SKGBC
SLOVAK GREEN BUILDING COUNCIL

Slovak Green Building Council (SKGBC)

Visegrad countries together for better environmental standards in buildings

(Joint Project of the Green Building Councils from Visegrad Countries)

EU Energy Performance of Buildings Directive (EPBD) and its Implementation in the Slovak Republic

(Assessment of the current status quo in the implementation of EPBD in Slovak legislation, fulfilment of the Directive and practical experiences with recommendations of experts associated in and with the SKGBC)

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Bratislava, August 15, 2011

Financed from the Visegrad Fund

Visegrad Fund

INTRODUCTION

The goal of this study is mainly to review the process of implementation of the EU Energy Performance of Buildings Directive (EPBD I. and II.) into the Slovak legislation and subsequently into practice. Chapter 1.1. Current EPBD requirements deals with legislating and enforcing the said requirements. Chapter 1.2. Problems in Practice is devoted to the problems, which occur in real life when enforcing the provisions of EPBD translated into the Slovak laws – as identified by the team of authors of this study. In general, we think the legislative changes are a step forward and the ensuing problems are mainly the result of the fact that the issue of energy performance of buildings is still a relatively new field in Slovakia.

Problems identified in the separate part of this study are always supplemented by the possible solutions, which could – and should – be the subject of any future discussion in the next stage if EPBD II. implementation. This part also discusses several „technical problems“ connected with the calculations of energy performance of buildings and also lists available financial mechanisms in this area.

Our opinion is that the energy certificates, which are one of the tools for implementing the Directive, must have a real significance for society and people – they need to positively influence and support the new perception of buildings, their energy efficiency and conservation of the energy sources (“building as appliance”) and through this, promote financial savings for the end users in this time of rising energy costs. According to many experts, Slovakia currently lacks comprehensive view on energy certification, which we try to outline in the part 1.2. of this study.

1. Current EPBD I (2002/91/EC) Requirements (Katarina Minarovičová, Roman Rabenseifer)

1.1. Summary of requirements

1,1.1. Energy certificate

1.1.1.1. Included energy systems

Heating
"Heating" section (page 4 of the Energy Certificate-EPC) includes the calculation of energy use for heating [kWh/(m2.a)]. This calculation is based on the heating needs (page 3 of Certificate). Type of the heating system, energy carrier and the means of measurement and regulation are also taken into account for calculating the energy use for heating.

Hot water
"Hot water" section includes the calculation of energy use for domestic hot water [kWh/(m^2.a)]. The type of hot water system, energy carrier and the means of measurement and regulation are also taken into account (page 5 of the EPC).

Ventilation and cooling
"Ventilation and cooling" section (page 6 of EPC) includes the calculation of energy use for ventilation and air-conditioning [kWh/(m^2.a)]. The calculation takes into account the ventilation and air-conditioning system, type of energy carrier, way of measurement and regulation, climate conditions and the building type.

Energy use for ventilation and air-conditioning is not taken into account for calculating the energy rating of family houses and residential buildings, nor buildings without air-conditioning and ventilation.

Artificial lighting
"Lighting" section (page 7 of the EPC) includes the calculation of energy use for lighting [kWh/(m^2.a)]. Building location (latitude and longitude), daily operation time and building use are also taken into account for calculating the energy use for lighting. Energy use for lighting is not taken into account for calculating the energy rating of family houses and residential buildings.

1.1.1.2. Main assessment criteria

Total primary energy consumption
Calculation of the primary energy takes into account the total delivered energy according to energy consumption form and energy carrier type. Conversion factors published in the Annex No. 2 Decree No. 311/2009 and Methodical guidance of MVRR SR (December 17, 2009) are used for the calculation. Determination of primary energy and CO2 emissions is set in the standards regulation STN EN 15603 Energy performance of buildings. Overall energy use and definition of energy ratings.
In the case of solar energy supply, that is firmly fixed to construction, the amount of such delivered energy is subtracted from the amount of delivered energy before energy class assigning process. (Methodical guidance from December 17, 2009).

Non-renewable primary energy consumption is not rated in Energy performance of buildings certificate

End-use energy consumption
Delivered energy (total energy use) is rated in energy certificate as a sum of delivered energy according to all forms of energy consumption required. For family houses and apartment buildings, only the energy use for heating (included energy need for heating) and domestic hot water are taken into account for calculating the delivered energy. The total delivered energy is the global indicator, that expresses energy performance of building. The global indicator is the resulting value of the energy consumption in kWh/m^2 of the total floor area in 1 year. The building is assigned an energy class ranging from A to G according to global indicator rating.

Energy use for heating
Energy use for heating rating takes into account parameters of heating system and is based on energy need for heating calculation (as a part of thermal protection assessment). Standardised assessment of **energy need for heating** is based on yearly heating/cooling demand calculation according to STN EN ISO 13790. For family houses and apartment buildings, use of the seasonal method is admissible (by using 3422 K.days for heating, 212 heating days and average external temperature of 3,89 °C). Results are expressed in kWh/(m^2.year) for residential buildings and in kWh/(m^3.year) in the case of non-residential buildings. Thermal protection rating contains also **energy criteria assessment** according to STN 73 0540-2. Calculation of energy need for heating in this case is based on STN 73 0540-4 method using standardized number 3422 K.days for each building type.

Energy use for cooling
Ventilation and cooling are rated by calculation of energy use for ventilation and air-conditioning (see page 1). Annual energy use for ventilation is calculated by seasonal (degree-days) or monthly calculation method according to building operation. Thermal losses due to infiltration, that are taken into account in heating system thermal loss calculation, are not considered in calculation of energy use for ventilation. In the case of building not cooled as a whole and where cooled spaces are less than 80 % of the total floor area, building and technologies are not rated from the energy use for cooling point of view.

U-values
STN 73 0540-2 sets maximum values (for renovations) and recommended values (new buildings) of U_N [W/(m^2.K)] for building constructions (walls, roofs, ceilings and floors of heated or air-conditioned buildings with $\varphi_i \leq 80\%$), that are taken into account in energy criteria calculation.

1.1.1.3. Other informative indicators

Any type of eco-label (including energy label) as a kind of “self-declaration” from the manufacturer is permitted, though not required. Since 2001 is in case of electrical appliances (e.g. light bulbs, refrigerators, electronic) Europe wide obligatory required an energy label.

EPC must contain recommendations for improvement of the energy performance (in terms of thermal insulation of envelope structures, efficiency of energy and technology equipment and improvement of the facility management) with description, estimates of savings, possible paybacks and impact on energy rating. However, the building owner is not obliged to apply these recommendations.

1.1.1.4. Method

- **The design energy rating** (of energy efficiency), under paragraph 2 sections 5 to 7 of Law no. 555/2005 coll. is determination of energy needs in the building calculated in accordance with the project documentation and indicators designed and conducted in the design phase of a new building or major renovation of existing one. According to the paragraph 4 section 3 of the law the designer is obliged to include minimum energy performance requirements for new buildings in the project documentation for building permit (or for permission to change the building).

