

EuroWindowor reply to EPBD Public Consultation questionnaire

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A. Overall Assessment

Currently, about 35% of the EU's buildings are above 50 years old. Buildings are responsible for 40% of energy consumption and 36% of (O₂ emissions in the EU, and consume, on average, about 25 litres of heating oil per square metre per year. Some buildings even require up to 60 litres.

The Energy Performance of Buildings Directive (EPBD) aims to:

- 1 improve the energy performance of buildings in the EU, taking into account outdoor climatic and local conditions, as well as indoor environment requirements and cost-effectiveness.
- 2 require Member States to set energy performance standards for buildings,
- 3 require Member States to issue buildings with energy performance certificates, and
- 4 require Member States to ensure that, by the end of 2020, all new buildings are 'nearly zero energy' buildings

It sets out concrete ways of achieving the great untapped potential for energy savings in buildings and reducing the large differences in results that exist in energy saving outcomes between Member States.

- 1 How successful has the EPBD been in achieving on its goals?

The EPBD has helped to improve the energy performance of *new* buildings. However, we see no significant improvement of the building envelope of the existing housing stock, as the EPBD has only had indirectly impact on this. Improvement can indeed be achieved in a cost effective way, -, but there is lack of incentives to renovate components of the building envelope that are outdated in terms of energy efficiency.

The stimulation of renovation of the existing building stock needs to be elaborated when revising the EPBD.

- 2 Has it helped improve energy efficiency in buildings?

Yes to some extend for new buildings, see topic 1.

- 3 Has it helped to increase renovation (more than 25% of the surface of the building envelope) rates?

No, it has not given incentives to renovate, but *when* renovating the products available have been better in terms of their energy performance than without EPBD, see also topic 1.

- 4 In your view, has the EPBD sufficiently contributed to accelerating investment in improving the energy performance of the EU's building stock? Why /Why not?

Yes, particularly because of the development towards NZEB (nearly zero-energy buildings) and on raising awareness of the energy performance of a building with the Energy Performance Certificate. Also because the market has moved towards better products, because these are required in new buildings to fulfill the EPBD driven national requirements.

- 5 Overall, do you think that the EPBD is contributing to cost-effective improvements of energy performance? Why /Why not?

If properly implemented in each MS, a cost-effective implementation over the building's life time would be possible. However, with continuously increasing demands to energy performance, the required investment will also increase and make more substantial incentives necessary.

Furthermore, it is important to acknowledge that what triggers renovation is hardly ever limited to energy considerations only, but to other triggers like ensuring healthy, comfortable, better and modernized buildings. We know from several consumer surveys and by inter-acting with our customers, that)key drivers are issues like getting more daylight, avoiding over-heating, update design (incl. the visual expression of the building, safety, noise and burglary resistance and of

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course – but not least – cost considerations. Other drivers like indoor comfort etc. therefore to be further elaborated in the future EPBD.

6 Do you think that the aim of ensuring the same level of ambition across the EU in setting minimum energy performance requirements within the EPBD has been met? Why /Why not?

No. The same level in all the MS does not make sense to implement. Due to the different climatic conditions, different levels of energy efficiency occur, which leads to different optimization goals (e.g. in the North heat protection and in the South prevent overheating). Member States are to set the right balance between e.g. the heating and cooling factors in regulation, and to create the best link in the specific climatic context to other relevant regulated performances of buildings or products. However, same kind of concept can be adopted across borders in Europe.

The Energy Balance approach is already included in the Energy Performance of Buildings Directive (EPBD), where article 3 and article 4 require that Member States apply a methodology (specified in Annex I) for calculating the energy performance of buildings and building elements that form part of the building envelope, which is to include e.g. passive solar gains. As we observe this approach not yet to be strictly applied throughout Europe, we consider that the upcoming revision of EPBD will be an excellent opportunity to emphasize and stress the importance to comply with an elaborated energy balance approach. Not just for new buildings, and not just for major renovations but also for elements of the building envelope like windows. The energy balance approach has so far only been implemented for renovation and replacement in few Member States (e.g. UK and Denmark). In e.g. Denmark the energy performance requirements is based on energy balance formulas for façade- and roof windows, and thereby taking more than just U-value in to consideration when setting energy performance requirements for windows in building regulation.

Setting cost optimal requirements expressed by the energy balance approach (U_w , g_w , air permeability and the effect of shutters) in national building legislation, and based on the specific cooling and heating context will reduce energy consumption in buildings. The introduction of NZEB by 2020 which ideally are to be cost-optimal, and Member States timely setting related energy requirements for replacement of building envelope elements based on differentiated energy balance approach will trigger continued innovation within industry in an energy efficient and sustainable way

The differentiated Energy Balance concept for renovation and replacement should be emphasized in the reviewed EPBD, by updating article 4.1 and article 7, and by possibly developing a guidance sheet on what and how to include energy balance calculations of windows in national building legislation. In addition setting long-term requirements within Member States has proven to trigger long-term development within the sector. We therefore also suggest this to be further included in the EPBD.

