

Report of the Third Meeting of the Joint Task Force on Energy Efficiency Standards in Buildings

Geneva, Switzerland

3 October 2018



1. Introduction

The third meeting of the Joint Task Force on Energy Efficiency Standards in Buildings¹ (JTF) was held on 3 October 2018 in Geneva back-to-back with the 79th session of the Committee on Housing and Land Management². The Committee on Housing and Land Management and the Committee on Sustainable Energy jointly organized the meeting. This workshop aimed to review a draft of the study on mapping of existing technologies to enhance energy efficiency in buildings, including gap analyses and recommendations for their use in the region and validate its results; to discuss the status of development and implementation of energy efficient technologies in buildings in UNECE member States; to exchange experiences in implementation of advanced technologies; and to discuss the next steps in the implementation of the activities of the Joint Task Force.

Attendance

Representatives of the following ECE countries participated: Albania, Armenia, Belarus, Canada, Georgia, Germany, Kazakhstan, Kyrgyzstan, Montenegro, Republic of Moldova, Russian Federation, Serbia, Slovakia, Tajikistan, Turkmenistan, Ukraine, United States, and Uzbekistan.

Representatives of the following United Nations programmes and specialized agencies attended: the United Nations Development Programme (UNDP) and the World Health Organisation (WHO).

Representatives of international organization, non-governmental organizations, private sector and academia, as well as independent experts also attended.

2. Opening remarks

Mr. Scott Foster, Director of the Sustainable Energy Division at the United Nations Economic Commission for Europe and Ms. Gulnara Roll, Head of the Housing and Land Management Unit, opened the session stressing the importance of advancing energy efficiency standards in the ECE region. The building sector is responsible for over a third of energy consumption in the ECE region, making the implementation of energy efficiency standards fundamental for the attainment of a substantial reduction in emissions.

Mr. Scott Foster pointed out the importance of strengthening inter-sectoral cooperation within the UNECE. For example, the study presented at this meeting on the mapping of existing technologies to enhance energy efficiency in buildings, significantly benefited from the two key documents, namely the Framework Guidelines for Energy Efficiency Standards in Buildings and the Geneva UN Charter on Sustainable Housing. Further elaborating on the nature and purpose of the JTF, he stressed the need to continue cooperating with academia, and keep establishing International Centres of Excellence at the city level as well as showing examples of success to demonstrate that by working together much more can be achieved. Mr. Foster expressed hope in academia advancing the education level within the building sector and, in particular, for the present and future generations of engineers, architects, planners, and lawyers to have a more interdisciplinary set of skills, enabling them to better understand each other and effectively work together towards a common goal.

Ms. Gulnara Roll stressed the importance of the residential sector in the life of people and that improving energy efficiency in buildings is crucial for achieving the Sustainable Development Goals (SDGs), in particular for ensuring affordable, reliable, and modern energy for all (SDG7) and making cities and human settlements inclusive, safe, sustainable and resilient (SDG11). Furthermore, she reminded the audience of a key document on the management and upgrading of multi-apartment buildings, the Guidelines on ownership and management of condominium housing, which represents one of the key challenges in the ECE region. She further focused on the fact that a great proportion of the residential housing stock has been built between the 1960s and the 1980s, currently requiring substantial and

¹ www.unece.org/index.php?id=49005

² www.unece.org/housing/committee79thsession

expensive retrofitting. However, widespread cuts in public spending in the region call for the pooling of private and public resources to ensure long term socio-economic and environmental sustainability in the region.

Mr. Aleksandar Dukovski, Chair, UNECE Group of Experts on Energy Efficiency (GEEE) introduced the next session on the mapping of existing technologies for energy efficiency in buildings. He emphasized the attention given to this issue by experts from both the housing and energy sector to the importance of this study. On an organizational matter, he announced that one of the Co-Chairs of the Joint Task Force, Mr. Marko Nokkala, had to withdraw from this position due to professional reasons and asked participants if there were any nominations.