Note:
In practice, the design assessment is drawn up using assessment of the thermal performance of building, which must, under paragraph 21 of Regulation 532/2002 coll. demonstrate compliance with the minimum criteria for thermal performance of building envelope, energy and hygiene criteria, as well as meet the criterion of minimum air exchange rate in the building (according to the methodology introduced in STN 73 0540 Thermal performance of building structures and buildings - Thermal protection of buildings). The authorized person in this instance will be the chartered engineer.

- In **the standardized energy rating** the energy needs of the building are calculated using the standardized input data on the external and internal environment of buildings and the actual realization of building structures and technical and energy equipment (paragraph 2 sections 5 to 7 of Law no. 555/2005 coll.), and is part of the documentation for building commissioning.
- **The operational assessment** is: Determining the actual energy consumption in building by measuring (paragraph 2, section 6 of the Law).

Note:
Permissible within the framework of energy certification is only the standardized assessment with calculation of heat/cold demand on the basis of so-called monthly *quasi-steady* state calculation method according to EN ISO 13790 (for family homes and apartment buildings it is also permitted to use the seasonal (annual) method). The evaluation of energy efficiency can also be performed using the operational assessment. *However, its execution is quite difficult, since the actual energy consumption is affected by individual users of the building as well as extreme weather events. Both have to be filtered out.*

- The dynamic calculation methods according to EN ISO 13790 or non-standard methods respectively, are only possible in the design assessment, if the nature of the problem requires such attitude (e.g. absence of standardized treatment of the problem). They are not comparable with standardized assessment according to STN 73 0540.

1.1.1.5. Energy performance / efficiency requirements

Buildings are assigned an energy class A-G according to energy performance and CO_2 emissions rating, considering also the building type. Each energy class is expressed by numerical range. Energy performance of building is expressed by the global indicator as a numerical indication of energy consumption in kWh/m^2 of the total floor area in one year.

Scales for Energy performance rating
Reference values *R* for energy class rating are expressed by *Rr* and *Rs* values. *Rr* is boundary value for minimum requirements (new buildings) and *Rs* is average energy consumption (existing building stock, building category and for all consumption types). Reference values *Rr* and *Rs* are sum of reference values for each consumption type. *Rr* is the top boundary of energy class B and *Rs* is top boundary of energy class D. Minimum requirements are top boundary of energy class B (§7 point 1,2 of the Act No. 555/2005).

Table 1: Energy class boundaries according to reference values R

Energy class	Boundary values
A	$EH \leq 0,5\ Rr$
B	$0,5\ Rr < EH \leq Rr$
C	$Rr < EH \leq 0,5(Rr+ Rs)$
D	$0,5(Rr+ Rs) < EH \leq Rs$
E	$Rs < EH \leq 1,25Rs$
F	$1,25\ Rs < EH \leq 1,5\ Rs$
G	$1,5\ Rs < EH$

Note: EH- global indicator as expression of energy performance

Table 2 :Scales for energy classes according to global indicator (total delivered energy) for each building category (Annex 3 of Regulation No.311/2009)

Total delivered energy	Family homes	≤ 54	55-110	111-165	166-220	221-275	276-330	> 330
	Apartment buildings	≤ 40	41-79	80-119	120-158	159-198	199-237	> 237
	Office buildings	≤ 58	59-115	116-166	167-218	219-272	273-327	> 327
	Educational buildings	≤ 42	43-84	85-124	125-163	164-204	205-245	> 245
	Hospitals	≤ 101	102-201	202-293	294-385	386-481	482-578	> 578
	Hotels & restaurants	≤ 94	95-187	188-275	276-363	364-454	455-545	> 545
	Sports facilities	≤ 48	49-95	96-140	141-184	185-230	231-276	> 276
	Buildings for commercial use and services	≤ 81	82-161	162-237	138-313	314-391	392-469	> 469

Residential buildings

- **Family homes** meet the minimum requirement of energy performance, when the primary energy is ≤ 160 kWh/(m2.a)- (top boundary of B class for primary energy).
- **Apartment buildings** meet the minimum requirement of energy performance, when the primary energy is ≤ 126 kWh/(m2.a)- (top boundary of B class for primary energy).

Office buildings meet the minimum requirement of energy performance, when the primary energy is ≤ 240 kWh/(m2.a)- (top boundary of B class for primary energy).

Major renovations

Energy rating is obligatory also for major renovations of existing building (§5 point 2 Act No.555/2005). Major renovations are construction modifications in terms of thermal protection improvements e.g. by insulating, openings replacement or energy systems renewal with the impact on energy performance of the building.

Construction part

Energy rating is used for the building as a whole, but it is possible to work out the energy certificate for a flat or a separately used building part. In that case, the rating is based on the assessment of the energy performance of the whole building, providing there is a common heating system (§5 point 2 Act No.555/2005)

1.1.1.6. Requirements for indoor quality

Ventilation

Taken into account for the calculation of energy need for heating in all building categories is the minimum air exchange rate of 0.5 times per hour or higher calculated values (Annex No. 2 Decree No. 311/2009).

1.1.1.7. Official permission

According to §5 point 2 of the Act No.555/2005, the energy certification is obligatory when the building is sold, rented or newly commissioned or renovated (Note: as a part of documentation for final inspection), otherwise it is voluntary. The owner of the building is obliged to keep the certificate during the whole validity period (which is up to 10 years) and must give the valid certificate to any buyer, or a verified copy to a tenant upon renting the building. The owner is also obliged to ensure regular inspection of boilers and air conditioning systems of the new buildings and to ensure regulation and other improvements of the heating system after major renovation. The owner is also obliged to place the energy label within the building on a visible and freely accessible spot.

1.1.1.8. Market size

Amount of certified experts according to consumption type:

Thermal protection of building constructions and buildings …..182
Heating and domestic hot water.....119
Ventilation and air-conditioning.....16
Wiring and artificial lighting 34

The list of certified experts is available at: http://www.sksi.sk/buxus/generate_page.php?page_id=1349 (Slovak Chamber of Civil Engineers website)

Estimated certification prices on the market

Family homes.....100-130-300 Euro
Apartment buildings ….....from 300 (small) – €1000 (large)
Offices …..... from 400 (smaller) – 1500 – to 4000 and more (large, air-conditioned, reflecting other conditions)
Retail…..... from 400 (small, with documentation) – €800 (medium-sized supermarket, with documentation)

1.1.1.9. Design of the certificate

The Energy certificate (EPC) is the most visible aspect of the Energy Certification of Buildings. The energy label is a copy of the first page of the EPC intended for display at a highly visible place in the building. This document assigns an energy performance to residential and non-residential buildings. The Energy certificate consists of 8 pages. /* *Cover page of EPC - Fig 1. on next page.*

The energy rating includes all forms of energy consumption: energy use for heating, hot water, cooling, ventilation and lighting. The global indicator is the total delivered energy (energy use). The scale is based on the same principle for all building categories and is set also separately for 4 consumption types (heating, HW, ventilation and cooling and lighting), besides the main global indicator. Scales for the 4 energy consumption types are also reported in the certificate (see left part of the EPC's cover page).

