

## Best Practices

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## FILTER BY

**FULL TEXT SEARCH:**

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### Timeline:

Start typing to see the options...

Country or/and Region

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Regions: Central Asia,  
Europe, European Union,  
Global, Regional, Western  
Balkans

## Filter Reset

## BEST PRACTICES:

Country or/and Region

Albania

**Start year:**

**End year:**

### Timeline: 2018

**Partners:**

**Title:** National Energy Efficiency Action Plan

**Topic:** Enforcement mechanisms

**About:**

\*National Energy Efficiency Action Plan set 9 per cent energy use reduction by 2018. Residential building sector is expected to account for 22 per cent of this target. To achieve it, EE standards for new building construction were introduced: Law No. 8,937 (defines minimal thermal efficiency standards for new construction), and Law No. 10,113 (mandates compliance with EE standards). The Law on Energy Efficiency, which will build a framework for enforcement and implementation of national EE priorities that previously remained unenforced, is under development (Clean Energy Solutions Center, 2019).

**Link:**

**Country or/and Region**

Armenia

**Start year:**

**End year:**

**Timeline:** 2016

**Partners:**

**Title:**

**Topic:** Comprehensiveness and stringency of BEC

**About:**

\*In 2016, mandatory BEC was introduced with adoption of "Thermal Protection of Buildings" regulation (based on ground of Russian BEC of 2003, updated 2012), with application of some methodologies and approaches of European standards (EN 15217:2007; EN15316-1: 2007; EN15603-1:2007; ISO 16818:2008; ISO 23045-2008). It links BE components and heat losses with established energy limits, taking into account climatic differences. It also includes a requirement for issuing a building energy passport and an EE label with EE classes. Armenia has developed two National Standards AST 362-2013 "Energy conservation. Building energy passport. Basic rules. Standard form" and AST 371-2016 "Methodology for performing energy audit in residential and public buildings" (CCIC, n.d.)

**Link:**

**Country or/and Region**

Armenia

**Start year:**

**End year:**

**Timeline:** 2018

**Partners:**

**Title:**

**Topic:** EE materials and products requirements in BEC

**About:**

\*Technical regulation on EE (of 12 April 2018) is applicable to MFB under construction and to objects constructed/reconstructed/repared) at the State's expense. The building code on "Thermal Protection of Buildings" was adopted in July 2016. Total 17 EU and ISO EE standards were developed/adopted and registered. Database of insulation and construction materials and lighting equipment (produced locally or imported), was created. An Advisory Handbook on Technical Solutions in Insulation was adopted in 2013. In addition, a full package of replicable design documents for 5 energy-efficient residential houses has been available publicly since 2014. A modern thermal physics laboratory was established for testing and certification of building insulation materials and lighting equipment in addition to more than 13 types of insulation materials that were tested and certified since then. An educational EE laboratory was established for students studying architecture and civil engineering (Harutyunyan & Jalalyan, 2016).

**Link:****Country or/and Region**

Armenia

**Start year:****End year:****Timeline:** 2020**Partners:** OECD**Title:**

Energy-Efficient Buildings in Armenia A Roadmap: Insights and pathways for better buildings 2020-2040

**Topic:****About:**

\*This roadmap is intended as a resource for policy makers, investors, representatives from development banks and international organisations and other stakeholders working to advance building sector energy efficiency in Armenia \*The aim is to provide a high-level overview, offering insights based on international best practice as well as relevant examples and case studies \*Estimated energy-saving potential ranges from 40% to 60% across residential, public and commercial buildings, depending on interventions. This could be translated into significantly lower household energy bills, greater energy security, improved thermal comfort in homes, offices and school and many other benefits \*The residential subsector especially holds significant energy-saving potential

**Link:**

Energy-Efficient Buildings in Armenia: A Roadmap: Insights and pathways for better buildings 2020-2040 | READ online ([oecd-ilibrary.org](https://oecd-ilibrary.org))

