Communities and Local Government

Recast of the Energy Performance of Buildings Directive

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Recast of the Energy Performance of Buildings Directive

Draft answers are in blue

Particular wording in the consultation that I think we should look at is in yellow

comments/questions in general in green.

July 2009
Department for Communities and Local Government

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Consultation summary

Topic of this consultation:	The proposed re-cast of the Energy Performance of Buildings Directive seeks to clarify and simplify certain aspects, extend the scope of the Directive, strengthen certain provisions, and give the public sector a leading role in promoting energy efficiency
Scope of this consultation:	To seek views on the Government's position regarding the proposals put forward by the European Commission on the recast Directive
Geographical scope:	England and Wales. Scotland and Northern Ireland will be consulting separately
Impact Assessment:	Attached at Annex A

Basic Information

To:	Those involved or who have an interest the energy efficiency of buildings
Body responsible for the consultation:	Department for Communities and Local Government
Duration:	31 July – 2 October 2009
Enquiries:	John Bryan (020 7944 5723) john.bryan@communities.gsi.gov.uk
How to respond:	EPBD2 consultation By email to: EPBD2consultation@communities.gsi.gov.uk Alternatively, you can write to: John Bryan Zone 5/H10 Communities and Local Government Eland House Bressenden Place LONDON SW1E 5DU
Additional ways to become involved:	This written consultation exercise complements ongoing consultation with a wide range of stakeholders who have an interest in improving the energy efficiency of buildings

After the consultation:	All responses will be considered and a feedback document will be published as soon as possible after the end of the consultation period
Confidentiality	See page 6
Compliance with the Code of Practice	See page 6

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About this consultation

This consultation document and consultation process have been planned to adhere to the code of practice on consultation issued by the Department for Business, Innovation and Skills and is in line with the seven consultation criteria, which are:

- formal consultation should take place at a stage when there is scope to influence the policy outcome
- consultations should normally last for at least 12 weeks with consideration given to longer timescales where feasible and sensible
- consultation documents should be clear about the consultation process, what is being proposed, the scope to influence and the expected costs and benefits of the proposals
- consultation exercises should be designed to be accessible to, and clearly targeted at, those people the exercise is intended to reach
- keeping the burden of consultation to a minimum is essential if consultations are to be effective and if consultees' buy-in to the process is to be obtained
- consultation responses should be analysed carefully and clear feedback should be provided to participants following the consultation
- officials running consultations should seek guidance in how to run an effective consultation exercise and share what they have learned from the experience

Representative groups are asked to give a summary of the people and organisations they represent, and where relevant who else they have consulted in reaching their conclusions when they respond.

Information provided in response to this consultation, including personal information, may be published or disclosed in accordance with the access to information regimes (these are primarily the Freedom of Information Act 2000 (FOIA), the Data Protection Act 1998 (DPA) and the Environmental Information Regulations 2004).

If you want the information that you provide to be treated as confidential, please be aware that, under the FOIA, there is a statutory code of practice with which public authorities must comply and which deals, amongst other things, with obligations of confidence. In view of this it would be helpful if you could explain to us why you regard the information you have provided as confidential. If we receive a request for disclosure of the information we will take full account of your explanation, but we cannot give an assurance that confidentiality can be maintained in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not, of itself, be regarded as binding on the department.

The Department for Communities and Local Government will process your personal data in accordance with DPA and in the majority of circumstances this will mean that your personal data will not be disclosed to third parties.

Individual responses will not be acknowledged unless specifically requested.

Your opinions are valuable to us. Thank you for taking the time to read this document and respond.

Are you satisfied that this consultation has followed these criteria? If not or you have any other observations about how we can improve the process please contact:

CLG Consultation Co-ordinator
Zone 6/H10
Eland House
London SW1E 5 DU

or by e-mail to: consultationcoordinator@communities.gsi.gov.uk

Introduction

Background

The Energy Performance of Buildings Directive (EPBD) is designed to tackle climate change by reducing the amount of carbon produced by buildings;

Under the terms of the Directive:

- an energy performance certificate (EPC) must be produced whenever a building is sold, constructed or rented out. The EPC shows the energy efficiency of a property and includes recommendations on how it can be improved
- a display energy certificate (DEC) must be produced every year for public buildings larger than 1,000m². The DEC shows the actual running costs of the building and must be displayed in a prominent place
- air-conditioning installations above a certain size must be inspected every five years
- boiler installations above a certain size must either be inspected regularly or advice must be provided to users

Impact assessment

The impact assessment attached to this document calculates the approximate cost of implementing the Directive as it stands. However, negotiations are ongoing and the final content of the Directive is subject to change, as will the relative costs and benefits as set out in the impact assessment. The proposals are also currently being considered by the Parliamentary Select Committees and their views will feed into the final version of the impact assessment.

Proposals

The European Commission have now published proposals for a recast of the Directive. The purpose of recast is to:

- extend the scope of the original Directive
- strengthen certain provisions
- clarify other aspects and
- give public sector a leading role in promoting energy efficiency

The key proposals in the recast are:

- DEC to be displayed in buildings larger than 250m² that are occupied by a public authority
- EPC to be displayed in commercial buildings larger than 250m² that (a) are frequently visited by public and (b) where an EPC has previously been produced on the sale, rent or construction of that building
- the energy performance of existing buildings of any size that undergoes major renovations to be upgraded in order to meet minimum energy performance requirements. Currently, there is a threshold of 1,000m²
- minimum energy performance requirements to be set in respect of technical building systems, e.g. boilers, air-conditioning units etc
- Commission to establish common principles for definition of low and zero carbon (LZC) buildings. The definition of LZC to be determined by Member States but it must be in accordance with the principles set by the commission
- requirement to set targets for increase in LZC buildings with separate targets for:
  - new and refurbished dwellings
  - new and refurbished commercial buildings
  - buildings occupied by public authorities
- Member States to aim for cost optimal levels of energy performance of their buildings using a methodology developed by the Commission

The Commission are proposing that the Directive should be implemented by 31 December 2010 where proposals affect the public sector and 31 January 2012 for other buildings.

UK position

The UK strongly supports efforts to reduce carbon emissions. We recently set a legally binding target to reduce our carbon emissions by 80 per cent with a deadline of 2050. As the energy used in buildings accounts for almost 50 per cent of all UK carbon emissions, it is clearly vitally important that we rapidly improve the energy efficiency of our building stock.

We are very pleased that to a large extent, the proposals in the recast reflect existing policy. In a number of cases, the UK has actually gone further or is proposing to do so. Even, where further consideration is required, as described below, the Government believes that the Commission's broad policy objectives have considerable merit. Areas for further consideration are:

- proposals for a single methodology, developed by the Commission, to calculate cost optimal levels of energy efficiency in buildings

- proposal for the Commission to establish common principles for the definition of low and zero carbon buildings, accompanied by targets for an increase in the number of such properties
- extending the requirement for a DEC for public buildings larger than 250m²

The process and timetable for this consultation

This paper sets out the Government's current views on the recast of the Energy Performance of Buildings Directive. The Government welcomes views on any proposals set out in this paper. We are particularly keen to hear your views on the specific issues covered by the consultation questions. A full list of the questions on which we are seeking a response is at the end of this chapter. For ease of reference, the relevant consultation questions are also set out underneath the description of each proposal.

Comments on the proposals set out in this paper should be sent to:

EPBD2consultation@communities.gsi.gov.uk

Alternatively, please send them to:

John Bryan
5/H10
Eland House
Bressenden Place
London
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If you have any queries, please direct them to the above email or postal address. Alternatively you can contact us on 020 7944 5723.

This consultation opened on 31 July 2009. All comments should be received by **2 October 2009.**

Chapter 1

The EPBD re-cast proposals

Article 1: This Article describes the purpose of the Directive, i.e. to promote the improvement of the energy performance of buildings located in the European Union.

The UK supports this aim.

Article 2: All of the terms defined in Article 2 are considered in the impact assessment. Where the definitions are already used in the existing Directive or where the definition adopted reflects the widely understood and accepted meaning of the term and is therefore uncontroversial, then the UK accepts those definitions. In other cases, we consider that further clarification by the Commission is required for the following terms:

- “building”
- “building envelope”
- “major renovations”
- “low carbon”
- “benchmarking instrument”
- “zero carbon” and
- “cost optimal levels”

Clarification is also required on whether the European Standards referred to are new or existing standards. If they are new standards, information is required as to who are they being developed by, what is the timescale and how they will relate to standards currently in use.

Article 3: This Article, which is broadly similar to the corresponding Article in the current Directive, requires Member States to adopt a methodology for calculating the energy performance of buildings that takes into account a number of factors, including the building’s thermal capacity, heating installations, ventilation, whether renewable energy sources are used etc. It also states that the methodology should take into account European Standards. The software that is currently used to calculate the energy performance of buildings in the UK takes account of all of the factors referred to in the Article with one exception. The exception is that it does not calculate primary energy emissions from a building. Amending the software so that it does so in future would not be difficult and can be done at relatively little cost. The Government is content with this part of the Article.

As noted above, Article 3 also requires Member States to take account of European Standards. Clarity is needed on whether the European Standards referred to are new or existing. The UK does not support the introduction of new European Standards in this field.

The UK is content that the methodology for calculating the energy efficiency of buildings should refer to existing European Standards provided that Member States will continue to have the ability to alter variables in the methodology.

