

# Hørings svar fra Vedvarende Energi vedr EU konsultation omkring EU's bygningsenergidirektiv, EPBD.

I det følgende er forslag og kommentarer til de enkelte spørgsmål fra Europa Kommissionen. Da spørgsmålene er på engelsk, har vi valgt at svare på engelsk.

Vi gør opmærksom på at pga. de meget omfattende høringsspørgsmål har vi begrænset svar til det vigtigste for de enkelte spørgsmål, og vi kan derfor godt have mere detaljerede kommentarer ved høringer om delområder.

Uddybninger ved politisk koordinator Gunnar Boye Olesen, email olesen@ve.dk, tlf 86227000

Aarhus d. 18/9 2015

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

**It has been successful as it has helped to strengthen and to some extent harmonise national building codes.**

2009 Amendment to Directive 2002/91/EC (Directive 2002)

2. Has it helped to improve energy efficiency in buildings?

**Yes, it has helped via its influence on national building regulation**

2009 Amendment to Directive 2002/91/EC (Directive 2002)

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

**It has made a positive contribution to energy renovations by mandating countries to set this requirements into national building codes, including setting requirements for building elements as heating systems, etc.. The energy renovation rate, however, is still on a low level and the precise effect of the EPBD is hard to quantify.**

2009 Amendment to Directive 2002/91/EC (Directive 2002)

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?

**While it has accelerated investments, it has not done that sufficiently as energy renovation is still on a low level. This is partly due to low enforcement of building codes for existing houses, partly due to external circumstances such as lack of information and lack of (loan funding reasonable rates) even for cost-effective renovations.**

2009 Amendment to Directive 2002/91/EC (Directive 2002)

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

**Yes, without the requirements in the building codes, many cost-effective energy efficiency elements would not be included in new buildings or in energy renovations. In Denmark the building code requirements would probably have been on the same level without EPBD, so the added value of EPBD is probably low.**

2580 - Assessment of measures (2580) - Questions 6-10

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, but it has provided a better common understanding of the potentials for energy efficiency, and have helped the growth of the internal market for energy efficient building components, as more countries have similar ambitions. Still there is a long way to ensure the same level, and even for 2020 this is not likely as the definition of near-zero energy houses are too different in different countries.**

2580 - Assessment of measures (2580) - Questions 6-10

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

**No, partly because the buildings codes are not sufficiently followed for renovations.**

2580 - Assessment of measures (2580) - Questions 6-10

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

**Yes, in many countries, including Denmark, the national implementation has been with efficient requirements for energy efficiency. In Denmark, however, the requirements would probably have been high without the EPBD as well.**

2580 - Assessment of measures (2580) - Questions 6-10

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

**In principle the target will be met, as far as we can evaluate, but the definition of "nearly zero-energy buildings" is not homogeneously implemented in all countries.**

2580 - Assessment of measures (2580) - Questions 6-10

10. How successful has the inclusion of Energy Performance Certificates in the EPBD been?

**The Certificates have been implemented generally.**

**The Certificates could be used better, there is a need for mechanisms to take the recommendations from the Certificates to implementation of them.**

**In Denmark house prices are now dependant on the EPC label of the houses, which is a sign of success.**

Have the certificates contributed to improvements in energy performance of buildings?

**Yes, also because the conclusion of the certificates is influencing house prices, but they could be more effective.**

2580 - Assessment of measures (2580) - Questions 6-10

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

**The requirements for new houses and for building elements have**

worked well.

**The requirements for renovations of existing houses have been a positive element, but is not sufficiently implemented in practice, at least not in Denmark.**

**The requirements to include renewable energy on building can be a problems for countries where heating is provided centrally from renewable energy sources, as it is increasingly done in Denmark. Some flexibility is needed.**

**For the future EPBD should also address building materials, resource use, reuse and embodied energy.**

2016 Assessment instrument (2016) Question 12

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)?

**Yes, it is an important part, also of climate policy post 2020. This ongoing evaluation and revision will give an indication on how large part it plays in climate policies and how this can be strengthened in the future.**

2016 Assessment instrument (2016) Question 13

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?