7 Has the EPBD effectively addressed the challenges of existing buildings' energy performance?

Yes, to some degree. The Energy Performance Certificate certainly does reveal bad energy performance, but usually that is not enough encouragement to modernize. The ability to let or sell a building depends more often on other criteria, such as location and demand. More can be done to improve the energy performance of existing buildings, e.g. adopting a strong long-term vision for the entire building stock and drafting solid national renovation strategies (in accordance with Energy Efficiency Directive, Article 4). Furthermore developing one-stop shops to address the main barriers to building renovation, notably access to finance and focus on other triggers than only energy, as renovation hardly ever is limited to energy consideration, as stated above in question 5.

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8 Has the EPBD set effective energy performance standards for new buildings?

No, is not subject to the EPBD. The level of requirements is determined by the MS. This should remain so. Basically, however, the target for overall energy assessment of a building is right.

9 Will the 'nearly zero energy buildings' targets be met? Why/Why not?

No exact information possible, as no known full statistical analysis available. In addition, the NZEB definition for new buildings is to be determined by each MS independently. Presumably that will be implemented.

10 How successful has the inclusion of Energy Performance Certificates in the EPBD been? Have the certificates contributed to improvements in energy performance of buildings?

Yes, please see 7. In some countries the execution and inspection of market surveillance is missing.

However, adding indoor climate aspects to the EPC would strengthen them further. The level of indoor comfort is of key interest to the people living and working in the buildings, and should therefore be assessed at equal level to the energy assessment of the building. A study from Fraunhofer, 2015, states that around 80 million Europeans live in damp or unhealthy buildings, which has a great impact of the health and well-being. The risk of contracting an infection in an environment contaminated with mold or mildew is almost twice as high as under normal conditions, see http://www.ibp.fraunhofer.de/en/Press/Press_releases/pm_10-03-2015-literaturstudie-raumklima.html

11 What has worked well in the EPBD? What needs to be improved?

If it is well implemented, EPBD increases the awareness of the energy performance of buildings and ensures that energy performance is taken into account in new construction and planned renovation projects.

The modernization of the building envelope opaque (e.g. insulation) and transparent components (e.g. windows) are usually treated the same way, although they behave very differently. The requirement set for windows in Member State's building regulation is often only defined by heat losses, and without consideration of solar gains and the benefits of natural lighting. Necessary measures against overheating in summer (e.g. effective sun protection) are often not taken into account. When setting requirements for the modernization of transparent components, the energy balance concept (e.g. in form of a U_{eq} value) is the right way to express the actual energy performance of a window. When setting e.g. minimum renovation and replacement requirements for windows the concept of a differentiated energy balance approach (U_w , g_w , air permeability and the effect of shutters) to be defined in the specific heating, cooling and climatic context of the Member State should be included when revising the Energy Performance of Buildings Directive (EPBD). See also question 6.

Furthermore the sequence of partly refurbishment needs to be better integrated. If the refurbishment is done step by step, it needs to be evaluated how the final energy efficiency of the building will look like. Often the conclusion might be to improve the building envelope first, before the technical equipment is changed. If it is done the other way round, finally the technical equipment might be oversized and not efficient anymore.

Weaknesses can be found at multi-family houses with several independent owners, since energy certificates can only be issued for the whole building and not its parts (functional units). That prevents the individual owners from making their own initiatives.

12 Is the EPBD helping to contribute to the goals of EU climate and energy policy (Reduce greenhouse gas emissions by at least 40%; increasing the share of renewable energy to at least 27%; increasing energy efficiency by at least 27%; reform of the EU emission trading system)?

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Yes.

- 13 Is it in line with subsidiarity? What should continue to be tackled at **EU** level and what could be achieved better at national level?

The principle of subsidiarity should not be changed. The requirement level should be determined by the MS, but based on guidance given in EPBD.

- 14 Are the objectives of the **EPBD** delivered efficiently?

Yes, but in some MS with more success than in others. By improving the incentives for the modernization of existing buildings the objectives could though be delivered even more effectively.

- 15 Has the **EPBD** created any unnecessary administrative burdens? If so, please provide examples

Administrative burdens can't be avoided in order to achieve the objectives of the EPBD. But, of course it is important always avoid double regulation and avoid suggesting new legislation, if the issue is that existing regulation is not well-implemented.

- 16 Has the **EPBD** created any unnecessary regulatory burdens? If so, please provide examples

Not so much for windows and doors in the building envelope.

