/yr and > 50% renewable share.

Start planning the process introducing future measures.

Preparatory studies, discussion of benchmarks and of future measures with main stakeholders and by public consultation. Elaboration of a long term (2050) buildings' strategy and goals.

Evaluate results; announce the implementation of new steps by 2020 and beyond.

Preparatory studies, discussion of benchmarks and of future measures with main stakeholders and by public consultation.

Evaluate results; announce the implementation of new steps by 2025 and beyond. Consider introducing life-cycle requirements for energy and CO<sub>2</sub>.

## STATUS 2012 2013 2014 2015 2016 2017 2018 2019 2020-2021

'Casa Verde' program and other national schemes for building rehabilitation

Gradually move actual subsidies on fossil energies and on energy prices to support energy efficiency measures and renewable energies in buildings. This should be compensated by support measures (see below) and social subsidy schemes for poor households.

Preserve only social subsidy schemes for poor households.

Introduce appropriate and predictable long-term support measures, tailored-made for consumer categories and building types: preferential loans, grants, fiscal incentives, feed-in-tariffs for renewables in buildings. Use of national, EU and IFI financing, build on the existing support programmes.  
 Integrate buildings policies with other related policies and strategies for maximizing the effectiveness and coherence, i.e. with district heating policies, sustainable communities, and energy and environment policies. Particular attention given to integrate buildings and renewable district heating policies as well as to decarbonisation of the energy supply.  
 Support local industry and technology: schemes for developing local supply chain industry. A strong local industry for energy efficient materials and renewables will multiply the macro-economic benefits of the support measures (increase job creation effect, more revenues from taxes to the public budget etc.) and for minimizing the life cycle energy and CO<sub>2</sub> emissions.  
 Remove market barriers for energy efficiency and renewable energy in buildings.

Public procurement: all new building purchased/built by the public sector should be very low energy buildings. Proposal: at least below 50 kWh/m<sup>2</sup>/yr towards 15 kWh/m<sup>2</sup>/yr.

Adapt and revise periodically public procurement rules.

Evaluate responsibilities for building policies.

Reinforce or nominate clear responsible bodies (agencies, ministry's departments) for elaboration strategies and policies, for monitoring and control of implementation, for cooperation with other delegated bodies responsible with the implementation of other related policies. Ensure the effective running of the EPC national database.  
 Create information points (one-stop-shop) at city halls and at other relevant bodies (i.e. Chambers of Commerce, Energy Agencies) where citizens and companies may find appropriate information and advice concerning existing support schemes, procedures and benefits.

Periodical evaluation and reinforcement of responsibilities.  
 Improve data collection concerning existing and new buildings: collect building data for non-residential sector (building stock inventory), provide necessary statistical data collection tools for RES systems in buildings.  
 Integrate all related databases in an electronic national database for buildings (e.g. cadastral data).  
 Permanent support to the info-points (incl. materials, guidelines etc.)

Build-Up Skills Bulgaria IEE Project for development of a National roadmap for trainings on energy solutions in buildings.

Elaborate basic and long-life educational and training programs for workforce in construction, for architects and other related jobs, with embedded energy efficiency and renewable energy solutions for buildings in the mainstream curricula and practice.

Punctual info on specific measures, but not very visible.

Continuous and visible information campaign for better promoting energy efficient buildings.  
 Provide short guidelines and hints for building low-energy homes for supporting people constructing on their own (especially in rural areas).  
 Awareness of construction and design companies on new techniques and technologies.  
 Support market champions in integrating low-energy buildings (awards, high public exposure).

Few dispersed demo-projects.

Support the implementation of demo projects (covering all building types) proving the cost-effectiveness and feasibility of nZEBs.

Varied RTD activities

Support RTD for buildings related activities, including new energy efficient and renewable technologies, better integration of existing technologies, active control systems, design and evaluation software tools for low-energy buildings.