**Country or/and Region**

Belarus

**Start year:****End year:****Timeline:** 2016**Partners:**

**Title:** Energy efficient residential buildings in Belarus. Analysis and recommendation

**Topic:****About:**

\*This report provides an analysis of the energy efficiency in new residential buildings in Belarus which have been designated to fulfil a higher than average energy standard. The energy demand of these buildings was found not to match initial calculations. We re-calculated the energy demand of these buildings based on more realistic assumptions, and inspected the building quality by site visits and interviews with the flat owners. \*The report shows that the reasons for a higher energy consumption are manifold, starting from too optimistic assumptions for certain parameters such as the indoor temperature, not exact installation of windows, use of outdated technology, ventilation and heating behaviour of residents contributing to energy losses. Furthermore, quality control which could detect construction mistakes early on is insufficient. \*On a positive note, we do also find that overall construction quality has generally increased over the past years. This report finishes with a set of recommendations addressing construction questions and systemic issues.

**Link:**

(PDF) Energy efficient residential buildings in Belarus. Analysis and recommendation (researchgate.net)

**Country or/and Region**

Bosnia and Herzegovina

**Start year:****End year:**

**Timeline:** 2021

**Partners:** UNDP

**Title:** Decarbonisation of Residential Sector

**Topic:****About:**

\*The purpose of the meeting was to mark the beginning of project implementation and to discuss, formulate and establish management structure and re-visit key implementation modalities that will serve as a guideline of future successful project implementation.

**Link:****Country or/and Region**

North Macedonia

**Start year:****End year:**

**Timeline:**

**Partners:**

**Title:** Strategy for energy development of the Republic of North Macedonia up to 2040

**Topic:**

**About:**

\*The Energy Development Strategy for the Republic of North Macedonia until 2040 provides the directions for development of the energy sector in North Macedonia, taking into account the energy policy trends at global and European level, and particularly in the framework of the Energy Community. Energy trends are emphasizing more ambitious transition towards low-carbon economy, with renewable energy sources (RES, the list of abbreviations is given in Appendix 3 which is an integral part of this strategy) and energy efficiency (EE) among the most important enablers of transition.

**Link:****Country or/and Region**

Russian Federation

**Start year:****End year:****Timeline:** 2016**Partners:****Title:**

**Topic:** Comprehensiveness and stringency of EPC

**About:**

Decree 399, which sets rules for EE classes of apartment buildings, was adopted in August 2016. EE class is determined based on comparison of actual (for existing buildings) or estimated (for new buildings) energy use with base energy use value set depending on heating degree-days and building height. Certification includes 9 classes (A++ to G) and requires the building class to be presented in energy passport and on building facade. A++ class presumes 60 per cent energy savings in comparison to base-level. High EE classes cannot be given to a building that is not equipped with an individual heat-supply station with automatic indoor temperature regulation, energy-efficient lighting of common areas and energy meters in each apartment. This certification system is envisioned to be mandatory; however, it is not yet enforced, and measures to stimulate compliance have not been developed yet (GABC, 2016). \*To achieve the 2040 vision: Secure, efficient, environmentally friendly and competitive energy system that is capable to support the sustainable economic growth of the country.

**Link:** Energy Development Strategy EN (economy.gov.mk)

**Country or/and Region**

Turkmenistan

**Start year:****End year:****Timeline:** 2016**Partners:**

**Title:** The Systems of Energy Certificates of Buildings

**Topic:**

**About:**

\*The analysis of systems of energy certificates of buildings is presented for different countries according to the scheme: "regulatory framework – energy efficiency indicators – impact factors". The comparison with the indicators of energy efficiency and energy certificate of buildings in Turkmenistan included in the revised building code of Turkmenistan "Building thermal engineering" is implemented.