**Yes, we find that the current regulation is well in line with subsidiarity, given that the EU countries all agree to climate and energy efficiency objectives.**

**The EPBD helps the countries to meet their non-ETS targets, and also to reduce emissions within the ETS sectors of heat and electricity supply.**

2016 Assessment instrument (2016) Question 14

14. Are the objectives of the EPBD delivered efficiently?

**The objective of EPBD, to promote the improvement of the energy performance of buildings, is well reflected in the requirements of the EPBD, and is delivered efficiently as far as the directive is implemented efficiently in the 28 EU countries; which we believe that it is in many of the countries.**

2016 Assessment instrument (2016) Question 15

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

**We do not see unnecessary administrative burdens for the public authorities.**

2016 Assessment instrument (2016) Question 16

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

**The regulatory burdens should be seen in relation to the effects of the regulatory**

**requirements that comes from EPBD implementation in national building codes.**

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## **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 I 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 (covering the 1990-92 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 near-optimal levels. It also set and applied minimum energy performance requirements for individual building systems (large ventilation systems, air conditioning, heating, domestic hot water system or combination of those) 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 for 'near-optimal' buildings, which will allow the energy performance level which leads to the lowest cost during the lifetime cycle during the lifetime cycle to improve the level of ambition of the energy efficiency requirements contained in national or regional building codes while ensuring that these reflect the best value for money and that they are regularly reviewed. A key aspect to be monitored as part of the EPBD evaluation is how proper enforcement of the energy efficiency requirements is ensured and national building codes is ensured.

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

**In Denmark the compliance regarding new buildings is good, but for renovations of older houses the compliance is not so good as there is no inspection of renovations.**

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

**The NZEB is implemented in different ways in different countries, indicating that it is not clear generally, but the implementation in Denmark with a building code 2020 seems to be a good step forward, so in this case the interpretation seems good.**

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

**In principle yes, but because of different interpretations in different countries, results will be different in different countries.**

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a. Minimum energy performance requirements in new buildings?

**Yes, according to our information.**

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b. Minimum energy performance in major renovations of existing

buildings?

(no answer)

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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.)?

**This is up to national decisions.**

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d. Minimum renewable energy requirements to meet the NZEB target by 2020?

**No**

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e. Certification of the energy performance of buildings, including tailor-made recommendations for the improvement of the energy performance of buildings?

**This is up to national decisions.**

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f. Regular inspections of heating and air conditioning systems?

**This is up to national decisions.**

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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?

**In general yes, but it depends on its implementation**

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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?

**For new buildings and larger renovations the Danish requirement of energy certificates (EPCs) of new buildings could be used, even though there is a problem with the quality of these certificates in Denmark.**

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

(no answer)

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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?

**For renovations: inspection of work after it is finished.**

**For new buildings: higher quality of energy certificates (EPC) in Denmark**

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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 renewable technologies, the biggest challenge is to accelerate and finance upfront investment 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 minimum energy efficiency standards and incentivise investment in covering 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 materials in buildings. These aims have been identified as drivers for investment in renovation. In addition, the Energy Efficiency Directive (2012/27/EU), the 2017) 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?

**For Denmark the data in the BBR database and the database of energy certificates (SPCs) are sufficient.**

2599 | Questionnaire responses | 27/06/2016 | 10:11

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?

**Generally the renovation strategies are insufficient.**

**Denmark has a renovation fund for social housing and is planning to change a tax rebate system to be dedicated to energy renovations and other environmental elements of house renovations.**

2599 | Questionnaire responses | 27/06/2016 | 10:11

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?

**In Denmark they have given some increase in energy renovations, but not as much as could be expected.**

**In Denmark recommendations are for cost-effective measures, not related to if these measures will increase the class in the EPC or not.**

2599 | Questionnaire responses | 27/06/2016 | 10:11

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?

**Setting national renovation targets would be a useful improvement, via EPBD or otherwise, It should be long-term targets with annual reporting and counted as energy saved, not area renovated, to avoid focus in shallow renovations.**

2599 | Questionnaire responses | 27/06/2016 | 10:11

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?

**We recommend national energy renovations targets, but we have not decided if we recommend them as part of EPBD, the Energy Efficiency Directive or elsewhere. We expect general targets in the form of long-term energy savings (until 2030) as fraction of consumption, allowing countries to choose between many small renovations or fewer deep renovations.**

2599 | Questionnaire responses | 27/06/2016 | 10:11

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

Member States?

## **Not to our knowledge**

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

**No**

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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?

**For Denmark yes, but the resulting renovations have been fewer than expected**

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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?