B. Facilitating enforcement and compliance

Compliance is recognised as being of critical importance in achieving the full energy efficiency and carbon savings potential of buildings. Strong local and regional verification of compliance with national building codes is required in order to reassure consumers of the quality of buildings.

The 2010 recast EPBD introduced targets for Near Zero-Energy Buildings (NZEBs) and more ambitious minimum energy performance requirements for new buildings. The EPBD defines NZEBs as a building that has a very high energy performance as determined in accordance to Annex 1 of the directive. The nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources, including energy from renewable sources produced on-site or nearby. The EPBD sets the target for Member States to ensure that by 31 December 2020, all new buildings are nearly zero-energy buildings, and after 31 December 2018, new buildings occupied and owned by public authorities are nearly zero-energy buildings.

The EPBD also considerably reinforced the provisions for existing buildings, broadening the scope to all existing buildings (removing the 1000 m² threshold). It set and applied minimum energy performance requirements for the renovation of parts of the building envelope (roof, walls, etc.) with a view to achieving cost-optimal levels. It also set and applied minimum energy performance requirements for technical building systems (large ventilation systems, air conditioning, heating, domestic hot water system or combination of these) whenever they are installed, replaced or upgraded. It applied minimum energy performance requirements to all types of building works. The EPBD introduced a benchmarking system (the 'cost-optimal methodology' which calculates the energy performance level which leads to the lowest cost during the estimated economic lifecycle) to improve the level of ambition of the energy efficiency requirements contained in national or regional building codes while ensuring that these obtain the best value for money and that they are regularly reviewed.

A key aspect to be examined as part of the EPBD evaluation is how proper enforcement of the energy efficiency requirements in regional and national building codes is ensured.

17. Is compliance with the provisions of the EPBD adequate?

Since the Member States have the time until 2019, regarding the establishment for nearly zero energy buildings (NZEB), this question can't be fully answered yet. The compliance with EPBD could be improved. Better transposition and implementation, enforcement and on-site-control would help in achieving a higher compliance rate. It is important to notice that compliance with EPBD provisions is not only a matter of quantity (e.g. number of EPBD articles that are well transposed and properly implemented), but also a matter of quality of the transposition and implementation. For example the differentiated energy balance concept for components like windows has not been sufficiently adopted across Europe.

18. Is the definition of NZEBs in the EPBD sufficiently clear?

Since no explicit definition to NZEB in the EPBD is provided, Member States and stakeholders have difficulty making the concrete definition. This requires more time.

19. Is the NZEB target in the EPBD sufficiently clear to be met?

The goal set with NZEB seems clear enough.

20. If not, what, in your view, are the missing factors that would ensure compliance with:

a. Minimum energy performance requirements in new buildings?

b. Minimum energy performance in major renovations of existing buildings?

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- c. Minimum energy performance for the replacing/retrofitting parts of the building envelope (roof, wall, window, etc.) and replacing/upgrading/installing technical building systems (heating, hot water, cooling, etc.)?

See question 6.

- d. Minimum renewable energy requirements to meet the NZEB target by 2020?
- e. Certification of the energy performance of buildings, including tailor-made recommendations for the improvement of the energy performance of buildings?
- f. Regular inspections of heating and air-conditioning systems?

21. Do you think the cost-optimum methodology gives sufficient evidence regarding the actual cost of renovating buildings on top of the additional cost for Near Zero-Energy Buildings?

No answer possible because the procedure isn't adequately assessed yet.

22. Are there any cost-effective measures for ensuring compliance at local and regional level that could be replicated and used to improve compliance on a larger scale?

There are many different approaches with different objectives.

23. What do you think of the various ways of calculating building energy performance at national/regional level? Please include examples.

The existing national calculation methods for energy consumption of a building should be maintained. Historically and based on climatic conditions, there are different experience in the calculation methods. Introduced calculation methods are known in practice and are implemented. New rules lead to more complex approaches that offer less clarity for the practice.

As calculation of building energy performance has to acknowledge different climates and building traditions differences has to be expected and accepted.

24. What measures are missing that could simplify the implementation of building regulations to make sure that buildings meet the required high energy performance levels?

Simplifications involve the risk that the real results may differ significantly from the simplified results. Thus, there is a risk that the target will not be reached, resulting in wrong optimizations. The complex system of a building cannot simply be reproduced just like that. So - depending on the requirement level in a MS - each specific national simplification (e.g. abstaining from determining non-relevant influences) must be adjusted accordingly.

C. Energy Performance Certificates (EPCs) and stimulating energy efficient renovation of the building stock. Building energy efficiency has been increasing at 1.4% per year. This relatively low rate is owed largely to low renovation rates. To reap the benefits of energy efficiency and the use of renewables in buildings, the biggest challenge is to accelerate and finance upfront investments and speed up the renovation rate of the existing stock to above 2% annually. The aim of EPCs is to transform the building sector by setting ambitious energy efficiency standards and incentivise investment in renovating buildings to improve their energy efficiency, and facilitate a single market in and the free circulation of highly specialised workers, solutions and technologies and investments in energy efficiency and renewable in buildings. These aims have been identified as drivers for investment in renovation. In addition, the Energy Efficiency Directive (2012/27/EU, 'the EED') required Member States to establish, by April 2014, a long-term strategy for mobilising investment in the renovation of the national building stock.