The UK supports the use of numeric indicators as a means of expressing a building's carbon dioxide emissions and primary energy use.

Article 4: This Article is largely unchanged from the current Directive. It provides that minimum energy performance requirements should be set for buildings. The minimum requirements are to be calculated in accordance with the methodology referred to in Article 3. They should also take account of general indoor climate conditions, local conditions and the age of the building. The requirements should be set with a view to achieving cost optimal levels of performance. They must be reviewed at least every five years and updated if necessary to reflect technical progress in the building sector.

In setting minimum performance requirements, Member States are permitted to distinguish between new and existing buildings and between different categories of buildings.

Member States are permitted to exempt the following categories of buildings from these requirements:

- listed buildings
- buildings used as places of worship and religious activities
- temporary buildings that are not expected to be used for more than two years
- industrial sites
- workshops
- non-residential agricultural buildings with low energy demand
- non-residential agricultural buildings in use by a sector covered by a national sectoral agreement on energy performance
- dwellings intended to be used for less than four months of the year
- stand-alone buildings with a total useful floor area less than 50m²

The key changes from the current Directive are that minimum energy performance requirements must now be set with a view to achieving cost optimal levels of performance. Though the UK is content in principle with this requirement, clarity is needed from the Commission on what exactly is meant by 'cost optimal' and how it is proposed that cost-optimal levels of performance will be calculated. A definition of 'cost optimal' has been provided at Article 2.10 of the Directive but the UK considers that further clarity is required.

A further change is that from 30 June 2014, Member States may not provide incentives for the construction or renovation of buildings that do not comply with the minimum energy performance requirements referred to above.

The UK does not support this proposal in its current form as there may be situations where it wishes to support in particular the renovation of such buildings, for example, to stimulate employment. In addition, the UK believes that this proposal runs counter to the principle of subsidiarity because it is more appropriate for decisions on such issues to be taken at Member State level.

1. Do you agree that Member States should retain the ability to introduce incentives for the construction and renovation of buildings which do not comply with the proposed minimum energy performance requirements?

Yes - there have been a number of consultations and Parliamentary Inquiries over the last few years in which respondents consistently have expressed the vital need to address the existing building stock. The existing building stock will be considerably different between some Member States. How improvements are achieved by member states is up to each individual Member State and should not come under the jurisdiction of the EPBD.

The Article also provides that with effect from 30 June 2017, when Member States review the minimum energy performance requirements that it has set, which are they obliged to do at least every five years, those requirements must equal or exceed cost optimal levels of performance. This requirement is discussed further in relation to Article 5.

A single methodology developed by the Commission may raise issues of subsidiarity. However, Member States will retain the freedom to prescribe the detailed methodology. It is likely, as noted in the impact assessment, that the current UK approach would at least equal and probably exceed cost optimal levels, this cannot be confirmed until the methodology has been developed by the Commission.

The UK believes this Article needs further broad consideration.

2. Do you agree that this Article needs further consideration?

Yes - in particular, what does 'cost optimal' mean? Without knowing the definition and the proposed methodology for the determination of "cost optimal" it is impossible to offer any more detailed response than a request for these to be defined.

Given experience in ISO with the development of BS ISO 15686-5 on life cycle costs, any suggestion that the derivation of any cost optimisation is trivial is to be strongly resisted. this is potentially a very significant piece of work.

Article 6: This is a revised Article which provides that Member States shall ensure that new buildings meet the minimum energy performance requirements referred to in Article 4. The requirements in this Article applies to all buildings, previously they only applied to buildings larger than 1,000m². The Article also provides that before construction starts, the technical, environmental and economic feasibility of alternative energy systems are considered and taken into account. This analysis is to be documented and must form part of the application for planning permission or when demonstrating compliance with the Building Regulations or their equivalent in the Devolved Administrations.

The UK supports the proposal that new buildings should meet minimum energy performance requirements.

The UK supports the proposal that alternative energy systems should be considered before construction starts. The impact assessment contains details of the likely costs of implementing this provision.

3. Do you agree that alternative energy systems should be considered before construction starts?

Yes - and this should be Incorporated into Part L to minimise compliance burden

Article 7: Article 7 is a revised Article which provides that when existing buildings undergo major renovation, either the energy performance of the building as a whole or the energy performance of the renovated systems or components shall be upgraded in order to meet minimum energy performance requirements determined in accordance with Article 4. Previously, this requirement only applied to buildings over 1,000m². The UK already requires that renovated systems or components in existing buildings are upgraded in order to improve their energy performance. As noted in the impact assessment, no additional impact is expected from implementation of this measure.

The UK supports the proposal that following major renovations, the overall energy performance of the building shall be upgraded.

So what about homes < 1000m^2? These have been excluded from the proposals for amendment of Part L of the building regulations, which does not seem consistent with the suggestion that the UK supports this proposal.

Article 8: This is a new Article which provides that Member States shall set minimum energy performance requirements for technical building systems that are installed in buildings. The Article is considered in detail in the accompanying impact assessment which notes that a significant impact is unlikely.

The UK supports this Article. Although CLG has not asked a specific question about this article, It merits comment. Paragraph 28 notes that the level of Impact depends on the final definition of fixed building services. It notes that a wider definition could incorporate various systems not currently addressed by Building Regulations, although proposals to extend Part l to address some, such as lifts, are contained in the Future Look section of the recent Part L consultation package. However, it is worth noting that there is a considerable discrepancy between energy use calculated for the purposes of Part l and EPCs and total metered energy use. Eventually this gap has to be closed, and it would do no harm for the Directive to start that process.

Article 9: This is a new Article. It requires Member States to set targets for an increase in the number of buildings of which both CO_2 emissions and primary energy consumption are low or equal to zero. It further provides that the Commission will establish common principles for defining such buildings. Member States will be able to set their own definition of low and zero carbon. However, these definitions will need to comply with the common principles referred to above. In addition, it proposes that the Commission shall publish a report on the progress of Member States in increasing the number of such buildings and may recommend measures to increase the number of those buildings.

Further information is needed from the Commission on this proposal, particularly on the common principles that should be taken into account when setting a definition of LZC buildings.

The UK believes this Article needs further consideration.

The UK supports the proposal to increase the number of buildings in this category as a general aspiration. It does not support the proposal that targets should be set for an increase in the number of low and zero carbon buildings. The UK does not believe it is appropriate for any targets to be set for zero carbon existing buildings. Any targets for low carbon existing buildings should be related to the overall building stock (disaggregated appropriately between domestic and non-domestic buildings).

4. Do you agree that this Article needs further consideration?

Yes - what about subsidiarity? We don't want zero carbon imposed on the existing stock when it's more cost effective to have low carbon measures for the existing stock.

Article 10: Article 10 has been amended. The Article restates the requirement on Member States to establish a system of certification of the energy performance of buildings. It introduces new requirements relating to the content of the energy performance certificate. These requirements are discussed in more detail in the impact assessment. The main change from the existing Directive concerns the recommendations report which forms part of the EPC and sets out the measures that could be taken to make the building more energy efficient. In future, the recommendations will need to be more precise and detailed. They will also have to be technically feasible and provide transparent information on their cost effectiveness. The impact of these proposals has been assessed and is considered in more detail in the impact assessment. It is expected to be fairly limited and costs are likely to be low.

However there will be costs that will be passed on to the trainers and certification schemes in providing more training and changing their testing/examinations. These are costs, even if CLG argue that they will be passed on to the candidate and recouped later in the fee charged for the energy certificate and recommendation report. CIBSE favour more robust reporting and the required training to support its introduction, and we believe that the cost burden will be lower on those schemes who already address these issues to some extent in their existing training.

The recommendations report is a crucial component of the EPC. The UK believes that the proposed changes to the recommendations report will make it more useful and relevant to the building owner or occupier and increases the likelihood of the recommendations being implemented, thereby reducing carbon emissions. CIBSE supports this, and notes that the proposal to make the recommendation report an element of Table 6 (consequential improvements) in ADL2B renders these provisions even more necessary.

The UK supports this Article

Article 11: Article 11, which has been amended, reiterates the requirement that an EPC is to be issued on the sale, rent or construction of a building. In addition, the Article:

- extends the scope of the existing Directive by requiring that a DEC is issued for buildings larger than 250m² occupied by a public authority. At present this requirement only applies to buildings larger than 1,000m² and
- introduces a new requirement that the energy performance indicator of the EPC must be displayed in all advertisements for the sale or rent of buildings

The UK is not minded to support the proposal to widen the scope of the Directive so that a DEC must be produced for buildings occupied by a public authority that are larger than 250m².

5. Do you support widening the scope of the Directive so that DECs must be displayed in buildings above 250m² which are occupied by public authorities?

Yes - a DEC is relatively easy to produce and there is no obligation to act upon the recommendations for improvement. CIBSE believes that ultimately an operational rating is the best way of providing accurate information on the actual energy performance of an occupied building and it's actual potential for improvement. Widening the requirement for DECs is a step in this direction and completely within the spirit of the EPBD. CIBSE would support wider roll out of DECs to the commercial sector, and we understand that the CBI also supports this.

The impact assessment notes that extending the requirement in this way would increase the number of buildings affected from at least 42,000 to 64,000. However, the energy used in those additional buildings represents only 1.4 per cent of the total energy used in the public sector. It has been estimated that extending the requirement in this way would cost approximately £8m per year, while the amount of carbon saved would equate to about 12,400 tonnes per year.