**Link:** The Systems of Energy Certificates of Buildings | UNDP in Turkmenistan

**Country or/and Region**

Uzbekistan

**Start year:**

**End year:**

**Timeline:** 2016

**Partners:** UNDP

**Title:** Scaling-up Energy Efficiency in Rural Buildings of Uzbekistan

**Topic:**

**About:**

\*This publication, commissioned by the UNDP-supported GEF-funded preparatory project Market Transformation for Sustainable Rural Housing in Uzbekistan, presents an analysis of the energy-efficiency potential and expected financial benefits of enhanced house designs of the State Programme. \*This analysis indicates that energy savings of about 25 percent are achievable at an incremental cost of less than three percent, with long-term savings for homeowners. The publication also analyzes scenarios for green mortgage financing that would help to ensure the initial affordability of green rural housing designs. \*The publication concludes with general recommendations on how to promote integration of green designs into the State Programme, with a summary of broader social, economic, and environmental benefits.

**Link:** Scaling-up Energy Efficiency in Rural Buildings of Uzbekistan | UNDP in Uzbekistan

**Country or/and Region**

Uzbekistan

**Start year:**

**End year:**

**Timeline:** 2016

**Partners:** World Bank

**Title:**

Scaling up Energy Efficiency in Buildings Short-to-medium-term priorities and recommended actions

**Topic:**

**About:**

\*This study was undertaken to inform the potential areas and means of assistance to the Government of Uzbekistan in scaling up energy efficiency (EE) investments in residential, commercial, and public buildings, focusing on energy use and efficiency in space heating. \*This study is explicitly concerned with residential, commercial, and public buildings that are not served by district heating. \* Three specific areas were investigated: (a) a market assessment for upgrading space heating and water heating equipment in detached homes and commercial buildings; (b) an analysis of the issues and options for scaling up investment in thermal retro fit of public buildings; and (c) a gap analysis on the compliance enforcement of building EE standards in newly constructed housing.

**Link:** <https://openknowledge.worldbank.org/handle/10986/25093>

**Country or/and Region**

Uzbekistan

**Start year:**

**End year:**

**Timeline:**

**Partners:** UNDP GEF

**Title:**

Promoting energy efficiency through tariff policy and investments into energy saving technologies

**Topic:**

**About:**

\*The block tariff system is a pricing option in which tariffs are set at the market level, and at the same time support mechanisms are introduced for low-income and vulnerable households by subsidizing minimal, social norms for energy consumption. \*In this analytical review, an attempt has been made to analyze the possibilities of applying the block tariff system in the conditions of Uzbekistan, which has now been implemented in various forms in many countries of the world, including the USA, Canada, Central America, Europe, Africa and the CIS, China, Japan, etc. \*The analytical review was prepared in the framework of the project "Assistance in the development of the construction of energy-efficient rural housing in Uzbekistan" of the UN Development Program.

**Link:**

<https://www.uz.undp.org/content/uzbekistan/en/home/library/poverty/promoting-energy-efficiency-through-tariff-policy-and-investment.html>

**Country or/and Region**

European Union

**Start year:**

**End year:**

**Timeline:** 2021

**Partners:**

European Commission

**Title:**

Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on energy efficiency

**Topic:****About:**

\*The proposal aimed at further stimulating EU efforts to promote energy efficiency and achieve energy savings in the fight against climate change. This initiative forms part of the Commission package of proposals "Delivering on the European Green Deal", with a view to reducing net greenhouse gas emissions by at least 55% by 2030 and the ultimate objective of becoming climate neutral by 2050. \* It seeks to introduce a higher target for reducing primary (39%) and final (36%) energy consumption by 2030 now binding at EU level, in line with the Climate Target Plan, up from the current target of 32.5% (for both primary and final consumption). It introduces a benchmarking system for Member States to set their national indicative contributions to the binding EU target. The new directive also proposes to nearly double Member State annual energy savings obligations in end use. In stimulating this acceleration, the proposal focuses on sectors with high energy-savings potential – notably heating and cooling, industry and energy services – and puts additional emphasis on the public sector for the example that it can serve in leading the transition.