25. Are the available data on the national/regional building stock sufficient to give a clear picture of the energy performance of the EU's building stock, as well as the market uptake of energy efficiency technologies and the improvement of the energy performance of buildings in the EU?

The available data in the different MS varies considerably. In particular, details are missing on individual product groups, which are often not recorded or collected in the different MS..

26. Are the long-term national renovation strategies adopted sufficient to stimulate the renovation of national building stock? What examples of best practice could be promoted across the EU and how?

The average rate of modernization in Europe is obvious below 2% and is much too low. So it takes statistically about 50 years until windows which have already an outdated energy performance are replaced by new ones, so clearly long-term national renovation strategies should be welcomed. One way of triggering this could be by requiring MS to communicate long-term requirement levels as that will increase the incentives of the industry to develop and introduce in the market better performing products earlier than else.

Also ensuring a better indoor comfort can be further included in the national renovation strategies, as this is key for the health and well-being of people living and working in the buildings.

27. Have EPCs played a role in increasing the rate of renovation, the extent of renovation, or both? For instance, are EPC recommendations being defined as the most effective packages of measures to move the performance of buildings and/or their envelopes to higher energy classes?

Partly, yes (see question 7 and 10.): The Energy Performance Certificate does reveal bad energy performance, but usually that is not enough to initiate modernization. The ability to let or sell a building depends more often on other criteria, such as location and demand. Indoor comfort aspects to be added on equal level as energy performance, as stated above.

28. Is setting a minimum renovation target for Member States to undertake (e.g. each year; percentage of building stock) important and requires further attention in the context of meeting the goals of the EPBD?

A predetermined modernisation rate of existing buildings would be an incentive for MS to specify measures that are more effective. This could, for example, be achieved if there was an obligation to promote energy-saving measures. From our perspective, economic incentives could be the appropriate method – also in order to ensure efficient support of the affected owners. To reduce the financial burden, the incentive should also cover effective individual measures.

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29. Are obligations or binding targets for renovation or any other mandatory measure (e.g. mandatory minimum thermal efficiency standards for rental properties) missing from the EPBD to ensure that the directive meets its goals? If, yes, what kind of obligations and targets?

See questions 26 and 28.

30. Are EPCs designed in a way that makes it easy to compare and harmonise them across EU Member States?

Due to various climatic conditions and building traditions in connection with national calculation methods, the energy certificates are not comparable across borders. Even the implemented layout differs depending of the MS. Since the buildings do not change their location, it doesn't matter.

31. Do you think that the 'staged deep renovation' concept is clear enough in the EPBD?

No, that isn't adequately described. The "major renovation" is stressed very strong in the EPBD. It would also be possible to work step-by-step towards a "major renovation". This is however not clear. In this context, we refer to the answer to question 11: the sequence of possible step-by-step renovation has reasonable to be considered.

32. Have EPCs raised awareness among building owners and tenants of cost-efficient ways of improving the energy performance of the buildings and, as a consequence, help to increase renovation rates across the EU?

Partly, yes (see question 7 and 10.): The Energy Performance Certificate does reveal bad energy performance, but usually that is not enough to initiate modernization. The ability to let or sell a building depends more often on other criteria, such as location and demand.

For rented accommodation the incentive for action by individual owners of building parts is missing, since the Energy Performance Certificates will be issued for the entire building and the content can't be directly transferred to each individual unit. In addition, the tenant is the beneficiary of the measures and the landlord/owner is paying the costs to realize this without an increase in the rental price. Energy Performance Certificates should also be possible for residential units.

33. Should EPCs have been made mandatory for all buildings (a roofed construction having walls, for which energy is used to condition the indoor climate), independent of whether they are rented out or sold or not?

The owner, who lives in his own house, knows its energy consumption. For this purpose, any obligation is not necessary for the creation of an Energy Performance Certificates. You could do this on a voluntary basis but allow and encourage via e.g. incentives, information campaign etc.

D. Smart Finance for Smart Buildings: Financing energy efficiency and renewable energy in buildings and creation of markets

The EU has been supporting the improvement of the energy performance of buildings for many years with a range of financial support programmes. As almost 90% of building floor space in the EU is privately owned and more than 40% of residential buildings date from before 1960, most financing has to come from private sources. The Energy Efficiency Financial Institution Group (EEFIG), an expert group set up by the European Commission and United Nations Environment Programme Finance Initiative, published their final report in February 2015. The report identified the need to engage with multiple stakeholder groups and scale up the use of several financial instruments as part of a clear and enforced 'carrot and stick' legislative framework. The group also made a strong case for combining public funds with private sector investment to address risks and achieve the scale of financing needed.