The UK's view is that the focus should be on encouraging take up of the recommendations that accompany the DECs currently required for buildings larger than 1,000m². A requirement to also produce DECs for smaller buildings may divert resources and attention from the urgent need to act on the recommendations that have been made in respect of larger buildings, thereby reducing carbon emissions.

The UK supports the proposal that advertisements for the sale or rent of buildings should include an energy performance indicator. This will increase transparency and help ensure that consumers are able to make an informed choice when considering whether to buy or rent a building.

6. Do you support the proposal that property advertisements should include the building's energy performance indicator?

Yes, CIBSE strongly support this proposal.

Article 12: This Article is a revised Article. It covers the display of EPCs in buildings and provides that:

- a DEC must be displayed in buildings larger than 250m² occupied by a public authority. Previously this requirement had only applied to buildings larger than 1,000m²
- where a building larger than 250m² is occupied by an organisation that is not a public authority and is frequently visited by the public, then an EPC must be displayed where one was previously issued on the sale, rent or construction of that building This may be appropriate where the cost is merely the cost of a picture frame to display an existing EPC. But EPCs do NOT demonstrate true energy performance by the occupier, and the gap between Asset and Operational ratings are well know to CLG in their own experience. The real need is for wider application of DECs to make actual metered energy performance more open and transparent.

Notwithstanding the UK's view in respect of Article 11 that the requirement to produce a DEC should not be extended to buildings smaller than 1,000m² that are occupied by a public authority, the UK's position on Article 12 is that if the requirements are extended in this way, it would be sensible to require that the DEC is displayed. This will increase transparency and provide the public with information on the energy efficiency of such buildings. As noted above, the UK believes that extending the requirement in this way would divert attention and resources away from the need to make larger buildings more energy efficient.

This requirement would only apply where an EPC had previously been issued for the sale, rent of construction of that building so the compliance cost for the organisation concerned would be minimal. In addition, it would help to improve transparency and enable visitors to the building to view its energy performance.

The UK supports the proposal that an EPC should be displayed in buildings larger than 250m² that are occupied by an organisation other than a public authority and that are frequently visited by the public. I don't think we have a problem with this.

7. Do you agree that for publicly visited buildings above 250m^2, an EPC should be displayed where it already exists?

Not at the expense of requiring DECs for these buildings, but yes if in addition to a DEC.

Article 13: Article 13 extends the existing requirements relating to the inspection of heating systems with boilers. It provides that Member States must ensure that either there is a regular inspection of heating systems larger than 20KW or that they ensure advice is available to users on replacements and modifications to the system. Currently, this requirement only applies to systems larger than 100KW. Where Member States choose the provision of advice option, they must ensure that the impact of the advice is similar to what would be achieved under a system of inspection. This requirement goes further than the existing Directive which requires Member States to ensure that the impact is broadly similar.

Requiring a larger number of heating systems to be either inspected or the subject of advice increases the likelihood that carbon emissions will be reduced further. The actual impact cannot be quantified because it will be up to the owners of the heating systems to decide whether or not to replace or modify the system and reduce its energy consumption.

The UK supports the proposed extensions to this Article.

Article 14: Article 14 amends the existing provisions on the inspection of air-conditioning systems. It provides that such systems must be inspected at regular intervals. It does not add to the existing requirements in respect of inspection of air-conditioning systems.

The UK supports this Article. It should be amended to make clear that data centres and server rooms are in scope for ACIs

Article 15: Article 15 is new. It specifies the type of advice to be included in an air-conditioning report. As noted in the impact assessment, these new requirements could increase costs to owners of air-conditioning systems by around 30 per cent to £20m per year. However, these additional costs may be offset to some degree by improved energy efficiency.

The UK supports this Article.

8. Do you support improving the advice given in air-conditioning reports?

The *level of energy performance required by the applicable legislation* is presumably achieved by reference to the Part L compliance guides in this country but if the energy performance must also be compared to the best available system on the market (although the actual article states "the best available system feasible" we need to avoid any situation in which it could be inferred that air-conditioning inspectors will be recommending certain systems.

This may require further significant amendments to the accreditation requirements for air conditioning inspectors.

The existing regulations require "an assessment of the air-conditioning efficiency and the sizing of the system compared to the cooling requirements of the building". This is already a very difficult requirement to implement in complex systems, but chiller efficiencies and AHU fan efficiencies are currently considered. This comparison will only affect the theoretical side. CIBSE wonders whether the building energy consumption would be reduced in actual terms from this kind of "saving on paper" method.

So, for the new proposals, does "*all relevant components"* for complex systems imply that AHU cooling coils, filter types and VAV boxes etc are to be compared with similar types? And then there is the question of condition and maintenance of these parts: "*all relevant components achieve the level of energy performance required* ", implies that maintenance is measured? An efficient piece of equipment that is very poorly maintained will not give the performance of one that is well maintained. So a coil that is excessively corroded cannot be consider as a good heat exchanger, even if the part was highly efficient.

Notwithstanding that, for simple systems (DX splits) the proposals are a more viable addition and having a benchmark is more feasible. But as a regulatory statement for all systems, the proposals are not practical.

A summary of energy cost can be very useful as clients are not always aware of the

financial saving to be gained by implementing ACI advice. The figures in these reports will no doubt be very sketchy, but may highlight the need for further detailed consulting.

CIBSE suggests that the current TM44 report should add the "simple payback" calculation section. This will allow the client to have a clear understanding of the best practical way to improve their system and get financial benefits.

Article 16: This Article has been revised. It is concerned with the expertise to be an energy assessor. It provides that only energy assessors who are both qualified and accredited may produce EPCs or air-conditioning reports.

These requirements reflect the current situation in the UK and we fully support them.

Article 17: This is a new Article. It requires Member States to establish an independent control system for EPCs and air-conditioning inspection reports. The purpose of the system is to verify the accuracy of a proportion of EPCs and inspection reports. The Article provides that at least 0.5 per cent of all EPCs and 0.1 per cent of all inspection reports issued each year are randomly selected and checked for accuracy. The impact assessment considers this provision in more detail and notes that it will not have an impact in the UK as stringent requirements have already been implemented for quality control purposes, including a requirement that at least two per cent of all EPCs and air-conditioning inspection reports are selected on a random basis and checked for accuracy. It is essential that consumers can have confidence in the accuracy of EPCs and inspection reports.

The UK supports this Article.

Article 18: Article 18 has been revised. It provides that the Commission shall evaluate the Directive in the light of experience and may make proposals regarding, *inter alia*, methodologies to determine the energy performance of buildings and incentives for further energy efficiency measures in buildings.

The UK supports this Article.

9. Do you support the proposal that the Commission should evaluate the effectiveness of the Directive?

Yes

Article 19: This Article has been revised. It provides that Member States shall provide information to owners and tenants of buildings on the different methods and practices that can improve the energy efficiency of buildings. The key change from the existing Directive is that recast provides that Member States shall provide this information. Previously, it was at their discretion to do so.

10. Do you agree that Member States shall provide information to building occupiers on improving energy efficiency?

Whilst CIBSE supports the spirit of this article and we agree that information should be provided, we believe that it should be provided by professionals at the point of issue of the energy performance certificate. At present the EST and the CT are concentrating on low rated buildings which may or may not have the capacity to be improved depending on how their operational rating compares to their asset rating. We also believe that the provision of advice should be separate from any grant aid.

The information shall focus in particular on the purpose and objective of EPCs and inspection reports and on the medium and long term financial consequences of failing to improve the energy performance of a building. The Article further provides that the Commission will assist Member States, at their request, in holding information campaigns.

Great care is needed to ensure that this is not achieved by establishing a body or bodies to provide such advise using government funding. This will distort the market in the provision of such advice, and jeopardise the work of other bodies which provide such information. In the worst case it could be deemed a restraint of trade to use tax revenue to subsidise some organisations at the expense of others.

It is very important that building owners and tenants have as much information as possible on ways in which the energy efficiency of the building they occupy can be improved and are fully aware of the financial consequences of not taking action to improve the energy performance of their building. In the UK, there are extensive ongoing information campaigns. These are administered primarily by the Energy Savings Trust, which focuses on giving advice to tenants and owners of domestic properties, and the Carbon Trust who provide advice to the non-domestic sector. Because of these extensive information campaigns, it is not considered that this Article will have any impact in the UK.

The UK supports this Article.

Article 20: Article 20, which has been revised, provides that the Commission may modify the list of thermal characteristics and other aspects that are to be taken account of in the methodology used to assess the energy performance of a building, in the light of technical progress. It largely reflects existing provisions.

The UK supports this Article.

11. Do you agree that the Commission may modify thermal characteristics taken into account in the methodology?

Yes, subject to satisfactory notice periods

Article 21: Article 21 is virtually identical to the corresponding Article in the existing Directive except that the numbering has changed. It provides that the Commission shall be assisted by a Committee. This applies particularly in relation to Article 18 but also to the Directive as a whole. The Committee will comprise representatives from the Member States.

The UK supports this Article.

12. Do you agree that the Commission should be assisted by a committee made up from representatives of the Member States?

Yes,

Article 22: Article 22 is new. It provides that Member States shall introduce penalties for failing to comply with this Directive and that the penalties should be effective, proportionate and dissuasive.