A representative from Montenegro nominated Mr. Andres Jaadla, Chair of the Estonian Housing Association (EKYL). The representative of Serbia seconded the proposal. Members of JTF approved this proposal.

3. Session 1: Mapping of existing technologies to enhance energy efficiency in buildings in the UNECE region

Ms. Kankana Dubey and Mr. Andrey Dodonov, UNECE consultants, presented the findings of the first draft of a study on Mapping of existing technologies to enhance energy efficiency in buildings in the UNECE region. The study primarily aims at reviewing and assessing differences in the use of technologies to enhance energy efficiency in buildings in UNECE countries. The methodology for the study consists of desktop research and experts' interviews. In order to take into account significant differences between the countries, the study divided all countries of the UNECE region into one of the five sub-regions, named A, B, C, D, and E³.

The data collected to measure and analyze the trends and patterns of the application of energy efficient technologies was evaluated by an impact score which ranged from 10 (if the technology was implemented and mandatory) to 0 (if the technology was not applicable). Relevant existing energy efficiency technologies were divided into five broad categories: building envelope and glazing; heating/domestic hot water/cold water supply; air conditioning, ventilation and cooling; appliances; and lighting. The technologies related to each category were listed and explained.

The preliminary findings displayed substantial variation in terms of the application of existing technologies to enhance energy efficiency in buildings within the UNECE region. However, it was found that improvements in energy efficiency in buildings are considerably fragmented and that some technologies such as energy efficient boilers and windows are commercially available but inconsistently applied. The application of other techniques and technologies to reach the necessary levels of energy efficiency maturity were related to important gaps in the following areas:

- a) Knowledge
- b) Building techniques
- c) Regulations
- d) Institutional framework
- e) Financial mechanisms

³ Subregion A = European Union (EU) Member States prior to 2004 (EU15): Austria, Belgium, Denmark, Finland, France, Germany, Greece, , Ireland, Italy, Luxembourg, , Netherlands, Portugal, Spain, Sweden, and United Kingdom, plus Andorra, Iceland, Liechtenstein, Monaco, Norway, and Switzerland.

Subregion B = EU enlargement - 13 countries that joined the EU after 2004 (EU13): Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, and Slovenia

Subregion C = Eastern Europe, the Caucasus and Central Asia: Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Republic of Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan.

Subregion D = Canada and United States

Subregion E = South-East Europe: Albania, Bosnia and Herzegovina, Montenegro, Serbia, and the former Yugoslav Republic of Macedonia

The draft study has not yet reached a stage where conclusions can be formulated. Nonetheless, a set of draft recommendations for member States and organisations were presented. They can be summarized as follows:

- a) Energy efficiency policies and legislation should be formulated considering local perspectives and contextual challenges.
- b) In order to overcome the complexity of investments and lack of capacity at the individual and suppliers level, Energy Service Companies (ESCOs) should be more actively promoted by Governments.
- c) Building simulation software tools can effectively assess the performance of energy efficiency technology from a holistic, performance-based criteria perspective. Hence, countries should be using them more.
- d) Member States should invest in capacity development concerning energy efficiency and renovation at various educational levels.
- e) There is a need for a more coordinated dialogue and balanced strategy between the public and private sector to create an enabling environment which encourages investment in technologies to enhance energy efficiency in buildings.

Following the presentation of the study, Mr. Dukovski started asking the two authors about the differences in maturity of technologies to enhance energy efficiency in buildings between the Western and Eastern parts of the UNECE region.

Ms. Dubey, who is responsible for the analysis of the Western part of the UNECE region (sub-regions A, B, and D), pointed to the early adoption of building codes (as early as the 1970s) and the significant role played by European Union directives on the matter. In sub-region A, for example, Switzerland, Norway and Andorra are at the forefront of energy-efficient technologies in the construction sector. She highlighted the key role played by energy pricing. With energy being generally more expensive in this part of the UNECE region, consumers tend to adapt and have a more energy efficient behaviour.