34. What are the main reasons for the insufficient take-up of the financing available for energy efficiency in buildings?

The new energy performance standard is often associated with high costs. Moreover, incentive measures are in some countries implemented as subsidized loans. However, owners with sufficient finances have no financial incentive. A tax bonus would have a significant impact on investments in the energy efficiency of buildings.

There are different reasons of why there is in-sufficient take-up of the financing available for Energy Efficiency in Buildings, for example: No ear-marking of public funds towards EE in buildings (e.g. EFSI), too many administrative burdens to get public financing and a lack of trust from the investors because of stop-go-policies. Furthermore, key drivers on e.g improving indoor comfort or alike to be better acknowledged.

35. What non-financing barriers are there that hinder investments, and how can they be overcome?

Examples from Germany: protection of historic buildings (there could also be requirements to energy renovation of these buildings), decision-making processes in owner communities (e.g. difficult legal situation if consensus is required when loans are needed), beneficiaries/tenants often do not bear the costs of initiatives (possibility of rent increases by landlords should be included).

36. What are the best financing tools the EU could offer to help citizens and Member States facilitate deep renovations?

EU funding measures for energy-saving building modernization in regions/buildings with high savings potential. Other financing tools could be tax exemptions, VAT reduction for renovation goods or renovation works and lower interest rates when energy renovations.

37. What role do current national subsidies for fossil fuels have in supporting energy efficient buildings?

Such subsidies are counteracting energy efficiency initiatives because of their direct impact on the profitability of the initiatives, making a good building standard less economical. It has a negative role, and does not help supporting energy efficiency in buildings, on the contrary.

38. Have energy efficiency and renewable energy projects been combined to maximise their financing? How can the EU help?

The possibilities of combining different funding measures are generally restricted. However, it is not enough to replace fossil fuels by renewables. The energy consumption of buildings should be reduced in an efficient way, not only in terms of primary energy sources.

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39. How is investment in high-performing buildings stimulated and what is being undertaken to gradually phase out the worst performing buildings? Is it sufficient?

Different national subsidies schemes exist (like KfW in Germany), but the ambition level varies a lot. Could be further elaborated and also focusing on indoor comfort aspects as well.

40. What is being undertaken to solve the problem of 'split incentives' (between the owner and the tenant) that hampers deep renovations? Is it sufficient?

The one, who take the costs, should also receive the full funding.

41. Was
- a) the scaling-up of existing funds sufficient to meet the goals of the EPBD?
 - b) the creation of aggregated facilities (through standardisation of Energy Performance Contracts and clarification of regulatory, fiscal and accounting issues) sufficient to meet the goals of the EPBD?

Unable to give an answer.

E. Energy poverty and affordability of housing

Energy poverty affects living conditions and health. It has many causes, including a combination of low income and general poverty conditions, energy-inefficient homes and a housing tenure system that fails to encourage energy efficiency. For example, in Britain, 9,300 people died prematurely due to the cold during the winters of 2012 and 2013.

The Energy Union has identified a combination of measures, mainly in the social field and within the competence of authorities at national, regional and local levels, as the only effective way of tackling energy poverty. When phasing out regulated prices, Member States need to propose a mechanism to protect vulnerable consumers, which ideally should not be provided through the general welfare system. If provided through the energy market, it could be implemented through schemes such as a solidarity tariff or in the form of a discount on energy bills. The UK Government is preparing a programme under which doctors will be able to prescribe boilers, insulation and double glazing to fuel-poor patients suffering from health conditions exacerbated by cold homes.

42. What measures have been taken in the housing sector to address energy poverty?

There are different concepts in the MS. There are for example grants for heating of housing for needy people. Living room in cold climate, which can't be heated, should not be permitted. Too low internal temperatures in living spaces lead also to structural damage and mold growth. As stated above living in a damp and unhealthy home nearly doubles the risk of developing asthma (Fraunhofer, 2015). It is important that MS are implementing additional funding measures for the energy improvement of the building envelope specifically for social housing, so that less energy is consumed, and the health and well-being of people living and working in the houses at the same time is being improved.

43. Should have further measures tackling energy poverty been included in the EPBD?

See 42.

44. Has tackling energy poverty been a requirements when constructing new buildings and renovating existing buildings in Member States?

Not known.

45. Are energy costs for heating and air conditioning being made available to interested buyers/ tenants?

In some MS not, since the respective costs are determined by each energy supplier and are subject to constant price changes.