**Link:**

Commission proposes new Energy Efficiency Directive | European Commission (europa.eu)

**Country or/and Region**

Global

**Start year:****End year:**

**Timeline:** ongoing

**Partners:** OECD

**Title:** Building energy efficiency in cities and regions

**Topic:****About:**

\*The Programme Building energy efficiency in cities and regions supports countries, regions and cities to enhance their implementation of energy efficiency measures in buildings through localised data and analysis, comprehensive self-assessment tools and tailored case studies \*To achieve this goal, the programme seeks to: 1) strengthen the evidence base by collecting and analysing key local factors on buildings, energy efficiency and policy environments; 2) analyse national and subnational policy and governance frameworks and support policy reform towards a place-based approach; 3) collect, analyse and disseminate innovative building policies and initiatives applying a place-based approach

**Link:**

<https://www.oecd.org/greengrowth/Buildingenergyefficiency.pdf> <https://www.oecd.org/cfe/cities/energy-efficiency-cities.htm>

**Country or/and Region**

Global

**Start year:****End year:**

**Timeline:** 2020 - ongoing

**Partners:**

**Title:** Zero Energy Project



**Topic:****About:**

\*Two items have proven to be cost effective: LED lights and low-flow showerheads. They are so effective that building owners should simply replace older ones with modern, efficient ones. Any incandescent light should be replaced with an LED of the same or greater light output, measured in lumens. All showerheads should be replaced with models with a flow rating of 1.75 gallons per minute or less. In many locations, these two retrofits can be done free of charge through local utility programs or are supported with incentives. \*When any energy-using device is in need of replacement, do so with a high-efficiency product. If old appliances burn natural gas, upgrade them to high efficiency electric models. \*There are many choices of heat pump HVAC systems including mini-splits for single family or smaller multifamily buildings, ducted central systems and package terminal units for smaller apartments. Heat pumps provide both heating and cooling and are highly energy efficient. \*There are many benefits to transforming older residential units to all electric. \*The first step to reducing energy waste is to air seal the building. The second step in many situations is upgrading the building's insulation. \*When a tenant moves out, it is a great time to air seal an apartment to reduce energy costs and increase comfort. This can be done as part of the repainting process. Or a highly effective air sealing system such as Aerobarrier can be used to seal all air leaks prior to repainting. \*After units have been air sealed it is important to provide fresh air while retaining the heat in living units. This can be done by installing simple energy efficient ventilation, such as the Panasonic WhisperComfort, which can be installed in ceilings and vented to the outside. Another simple option for apartments is a through-the-wall ventilators.

**Link:** Energy-Efficient Low-Income Apartments - Zero Energy Project

**Country or/and Region**

Global

**Start year:****End year:**

**Timeline:** 2021

**Partners:****Title:**

Technical Guidelines for Energy Efficiency and Conservation in Commercial Buildings - Passive Design Measures

**Topic:****About:**

\*It makes sense to optimise passive cooling strategies by adopting passive design measures, which are essentially architectural. \*Passive design measures aim to optimise (i) passive cooling strategies, i.e. minimise heat gains in buildings; and (ii) environmental cooling through natural means such as vegetation, landscaping, and shading. \*Buildings primarily provide an internal environment suitable for occupancy in buildings. Therefore, the architectural passive design should consider the building's site environment. The key passive design measures are discussed in this study.

**Link:**

Technical Guidelines for Energy Efficiency and Conservation in Commercial Buildings (eria.org)

**Country or/and Region**

Global

**Start year:****End year:**

**Timeline:** 2020

**Partners:**

**Title:**

Better design for cool buildings: how improved building design can reduce the massive need for space cooling in hot climates

**Topic:**

**About:**

\*Better building designs can reduce or even avoid the energy demand for space cooling. Highperformance building envelopes can reduce the cooling demand by 30% to 50%. Climate-adapted building envelopes, exterior colours, windows, natural ventilation, orientation and vegetation offer large possibilities to reduce the energy demand for cooling. \*Three steps are needed for cool low-carbon buildings: avoid - shift - improve. Policy recommendations: 1. Integrate building design into cooling strategies and NDC targets; 2. Adopt and enforce ambitious building energy codes for new buildings and renovations; 3. Use financial incentives, information campaigns and capacity-building to promote energy-efficient building design; 4. Develop minimum energy performance standards and labelling for appliances; 5. Make low-income housing energy-efficient to ensure 'Cooling for all' and reduce energy poverty.