Additionally, primary energy and CO2 emissions are calculated and the results are presented in the energy certificate. The energy certificate assigns buildings an energy class ranging from A (high energy efficiency) to G (poor efficiency). At the bottom there is a resume of recommendations for energy performance improvement. [8]

Sources:

1. Act No. 555/2005 Z.z. Energy performance of buildings
2. Act No. 17/2007 Z. z. on regular control of boilers, heating and air-conditioning systems
3. STN EN 15 603: 2008 Energy performance of buildings. Overall energy use and definition of energy ratings. (Energetická hospodárnosť budov. Celková potreba energie a definície energetického hodnotenia).
4. Directive No. 311 of the Ministry of Construction and Regional Development of the SR from July 13, 2009, on the details of the calculation of the energy performance of buildings and the contents of the energy certificate
5. STN EN ISO 13790: 2008 Thermo-technical characteristics of buildings (Tepelnotechnické vlastnosti budov) Calculation of the energy for heating and cooling.
6. STN 73 0540: Thermo-technical characteristics of building structures and buildings (Tepelnotechnické vlastnosti stavebných konštrukcií a budov) Thermal protection of the buildings. Parts 1 -4.
7. Methodology directive of the Ministry of Construction and Regional Development of the SR (MVRR SR) from December 17, 2009.
8. Bendžalová, J., Magyar, J., Sternová, Z.: Implementation of the EPBD in the Slovak Republic. Status in November 2010. In: The publication 'Implementing the Energy Performance of Buildings Directive (EPBD)' (featuring country reports for 2010) published by the EU and available at: http://www.epbd-ca.org/.)

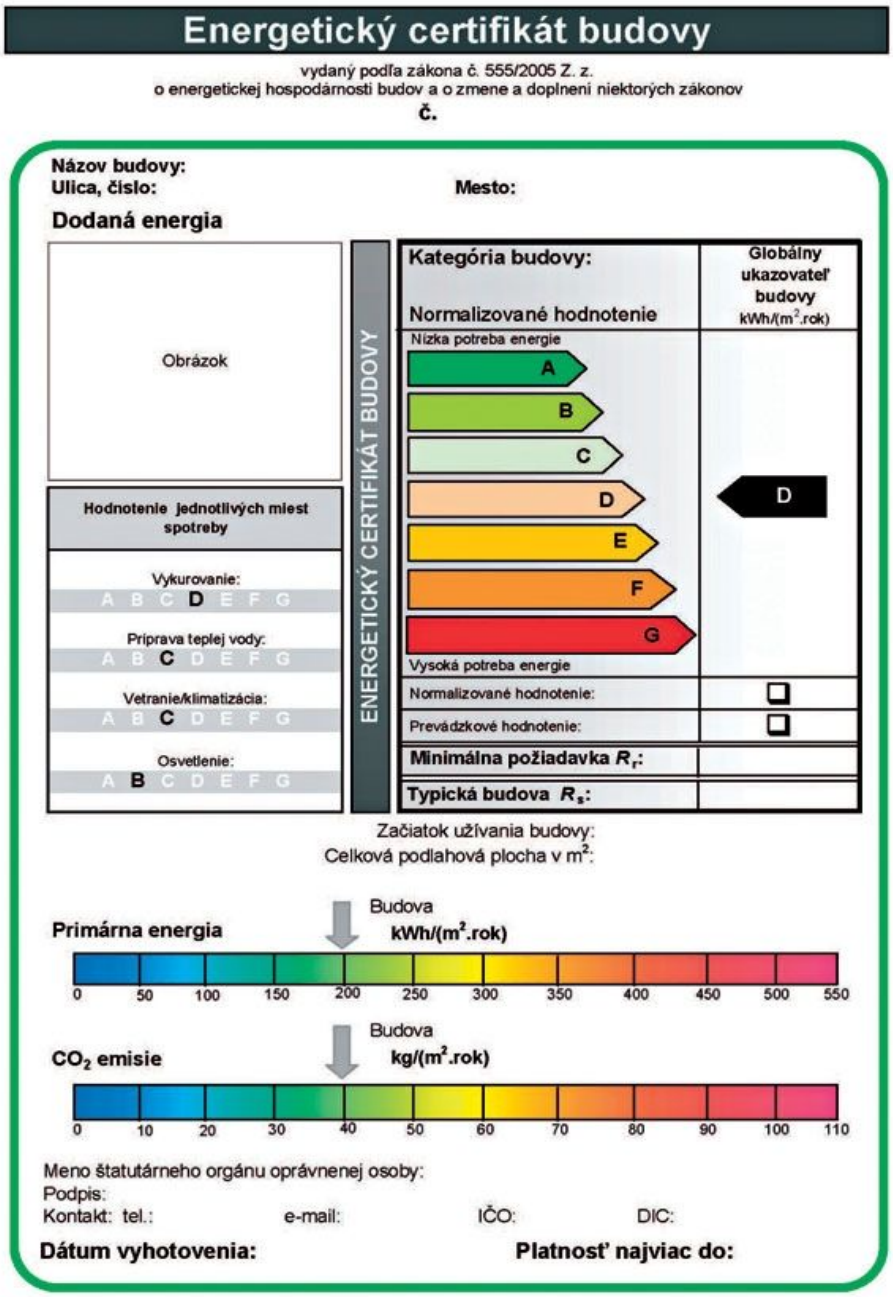

Fig. 1. Cover page of the Energy Performance of Buildings Certificate (source Regulation No. 311/2009 Z.z. (body of law))

1.2 PROBLEMS IN PRACTICE

1.2.1 Philosophical, political and legislative problems (Roman Rabenseifer, Ján Ilkovič, Ladislav Matejka)

The Act no. 555/2005 on the Energy Performance of Buildings was prepared and approved in compliance with the Directive 2002/91/EC of the European Parliament and the European Council of 16 December 2002 on the Energy Performance of Buildings as an executive document implementing the Directive 2002/91/EC into national legislation following the EU membership commitments of the Slovak Republic. The contribution of this Act and the related regulations is that 'de iure' it established minimum requirements for building envelope, internal environment, and heating systems that had been previously required only based on non-mandatory ecological norms. It also managed to raise discussion, albeit relatively small one, on the importance of energy certification of buildings. Thus, the Act was not the result of public discussion, but far more a product of a small group of lawyers and building professionals developed under time pressure and in order to fulfil the commitments of the Slovak Republic to the European Union. Of course, the authors cannot be assumed not to have good intentions or act professionally, but it should also be considered that the Directive 2002/91/EC follows the legislative processes in a number of Western European countries, which had been developing their respective acts on thermal protection and later their acts on energy efficiency of buildings since the oil crisis of 1973. In contrast, the Act no. 555/2005 was approved in less than three years, within s single legislative period and under general understanding of its necessity (otherwise there was a threat of sanctions on the part of the European Union) and with legal language corresponding to the period of its origin. However, for successful application of a law and its acceptance by the public, the most important is the 'spirit of the law' i.e. the intended public good and the way these intentions are implemented.