F. Ensuring new highly efficient buildings using a higher share of renewable energy

Directive 2009/28/EC on the promotion of the use of energy from renewable sources ('the RES Directive') requires Member States to introduce in their building regulations and codes appropriate measures to increase the share of all types of renewable energy in buildings. One possible measure is Demand Response, which is a set of time-dependent programme activities and tariffs that seek to reduce electricity usage and provide control systems that encourage load shedding or load shifting at times when the electricity grid is near capacity or electricity prices are high. Demand Response helps to manage building electricity costs and to improve the reliability of the electricity grid.

By December 2014, Member States must, in their building regulations and codes, require the use of minimum levels of energy from renewable sources in new buildings and in existing buildings that are subject to major renovation. These provisions are complementary to the Near Zero-Energy Building (NZEB) requirements in the EPBD, which set clear obligations to reduce the primary energy consumption of buildings and recommend that the resulting nearly-zero or very low amount of energy needed should be covered to a very significant extent by energy from renewable sources. The Roadmap to a Resource-Efficient Europe (COM (2011) 571) proposed that buildings should be renovated and constructed with greater resource efficiency. While the Energy Efficiency Directive ('the EED') and the EPBD have an impact on building and construction activities they are not designed to provide an overall life-cycle approach. For newly-built NZEBs, from a life cycle perspective, the share of embedded energy is almost as great as the share of energy consumed in the building's use phase.

46. What are the best policies at district and city level to increase energy efficiency in buildings? Have specific targets on renewable energies in buildings been included?

According to Article 2.4 of EPBD, the form of energy supply is not part of the definition of setting the energy performance of a building. A building will not become more energy efficient just because renewable energy is used, because it only reduces the primary energy demand. The consumption of the most environmentally friendly energy source must be reduced, by focusing on energy efficiency measures of the building.

47. On the basis of existing experience, are provisions on targets or specific requirements for new buildings, beyond the current NZEB targets, missing in the EPBD which could help achieve the energy efficiency 2030 target? If so, in what types of targets or requirements?

The existing targets should be implemented reasonably before placing new ones in the same area. And key is to focus on energy efficiency measures for existing buildings.

48. Which building sectors have been addressed as a priority (public/private, residential/non-residential, industry, heating & cooling)?

Generally heating has been focus area and less the cooling. There should be in the future more focus on cooling included at least for Southern European Countries. But the priorities should be based in general on the available potential for energy savings.

49. Has having no EU set targets (indicative or binding) for the sustainable public procurement of NZEB buildings by public authorities affected the development of NZEBs?

An answer to this is not yet fully possible, because the obligation begins in 2019.

50. Has the EPBD framework improved the self-consumption of electricity in buildings?

Barely, as determined by other needs of users. There are other legal requirements to regulate the use and the technical development of electrical equipment.

51. Does the EPBD address the issue of embedded energy? If so, in what way?

No opinion.

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52. Is demand response being stimulated at the individual building level and if so, how?

Not known.

53. What obligations are missing at EU level and national level, and at regional and local level to meet the goals of the EPBD?

We prefer instead of more obligations, which often cause rejection of the citizen, a better support of incentives at EU level and national level.

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G. Links between the EPBD and district and city levels, smart cities, and heating and cooling networks

The EPBD focuses on reducing energy demand and increasing energy efficiency and the share of renewable energy consumption in buildings (mainly on-site or nearby).

Alongside this, reducing transport needs, promoting active mobility, public transport and e-mobility in cities are important policy levers for achieving long-term European policy objectives in the field of climate change, energy and transport. Targeted use of information and communications technology will enable smart solutions that bring together different physical infrastructures and operational technologies. This would facilitate a better quality of services at lower cost, enabling better maintenance planning, for example, and approaches to investment that are focused on real needs.

When examining energy efficiency and renewable energy supply, the considerations at district and city level are different from those at building level. Heating and cooling networks can play an important role in improving the energy performance of buildings, but are also dependent on advance planning and adequate implementation (both at city and district level). Solutions for local renewables, co-generation and storage have in many cases proven to be more cost-effective at district level than at the level of individual buildings.

The EPBD is an instrument that could be used to address the differences at district and city level, and help Member States to develop a comprehensive strategy

54. What are the best policies at district and city level for increasing energy efficiency and use of renewable energy in buildings?

We support general measures at MS level targeting reducing energy consumption. The EPBD should be addressed to the MS, so that the objective could be better disseminated through the MS and get more publicity.

55. Are there any separate (new) obligations set at city and district level missing from the EPBD which would help increase energy efficiency and use of renewable energy in buildings?

See 54.

56. How has the information exchange on smart technologies which contribute to compliance of the EPBD, been promoted in cities?

See 54.

57. Are smart meters and their functionalities contributing to meeting energy efficiency targets and the proper implementation of the EPBD? Are other targeted meters for heat, gas and water have specific provisions such as those for electric meters needed?

