



## **Workshop on Validation of Results of Mapping of Energy Efficiency Standards in Buildings in the UNECE Region – Second Meeting of the Joint Task Force on Energy Efficiency Standards in Buildings**

14-15 May 2018  
Yerevan, Armenia

### **Summary**

#### **Introduction**

The Sustainable Energy Division and the Forests, Housing and Land Management Division are implementing the project on [Energy Efficiency Standards in Buildings in the UNECE region](#) in support of tasks of the Joint Task Force on Energy Efficiency Standards in Buildings. The [Workshop on Validation of Results of Mapping of Energy Efficiency Standards in Buildings](#) served as the second meeting of the Joint Task Force. It was jointly organized by the UNECE and UNDP Armenia, with the support of the State Committee on Urban Development of Armenia.

The event aimed at validating the results of the draft study on the mapping of energy efficiency standards in buildings in the UNECE region ([http://www.unece.org/fileadmin/DAM/hlm/Meetings/2018/05\\_14/Documents/EE\\_Standards\\_in\\_Buildings\\_13.04.2018.pdf](http://www.unece.org/fileadmin/DAM/hlm/Meetings/2018/05_14/Documents/EE_Standards_in_Buildings_13.04.2018.pdf)) and to discuss the next steps in the implementation of tasks of the Joint Task Force.

This workshop was organized as part of the joint UNECE/UNDP event “Energy Efficiency Standards in Buildings and Appliances: Harmonization and Implementation in UNECE Region”, which also included workshops “Development, Harmonization and Implementation of Energy Efficiency Standards and Labelling for Energy Appliances” (15 May 2018) and “Knowledge Sharing on Management and Financing of Energy Efficiency in Multi-Apartment Buildings” (16 May 2018).

#### **Opening Session**

The event was opened by Mr. Armen Ghularyan, Deputy Chairman of the State Committee on Urban Development of Armenia, who emphasized the importance of energy efficiency (EE) standards in buildings and the need to review their application in various. He pointed out that EE in buildings is one of the priorities in Armenia. The building sector is responsible for one third of energy consumption, and EE standards are a good regulator of situation in the construction sector as well as in the implementation of international agreements. Armenia introduced many standards and mandatory technical requirements, however there are challenges in implementation and enforcement of these regulations. Therefore, adaptation of international standards to the Armenian conditions is important for the country.

Mr. Dmitry Mariyasin, UNDP Deputy Resident Representative in Armenia, indicated in his remarks that enhancing EE is one of the key aspects in addressing climate change, as well as an integral part of the work to achieve the Sustainable Development Goals (SDGs).

Mr. Oleg Dzioubinski, Economic Affairs Officer, UNECE Sustainable Energy Division, talked about the role that the Joint Task Force (JTF) on Energy Efficiency Standards in Buildings can play in improving EE in buildings in the UNECE region, the current activities of the JTF, the projects on Energy Efficiency Standards in Buildings that UNECE implements, and the results achieved so far. He introduced the author of the draft of the study on mapping of EE standards in buildings in the UNECE region.

### **Session 1. Mapping of energy efficiency standards in buildings**

The session was moderated by Mr. Aleksandar Dukovski, Chair of the UNECE Group of Experts on Energy Efficiency. It was devoted to a review of the draft of the study on mapping of EE standards in buildings in the UNECE region prepared and presented by Ms. Irina Davis, UNECE consultant. According to the study, the existing energy standards in building sector in the UNECE region vary from voluntary guidelines to mandatory requirements, which may apply to one or different building types. One of the outcomes of the study is identification of those countries that are embracing EE through highly effective building energy codes. The draft study provided a snapshot of the legal status and coverage of building sector with EE standards and outlined building energy standards stringency, technical requirements, enforcement and compliance, and use of energy-efficient building materials and products in countries of the UNECE region.

A survey developed in the framework of this study gathered information about activities undertaken by UNECE countries to develop and implement EE standards in buildings. The results of the survey indicated that 96 percent of public buildings, apartment blocks and single-family houses and 91 percent of commercial buildings are covered by building energy codes in the UNECE region. 52 percent of building energy codes are mandatory, 10 percent are voluntary codes and 38 percent are mixed. 65 percent of respondents confirmed the existence of specific incentives for compliance in country's building energy code, while requirements for energy performance monitoring were confirmed by 50 percent of respondents. The prescriptive requirements in building energy codes include requirements for thermal insulation (94 percent of responses), for boiler/air conditioning system (88 percent), and for ventilation or air quality (82 percent).

A discussion on validation of results of this study included exchange between participants on the sources of data used for collecting information and its classification by types and groups of countries that have similarities in the level of standards development. A particular focus was on defining and providing clarification on difference between standards, regulations, rules and codes used by the countries to improve EE in the building sector.