Penalties are already in place for non- compliance in the UK. These range from £200 for dwellings to up to £5,000 for non-dwellings. It is considered that these penalties have been set at a level that meets the criteria referred to above and as noted in the impact assessment, this Article does not have any impact.

The UK supports this Article.

Article 23: This Article sets out a timetable for transposition of the Directive into domestic legislation. It provides that the necessary regulations shall be adopted by Member States by 31 December 2010. Articles 2, 3, 9, 10 to 12, 16, 17, 19 and 22 shall be implemented by the same date. Articles 4 to 8, 13 to 15 and 17 are also to be implemented by 31 December 2010 in respect of buildings occupied by public authorities and by 31 January 2012 in respect of all other buildings.

The UK has reservations about the timetable for implementing the Directive. It is challenging and may not be feasible. The UK will be discussing with the Commission the scope for implementing this Directive over a longer time scale.

13. Do you agree that the proposed timetable is unrealistic?

Yes, given the challenges described for the UK to meet the requirements, however CIBSE is ready to offer appropriate technical information and assistance to CLG on implementation of the recast EPBD.

Article 24: Article 24 is an administrative provision which states that the repeal of the existing Directive is to occur with effect from 1 February 2012.

Article 25: Article 25 is an administrative provision. It specifies that that the Directive shall come into force on the 20th day following its publication in the Official Journal of the European Communities.

Article 26: Article 26 is an administrative provision which notes that the Directive is addressed to the Member States.

Annex 1: Annex 1, referred to at Article 3 and 20, sets out the technical framework for calculating the energy performance of buildings.

Annex 2: Annex 2, referred to at Article 17, specifies the way in which the independent control system for verifying EPCs and air conditioning inspection reports is to be operated.

Annex 3: Annex 3, referred to at Article 24, is concerned with repeal of the existing Directive and transposition of the recast Directive.

Annex 4: Annex 4 is a correlation table.

List of consultation questions

1. Do you agree that Member States should retain the ability to introduce incentives for the construction and renovation of buildings which do not comply with the proposed minimum energy performance requirements?

2. Do you agree that this Article needs further consideration?

3. Do you agree that alternative energy systems should be considered before construction starts?

4. Do you agree that this Article needs further consideration?

5. Do you support widening the scope of the Directive so that DECs must be displayed in buildings above 250m^2 which are occupied by public authorities?

6. Do you support the proposal that property advertisements should include the building's energy performance indicator?

7. Do you agree that for publicly visited buildings above 250m^2, an EPC should be displayed where it already exists?

8. Do you support improving the advice given in air-conditioning reports?

9. Do you support the proposal that the Commission should evaluate the effectiveness of the Directive?

10. Do you agree that Member States shall provide information to building occupiers on improving energy efficiency?

11. Do you agree that the Commission may modify thermal characteristics taken into account in the methodology?

12. Do you agree that the Commission should be assisted by a committee made up from representatives of the Member States?

13. Do you agree that the proposed timetable is unrealistic?

Summary: Intervention & Options

Department /Agency: Communities & Local Government	Title: Consultation stage – Impact Assessment of Recast of Energy Performance of Buildings Directive 2002/91/EC)	
Stage: Consultation	**Version:** FINAL	**Date:** 12/05/09
Related Publications: None		

Available to view or download at:

Contact for enquiries: Jonathan Bramhall **Telephone:** 020 7944 5727

What is the problem under consideration? Why is government intervention necessary?
The increasing level of CO2 emissions in the atmosphere is highly likely to cause global warming with negative impacts on the environment and world food production, as well as a higher incidence of flooding, storms and the risk of sea level rises. Government intervention is necessary as these future negative consequences are not fully reflected in the current price of energy so opportunities to reduce energy use and CO2 emissions are not being realised. A further problem is that our levels of energy use means that we are becoming increasingly dependent on energy sources outside the European Union (EU). In addition there are a number of other market failures such as failure to provide adequate information on potential improvements to the energy efficiency of buildings.

What are the policy objectives and the intended effects?
The policy objective is to reduce our energy use in buildings and associated CO_2 emissions, thereby lessening the impact of climate change, our dependence on energy imports, and resulting in lower fuel bills for businesses and individuals.

What policy options have been considered? Please justify any preferred option.
This impact assessment (IA) assumes that the recast of the EPBD will be implemented in full. The following options were considered: (a) do nothing (b) partially implement and (c) implement in full. Option (c) was selected as it is Government policy to comply fully with EU Directives.

When will the policy be reviewed to establish the actual costs and benefits and the achievement of the desired effects?
The policy will be reviewed three years after the recast of the Directive has been implemented.

Ministerial sign-off For consultation SELECT STAGE impact assessments:

I have read the impact assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

Signed by the responsible minister:

Date: 3 July 2009

Summary: Analysis & Evidence

Policy Option: **Transposition of recast EPBD**

Description: **Costs and benefits are provided for the additional measures included in the recast of the EPBD, over and above the existing EPBD transposition**

COSTS

ANNUAL COSTS		Description and scale of **key monetised costs** by 'main affected groups'
One-off (Transition)	**Yrs**	One-off costs principally relate to CLG expenditure for implementation, reporting, software production
£2.5m	1	Annual costs relate to the additional costs for more display energy certificates within the public sector and additional costs on the private sector related to inspection of air-conditioning systems (approx £5m)
Average Annual Cost (excluding one-off)		
£13m		**Total Cost** (PV) **£156.5m**
Other **key non-monetised costs** by 'main affected groups'.		

BENEFITS

ANNUAL BENEFITS		Description and scale of **key monetised benefits** by 'main affected groups' The annual benefit arises within the public sector as a result of the additional energy savings predicted from the provision of display energy certificates and advisory reports to a wider group of buildings. The additional requirements may result in cost savings. These costs will be looked at again in a future impact assessment.
One-off	**Yrs**	
£0		
Average Annual Benefit (excluding one-off)		
£1.3m		**Total Benefit** (PV) **£12.7m**
Other **key non-monetised benefits** by 'main affected groups' CO_2 savings that will arise from the policy are estimated at 12,400 tonnes p.a. If this is valued at the shadow price of carbon this equates to a present value of £3.5m.		

Key Assumptions/Sensitivities/Risks The impact of EPCs on energy savings in the public sector is not well understood. There are many other incentives to reduce energy use and also constraints on public expenditure which will affect the outcome. Judging the additional impact of the EPBD is therefore very difficult and all costs and benefits given are approximate and may have been underestimated.

Price Base Year 2007	**Time Period Years** 12	**Net Benefit Range** (NPV) **–£156m to –£133m**	**NET BENEFIT** (NPV Best estimate) **–£145m**

What is the geographic coverage of the policy/option?			UK	
On what date will the policy be implemented?			31/12/2010	
Which organisation(s) will enforce the policy?			Local authorities	
What is the total annual cost of enforcement for these organisations?			£ small increase	
Does enforcement comply with Hampton principles?			Yes	
Will implementation go beyond minimum EU requirements?			No	
What is the value of the proposed offsetting measure per year?			£	
What is the value of changes in greenhouse gas emissions?			£	
Will the proposal have a significant impact on competition?			No	
Annual cost (£-£) per organisation (excluding one-off)	Micro	Small	Medium	Large
Are any of these organisations exempt?	No	No	N/A	N/A

Impact on Admin Burdens Baseline (2005 Prices) (Increase – Decrease)
Increase of £1.5m Decrease of £ **Net Impact £1.5m**

Key:	**Annual costs and benefits: Constant Prices**	**(Net) Present Value**

Evidence Base (for summary sheets)

Background

Summary

The Energy Performance of Buildings Directive is designed to tackle climate change by reducing the amount of carbon produced by our buildings. Under the terms of the Directive:

- an Energy Performance Certificate (EPC) must be produced whenever a building is sold, constructed or rented out. The EPC shows the energy efficiency of a property and includes recommendations on how it can be improved
- a Display Energy Certificate (DEC) must be produced every year for large public buildings. The DEC shows the actual running costs of the building and must be displayed in a prominent place
- air-conditioning installations above a certain size must be inspected every five years
- boiler installations above a certain size must either be inspected regularly or advice must be provided to users

The European Commission has now proposed a re-cast of the Energy Performance of Buildings Directive. The purpose of the re-cast is to:

- clarify and simplify certain provisions
- extend the scope of the Directive
- strengthen certain provisions
- give the public sector a leading role in promoting energy efficiency

The UK strongly supports efforts to reduce carbon emissions. We recently set a legally binding target to reduce our carbon emissions by 80 per cent with a deadline of 2050. As the energy used in buildings accounts for almost 50 per cent of all UK carbon emissions, it is clearly vitally important that we rapidly improve the energy efficiency of our building stock.