In order for a building to operate without risk of damage (e.g. avoiding moisture damage), a minimum amount of energy must be used depending on the use and purpose of the building. An energy-efficient building envelope is a prerequisite for an efficient use of such systems while reducing the risk of incorrect operation. It is useful if the technical devices intervene and manage operation of the system instead of leaving that to the user alone.

Energy efficiency gains can be achieved by optimizing the dynamic envelope of the building (combination of windows and – possibly automatized – shading systems) that takes full account of the benefits and risks of solar gain coming through the window. Sensor driven systems can further support this.

Sensor driven energy and indoor climate meters can also help ensuring an optimized house in terms of indoor climate and energy efficiency.

EuroWindoor reply to EPBD Public Consultation questionnaire

58. Has the promotion of smart cities, smart buildings, sustainable transport solutions, smart mobility, and similar initiatives been linked with the EPBD and its aims? If so, how?

Yes, because the activity is contributing to each other's success.

59. Have obligations been set at a national/regional level in relation to buildings and district heating and cooling, or in relation to buildings and storage? Why/Why not?

Not enough data available. But the advantages of such systems must be reflected in the respective calculation method for primary energy demand.

60. What incentives are missing, that would help promote efficient district heating and cooling or meeting the goals of the EPBD?

Not to be replied.

61. Have cost-optimal policies been devised that improve the performance of buildings so that they use less heating and cooling, while ensuring a decarbonised energy supply?

Not to be replied.

62. Does the EPBD and its definition of NZEB reflect the requirements that could derive from the energy systems of nearly zero-emissions districts and cities?

Not to be replied.

H. Awareness, information and building data

Public information and awareness play a key role in improving energy efficiency in privately-owned buildings. There is a need for clear and accessible information for citizens, professionals and authorities to enable them to evaluate the energy performance of buildings. If this information is provided in similar formats it would make it easier to compare energy performance and, in particular, help identify best practice solutions, as almost 90% of building floor space in the EU is privately owned (and over 40% of residential buildings were built before 1960). The following questions focus on your experience of the information provided and your suggestions for improving the information flow.

63. What do you think of the quantity and quality of information on the importance of energy efficiency provided to consumers by:
1. the European Commission?
 2. national authorities?
 3. regional authorities?
 4. local authorities?
 5. local companies?

Information from listed stakeholders are available. Generally we think the quantity of information is okay but the information ought to focus more on energy balance of e.g. windows instead of only heat losses.

64. Has the directive promoted information on opportunities for consumer-friendly smart meters and interoperable energy efficient appliances?

Building material and equipment have different lifetimes. The investment in the building envelope has long-term impact and this should be the main focus. The friendly smart meters and interoperable energy efficient appliances can additionally reduce the consumption of the user.

65. What relevant building data has been collected at EU and Member State level, and city and district level? Who has access to this data?

Not known.

66. How can data on the energy performance of a building and its related renovation work, across its life cycle, best be managed and made available?

This requires comprehensive studies.

67. Has building data harmonisation been achieved?

Not known.

68. Is there a need for a central EU database of EPCs and qualified experts?

No, that is far too complex and benefits are doubtful. The energy performance certificate of different MS are not to be compared (s. Question 30), as they are specified in the specific heating/cooling and building tradition context of the Member State. Buildings are not to be transported cross border

I. Sustainability, competitiveness and skills in the construction sector

The construction sector plays an important role in the European economy, generating almost 10% of GDP and providing 20 million jobs, mainly in micro-and small businesses. Designers, architects, builders, inspectors and certifiers, financiers, and national and regional supervisory authorities need to have the necessary skills and qualifications to ensure buildings are built effectively and using renewable energies. The sector is still largely craft-based, and there is huge scope for efficiency gains and more user-friendly retrofitting services as part of more industrial approaches, and through financial planning/construction/maintenance package solutions based on strategic partnerships between SMEs and financing providers.

Through the EU's BUILD UP Skills initiative, between 2011 and 2013, energy efficiency skills needs and gaps for blue collar workers in the construction sector were identified in 30 countries (EU, Norway and the Former Yugoslav Republic of Macedonia). Each of these countries has produced a detailed status quo analysis with the participation of all main public and private stakeholders. From 2013 the BUILD UP Skills initiative has focused on the implementation of the national status quo analysis by setting up national training and qualification programmes for blue collar workers. These programmes have been put in place in 21 EU countries. With the launch of Horizon 2020, a new topic (EE4) on construction skills is now targeting training needs for both blue and white collar workers. Five projects focusing on skills in the construction sector will run until 2018.