In general, the problems linked to implementation of EPBD and the Act on Energy Performance of Buildings (EPB) can be divided into several areas; each of them deserves coordinated and concept-based solutions:

A. The role of the state as a guarantor of energy savings in the field of energy performance of buildings

Act on o EPB should be regarded as an integral part of Slovakia's energy policy, i.e. as a part of the conceptual approach of the Slovak government to the energy-related issues. At the moment, there is no 'head coordinator' in charge of implementing the Slovak energy policy. Many problems in realising EPBD would be eliminated if the Slovak energy policy was coordinated by a single body (e.g. a single ministry, a single professional authority).

By implementing the Act on EPB into practice, state bodies fulfilled their obligation based on EPBD, however, no study was prepared exploring the impact of the Act on Slovak economy during the preparation stage, nor does any analysis exists looking in detail at implementation of the Act in practice even though the Act took force more than three years ago. Some professionals regard this as an insufficient effort by the authorities to gain feedback. The analysis should serve as the basis for amendment of the Act which is currently underway. Moreover, public buildings should serve as an example for entrepreneurs and the general public in terms of implementation of EPBD and the Act on EPB – they could and should serve as case studies for promotion of the EPB concept. However, this is not happening in practice. The attitude of the state in this area can therefore appear as purely formal.

Until this very day, no discussion on EPB issues took place that would be comprehensive, constructive and would comprise professional institutions, independent experts, as well as citizens. As mentioned above, the ministry in charge (currently the Ministry of Transport, Construction and Regional Development) failed to initiate and conduct a discussion on preparing the Act on EPB. At the moment, the same can be said about the amendment of the aforementioned Act.
Already in 2005, when preparing the Act on EPB, the state authorities failed to carry out a single campaign aimed at raising awareness of the general public about the benefits that the Act shall provide to the citizens after being implemented in practice. The Act on EPB was not properly followed through as it fails to define the use of energy certificates in practice as well as it lacks the related preciseness and professional degree of processing the energy certificates.

The objective of implementing the EPBD guideline is energy saving; energy certification is only one of the means – a tool how to achieve this objective. Energy certificates should be primarily understood as communication tools, the purpose of which is to inform the building professionals and general public about the need for increasing energy efficiency of buildings, its positive impact on the environment, and to motivate owners / investors to positive action. The first step has already been made – energy certificates are being issued. However, the second step hasn't been made until this very date – building owners are not motivated to provide for energy savings (introduction of combined financing mechanisms and market-based tools such as support, soft loans or more convenient property taxation rate, subsidies, penalties, ecologic taxes etc.)

The Act on EPB imposes the obligation to carry out the legally required activities. However, at present, the supervision of these is very poor and insufficient. Professionally competent authorities are not supervised, i.e. the quality of energy certification is not monitored and the situation is similar in terms of supervision of subjects that are obliged to obtain an energy certificate. Poor level of control represents a barrier mainly when it comes to certification of rented buildings and buildings for sale.

The Act on EPB also contains a number of unclear statements that actually prevent its application in practice (establishing of deadlines, clear denomination of subjects that have specific obligations etc.). Respective interpretations of the Act by the former Ministry of Construction as well as the State Energy Inspection were differing. There isn't even any clear and unified approach by the respective civil construction authorities; in practice, some cities' local civil construction authorities don't even require energy certification until this very day. The amendment of the Act should eliminate all of these shortcomings.

Recommendations by the SKGBC:

1. Preparing of an independent analysis that will contain assessment of both strengths and weaknesses of implementing the Act on EPB in practice. Based on the outcomes of the analysis, measures should be proposed that would improve general application and functioning of the Act in relation to the prepared amendment procedure.

Slovak Green Building Council is ready to provide support and assistance in preparing such study, or perhaps the Council is prepared to execute such study with its own experts.

2. Raise professional discussion by establishing a committee comprising representatives of groups concerned by the Act with the objective of dealing with the respective proposals and comments made by these experts and professionals.

Slovak Green Building Council has the ambition to become a member of such committee and, with its proposals and suggestions, help to improve the process of championing the cause of energy

efficiency of buildings in practice.

3. Change the status quo in supervision of issuing energy certification, quality of issued energy expert statements and energy certificates, and the control of Local Civil Construction Authorities' measures by the State Energy Inspection and the Regional Civil Construction Authorities, or perhaps the Ministry of Transport, Construction and Regional Development. Champion the cause of proper applying of the Act on EPB in practice thorough increased rate of supervision and by defining a minimum number of inspections.

By offering constructive criticism and comments as well as through media activity, **Slovak Green Building Council** would like to help change the unsatisfactory status quo in this field.

B. The role of experts from the academia, architects, building designers, and planners

The professional community, mainly the experts from the academia, have entered the process as guarantors of professional approach to the concept of energy efficiency of buildings. The Slovak Chamber of Civil Engineers trained professionals qualified to carry out energy certification in practice.

However, architects' and designers' awareness in the field of energy certification of buildings still appears to be insufficient. Many professionals (with the exception of those who are simultaneously professionally qualified to carry out energy certification of buildings) simply do not show any interest in these matters. Thus, we see undesirable segregation of planning and energy certification. The problem is that the building planner is the person, who communicates with the investor and helps developing the building concept. When preparing the concept, also the quality of the building envelope and internal technical equipment and simultaneously, their impact on the quality of indoor environment is discussed. At this stage, it therefore makes sense to present the investor with several variants including their energy classification. From here, there is just a small step to be made to elaboration of the final version of the energy certificate. The above-mentioned low interest is largely caused by low zeal of builders for higher-quality projects that bring greater energy saving. This situation is caused by the absence of motivation factors that would drive builders to develop and reconstruct buildings with higher energy classification.

From the professional perspective, the greatest shortcoming is the absence of a comprehensive view on energy efficiency of buildings. Even today, no professional guarantor is established, whose job would be to align all four points of energy consumption. We would appreciate better cooperation in defining preciseness and difficulty of calculation processes while putting emphasis on streamlining and simplification. Such process could then lead to developing of a comprehensive software that would speed up the process of energy certification while substantially contributing to maintaining the quality of certificates.

Recommendations by the SKGBC:

From the perspective of comprehensive approach to energy certification of buildings, it is desirable to establish a professional expert in charge of coordinating all four points of energy consumption. This expert's coordination activity would result in simplification and greater preciseness in calculation processes applied in energy certification of buildings with the general aim of developing a comprehensive certification software.