Mr. Dodonov, who is responsible for the Eastern part of the UNECE region (sub-regions C and E), pointed to the lack of building codes at the time when most of the current building stock was constructed in these sub-regions (between the 1960s and the 1980s) as a primary cause for the existing gap with the Western part. Other factors relate to harsh climate conditions in some of these countries and the fact that technologies that are readily available often do not match with the type of retrofitting that these buildings need.

Mr. Sylvain Labbe (Canada) and Rob Bernhard (International Passive House Association, Canada) conveyed an important message regarding the use and framing of technology in reducing energy use. More specifically, Mr. Labbe was critical in that he perceived that the draft study put too much emphasis on technologies itself rather than the reduction of energy use, which he envisioned as next decades' main goal. In fact, rather than being a goal in themselves, technologies should be seen as a tool to achieve higher energy efficiency. Mr. Bernhardt highlighted the importance of taking into account the economic performance of technologies and suggested to include this point in the study.

Mr. Nika Tortladze (Georgia) reminded about the introduction of a new energy efficiency law in his country that the draft study had not taken into account and asked the consultants to take this into consideration in the next draft of the study.

Mr. Leonid Danilevski (Belarus) made a comment that in Belarus, while proving more energy efficient, the installation of a heat pump in a building resulted in an increase in energy cost, leading the government to turn the pump off to avoid public outrage. This was followed by discussion around the price of energy vis-à-vis the use of energy efficient technologies. Other participants suggested that energy efficiency

comes at a price and that an initial climb in energy costs is likely to lead to a more cautious energy behaviour.

Mr. Labbe stated that when energy prices are too low users tend to care less about energy efficiency and savings, and that the role of governments should be to provide subsidies based on performance rather than on specific technologies (a practice that effectively distorts markets). The consultants agreed with this statement and highlighted that the main goal for the future is to have performance-based policies.

Mr. Boris Melnichuk (Russian Federation) made a comment that led to a discussion on the feasibility of a future study examining the amount of energy that is saved using specific technologies in the building sector. It was suggested to look at energy bills as a possible measure and that the study would be more useful if applied to specific case studies. For such study to be reliable there should be more input from countries.

Ms. Domenica Carriero (UNECE Housing and Land Management Unit) asked to include information on the affordability of energy-efficient technologies in the next draft of the study based on the results of this discussion. Furthermore, as today people live in a digitalized world, where buildings and other sectors benefit from Information and Communication Technologies (ICTs), such as sensors and smart meters to improve their operations. Hence, she asked to add information about the role of ICTs and Internet of Things (IoT) in buildings in the study.

4. Session 2: Interactive discussion between national and international experts on the application of energy efficient technologies in buildings

Mr. Jaap Hogeling (Energy Performance in Buildings (EPB) Centre) opened the session presenting EPB's mandate to develop a methodology to calculate energy performance in buildings under a project with the European Commission. The EPB Centre works in collaboration with the Federation of European Heating, Ventilation, and Air Conditioning Associations (REHVA) and concentrates its work around the monitoring of energy performance in buildings and developing methodologies for building regulations. Currently, the methodology of the EPB is based on a monthly-based energy performance, though the goal for the future is to develop an hourly-based methodology which would allow for an even more accurate assessment of energy performance.

The interactive session continued based on the following discussion points:

- a) What are the main obstacles on your country to applying advanced technologies to enhance energy efficiency in buildings?
- b) Do you see a correlation between strictness and enforcement of existing EE standards on one hand and the level of applied EE technologies on the other?
- c) Please share experiences of your country/organization in promoting application of technologies that enhance energy efficiency in buildings.
- d) What are current energy efficiency technology trends in the building sector in the UNECE region?

Mr. Dukovski stressed the key need of rolling out regulations on which materials should be used to be as energy efficient as possible in the construction sector. Mr. Dodonov reiterated the message and highlighted that there is an overall lack of policies targeting materials specifically for energy efficiency (exception is fire and safety regulations at the national level).