The participants also discussed technical criteria used for the analysis in this study and looked at provisions of EE codes for new and existing buildings. There was a proposal to include codes implemented by utilities and other entities in the scope of the study. Inclusion of links on interaction between ministries (or other responsible government bodies) and other organizations in the countries were also proposed. Some participants also proposed to include information on specific tools for the new buildings in the scope of the study. Further discussion was concentrated on possible ways for implementation of EE standards in the countries and challenges related to the legal requirements for building construction.

The participants concluded that the countries of the UNECE region should make available data on existing EE standards in buildings and share information on the progress in improving the situation in this sector. This approach will help improving information and data presented in the draft study and will provide a basis for determination of future requirements to reduce the drawbacks in this process.

The preliminary recommendations presented in the study were also discussed. Feedback and specific comments from participants included the following:

- Provide clarification on types of buildings (old and new; residential, commercial or public) referred to in the study (Recommendation 1);
- Distinguish between EE standards for the construction stages and for the maintenance of buildings (Recommendation 2);
- Provide a definition of harmonization of EE standards and include possible approaches for such harmonization (Recommendation 3);
- Clarify the energy performance gap in existing buildings and actual energy use (Recommendation 5);
- Include EE regulations in addition to the building energy codes (Recommendation 7);
- Clarify types of companies for which incentives to improve EE are required (Recommendation 9);
- Replace the wording “low income countries” with “countries with lower-middle-income economies” in accordance with the World Bank classification (no low-income economies in the UNECE region) (Recommendation 10);
- Replace the wording “safety of life” with “safety of people” (Recommendation 11);
- Change items addressed to the UNECE Secretariat to the items addressed to the countries (Recommendations 13 and 14).

## **Session 2. Countries’ experiences in implementation of energy efficiency standards in buildings**

This session was moderated by Ms. Doris Andoni, Head of Housing Policy, Ministry of Finance and Economy of Albania. Mr. Artan Leskoviku (Albania), Mr. Armen Minassian (Armenia), Mr. Leonid Danilevski (Belarus), Mr. Nika Tortladze (Georgia), Mr. Azat Temeshev (Kazakhstan), Mr. Maratbek Cholponkulov (Kyrgyzstan), Mr. Marko Canovic (Montenegro), Mr. Przemyslaw Perczynski (Poland), Mr. Milos Banjac (Serbia), Mr. Kostiantyn Gura (Ukraine), and Mr. Nizomiddin Rakhmanov (Uzbekistan) presented their views on existing challenges in developing and implementing EE standards in building in their countries. Some of the challenges identified by the panellists that are country-specific or common for certain countries include:

- Requirement of a full transposition of the European Union (EU) directives related to EE standards in buildings to the national legislative and regulatory framework (Albania, Montenegro, Serbia, and Ukraine);
- Need for harmonization of the existing EE standards with the ISO standards and the regulations of the Eurasian Economic Union (Armenia);
- Lack of incentives to introduce EE measures in buildings (Belarus, Georgia, and Uzbekistan);
- Lack of enforcement mechanisms to implement EE standards in buildings (Armenia, Georgia, Kazakhstan, and Ukraine);
- Lack of legislation on EE standards for the existing buildings (Kazakhstan and Ukraine);
- Low energy prices (Kyrgyzstan and Uzbekistan);

- Lack of financial resources to introduce EE measures (Montenegro and Uzbekistan).

The participants also discussed how the study on mapping could help countries in advancing EE standards in buildings and how they could take advantage of the experience of other countries as reflected in the study. Several important points were made:

- The study provides a general overview of the current status of on EE standards in buildings in 44 countries (out of 56 member States) and overall in the UNECE region, which makes it unique in its scope;
- The study illustrates experiences that can help countries to progress in improving EE standards in buildings at their own pace;
- It provides an overview of the required steps for improving existing EE standards in the building sector that can be used by various stakeholders;
- It showcases the policy measures for EE in buildings and their effectiveness in the more advanced countries;
- It provides information on the success stories and case studies on enforcement mechanisms for EE standards in buildings;
- It provides recommendations based on countries' level of development.

During the session, the experts also discussed missing links for adoption of more advanced EE standards in buildings in their countries, which include the following:

- Lack of cooperation and coordination between the responsible bodies;
- Interconnection between political agenda and implementation mechanisms;
- Interconnection between the introduced standards and financial implications for their implementation;
- Interdependence between the introduced measures and support of the government for further implementation.

### **Session 3. International organizations' experience in assisting countries in implementing energy efficiency standards in buildings**

This session was moderated by Mr. Vahram Jalalyan, UNDP-GCF Project Manager. Mr. Arsen Karapetyan, UNDP Armenia, presented the GEF-UNDP project on improvement of EE in buildings (2010-2016) which has built capacity and prepared ground for the Green Climate Fund project in Armenia. He presented information on the legal framework established in 2013-2018 in Armenia, which introduced new standards and facilitated implementation of advanced practices in the country. He shared lessons learnt from the implementation of the "Green Urban Lighting" UNDP-GEF Project (2014-2018) and discussed current projects under development.