Key proposals include:

- EPC to be displayed in all public buildings over 250m² and all other buildings frequently visited by public
- all existing buildings that undergo major renovation to meet minimum energy performance requirements
- targets for increase in low and zero carbon buildings – both new and existing – to be set using definitions developed by Commission

  - methodology for calculation of energy performance to take account of European Standards
  - Member States to aim for cost optimal levels of energy performance of their buildings using a methodology developed by the Commission

- challenging timescale. Commission proposing implementation by 31 December 2010 where affects public sector and 31 January 2012 for other buildings
- areas for further consideration are:

  - proposals for a single methodology, developed by the Commission, to calculate cost optimal levels of energy efficiency in buildings

  - definition of low and zero carbon properties set by the Commission and accompanied by targets for an increase in the number of such properties

  - extending the requirement for a DEC for public buildings larger than 250m²

- impact assessment shows annual net costs of implementing the Directive would be at least £13m with additional one-off costs of £2.5m
- annual costs almost entirely due to the extension of DECs to public buildings larger than 250m²
- will be further as yet unquantifiable costs to meet the requirements relating to cost-optimal improvements to buildings and a single definition of low and zero carbon buildings with associated targets to increase the numbers of such buildings

Introduction

1. The Energy Performance of Buildings Directive 2002/91/EC (referred to below as EPBD1) was approved in 2003. It has been progressively transposed for England and Wales through revisions to the Building Regulations 2000 and other changes to the main body of the Regulations in the Building and Approved Inspectors (Amendment) Regulations 2006 implementing articles 3 to 6 EPBD1 and the Energy Performance of Buildings (Certificates and Inspections) (England and Wales) Regulations 2007 (EPBR 2007) which implement articles 7 to 10. Scotland has transposed the EPBD1 through: Building (Scotland) Act 2003, The Building (Procedure) (Scotland) Regulations 2004, The Building (Scotland) Amendment Regulations 2006, The Building (Procedure) (Scotland) Amendment Regulations 2007, The Energy Performance of Buildings (Scotland) Regulations 2008, The Energy Performance of Buildings (Scotland) Amendment Regulations 2008. Northern Ireland have transposed EPBD1 through a revision of Part F of the Building Regulations (Northern Ireland) 2000 that implements Articles 3-6 of that Directive and the introduction of the Energy Performance of Buildings (Certificate and Inspections) Regulations (Northern Ireland) 2008 that implements Articles 7-10.

2. The European Commission has now issued a proposed Recast of the Directive (referred to hereafter as EPBD2) with the following aims:

   - clarify and simplify certain provisions
   - extend the scope
   - strengthen some of the provisions
   - provide for the leading role of the public sector

3. The purpose of the IA is to consider the implications of the changes proposed in the recast of the Directive.

4. Each of the Articles has been considered in turn and where possible the costs and benefits of each change have been assessed. Although there are a large number of minor changes the main changes are:

   - proposals for a single methodology, developed by the Commission, to calculate cost optimal levels of energy efficiency in buildings
   - definition of low and zero carbon properties set by the Commission and accompanied by targets for an increase in the number of such properties
   - extending the requirement for a DEC for public buildings larger than 250m²

5. In addition, brief comments are included regarding the other impacts that would normally be included in an IA at the stage of introducing legislation, in accordance with the guidance available.

6. This IA should be read in conjunction with the text of the EPBD1, EPBD2, the impact assessment of EPBD produced by the European Commission, the Building Regulations 2000 the accompanying Approved Documents, the Energy Performance of Buildings (Certificates and Inspections) (England and Wales) Regulations 2007 and CLG published guidance. For Northern Ireland this IA should be read in conjunction with the text of the EPBD1, EPBD2, the impact assessment of EPBD produced by the European Commission, the Building Regulations (Northern Ireland) 2000, the accompanying Technical Booklets, the Energy Performance of Buildings (Certificates and Inspections) (Northern Ireland) Regulations 2008 and accompanying guidance produced by the NI Department of Finance and Personnel. Similarly, for Scotland this IA should be read in conjunction with the text of the EPBD1, EPBD2, the impact assessment of EPBD produced by the European Commission, The Building (Scotland) Amendment Regulations 2006, The Building (Scotland) Amendment Regulations 2007, Technical Handbooks Booklets, the Energy Performance of Buildings (Scotland) Regulations 2008 and accompanying guidance leaflets produced by The Scottish Government.

7. The impact assessment published by the Commission (COM(2008) 780 final) indicated that EPBD2 would result in an additional saving of 160-210MtCO_2 p.a. for the options that could be quantified.

8. This IA covers the United Kingdom, it should be noted that the EPBD1 arrangements in Scotland and Northern Ireland are not identical to England and Wales and where necessary this IA considers Scotland and Northern Ireland separately.

9. An assessment has been made of the financial impact of each Article in the recast. **Where there is a financial impact, this has been stated and quantified where possible. Where no reference is made to a financial impact in relation to any of the Articles, then it has been determined that there will be no appreciable impact.**

10. The Impact Assessment calculates the approximate cost of implementing the Directive as it stands. However, the content of the Directive may change. This could change the costs and benefits set out in this IA. An updated IA will be published once the content of the Directive has been finalised. The revised IA will also reflect any changes to the way that energy and carbon is valued.

Review of Articles in EPBD2 compared to EPBD1 with reference to the Regulations made for Transposition in the UK

Article 1: Subject matter

11. This Article describes the subject matter of the Directive and there are a number of changes from EPBD1. The word 'large' is removed from the requirement to set minimum energy performance requirements for existing buildings undergoing renovation. This extends the scope of this requirement to all existing buildings regardless of size (see Article 7 below). There is a new requirement for creating national plans for low and zero carbon and primary energy buildings (see Article 9 below). Requirements for inspections of boilers are expanded to cover heating systems (see Article 13 below). There is a new requirement for independent control systems for Energy Performance Certificates (EPCs) and inspection reports.

Article 2: Definitions

12. This Article sets out detailed definitions of a number of the terms used in the recast. These definitions are considered in more detail at Annex A.

Article 3: Adoption of a methodology of calculation of the energy performance of buildings

13. The Article requires Member States to adopt the methodology set out in Annex 1.

    Annex 1 contains a 'general framework for the calculation of energy performance of buildings'. Currently the software developed for producing energy certificates would appear to meet all of these requirements which are similar to EPBD1. However, there is one specific change as it is now a requirement to also calculate primary energy consumption. Currently primary energy is not calculated in the UK. Energy that is delivered to a building as a fuel will be classed as primary energy. Energy supplied as electricity will need to be converted to primary energy by means of a national factor, which may vary slightly depending on the connection voltage of the supply to reflect the level of energy losses in electricity transmission. A relatively minor software change would be needed to calculate the total primary energy required for a building and to include this on the EPC. For energy that is delivered in the form of hot water, steam or chilled water through district heating or district cooling a conversion factor for primary energy relevant to the particular scheme will need to be established by the supplier. Whilst this requirement would lead to additional costs for software development these are expected to be relatively minor and can be accommodated within the ongoing software development programme that is needed to deliver other aspects of Government policies, e.g. further revisions to Part L of the Building Regulations in England and Wales and further revisions to Part F of the building regulations in Northern Ireland.

14. Annex 1 states that the *"energy performance of a building shall be determined on the basis of calculated or actual energy that is consumed"*. This in turn allows energy performance certificates as defined in Article 2 paragraph 8 to be produced using either calculations or measurements.

15. Annex 1 states that *"the methodology…should take into account European standards."* Previously the EPBD1 Article 3 stated that the general framework of calculations should be *"adapted to technical progress….taking into account standards or norms applied in Member State legislation."* Clarity is needed from the European Commission on the status of the European Standards referred to. If they are existing standards, then the impact of this requirement would be minimal as the current methodology takes account of these Standards. If they are new Standards, the impact could be significant. At this stage, the status of the Standards is not known. However, the cost, if any, will be quantified in a future impact assessment

Article 4: Setting of minimum energy performance requirements

16. This Article is largely unchanged from EPBD1 and requires minimum energy performance requirements to be set for buildings and that these requirements may differentiate between new and existing buildings and different categories of buildings. However paragraph 1 of Article 4 introduces a new requirement that minimum energy performance requirements are set *"with a view to achieving cost optimal levels."* Previously there was no reference to cost-optimal levels and it is possible that additional costs may arise from this requirement. This aspect is discussed under Article 5 below.

17. A number of types of buildings have been excluded from the requirement to set minimum energy performance requirements. With one exception, the exclusions set out in EPBD1 have been retained. The exception is *"monuments."* Clarification is being sought from the Commission on the reasons for no longer exempting monuments.

18. Paragraph 3 imposes a new requirement that, as from 30 June 2014, Member States shall not provide incentives for the construction or renovation of buildings or parts thereof which do not comply with the minimum energy performance requirements which are calculated according to the cost-optimal levels described in Article 5(2). Paragraph 4 imposes a new requirement that, as from 30 June 2017, MSs shall ensure that their minimum energy performance requirements achieve the results of the cost-optimal levels described in Article 5(2). The impact of these requirements is discussed under Article 5 below.

Article 5: Calculation of cost-optimal levels of energy performance requirements

19. This is a new Article. Paragraph 1 states that the Commission shall establish by 31 December 2010 a comparative methodology for calculating cost-optimal levels of minimum energy performance requirements for buildings or parts thereof.

20. Paragraph 2 requires Member States to calculate cost-optimal levels of minimum energy performance requirements using this comparative methodology and compare the results with the requirements that have been set nationally. They shall then report the results of this analysis to the Commission every three years. This will result in additional costs to Government to carry out the analysis and prepare the reports. The Government already develops its policies through public consultation and produces an impact assessment to determine the most cost effective requirements. There is a likelihood that the European Commission's methodology will demonstrate that the

approach adopted in the UK will at least equal and probably exceed the cost-optimal level. It is therefore unlikely that the energy performance requirements will need to be changed. However, this cannot be confirmed until the methodology has been developed by the Commission. Similarly, the impact of ensuring that the energy performance of buildings is at least equal to cost optimal levels cannot be quantified until it has been developed. However, the cost, if any, will be quantified in a future impact assessment

21. Although initially there is no requirement to take further action beyond that of reporting the results, after 30 June 2017 Article 4 paragraph 4 of the recast Directive requires Member States to set performance requirements that meet the cost-optimal levels as calculated by the Commission's methodology.