In their curricula, The Slovak Chamber of Civil Engineers in cooperation with the Slovak Chamber of Architects should include trainings of architects and planners in the field of EPB.

Slovak Green Building Council shall cooperate with the experts in the field of EPB and thus help to spread awareness of the EPB concept and further professional education in this area (besides other, by inviting planners and architects to events that SKGBC organises or participates in organising)

C. The role of the general public as the exponent of the public opinion

The Slovak public expresses two differing views on introducing the measures supporting energy efficiency of buildings. In general, the public opinion is in favour of introducing the measures linked to efficient use of energy in buildings. The reaction of both professional and lay public is positive as long as energy efficiency is perceived in relation to the impact of climate change and energy crisis on peoples' everyday lives. On the other hand, when applying the specific measures into practice, problems do appear: Here the reaction of building owners to the needs and purposes of such measures is far from being purely positive.

Slovak public's awareness of the efficient and economical use of energy is relatively good; however, the willingness to influence the process of energy certification of buildings by applying pressure on authorities through the media is insufficient. Since the authorities are not subject to the pressure of the public, their activity gradually phases out.

Recommendations by the SKGBC:

The relevant authorities should be more engaged in the field of raising awareness and educating the general public. More use should be made of campaigns (financed by the EU) in order to raise awareness of the citizens – building owners of the possibilities to cut down energy consumption of buildings and together with using market-based tools support and motivate the public to energy-efficient behaviour. If such activities for the public are organised large-scale, it will have a positive impact on the Slovak economy as a whole.

Slovak Green Building Council realises poor level of awareness and very low level of public activity in the field of EPB. The Council therefore makes efforts to intensify and increase the level of awareness by various events and activities that would lead to improvement of this unsatisfactory situation.

D. Impact of timing of the Act implementation

The implementation of the Act on EPB is affected by the economic crisis that hit Slovakia in 2009. Fear of the future, growing unemployment and other phenomena accompanying the crisis had negative impact on the willingness of building owners to invest resources in energy certification, quality projects and developing building with low energy consumption, despite apparent long-term benefits of this approach.

Recommendations by the SKGBC:

It is exactly the period of economic crisis when the population shows the tendency and desire to save resources and behave economically and therefore the state should make increasing use of the information and financial tools to support and motivate the public to drive energy-efficient behaviour (e.g. the successful project using the finance raised by selling of the emission permits in 2010).

Through its suggestions, the **Slovak Green Building Council** shall offer the competent authorities solutions convenient for the period of crisis and simultaneously, the Council shall actively participate in media promotion and coverage of the possible energy-efficient solutions in building construction.

E. Other Specific Practical Problems:

1. The implementation of the Act no. 555 is carried out using the Regulation no. 311/2009 of 13 July 2009, which fully replaced the Regulation no. 625/2006 of 22 November 2006. It should be appreciated that the content of the new regulation replaced the previous one on a full scale. There is high probability that also the Regulation no. 311/2009 will be changed in somehow in the future. Hence, it would be highly desirable to perform all the changes that will necessarily come in the future in a consistent manner, i.e. that each new regulation replaces the old one on a full scale. This attitude would help to avoid setting up the valid version from text passages fragmented in several different regulations (e.g. not "as laid down in the Regulation no. 311/2009 from 17 July 2009 in the wording of amendments from the years 2010, 2011, 2012, …, and enactment of the Act no. xxx/xxx from the year xxxx in the wording of amendments from the year xxxx….etc.) or perhaps the methodological guides (e.g. the guide of 17 December 2009). It would be also advisable to keep the system of a single Act and a single implementing regulation.

2. The points (2) of the paragraphs no. 5 and 8 of the Act no. 555/2005 slightly contradict each other. The point (2) of the paragraph no. 5 states that "energy certification is obligatory if the building is a) sold, b) rented and c) newly commissioned or substantially renovated, otherwise it is voluntary". The section d) of the point (2) in the paragraph no. 8 states that "the owner of an existing building is obliged to place the energy label within the building on a spot visible and freely accessible to all users". Hence, the question arises whether the energy label is obligatory or voluntary. Or is it obligatory only in case the owner arranged for an energy certificate/label as laid down in paragraph no. 5? Furthermore, how many state-owned or municipally-owned buildings have their energy labels available or perhaps how many of the new/renovated buildings where the authorities operate from have placed it on a visible and freely accessible spot in the main entrance foyer? Therefore, the lacking supervisory function of the State Energy Inspection should be mentioned at this point.

1.2.2 Technical problems (Roman Rabenseifer, Ivan Chmúrny)

As for the calculation of the energy efficiency of buildings and issue of energy certificates we see several problematic points or practical complications, examples of which are mentioned in the following section. These problems will have to be dealt with in the near future by means of expert discussion; being an association of experts from practice, SKGBC would like to take part in this discussion.

In Slovakia, energy efficiency of buildings is usually assessed using a simplified calculation of annual heating/cooling energy demands based on one-dimensional assessment of the most important fragments of the building envelope and a constant heating/cooling season. The heating/cooling season is either expressed using either the number of degree-days for heating season (seasonal calculation) or average monthly exterior air temperatures and standardized calculation of interior air temperatures (monthly calculation). Within the framework of assessment for the purpose of energy certification of buildings, the only allowed method is the so called standardized assessment based on so called quasi-steady-state method for heat balance according to STN EN ISO 13790 with above-mentioned main characteristics. With regard to high number of buildings that will have to be assessed in the near future this approach does make sense. A reasonable strategy could also be further simplification of calculation based on energy "typology" of buildings, which would certainly help to reduce the certification costs as well. On the other hand, there are buildings, in case of which the simplified procedure can be only used with difficulty or perhaps when the owner of a building is interested in highly precise assessment of energy efficiency. In such cases the application of more accurate methods based on transient heat transfer calculations (dynamic simulation methods) should not be prevented from use. It is exactly these methods the persons qualified for energy certification could focus on. (See the section 'Philosophical, political and legislative problems').

There is not too much to object in the Regulation no. 311/2009 and the chosen calculation procedure except for the fact that the whole calculation procedure could be even more simplified and completely published in the text of the Regulation including all necessary equations, figures and tables so that no further references to other standards and explanatory (and also confusing) methodical guides would be necessary. The Article 1 of the paragraph no. 6 says that the reference value R_s is an average value of energy demand for each category of buildings in the existing pool of buildings in the Slovak republic. This statement suggests that someone has extensively studied the existing buildings in detail and in some way they defined the energy demand of these buildings. Hence, the calculation procedures used in the assumed research could be generalized for the respective building categories and used in the Regulation.