Ms. Bilyana Chobanova and Ms. Astghine Pasoyan of the Energy Charter Secretariat, made a joint presentation on the activities of the EU4Energy Programme. They informed the participants of the Energy Charter work in Armenia related to improving governance, with particular focus on: (i) supporting the implementation of policy recommendations; (ii) strengthening technical and administrative capacity in key ministries and agencies; (iii) improving legislative and regulatory environment; (iv) improving cross-ministerial coordination and public consultation process; and (v) enhancing the investment climate in the country. The actions undertaken in implementing this programme in Armenia include: in-depth analysis of existing enforcement and compliance procedures of energy performance requirements for newly constructed buildings; participatory policy dialogue through bilateral discussions with stakeholders; introduction of main elements of EU best practices

recommended for integration in the Armenian regulatory framework; development of an enforcement framework for building energy performance requirements; and development of the roadmap to better enforcement of energy performance in building codes.

Ms. Ksenia Petrichenko of the Copenhagen Centre on Energy Efficiency, UNEP-DTU Partnership, provided information on the status of EE in buildings and existing building energy codes globally. She emphasized that EE standards serve as drivers for energy savings and provided examples from the United States, Brazil, Denmark, South Africa, Israel, India, China, and Australia. She also presented the Energy Efficiency Aggregation Facility which aims to provide streamlined, structured and aggregated expertise on technical, financial, legal aspects related to EE investment project development.

Mr. Jaap Hogeling, EPB Center, presented the status of energy performance of buildings (EPB) standards established by the International Organization for Standardization (ISO) in support of the EU EPB Directive. He pointed out that the common general framework for the calculation of EPB exists, and that the implementation of the set of EPB standards through the national EPB regulations will lead to the harmonization of the EPB assessment procedures in Europe and possibly globally. Such process will also have an impact on the harmonization of the product and system requirements for energy relevant products and materials used in buildings and lighting systems. He explained that EPB standards are intended to bring convergence and transparency in the EPB assessment methods, in particular to check compliance with the minimum energy performance requirements, and to be used as the basis for the energy performance certificate.

Ms. Giorgia Tzar, International Passive House Association, shared experience on constructing passive houses in various countries. A passive house can be defined as a building, for which thermal comfort can be achieved solely by post-heating or post-cooling of the fresh air mass. She pointed out that a passive house standard is a building standard that is truly energy efficient, comfortable and affordable at the same time. Passive house standards take into account climatic conditions of different countries. The examples of implemented projects for retrofitting existing buildings in Hungary and construction of a new building in Bulgaria were presented. Making passive house commercially viable requires a combination of capacity building and quality assurance components. Passive House certification exists for both residential and non-residential buildings. Passive House Network also exists in Australia, Brazil, Canada, Mexico, Germany, the United Kingdom, the United States, and other countries.

#### **Session 4. Next steps in the work of the Joint Task Force**

This session was moderated by Mr. Aleksandar Dukovski. The participants discussed the next steps in the work of the Joint Task Force. Ms. Domenica Carriero, Associate Economic Affairs Officer, UNECE Forests, Housing and Land Management Division, presented the planned activities of the JTF (studies, events, and other activities) until the end of 2018 and the timeframe for their implementation.

The planned studies include:

- Finalization of the study on mapping of EE standards in buildings (by June 2018);
- Development of a study on mapping of existing technologies to enhance EE in buildings;
- Development of a study on best practices for existing standards and technologies.

The planned meetings include:

- Training seminar for policy makers and building sector professionals in application of high-performance EE standards in buildings, first half of September 2018, St. Petersburg;
- Workshop to discuss and validate the results of mapping of technologies – third meeting of JTF, 3 October 2018, Geneva (back-to-back with the 79<sup>th</sup> session of the Committee on Housing and Land Management);
- Stakeholder workshop to discuss the results of the implementation of activities of JTF in 2018 and to plan future activities, 12-15 November 2018, Kiev (in the framework of the Ninth International Forum on Energy for Sustainable Development).

Other planned activities include:

- Establishment of a database of experts on EE standards in buildings;
- Development of a training course on high-performance EE standards in buildings in the UNECE region.

The participants discussed other potential activities that may be of interest for the JTF, such as:

- Capacity building activities for government officials in the construction sector;
- Research on best practices in implementation of the relevant SDGs to assist industries and municipalities;
- Trainings and exchange of experiences on models for energy performance contracts;
- Development of a tool on technical and economic aspects of EE in buildings;
- Development of a prescriptive list of procedures to be done step-by-step to ensure EE standards in buildings in the countries.

### **Closing session**

Mr. Aleksandar Dukovski, Chair of the Group of Experts on Energy Efficiency, led the discussions at the closing session of the workshop. The workshop participants agreed that this event proved the importance of introducing and improving EE standards in buildings in all countries of the UNECE region and the value added by the study on mapping of EE standards in buildings. It was agreed to continue providing feedback and exchange of experiences on supporting work on EE standards in buildings in the UNECE countries.