Ms. Doris Andoni (Albania) discussed the main obstacles in implementing energy efficiency strategies in Albania. In Albania, only 20 years ago there was no regulation to measure energy efficiency. In this context, one of the main factors hindering the implementation of energy efficient standards in existing buildings lies in the difficulty of developing consensus among Albanian households on the type of retrofitting needed. There also seems to be weak political will and support from financial institutions, reflecting different priorities. However, a new legislation on energy performance of buildings was

adopted by the parliament in November 2016. In Tirana, the local government is increasing its efforts to improve energy efficiency though there are still no tangible results.

Mr. Marko Čanović (Montenegro) stated that in his country the challenges were similar to those of Albania as the majority of buildings were built before the 1990s with little to non-existent energy efficiency standards. While energy performance certificates are not yet in place in Montenegro, Mr. Čanović expects such certificates to be passed as legislation within the next two years. Recently, the Ministry of Sustainable Development and Tourism has launched several pilot projects supporting over 1,500 households to adopt energy efficient retrofitting.

Ms. Giorgia Tzar (Passive House Institute) informed the participants that there are now over 40,000 passive houses worldwide. While interest is growing around the passive house concept, she stressed the importance of taking coordinated action towards making entire neighbourhoods passive. Often there is no need for expensive and advanced technologies to achieve energy savings though good urban planning and coordinated practices are essential in this endeavour.

Mr. Sylvain Labbe (Canada) presented a range of measures that governments could take to improve their energy efficiency performance. As well as having standards embedded in legislation, a key measure would be to establish a matrix of accounting based on a specific target expressed in kWh per m². Accounting for differences among countries, policies at the national level would likely follow. He expressed his strong view that energy savings would not be achieved through the implementation of voluntary measures.

Ms. Lucia Maria de Francesco (NewEn, Italy) addressed the need for a more bottom-up approach to energy efficiency, envisioning it as the only real driver for implementing solutions in this area. Regulations are not the only way to attain energy savings though they are necessary in the long term to support bottom-up approaches. She stated that it would be useful to have European guidelines for energy efficiency though customized national policies which are needed in order to account for regional differences.

Mr. Boris Melnichuk (Russian Federation) highlighted the importance of raising awareness among end users, essentially educating people to have a more energy efficient behaviour. This point was seconded by Ms. Irina Atamuradova (UNDP Turkmenistan) who also pointed to the need to reduce government subsidies in Turkmenistan, as energy prices are now far too low for people to have an appropriate behaviour on energy efficiency.

Mr. Kostiantyn Gura, (Ukraine) emphasized the key role that energy efficiency standards play in Ukraine's legislation. To achieve the 9% GHG emissions reduction pledged in their Nationally Determined Contributions as part of the Paris Agreement, the government needs to provide incentives to the market. The Ukrainian government started taking action in this regard in 2014, when it launched a small subsidy programme. In order to have energy efficiency markets gather a similar momentum to that of renewables (there are now over 1.8 million people investing in renewables), there need to be good standards and appropriate legislation in place.

Ms. Nathalie Robbel (World Health Organization) conveyed a key message regarding the need to start considering non-health sectors such as energy efficiency policy as preventive tools for reducing health risks. At a time when 7 million people per year die prematurely due to the effects of air pollution⁴ and 97% of healthcare budgets are spent on care, it is essential to advance energy efficiency policies. For example, the lack of ventilation in buildings leads to quicker spreading of diseases.

⁴ www.iass-potsdam.de/en/output/dossiers/air-pollution-and-climate-change

5. Next steps for the work of the Joint Task Force and Conclusions

The wrap-up part of the meeting was targeted to make sure that the discussion points and remarks are considered in the next draft of the study that will be presented in Kiev during the fourth meeting of the JTF on 13 November 2018. The meeting will be held as part of the fifth session of the UNECE Group of Experts on Energy Efficiency in the framework of the Ninth International Forum on Energy for Sustainable Development on 12-15 November 2018⁵. It was also announced that a new study on the development of best practices for existing policies and technologies is due to start soon and that a consultant has been selected. Participants agreed that there is a need for a substantive change in energy production's business models, more specifically, energy should be treated as a service rather than as a commodity.

⁵ www.unece.org/index.php?id=49144