**Link:**

<https://www.preventionweb.net/publication/better-design-cool-buildings-how-improved-building-design-can-reduce-massive-need-space> [https://www.peeb.build/imglib/downloads/PEEB\\_Cool%20Buildings\\_Working%20Paper\\_August%202020.pdf](https://www.peeb.build/imglib/downloads/PEEB_Cool%20Buildings_Working%20Paper_August%202020.pdf)

**Country or/and Region**

Global

**Start year:**

**End year:**

**Timeline:** 2021

**Partners:**

**Title:**

Global scenarios of resource and emission savings from material efficiency in residential buildings and cars

**Topic:**

**About:**

\*The paper estimates future changes in material flows and energy use due to increased yields, light design, material substitution, extended service life, and increased service efficiency, reuse, and recycling. Together, these strategies can reduce cumulative global GHG emissions until 2050 by 20–52 Gt CO<sub>2</sub>-eq (residential buildings) and 13–26 Gt CO<sub>2</sub>-eq (passenger vehicles), depending on policy assumptions. Next to energy efficiency and low-carbon energy supply, material efficiency is the third pillar of deep decarbonization for these sectors. For residential buildings, wood construction and reduced floorspace show the highest potential. For passenger vehicles, it is ride sharing and car sharing.

**Link:**

Global scenarios of resource and emission savings from material efficiency in residential buildings and cars | Nature Communications

**Country or/and Region**

Global

**Start year:**

**End year:**

**Timeline:**

**Partners:**

World Bank  
Energy Sector  
Management Assistance  
Program

**Title:** Financing Municipal Energy Efficiency Project

**Topic:**

**About:**

\*The challenges that limit EE investments in municipal buildings and facilities can be grouped into three broad areas: (i) a lack of awareness and incentives; (ii) insufficient implementation capacity; and (iii) limited access to financing. All three sets of challenges need to be addressed to scale up successful implementation of municipal EE projects. \*This Guidance Note focuses on the key issues faced by municipalities in accessing financing for EE investments, particularly for projects in the following four areas: 1. Indoor lighting. This includes replacing existing inefficient lamps and fixtures with efficient lamps (T-5 lamps, compact fluorescent lamps or CFLs, light-emitting diodes or LEDs) and luminaires. 2. Building retrofits. This includes installing insulation, efficient windows, efficient boilers and chillers, and energy management systems. 3. Public lighting. This includes replacing mercury vapor lamps with high-pressure sodium or LED lamps and installing lighting controls. 4. Municipal utilities. This includes reducing losses in district heating and water supply systems, installing efficient pumps, and optimizing systems. \*The Guidance Note further discusses possible financing mechanisms that can be used to finance EE measures: Budget financing, Funds developed specifically to address EE, Public support to leverage commercial financing, Commercial financing

**Link:**

<https://openknowledge.worldbank.org/bitstream/handle/10986/21307/936740NWP0Box30inancing0KS180140web.pdf?sequence=1>

**Country or/and Region**

Regional

**Start year:**

**End year:**

**Timeline:** 2017 - 2019

**Partners:** UNDP

**Title:**

Regulatory Framework to Promote Energy Efficiency in Countries of the Eurasian Economic Union

**Topic:**

**About:**

\*The main goal of the Project, funded by the Russian Federation, is realization of energy saving potential in lighting, household appliances and engineering equipment of buildings via introduction of modern energy efficiency standards

**Link:**

Regulatory Framework to Promote Energy Efficiency in Countries of the Eurasian Economic Union | UNDP in Armenia

**Country or/and Region**

Regional

**Start year:****End year:****Timeline:** 2014**Partners:** World Bank**Title:** Improving Energy Efficiency in Buildings**Topic:** Best practices**About:**

\* This guidance note outlines how cities can tap into a wide array of proven technologies, policies, and financing mechanisms to improve energy efficiency and capture cost-effective energy savings in buildings. It offers city leaders advice on how to get started in introducing energy efficiency measures, and provides lessons and examples from successful programs that have been introduced worldwide.

**Link:** World Bank Document <https://openknowledge.worldbank.org/handle/10986/21306>