**Yes, at regular intervals, such as every 10 year for well insulated buildings and every 5 year for the least insulated buildings that are used as dwelling. For commercial buildings other periods could be relevant.**

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D. 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 80% of building floor space in the EU is privately owned and more than 80% of residential buildings date from before 1960, more financing has to come from private sources. The Energy Efficiency Financial Institutions 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 work up the use of several financial instruments as part of a clear and unified 'sector and social' regulatory 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?

**In Denmark little dedicated financing is available, and for general financing, the priorities of building owners have often been to use this for other purposes.**

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

**Lack of information of cost-effective renovation opportunities and of co-benefits of energy renovations among building owners and users.**

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

**Low-interest loans dedicated energy renovations in buildings (primarily dwellings) for the EU countries where interest rates for house owners is high.**

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

**A negative role, varying from country to country, but preferential investments in for instance gas infrastructure makes it less cost-effective to invest in energy renovations in gas-fired houses and in countries where power prices are below production costs, the same is true for houses with electric heating.**

**In Denmark taxes on fossil fuels have had a positive effect on the economy of energy efficiency in buildings.**

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

**Generally not.**

**For countries with high interest rates for house owners, EU could assist with the provision of dedicated financing with lower interest.**

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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?

**In Denmark with the use of building codes, EPC etc. following EPBD.**

**For high-performing (NZEB) new houses there is a quality problem in some cases.**

**For phasing out the worst performing houses (by giving energy renovating them or demolish them), the measures are insufficient**

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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?

**In Denmark the problem is taken care of in social housing, including funding for energy renovation.**

**For private lending the issue is not sufficiently addressed.**

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41. Editing has updated the response and attachments to date. model

a) scaling-up of existing public funds alone be sufficient to meet the goals of the EPBD?

**No, it must also include private investments.**

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b) aggregation of energy efficiency investments in buildings (e.g. enabled by standardisation of Energy Performance Contracts and clarification of regulatory and accounting issues) contribute to the achievement of EPBD goals.

**This depends on how it is combined. It is possible to offer energy renovation packages based on EPC recommendations, but they must address the situation of house buyers specifically.**

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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 retail field and within the competence of authorities at national, regional and local levels, as the only effective way of tackling energy poverty. While planning one regulated price, Member States need to propose a mechanism to protect vulnerable consumers, which could partially 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 discounts will be able to provide better, immediate and durable helping to help poor persons suffering from health conditions exacerbated by cold homes.

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

**In Denmark a fund is made available to demolish old, derelict houses in rural areas.**

**In urban areas district heating provides affordable heating in most towns.**

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

**Energy renovations to reduce energy poverty could be an objective of EPBD.**

**It might be considered that the worst performing houses cannot be rented out, but such a rule has, on the other hand, not stopped energy poverty in the UK.**

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

**Not in Denmark**

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

**In Denmark: Yes**

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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 renovations. 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 Binding in Renewable Energy (CRE) Directive (2015/1513) proposed that buildings should be renovated and constructed with greater renewable 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 nearly-zero NZEBs, from a life cycle perspective, the share of embodied energy is almost or just as the share of energy contained 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?

**In Denmark in urban areas the urban renewal schemes have improved the houses, including energy renovations.**

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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 full implementation of the NZEB seems to be sufficient for the time being. An evaluation after 2020 could identify further actions.**

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

For Denmark: heating.

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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?

**In Denmark it has meant that the public authorities have less focus on NZEB's that are mainly used in a few high-profile buildings (such as the new UN city in Copenhagen, Skive Townhall, etc.)**

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

**Not with the implementation in Denmark**

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

**Not with the implementation in Denmark**

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

**In Denmark smart meters are being implemented following a national target, and demand-response is slowly increasing in the wake of that.**

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

**In Denmark, on national level: Inspections of building renovations.**

**If the issues mentioned in question 49-51 is to be addressed via EPBD, also obligations to integrate these issues are missing.**

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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 difficulties 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?

**In Denmark the development of district heating have been the most important.**

2016 Assessment instrument (2016 Assessment 54)

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?

**There is a missing a requirement to connect districts to district heating, when this can be done cost-effectively for the consumers and with the use of renewable energy or waste heat.**

2016 Assessment instrument (2016 Assessment 55)

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

**In Denmark via traditional channels such as cooperation among municipalities, cooperation among power and heat supply companies, development and demonstration projects.**

2016 Assessment instrument (2016 Assessment 56)

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 such as those for electric meters needed?