1.2.2.1 Calculation of heat loss (Roman Rabenseifer)

The present-day calculation of heat demand within the framework of energy certification requires fulfilment of the so called energy criterion in compliance with STN 73 0540 - Part 2: Functional requirements. The heat demand for the whole heating season is determined according the following equation (STN 73 0540 – Part 4: Calculation methods):

$$Q_h = 82.1 \text{ x } (H_T + H_V) - 0.95 \text{ x } (Q_s + Q_i)$$

The constant of 82.1 perhaps does not take into consideration the effect of intermediate heating with overnight reduction of the interior air temperature. Hence, the resulting values of Q_h are relatively high and can be avoided using either high thermal resistance of main parts of the building envelope or by applying heat exchangers, which considerably reduce the ventilation heat loss - the H_V. From this perspective, it would be perhaps reasonable to introduce the assessment of building envelope at the level equivalent to slight transmission heat loss coefficient (H_T) as the transmission heat loss provides best description of the quality of building envelope avoiding the uncertainty from ventilation heat loss and interior heat gains (solar heat gains, gains from equipment, or users) assessment and enables, related to building geometry, a mutual comparison of building envelopes. In addition, this attitude would secure essential quality of the building envelope.

1.2.2.2 Consideration of renewable energy sources in the assessment of energy efficiency of buildings (Ivan Chmúrny)

In EN 15603: 2008, delivered energy is defined as the energy expressed in dependence on an energy carrier, which is supplying the technical equipment of buildings across the system boundaries of the building in order to ensure the intended use (heating, cooling, ventilation, hot water, lighting or generation of electricity). For active solar and wind energy systems, solar radiation hitting the solar panels or wind kinetic energy is not part of the building's energy balance. At the nationwide level, it is to be decided whether the renewable energy produced on-site counts or does not count as part of the energy supplied. By nationwide allowing for both inclusion and exclusion of renewable energy, some ambiguity arose when calculating renewable energy - and with it also the differences between the respective assessments.

An example of a single-family house that uses solar collectors to support the hot water preparation:

- Solar panels supply 3 kWh / (m^2.year) to the system
- Boiler (gas) to heat the hot water tank uses 6 kWh / (m^2.year)

What is the energy demand to heat hot water?

Solution no.1: 3 + 6 = 9 kWh / (m^2.year)
Thus it is explained in the methodological guidance of the Ministry of Construction and Regional Development of 17 December 2009 to the Regulation of the Ministry no. 311/2009. Therefore, renewable energy produced on site is seen as part of the energy supplied. This solution means that the 9 kWh / (m2.year) are seen as energy that is utilized and then 'goes down the drain'. However this solution means that an identical house, standing next, but not using a solar collector will have the same energy demand to heat water – i.e. 9 kWh / (m2.year).
In this way, the contribution of renewable energy resources in reporting the energy performance of buildings can be eliminated.

Solution no.2: 6 kWh / (m^2.year)
The energy needed to heat water is 6 kWh / (m^2.year). This value represents the energy demand from a standard-market energy supplier (gas, electricity) in from the public utility network. Therefore, the owner of the house with a solar energy collector has a more favourable rating according to energy supplied compared to the house owner who would not have solar collectors.

EN 15 603:2008 Article 3.3.4 is outdated given the wording of the EPBD recast in Annex I [4]. The essence of this calculation procedure [5] is that renewable energy produced at the building (perhaps a better indication is: inside the system boundary of the building) is not considered as part of the energy supplied. This methodology applies to [5] and it slightly modifies STN EN 15603:2008. This attitude is based on the EPBD recast and Annex I [4] where the positive effect of active solar systems and other renewable energy sources should be included in the assessment.
Energy used in buildings by its technical systems is composed of energy supplied from the market suppliers and from renewable energy resources within the system boundary of the building. The production of renewable energy in the building (within the system boundary of the building) allows for the supply of building's technical systems and reduces the amount of energy needed from the market suppliers. Energy from heat sources such as heat pumps (air, ground, water) is also considered as renewable energy. Some problems, however, will be caused by the definition of the term 'surroundings of the building' in technical specifications. This term is introduced in the definition of nearly zero-energy consumption building in the EPBD recast [4].

1.2.3 Financing and supporting programs in current Slovak practice (Ivan Chmúrny)

Housing Development Program

Housing Development Program – subsidies provided in order to eliminate system failures in residential buildings is a form of state aid to remedy failures in residential houses, which originate from improperly designed materials and details, construction technology, misuse or failure to comply with the proposed action and construction time. This aid is used especially for renovation of residential buildings built with panel technology. Despite the above intention, the applicant is not required to submit the thermal assessment of the building construction in order to be granted the subsidy, even though some system failures can only be repaired by partial or full-scale building insulation. In 2008, to eliminate system failures, subsidies amounting to € 14.54 million were awarded and 16,026 flats were renovated. In 2009, 20,268 flats were renovated and a subsidy of € 19.61 million was granted. In 2010, 8,261 apartments were renovated and a subsidy of € 7.52 million was granted.

Government program of thermal insulation

The Government discussed and approved on 20 May 2009 the government program of thermal insulation by way of the Resolution No. 379/2009. The program was created as a new tool for stimulating housing development aimed at reducing energy consumption of buildings for housing, single-family houses and apartment buildings, and the related reduction in energy costs for households. The program helped alleviate the impact of the economic crisis by creating new jobs or perhaps maintaining the existing ones. In 2009, the Government allocated € 70.87 million into this program, leading to insulation of 346 buildings thus reducing heat consumption for heating.

Program for improvement of the thermal performance of buildings

In 2008, the Government has allocated € 10.5 million and 126 buildings were renovated within the Program for improvement of the thermal performance of buildings under the Housing Development Fund. In 2009, the Government allocated € 13.16 million and additional 127 buildings were renovated. It should be noted that the total savings will be realized in the interval of 2-3 years following the renovation and its quantification through energy savings for each period of evaluation will be expressed in the assessment of the Second Energy Efficiency Action Plan.

Funding from the Structural Funds

Within the action titled Improving of thermal insulation of buildings, subtask of Improvement of thermal properties of buildings within the regeneration of urban structures in the Bratislava Region in the framework of the Operational Program Bratislava Region, the respective call has not been published, yet.

An important step in implementing renovation of non-residential buildings leading to efficient use of energy in these buildings was the enforcement of the operational program Basic Infrastructure and within the program, the priority no. 3: Local infrastructure for the years 2004 - 2006. The measure 3.1 Building and development of civil infrastructure OPBI had four sub-measures:

- 3.1.1 Building and development of school infrastructure,
- 3.1.2 Building and development of health infrastructure,
- 3.1.3 Building and development of educational infrastructure,
- 3.1.4 Building and development of cultural infrastructure

Financial resources were used for the renovation of non-residential buildings and the volume of these funds is presented in the table below:

Program level	Approved amount 2004-2006 (in SKK)	Out of which: Amount of funds drawn for renovation of buildings with having impact on energy efficiency (in SKK)
3.1.1	1 076 569 963.00	753 598 974
3.1.2	952 436 003.00	656 205 202
3.1.3	325 407 352.00	227 785 146
3.1.4	335 242 308.00	234 669 615
3.1 TOTAL	2 689 655 626.00	1 872 258 937

Structural Funds for the years 2007 - 2013

The implementation of the Operational Program Basic Infrastructure (OPBI) and its Priority no. 3: Local infrastructure for the years 2004 -2006 was very important for the renovation of selected non-residential buildings also in terms of measures aimed at improving energy efficiency of buildings.