Article 6: New buildings

22. This Article provides that, before the construction of any building starts, regardless of size, the technical, economic and environmental feasibility of alternative energy systems must be considered. This analysis must be documented in a transparent manner and included in any application for planning permission or when demonstrating compliance with the Building Regulations.

23. The feasibility analysis can be automated by modifying the existing software used to calculate the building's energy performance. One-off Government costs for further software development are estimated to be about £1.0m based on the development costs of the software to date.

Article 7: Existing buildings

24. This Article requires that the energy performance of all buildings is upgraded when there is major renovation. In EPBD1, there was a threshold of 1,000m^2 below which there were no requirements. In EPBD2 this threshold is removed. A major renovation is defined in Article 2 paragraph 6 in relation to either cost or the proportion of building envelope affected (see paragraph 16 above). The requirements can be set either for the renovated building as a whole or for the renovated systems or components.

25. Currently, Regulations 4(2) and 4A, with Part L of the Building Regulations for England and Wales, Section 6 of the Building Regulations in Scotland and Part F of the building regulations in Northern Ireland impose requirements on renovated thermal elements, systems or components regardless of the cost or scale of their renovation. The proposed threshold removal in EPBD2, linked to the definition of 'major renovation', is expected to have limited effect, as the vast majority of renovations are believed to be covered by the requirements under Regulations 4(2), 4A and 17D with Part L (see ADL1B and ADL2B), Section 6 for Scotland (see domestic and nondomestic technical handbooks) and Part F for NI (see TBF1 and TBF2). Nevertheless, it may be necessary to explicitly include energy performance requirements for major renovations as defined in EPBD2 in future revisions of building regulations to demonstrate that the requirements of EPBD2 have been transposed. As the current requirements are believed to go beyond that required under EPBD2, no additional impact is predicted from the implementation of this Article in EPBD2.

Article 8: Technical building systems

26. This is a new Article and requires minimum standards to be set for technical building systems whether installed new, as replacement or retrofit.

27. Part L of the Building Regulations for England and Wales and the Sustainable Buildings Act and Part F of the building regulations in Northern Ireland already meet these requirements by requiring minimum compliance standards for fixed building services components and systems. The definition of technical building systems in Article 2 is wider than the definition of fixed building services in the UK Regulations and it could include some elements that are currently not covered. In the Building Regulations for UK the electricity for pumps and fans is included whereas electricity for lifts, escalators and office equipment is excluded. As discussed in paragraph 12 above the definition itself is not clear as it refers to electricity production rather than consumption. If the definition were to be changed to include all electricity consumption in a building then there would be an impact in that additional energy performance requirements would need to be introduced and the Building Regulations revised. These energy performance requirements would be expected to involve both additional costs and benefits with the aim of achieving cost-effective energy efficiency improvements. If, however, the final definition is aligned with the current definition of fixed building services within the Building Regulations then there would be no impact.

28. Paragraph 2 requires the minimum energy performance requirements to be consistent with legislation applicable to the product(s) that compose the system. This requirement is to prevent product legislation being overridden by energy performance requirement. This requirement is not expected to have an impact.

29. Paragraph 2 also requires the minimum energy performance requirements to be based on the proper installation of the product(s) and appropriate adjustment and control of the technical building system and in particular shall ensure that a proper hydraulic balance is achieved. The Building Regulations in UK set requirements for ‘providing and commissioning fixed building services with effective controls’ (Part L1b) and further more detailed requirements are set out in the Approved Documents and NI Technical Booklets covering the provision of controls and commissioning (which includes hydraulic balancing) and the associated compliance guide documents. This requirement is therefore not expected to have an impact.

30. Paragraph 2 also requires that the appropriate size and type of the product(s) have been used for the installation having regard to the intended use of the technical building system. This is an aspect that is not directly covered by the Building Regulations. The requirement to achieve the target carbon dioxide emissions rating will encourage the selection of equipment that is of the appropriate size and type. The non-domestic compliance guide supporting the building regulations allows credits for confirmation that oversizing has been avoided. It would be good practice for designers to make such selections both with respect to minimising initial costs and future energy costs. If this requirement was introduced a significant impact is unlikely and any impact would in any case lead to lower costs.

Article 9: Low and zero carbon and primary energy buildings

31. This is a new Article. Paragraph 1 requires Member States to draw up national plans for low and zero carbon buildings, and to set targets for both new and refurbished buildings and separate targets for buildings occupied by public authorities for 2020. Paragraph 2 requires Member States to include in the national plan the definition

of buildings with low or zero carbon and primary energy and intermediate targets for 2015.

32. Paragraph 3 requires Member States to report the national plan to the Commission by 30June 2011 and report on progress every 3 years thereafter.

33. Paragraph 4 states that the Commission will establish common principles for defining low and zero carbon and primary energy buildings. This could have a significant impact depending on the definition that is decided upon. Government consulted in December 2008 on a definition of low and zero carbon for dwellings and non dwellings. Responses to that consultation are currently being considered with a view to issuing a policy statement on the definition of low and zero carbon homes this year. There will be further consultation on a definition of low and zero carbon non dwellings in due course. It will be necessary to ensure that the approach adopted in the UK reflects the definition of zero carbon decided on by the Commission.

34. The UK is moving towards a requirement that all new buildings should be zero carbon. In England and Wales by 2016 it is the Government's intention that all new homes will have to be zero carbon and a similar proposal applies to new non domestic buildings by 2019. In Scotland there are similar ambitions but no firm commitments. The impact of the Commission defining what is meant by low and zero carbon could have an impact on the England and Wales' proposals for all new buildings to be zero carbon. However, this cannot be quantified until more information is available on the Commission's proposed definition. The UK does not currently set targets in respect of existing buildings that have been refurbished or for buildings occupied by public authorities. Therefore, the impact of this cannot be quantified until more information is available on the definition of low and zero carbon that will be adopted by the Commission. There will also be some costs for research to determine the appropriate targets.

35. Paragraph 5 states that the Commission shall publish a report on the progress of Member States in meeting their targets to increase the number of low and zero carbon buildings and may propose further measures to increase the number of such buildings. These measures may have an impact on the UK but this cannot be quantified without more detail of what these measures might contain.

36. If these proposals are taken forward, the costs will be quantified in a future impact assessment.

Article 10: Energy performance certificates

37. Paragraph 1 of Article 10 requires Member States to establish a system of certification of the energy performance of buildings. This simply restates the current requirements and will not have any impact.

38. Paragraph 2 requires that the recommendations report forms an integral part of the energy performance certificate rather than requiring that the EPC is accompanied by the recommendations report as at present. The impact of this change would be limited to energy performance certificates which are displayed in large public sector buildings. It would mean that in addition to displaying an EPC, the recommendations would also have to be displayed. The impact would therefore be negligible. Paragraph 2 also specifies that the recommendations report must cover measures that could be carried out in connection with a major renovation of the building envelope or technical building systems and measures for individual parts of a

building independent of a major renovation. At present, the requirement is limited to producing a recommendations report that proposes cost effective measures to make the building more energy efficient. The impact of this requirement will be that recommendations will be more precise and detailed in the future. The software that automatically generates recommendations will also need to be updated and this is likely to result in additional training costs for assessors

39. Paragraph 3 requires that the recommendations set out in the report shall be technically feasible and provide transparent information as to their cost-effectiveness. The impact of this measure would be that recommendations will be more bespoke for a specific building and the consumer will have greater clarity on the cost effectiveness of the recommendations. This, in turn, may result in a higher take – up of the recommendations than at present. The software that produces the recommendations report would need to be enhanced to take account of these additional requirements. The cost of upgrading the software is estimated at a one-off cost of £1.5m based on the costs of software development to date. There would also be additional one-off training costs for energy assessors to learn the additional components of the software and additional understanding of the technologies. The amount of training required is likely to be fairly limited and costs are expected to be relatively low. At this stage, it is not possible to quantify the actual cost but this will be done as part of a later impact assessment.

40. Paragraph 4 requires the EPC to provide sources where the owner or tenant can receive more detailed energy efficiency information and on the steps needed to implement the recommendations. The impact of this would be to make it easier for the building occupier to access further information on the recommendations and may increase take-up. Some minor changes to the software would also be required.

41. Paragraph 5 allows certification of apartments in blocks to be based on the certification of the whole building where it has a common heating system or on a representative apartment. This is unchanged from EPBD1. Paragraph 6 extends this concept to certification for single family houses which may be based on a representative building of similar design and size if this can be guaranteed by the expert issuing the EPC. The impact of this would be to reduce the cost of producing EPCs for single family houses.

Article 11: Issuing of energy performance certificates

42. Paragraph 1 requires EPCs to be issued for buildings or parts thereof which are constructed, sold or rented out. This requirement is unchanged from EPBD1.