The competitiveness of construction companies is an important issue, not only for growth and employment, but also to ensure the sustainability of the sector. The sector could contribute significantly to job creation by increasing its activity in promising areas such as the renovation of buildings. Construction and use of buildings in the EU account for about half of all extracted materials and energy consumption. 5-10% of total energy consumption across the EU is related to the production of construction products. The goal of the European Commission is to help the sector become more competitive, resourceefficient and sustainable. The EPBD is an instrument that could help work towards this goal.

69. How does the construction sector cost-effectively demonstrate and check compliance with the EPBD while also upgrading the skill and knowledge of tradespeople and professionals?

Targeted training and energy performance consultancy is available in all commercial sectors.

70. Would it have been useful to extend Eurocodes to include energy performance in buildings and other relevant aspects? If so, why?

No, Eurocodes treat the stability with engineering-style methods. Therefore the application of the Eurocodes requires a different special training, as to what is required in the context. Energy efficiency and integrity require different expertise and should not be mixed.

71. Are energy, materials, waste and water use addressed in the EPBD?

Generally energy yes, but materials, waste and water use not. If an evaluation of sustainability should be included in the future, it needs to be in line with standardization in CEN / TC 350. It is questionable whether the EPBD is the appropriate platform for such requirements.

J. Buildings systems requirements

The EPBD requires Member States to set minimum energy performance requirements for technical building systems (means technical equipment for the heating, cooling, ventilation, hot water, and lightning or for a combination thereof, of a building or building unit) in existing buildings. National provisions should not target specific products only (e.g. boilers) but should instead address building systems while also taking into consideration the building as a whole. Whilst the Ecodesign Directive governs the placing on the market of individual products, the EPBD sets requirements for their energyefficient performance as part of the technical systems serving a building. The EPBD also requires regular inspections of heating and air conditioning systems. While the Directive does not specify what would be regarded as a 'regular inspection', it is the view of the European Commission services that inspections carried out at least every 7-8 years would be considered acceptable, whereas anything less frequent than every 10 years is likely to be problematic.

72. Based on existing experience, do you think the setting of minimum requirements in the EPBD for technical building systems is missing? Would have technical building systems minimum requirements contributed to the improvement of buildings' energy performances?

The technical installations should be adapted to the building envelope and the climatic conditions on site. Minimum requirements of the technical building systems may contribute to the improvement of buildings' energy performances, but may not necessarily lead to an efficient building, if the building envelope is bad.

73. Based on existing experience, do you think in the EPBD minimum requirements for technical buildings systems focussing on other factors than heating, air condition, large ventilation systems and domestic hot water e.g. certain building categories, building size, etc., is missing?

See 72.

74. Based on existing experience, do you think in the EPBD requirements is missing for regular inspections of the technical building systems to ensure:
- that systems' performance is maintained during their lifetime?
 - that owners/occupiers are properly informed about the potential improvements to the efficiency of their systems?
 - that replacement/upgrading of the technical building systems is triggered?

The measures in terms of inspection of the technical installations have already been sufficiently taken into account in EPBD. (Art. 14 ff). We recommend a subsidized, but strictly voluntary inspection of the building envelope to identify energy performance vulnerabilities of the envelope.

75. Have inspections required by the EPBD, been incorporated into or more tightly linked to other inspection/certification/energy auditing activities and schemes under other EU or national directives?

Not known.

76. Are the requirements for building elements set by Member States optimised to avoid market barriers limiting the installation of building products complying with EU requirements/standards e.g., under eco-design requirements?

Products must be suitable for the particular application. Not everything that can be sold and bought is suitable for any given installation. It is essential that harmonized declaration of performance is referred to in accordance with the Construction Products Regulation (CPR).

EuroWindow reply to EPBD Public Consultation questionnaire

K. Operational management and maintenance After the completion of development and/or renovation works, buildings still use energy in a way that impacts building occupants and operators (e.g. via energy costs). Ongoing operation is a key part of a building's life cycle and is related to the goal of building NZEBs by 2020.

77. Based on existing experience, does the EPBD promote the key ways to ensure that buildings meet stringent efficiency targets in their operation?

Yes when requirements nationally are based on cost optimal level focusing on e.g. energy balance of windows. We recommend a subsidized, voluntary inspection of the building envelope to identify local weak spots in terms of energy efficiency.

78. Based on existing experience, does the EPBD promote the best way to close the gap between designed and actual energy performance of buildings?

This must be ensured at national level on the appropriate energy balance calculation method..

For transparent products like windows, the best way to set energy performance is to base it on a differentiated energy balance approach, as this is the best way to express the actual energy performance of a window (see also above, question 6)

79. Based on existing experience, are the provisions provided by the EPBD to stimulate a proactive, innovative maintenance market effective?

Something to stimulate a proactive, innovative maintenance market for the building envelope is missing.

Communicating future requirement levels in good advance has a positive effect in driving the development towards of new improved products so they will be available in the market sooner than else.

L. Further comments

SUBMIT