The positive composition of the operational program with subsidies grated for non-residential buildings with the focus on improving their energy efficiency will continue in the years 2007 - 2013 while the support will be extended to other eligible activities.
Support provided to renovation and reconstruction of selected non-residential buildings with the possibility of improving their energy efficiency is outlined in the table below showing that for the years 2007 – 2013, approx. € 578 million (SKK 190 billion) is planned under the Regional Operational Program.

Program level Priority axis Measure	Funds total ERDF + State Budget + recipient	Out of which: Renovation of buildings having an impact on EPB* in the years 2007-2013 [in Euro]
Measure 1.1 Educational infrastructure	410 454 545	246 272 727
Measure 2.1 Infrastructure of social services, social and legal protection and social care	270 757 575	135 378 787
Measure 3.1 Strengthening the cultural potential of regions	158 823 529	79 411 764
Measure 4.1 Regeneration of urban structures - only residential houses, other activities do not influence energy performance of buildings	473 006 718	70 000 000
Measure 4.2 Infrastructure of non-commercial emergency services	94 132 799	47 066 399
Total	1 407 175 166	578 129 677

* Note: EPB = energy efficiency of buildings

Building saving

Under the measure no. 360/2009 of the Ministry of Finances of the Slovak Republic the state bonus for building saving in 2010 was established at 12.5% of the annual deposit with the maximum amount at € 66.39, which corresponds to the amount of SKK 2,000. Compared year-on-year, the maximum amount of state bonus in 2010 remained the same as in 2009 and therefore the clients of building saving again had to deposit the minimum of € 531.10 (SKK 16,000) on their building saving account. Under the provisions of Section 3 of the paragraph 10 of the Act no. 310/1992 Coll. on Home Saving as amended, the state bonus is determined by a percentage of the total annual deposit.

Mortgage financing

In addition to new construction, mortgage loans are primarily aimed at renovation of residential housing owned by wealthier population. The amendment of the Act no. 483/2001 Coll. on Banks and on amendments to certain laws provides for direct state support of mortgage loans by way granting bonuses for interest rates thereby creating conditions for wider use of mortgage loans directed at housing development. The state budget will annually allocate funds for bonuses for interest rate of mortgage loans.

Private funds

All retail banks and 3 building societies provide loans to grant private resources for various programs supporting the renovation of residential buildings. Within these projects, banks collaborate with businesses as well as municipalities and communities and offer affordable loans to private owners with simpler collateral conditions. On the other hand, Prvá stavebná sporiteľňa (*the leading Slovak building society*) offered a project for financing municipal housing.

The European Bank for Reconstruction and Development introduced special program. Under the SLOVSEFF program, 4 cooperating Slovak banks (Dexia Bank Slovakia, Slovenska sporitelna, Tatra banka as, VUB) provide loans to private companies and housing sector in Slovakia. The loans ranging from € 20 000 to € 2,000,000, as well as non-repayable grant of up to 20% of the loan volume are aimed at improving energy efficiency of buildings. A non-repayable grant is also provided by the International Fund to facilitate the decommissioning of the Jaslovské Bohunice nuclear power plant.

It is expected that in the upcoming period after 2010 the building societies will be able to defend their position in the civil construction market and will try to offer other products for both corporate bodies and natural persons. Commercial banks are expected to provide even more active support for residential and commercial buildings. The offer of quick loans combined with substantial limitation of required administrative acts to be carried out by the building owner, as well as the lack of public resources, all shape relatively favourable conditions for doing business. Selected commercial banks could assist in introducing a new model of financing of e.g. low energy and/or passive energy buildings, where the state budget would individually lower the interest rates by 3-4% percentage points. Commercial banks already manage accounts of home owners or housing administration companies. In the future, this could lead to a proven model of loan repayment based on the total energy savings in the respective building. However, still a large portion of funds must be provided by the owners and operators of non-manufacturing buildings. It would be very helpful if the financing of the energy efficiency program for residential sector and renewable resources "SLOVSEFF" of the European Bank for Reconstruction and Development continued also in the period after 2010.

Partial conclusion

The above mentioned supporting programs are geared mostly to fund buildings as such. There is a lack of supporting programs to increase awareness and motivation of building owners (e.g. introduction of a combination of financial mechanisms, market-based instruments - support, soft loans, subsidies, penalties, environmental tax, more convenient / discounted real estate taxes, etc.), and qualified persons, as well as for research and development of tools supporting and improving energy efficiency in buildings. Also, assignments in research and development aimed at increasing energy efficiency in buildings are missing.

Sources:

[1] Directive of the European Parliament and of the Council on the energy performance of buildings, COM(2001) 226 final, 2001
[2] Zákon č. 555/2005 Z.z. o energetickej hospodárnosti budov a o zmene a doplnení niektorých zákonov
[3] Zákon č. 17/2007 Z. z. o pravidelnej kontrole kotlov, vykurovacích sústav a klimatizačných systémov a o zmene a doplnení niektorých zákonov
[4] Smernica európskeho parlamentu a Rady 2010/31/EÚ z 19. 5. 2010 o energetickej hospodárnosti budov (prepracované znenie) EPBD recast
[5] Guidelines supplementing Directive 2010/31/EU of the European Parliament and of the Council on the energy performance of buildings (recast) by establishing a comparative methodology framework for calculating cost optimal levels of minimum energy performance requirements for buildings and building elements, EU draft, July 2011
[6] STN EN 15 603: 2008 Energetická hospodárnosť budov. Celková potreba energie a definície energetického hodnotenia
[7] MVRR SR: Návrh koncepcie energetickej hospodárnosti budov do roku 2010 s výhľadom do roku 2020
[8] Vyhláška 311 MVRR SR z 13. júla 2009, ktorou sa ustanovujú podrobnosti o výpočte energetickej hospodárnosti budov a obsah energetického certifikátu
[9] STN EN ISO 13790:2008 Tepelnotechnické vlastnosti budov. Výpočet potreby energie na vykurovanie a chladenie
[10] STN 73 0540 Tepelnotechnické vlastnosti stavebných konštrukcií a budov. Tepelná ochrana budov. Časti 1 -4.