43. Paragraph 1 also requires a DEC to be issued for buildings where a total useful floor area over 250m^2 is occupied by a public authority. At present, this requirement only applies to buildings occupied by a public authority with a total useful floor area over 1,000m²:

44. The widening of the scope will lead to additional costs as more, smaller buildings are caught by the requirement. If the recommendations on ways of improving the energy efficiency of those buildings are taken up, this would result in reduced carbon emissions and lower energy costs. An initial analysis has been undertaken to ascertain the impact of this policy. For buildings of floor area less than 1,000m^2 it is assumed that collecting energy data, producing and lodging the DEC would take one day with a further day required in the first year and then after seven years a further day to produce an updated advisory report with site specific recommendations. Daily

rates used were £325/day for the production of the DEC and £400/day for the site specific measures[1]. The additional energy and carbon reduction resulting from the DEC and advisory report was estimated at 5 per cent in the RIA[2] and this level of reduction has been assumed for the purposes of this impact assessment. There is a need for new research to establish whether this level of reduction is a reasonable assumption. The number of buildings that would be affected increases from 42,000 to 64,000, mainly in the education, local Government and health sectors[3]. The energy used in these numerous small buildings is estimated at 1.4 per cent of the total energy used in the public sector. The present value (PV) of the cost for the period 2011 to 2022 is estimated at £96.5m or £8m per year and the PV of the energy saving benefit is estimated at £12.7m. The net cost as a PV is therefore £83.8m or an average annual cost of £7m per year. The CO_2 savings are estimated at 12,400 tonnes p.a. The likely split between savings in electricity and fossil fuel is not known so a 50/50 split has been assumed. The savings in fossil fuel are valued at the shadow price of carbon (£27.6/tonne of CO_2 in 2010) and the savings in electricity are valued at a European Union Energy Trading Scheme assumed price (£17.2/tonne of CO_2 in 2010) in accordance with the IAG guidance[4]. This creates an additional PV benefit of £3.5m. Benefits from improved air quality and a reduction in renewable energy capacity have not been included.

45. Paragraph 2 requires that on construction, the EPC is to be handed to the owner by the independent expert or by the vendor. In England, Wales and Northern Ireland, the current arrangement is that the person responsible for carrying out the works that will supply the EPC to the purchaser. In Scotland, the responsibility for the provision of an EPC lies with the building owner. The impact of this paragraph would be negligible.

46. Paragraph 3 requires that the energy performance indicator is stated in all advertisements for sale and that the energy performance certificate is shown to the prospective buyer. The EPC shall be handed over by the vendor to the buyer at the conclusion of the sales contract at the latest. Paragraph 4 makes similar provision for properties offered for rent. The only change from the current position is the requirement to provide an indicator of a property's energy efficiency in advertisements. The vendor or landlord will already have commissioned an EPC which contains details of the indicator of a property's energy efficiency. The impact of this requirement would, therefore, be minimal in cost terms but will serve to enhance compliance.

Article 12: Display of the energy performance certificates

47. Paragraph 1 requires that a DEC is displayed in buildings with a useful floor area over 250m^2 and occupied by a public authority displayed in a prominent place clearly visible to the public. This is already a requirement for buildings over 1,000m² occupied by public authorities. The cost of doing so would be negligible but the wider impact would be to help raise public awareness of the importance of improving the energy efficiency of buildings.

48. Paragraph 2 requires that an EPC is displayed in buildings with a useful floor area over 250m² occupied by private sector organisations and which are frequently visited

[1] Based on actual costs of a DEC produced in 08/09

[2] Regulatory Impact Assessment, EPBD, Articles 7-10, March 2007

[3] Based on an analysis of the non domestic building stock held by the Building Research Establishment. These figures may be an underestimate and will be reviewed.

[4] *Evaluation and Appraisal of Greenhouse Gas Emissions Policies*, Interdepartmental Analysts Group, Defra, 3 October 2008

by the public where one has been previously issued on the construction, sale or rent of the building. The cost of displaying a certificate if it exists would be negligible. The wider impact of this requirement may be to encourage greater take-up of the energy improvement recommendations but it is not possible to quantify what this would mean in terms of reduced carbon emissions and lower energy costs as that would depend on decisions taken by individual building occupiers on whether or not to take up any of the recommendations.

Article 13: Inspection of heating systems

49. Article 13 requires Member States to either establish a regular inspection of heating systems with boilers above a certain size or to ensure the provision of advice to users on the replacement or modifications to the heating system and on alternative solutions to assess the efficiency and appropriate size of the boiler. This is similar to current requirements under EPBD1. Under the current system, Member States that opt to provide advice rather than establish regular inspections, as the UK has done, must ensure that the impact of providing advice is broadly similar to having inspections. Under the recast, Member States must now ensure that the provision of advice is similar, i.e. the reference to “broadly” has been removed. The Article also extends the inspection regime to cover heating systems not just boilers and to systems over 20kW. At present, the requirements apply only to systems larger than 100kW.

50. The impact of these revised requirements will be minimal as the advice programmes are not limited to boiler size and will be largely unchanged. The costs to demonstrate equivalence of the advice route compared to inspection may increase as a result of EPBD2 but it has not been possible to quantify this cost without further detail from the Commission as to the level of research that might be appropriate. However, the cost, if any, will be quantified in a future impact assessment.

Article 14: Inspection of air-conditioning systems

51. There is a requirement at paragraph 1 to carry out regular inspections of air-conditioning systems with an effective rated output of more than 12kW. This is already a requirement under the current Directive. The scope of this paragraph has not been widened, therefore, this paragraph does not have any additional impact.

52. Paragraph 2 provides that Member States may specify different frequencies of inspections depending on the type and effective rated output of the air-conditioning system and taking account of the costs of inspections and the energy cost savings that may result. As this paragraph does not specify how frequent the inspections should be, it does not have any impact.

Article 15: Reports on the inspection of heating and air-conditioning systems

53. This Article specifies the information that is to be included in inspection reports for air-conditioning systems and for heating systems where relevant. The UK has chosen an advisory system for the improvement of the energy efficiency of heating systems rather than an inspection regime, therefore only the provisions of this Article as they relate to air-conditioning systems are relevant to the UK.

54. The current scope for an inspection and report is contained in SI2007/901 paragraph 22(2) and in NI SR2008 no. 170 paragraphs 15 and 16. This requirement has been compared with the text of Article 15 and the following changes would be needed to comply:

55. Paragraph 2a.) Previously only the efficiency of the system was needed. Now the energy performance must be compared to the best available system on the market and also compared to *"a system of similar type for which all relevant components achieve the level of energy performance required by the applicable legislation."*

56. Paragraph 2b.) Clearly defined energy costs and benefits must now be included whereas previously this was not specified.

57. The above changes would increase the costs of the inspection however it has not been possible to determine by how much the costs might increase as a result. The RIA for EPBD1 estimated a cost for inspections of approximately £15m p.a. and it could be expected that this cost would increase by around 30 per cent, i.e. a £5m increase. However, it is also possible that the additional information provided would lead to energy savings. These costs will be looked at again in a future impact assessment.

Article 16: Independent experts

58. The Article stipulates that energy performance certification and inspections to be carried out in an independent manner by qualified and accredited experts. In EPBD1, there was a requirement that the production of energy performance certificates, inspection of heating and air-conditioning systems should be carried out by qualified and/or accredited experts. This requirement has been strengthened under the recast and experts must now be both qualified and accredited. There was also a requirement under EPBD1 that the drafting of accompanying recommendations should be carried out by qualified and/or accredited experts. This requirement has now been removed.

59. These changes do not have an impact as experts in the UK must already be both accredited and qualified. The same experts will remain responsible for the drafting of any recommendations.

Article 17 and Annex 2: Independent control

60. Paragraph 1 of this Article requires that an independent control system for EPCs and air-conditioning inspection reports is established and operated by a competent authority or body. The competent authority will be required to randomly select at least 0.5 per cent of all EPCs issued annually and subject them to verification. The competent authority will also be required to randomly select at least 0.1% of all air-conditioning reports produced annually and subject them to verification.

61. Paragraph 2 provides that the responsibility for implementing the independent control systems may be delegated.

62. Paragraph 3 provides that where Member States delegate responsibility for implementing the independent control system, they shall ensure that EPCs and inspection reports are registered or made available on request to those responsible for implementing the independent control systems.

63. The UK has already implemented stringent requirements for quality control A minimum of 2 per cent of all EPCs and inspection reports must be checked and verified for accuracy by the accreditation bodies. Where an EPC or report is found to be inaccurate, it must be replaced at no cost to the consumer. Where, as part of this quality control system, individual energy assessors are found to be consistently producing inaccurate reports or certificates, they are subject to a range of sanctions

which includes removal of their accreditation. In addition, a system of independent audits of the accreditation schemes has been set up to confirm that these requirements are being met.

64. All EPCs must be lodged on a central register where this exists (currently no such register exists in Scotland for existing non-dwellings). One of the purposes of the register is to assist in monitoring the quality of the certificates. This requirement will shortly be extended to the voluntary lodgement of air conditioning inspection reports.

65. The UK's approach is more stringent and wide-ranging than the one proposed in the recast. This Article does not, therefore, have any impact.

Article 18: Review

66. This Article provides for the Commission and the Committee established by Article 21 (Article 20 in draft text but this is an error) to evaluate the recast of the Directive and make proposals with respect to, inter alia, methodologies to rate the energy performance of buildings and general incentives for further energy efficiency measures.