**Yes, smart heat and electricity meters are contributing, but so far not to a large extent.**

2016 Assessment instrument (2016 Assessment 57)

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?

**Not to our knowledge.**

2016 Assessment instrument (2016 Assessment 58)

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?

**Yes, in Denmark houses in areas dedicated to district heating are obliged to be connected,**

**except if they are heated with renewable energy or have very low heat consumption**

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

**Requirements to connect houses with district heating, if the district heating comes from renewable energy sources or waste heat, and if this can be done cost-effectively.**

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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?

**In Denmark the actions for energy performance of buildings and decarbonised energy supply have been promoted with information and in EPC recommendations in areas outside district heating and outside gas supply.**

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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 our knowledge.**

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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 quality and quantity of information on the importance of energy efficiency provided to consumers by

1. the European Commission?

**Information should be targetted at national countries and European stakeholders, including networks of cities, NGOs etc. that can use their networks to convey the messages further.**

**In addition, information for national stakeholders and citizens should be provided via websites.**

**The information shall, in addition to basic information on EPBD, also include experience with national implementation and good examples that can be used in other countries**

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2. national authorities?

**Has a key role to inform of national implementation for stakeholders, construction sector and citizens, including free, unbiased information on**

**energy renovation opportunities.**

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3. regional authorities?

(no particular role in Denmark)

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4. local authorities?

**Should inform citizens, in cooperation with local stakeholders including NGOs**

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5. local companies?

**Should provide factual information, promoting energy renovations without overselling their products.**

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

**Not to our knowledge**

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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?

(no answer)

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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?

**In a database where the house owner, and tenants have access to building information including copies of EPC's. House owners and tenants should be able to give database access to their trusted partners, including energy advisers, construction companies.**

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67. Has building data harmonisation been achieved?

(no answer)

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

**There are needs for national databases, we do not see the need for an EU-wide database, but the EU can assist countries to ensure a minimum level of information.**

**In addition an EU-wide database of building components could be useful, including information on the energy performance of the components.**

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## 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 1–10% 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, resource efficient 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?

**Obviously training is needed, in particular for success with the coming requirements for NZEB's.**

**NZEB construction and related quality assurance should be included in the training of new construction technicians and engineers**

**Massive training should be introduced for existing construction workers, technicians and engineers with a kind of diploma for being NZEB ready.**

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

(no answer)

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

**Not to our knowlegde.**

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## 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 lighting at the construction/renovation of a building or building unit) in existing buildings. National provisions should set 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 [European Directive](#) provides the platform on the market of individual products, the EPBD sets requirements for their energy-efficient performance as part of the technical system serving a building. The EPBD also requires regular inspection of heating and air conditioning systems. Whilst the Directive does not specify what would be regarded as a 'regular inspection', in the view of the European Commission across the responses, central use of smart energy 10 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 EPBD mandates countries to set these minimum requirements and in Denmark this has been done on adequate levels, for instance for heating installations. This has worked well in Denmark. There can be need to consider the combination of daylight, overheating, ventilation, windows etc, where the specific regulation for each part can be very difficult to assess when put together.**

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?

**They are not missing, as they should be part of national building codes.**

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Based on existing experience, do you think in the EPBD requirements is missing for regular inspections of the technical building systems to ensure:

a. that systems' performance is maintained during their lifetime?

**We think requirements for EPC with 5-10 years intervals would improve energy efficiency, and that inspections of technical buildings systems should be part of that.**

b. that owners/occupiers are properly informed about the potential improvements to the efficiency of their systems?

**We think countries should ensure that there is free, unbiased information available on energy renovation issues.**

c. that replacement/upgrading of the technical building systems is triggered?

**-We think that should be covered by above-mentioned requirements for EPC and free information.**

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 to our knowledge**

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?

**Yes, but it is important to stress that it has to be like that. Building components can be useful in for instance temporary installations, but have too low efficiency in permanently used buildings, and they should as such be available on the internal market for these special cases, but should not be allowed for normal buildings. Also certain buildings require special, low-efficiency building components such as non-condensing boilers and single-unit airconditioners that should not be allowed in normal buildings because of low energy**

## **efficiency.**

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### **K. Operational management and maintenance**

After the completion of development and/or renovation works, buildings shall use energy in a way that respects building occupants and operators (e.g. via energy control) (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?

**Not to our knowledge**

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

**Not to our knowledge**

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

**Not to our knowledge**

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Please include any further comments that have not been covered in the consultation

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