2. The Implementation of the EPBD II (2010/31/EU)

2.1. EPBD II Topic in Slovakia

2.1.1. Parties of the Implementation Process

As mentioned in the chapter 1.2 above, the discussion on energy efficiency and environmental quality of buildings is scarce in Slovakia. The implementation of EPBD and EPBD II falls under the responsibility of the competent ministries, which are required to promptly incorporate the EU directives into national legislation, and of certain state professional institutions, e.g. Building Testing and Research Institute, Academy of Sciences and other state owned research institutes that guarantee the technical quality of legislative documents under preparation. In the second run, the representatives of the academic community are also invited to cooperate on these documents - usually via state owned research institutes. Until now, the participation of the building industry and the professional public in this process has been minimal

2.1.2. SKGBC Potential in This Process

Based on these reasons SKGBC as an association of important companies from the building sector has a good potential to become a moderator of an independent discussion and a partner of the state institutions. The task of SKGBC should be primarily to formulate the comments and requirements of the member institutions and communicate those to the responsible state institutions.

The immediate topics of the SKGBC agenda could include the following:

1. Bid for reducing the bureaucracy related to the energy certification of buildings, increasing its standard and quality and general raising of the public awareness on Energy performance of buildings with a view of general and positive acceptance of the respective legislation,

2. Bid for transferring the focus of energy certification to large new and significantly renovated public and industrial buildings, where the state should set a good example using its own buildings,

3. Bid for *fair* assessment of buildings from the technical viewpoint, that would avoid the inclusion of the energy produced within the building and delivered to public network (e. g. electrical network) among the justified energy gains. These should include only the energy directly used within the building without any compensation.

2.2. The Structure of the EPBD Implementation Process in Slovakia

The implementation of the EPBD in Slovakia is primarily in the competence of two ministries – the Ministry of Transport, Construction and Regional Development of the Slovak Republic (Ministerstvo dopravy, výstavby a regionálneho rozvoja Slovenskej republiky - MDVRR SR), until 2010, this being the Ministry of Construction and Regional Development, and the Ministry of Economy of the Slovak Republic (Ministerstvo hospodárstva Slovenskej republiky - MH SR). In the area of buildings and their construction, the relevant provisions of the EPBD are implemented by the MDVRR SR through novelization of the Act on Energy Performance of Buildings No. 555/2005. The implementation of EPBD in the area of installations and systems in the buildings, the implementation is supervised by the MH SR through Act. on Regular Control of Boilers, heating and air-conditioning systems No. 17 2007 (currently relevant articles nos. 14, 15, 16 and partially 17). A new Law is being drawn at the moment.

Other institutions, which have taken part in the process so far - to larger or smaller extent - are: Faculty of Civil Engineering – Slovak Technical University, SIEA – Slovak Innovation and Energy Agency, Chambers (e.g. Slovak Chamber of Civil Engineers), research institutions (e.g. Building Testing and Research Institute – TSUS, which is also authorised to issue energy certificates) and associations (e.g. Association for Insulation of the Buildings). Upon the promise of MDVRR SR, the newly-formed Slovak Green Building Council should begin taking part in certain parts of the process in the near future, in cooperation with other organizations with similar common goals in this area (such as Institute for Passive Houses or Slovak Chamber of Architects).

Current energy legislation

1/ Regulation No. 2002/91/ES on the Energy Performance of Buildings (Smernica č. 2002/91/ES o energetickej hospodárnosti budov)

2/ Act No. 555/2005 on the Energy Performance of Buildings (Zákon č. 555/2005 Z. z. o energetickej hospodárnosti budov)

3/ Edict No. 311/2009 of the Ministry of Construction of the SR, No. 625/2006 in the Collection of Laws (Vyhláška MVRR SR č. 311/2009 Z. z. (625/2006 Z. z.)

4/ Act No. 17/2007 on Regular Control of Boilers, heating and air-conditioning systems (Zákon č. 17/2007 Z. z. o pravidelnej kontrole kotlov, vykurovacích sústav a klimatizačných systémov)

5/ Act No. 476/2008 on Energy Efficiency (Zákon č. 476/2008 Z. z. o energetickej efektívnosti)

6/ Regulation No. 2010/31/EU on Energy Performance of Buildings (Smernica č. 2010/31/EÚ o energetickej hospodárnosti budov)

Energy policy of the Slovak Republic

- Strategy for Energy Security in the SR until 2020
- Strategy Europa 2020 for SR • 20 % savings on the primary energy by 2020
- Climate-energy package • 20 % reduction of the greenhouse gasses
- The Concept of Energy Efficiency of the SR
- Action Plan of the Energy Efficiency

2.3. Implementation Timeline

6/2011 – Calculation of **the cost optimum levels for the EPB minimum requirements** (Ministry set the target to finalize the Framework of the comparative methodology by June 30, 2011, and to issue regular reports until June 30, 2012)

6/2011 – **Financial stimuli and market restrictions** – the list of existing mechanisms published in June 2011 (through the National Action Plan on Energy Effectiveness), which will be updated every three years, taking into account the cost optimum levels

6/2012 – **Definition of the "nearly zero-energy buildings"** (this should be discussed through the working group organized by the MDVRR SR)

6/2012 – Publishing the text of the Amended Act No. 555/2005 on Energy Performance of Buildings (June 9, 2012)

12/2012 – National Plan for increasing the number of buildings with nearly zero energy

1/2013 – Amended Act. No. 555/2005 and the new Act on Regular Control of Boilers, Heating and Air-conditioning systems (now, Act no. 17/2007) should come into force as of January 1, 2013.

12/2018 – provisions of EPBD and national law on „zero-energy“ applied to all public buildings

12/2020 – provisions of EPBD and national law on „zero-energy“ applied to all new buildings

According to the MDVRR SR, the National Plan for increasing the number of buildings with nearly zero energy provides for:

- ➔ setting intermediate goals for 2015
- ➔ informing on policies and provisions, including the details on national requirements for the use of renewable energy in buildings
- ➔ and support the transformation of renewed buildings into nearly zero energy standard

The Plan should be approved by December 2012, with validity as of 2015.

Conclusion

As we could have seen in the previous chapters of this study - in relation to the program and regulations of the EU, the implementation of EPBD in Slovakia is going according to the plan and the relevant ministries formally fulfil all their duties and meet the set deadlines. However, the previous implementation process has revealed certain confusing or unclear formulations or explanation of the existing legislation, as well as some problems with their application in practice. It would be advisable to address these issues in the amendment or the new law, ideally after conducting a comprehensive analysis of the current status quo. As for creating legislation (especially the Act on Energy Performance of Buildings, which concerns us directly), until now the inclusion of professional organizations representing investors and companies in Slovakia has been very limited. We would like to point out, that their representatives are experts from practice, who could contribute interesting observations and recommendations in regard to the practical application and the necessary improvements of the relevant legislation.

The ambition of the Slovak Green Building Council is to actively take part in this process through its newly-formed Legislative working group, and/or through platforms created with similarly oriented organizations, as well as through participation in the public debate and disseminating information on energy efficiency. We welcome the indication, that the Ministry of Transport, Construction and Regional Development plans to invite SKGBC to participate in the working groups at the Ministry, which will discuss the novelization of the Act No. 555/2005 and related problems.