67. If further changes are made to the rating methodology then this could have a cost impact with the need to change software. However, it is not possible to quantify these costs as the extent and nature of the changes that may be made are unknown. However, the cost, if any, will be quantified in a future impact assessment.

Article 19: Information

68. This Article requires Member States to provide general information to the owners or tenants of buildings on cost-effective ways to improve the energy performance of their building. In addition, information is to be provided on the mid- and long-term financial consequences of not taking action. The Article also provides that on the request of a Member States, the Commission shall assist that Member State to stage an information campaign.

69. In the UK, there is extensive ongoing publicity about the importance of improving the energy efficiency of buildings. These are run through organisations such as the Energy Savings Trust and Carbon Trust. In addition, the six major energy suppliers and Northern Ireland Electricity are required to undertake information campaigns regularly. It is considered, therefore, that this Article does not have any impact.

Article 20: Adaptation of Annex 1 to technical progress

70. This Article allows the Commission to vary the factors that must be taken into account in the methodology which is used to calculate the energy efficiency of buildings. These changes could have an impact as the methodology may need to be amended. However, it is not possible to quantify the impact without knowing what factors may be varied. However, the cost, if any, will be quantified in a future impact assessment.

Article 21: Committee procedure

71. This Article provides for a Committee to assist the Commission.

Article 22: Penalties

72. This Article requires Member States to lay down rules on the penalties to be imposed in the event of non-compliance with the provisions of the Directive. The penalties provided for must be effective, proportionate and dissuasive. Member States are also required to communicate details of those penalties to the Commission by 31 December 2010 at the latest.

73. In England, Wales and Northern Ireland if the relevant person fails to obtain an EPC or commission an air-conditioning inspection at the appropriate time, they are liable to a penalty charge. This charge ranges from £200 for dwellings to a maximum of £5,000 for non-dwellings. In Scotland, responsibility lies with the building owner and penalties range from £500 to £5,000. It is considered that this Article does not introduce new requirements and it does not, therefore, have any impact.

Article 23: Transposition

74. This Article requires Member States to adopt and publish by 31 December 2010 at the latest the laws regulations and administrative procedures necessary to comply with Article 2 to 17, 19 and 22 and Annexes 1 and 2 of this Directive. Provisions in Articles: 2, 3, 9, 10, 11, 12, 16, 17, 19 and 22 shall apply from 31 December 2010 at the latest. Provisions in Articles 4 to 8, 13 to 15 and 17 shall apply to buildings occupied by public authorities from 31 December 2010 at the latest and to other buildings from 31 January 2012 at the latest.

75. The transposition process will have an impact as there will be a need to conduct a public consultation exercise and lay new Regulations. The cost of transposition may be higher than usual because of the very tight timetable. These costs, including software development costs, are estimated to range from £100,000 – £500,000. We will review these estimated costs as part of a future impact assessment to ensure that our estimates remain accurate.

Article 24: Repeal

76. This Article states that 2002/91/EC (EPBD1) will be repealed with effect from 1 February 2012.

Article 25: Entry into force

77. This Article states that the Directive shall come into force on the twentieth day following publication in the Official Journal of the European Union.

Article 26

78. This Article contains the date and signatures for the Directive when agreed.

Specific impact tests

Sustainable development and carbon assessment

79. The impact of the recast EPBD on sustainable development is likely to be positive in that it is expected to result in additional energy savings that otherwise would not be have been realised as a result of the extension of the display requirements to cover a larger number of buildings. This will lead to a lower risk of climate change, lower environmental emissions. However the additional cost is relatively high compared to other energy saving policies and renewable energy policies and so if these other programmes were impacted negatively there may not be a net gain in positive impact. In particular if public sector budgets are constrained and money that could be spent on improving buildings is diverted to producing DECs for smaller buildings then there could be a negative impact. We will review these costs again, and seek to quantify them in a future impact assessment.

80. Note:

- A competition assessment has not been completed because the proposals would affect all sectors equally. Therefore, there will not be any effect on competition.
- With regard to small firms, the proposals will have a positive impact as the majority of companies that provide energy efficiency services are generally small companies. In addition there is a potential for small businesses to reduce costs through improvements to the energy efficiency of the premises they occupy.
- Legal aid: N/A.
- Sustainable development, carbon assessment and other environment tests: The Directive is designed to reduce carbon emissions and thereby promote sustainable improvement.
- Race equality, disability equality, gender equality and human rights: The proposal is concerned with buildings, not people. The proposals would affect all occupiers equally.
- Rural proofing: The proposals do not relate to specific geographical areas. However, the Directive does some exemptions for agricultural buildings that use small amounts of energy.

Specific Impact Tests: Checklist

Type of testing undertaken	***Results in Evidence Base?***	***Results annexed?***
Competition Assessment	No	No
Small Firms Impact Test	Yes	No
Legal Aid	No	No
Sustainable Development	Yes	No
Carbon Assessment	Yes	No
Other Environment	Yes	No
Health Impact Assessment	No	No
Race Equality	Yes	No
Disability Equality	Yes	No
Gender Equality	Yes	No
Human Rights	Yes	No
Rural Proofing	Yes	No

Annexes

Annex A

Definitions in Article 2

81. **Paragraph 1.** The definition of a building has been changed. The passage *"a building may refer to the building as a whole or parts thereof that have been designed or altered to be used separately"* has been deleted. In the other Articles, including Articles 1, 10 and 11, the term 'buildings or parts thereof' is used in place of 'buildings'. In Article 4 the term 'buildings' is used but it is recognised that energy performance requirements can be set for different categories of buildings. In the UK, different types of energy performance certificates (EPCs) may be produced for parts of a building depending on the building category i.e. dwellings or non-dwellings. These EPCs are produced using different software and accredited assessors. Many buildings are mixed use and thus more than one EPC will need to be produced for the different parts of the same building. If only part of a building is to be sold or rented out then an EPC can be produced only for that part. Where public authorities may only occupy a part of the building a display energy certificate (DECs) or EPCs (Scotland) is only required for the part of the building that is occupied. The incentive for taking action following the production of a DEC is lessened if this has to be produced for the whole building as the public authority will have more limited scope for control or influence in this situation.

    It is, therefore, important that the opportunity to define a building as also including a part of a building is retained in EPBD2. The definition of a part of a building as one that has been designed to be used separately has been transposed into the regulations that implemented EPBD1 but in EPBD2 there is now no definition of 'parts thereof'. It is likely that the apparent change in Article 2 paragraph 1 is a drafting error which will be rectified in due course and that parts of buildings can continue to be treated differently for the purposes of setting energy performance requirements, and producing an EPC or DEC as appropriate. No impact is therefore predicted.

82. **Paragraph 2.** This introduces a new definition for 'technical building system'. This is defined as *"technical equipment for heating, cooling, ventilation, hot water, lighting and electricity production or for a combination of those."* The equivalent term in the Building Regulations is 'fixed building services'. The term 'electricity production' is used which may be a drafting error as normally electricity is consumed rather than produced in buildings. The definition raises a number of other issues discussed under Article 8 below.

83. **Paragraph 3.** This defines the 'energy performance of a building'. Although the text has been amended for clarification there is no significant change from EPBD1. Importantly it still allows either a calculated or measured approach to be used.

84. **Paragraph 4.** The definition of ‘primary energy’ adopted reflects the widely understood and accepted meaning of the term and is therefore uncontroversial. However, the use of primary energy as an energy performance indicator is a new requirement. Previously the Directive permitted either primary energy or CO_2 emissions to be used to define energy performance but now Annex 1 requires both of these parameters to be used. The implications of this change are discussed under Article 3.

85. **Paragraph 5.** This is a new definition for ‘building envelope’ which is stated as *“elements of a building which separate its interior from the outdoor environment, including the windows, walls, foundation, basement slab, ceiling, roof and insulation.”* The inclusion of ceiling as well as roof is unnecessary and potentially incorrect if the area of the ceiling is included when calculating the percentage of the envelope that is being renovated. The definition does not recognise that some building envelopes may form boundaries to unheated spaces within the building not just to the outdoor environment. The term building envelope is only used in the definition of ‘major renovation’ and in Article 10 which refers to ‘major renovation of the building envelope’. It should be noted that this definition is not the same as that of ‘thermal element’ used in the Building Regulations. The ‘thermal element’ definition excludes windows, doors, roof windows and roof lights but also includes floors and walls which separate the conditioned space from an unconditioned part of the building. Windows, doors, roof windows and roof lights are defined as controlled fittings. Energy performance requirements are provided in ADL1B and ADL2B and in NI TBF1 and TBF2, for replacement and renovations of both thermal elements and controlled fittings.

86. **Paragraph 6.** This definition of ‘major renovation’ was previously in Recital 13 of EPBD1. A major renovation is defined as either where the total cost of renovation is higher than 25 per cent of the value of the building, excluding the value of the land upon which the building is situated, or where more than 25 per cent of the surface of the building envelope undergoes renovation. The definition of ‘major renovation’ is clear but the implications of this definition are discussed under Article 7.

87. **Paragraph 7.** This paragraph defines ‘European Standard’. The definition appears to be satisfactory. The requirement to take account of European standards is discussed under Article 3.

88. **Paragraph 8.** This defines the ‘energy performance certificate’. Although the text has been amended for clarification there is no significant change from EPBD1. It refers forward to the calculation methodology of Article 3 which is discussed further in the section dealing with that Article.

89. **Paragraph 9.** This paragraph defines ‘cogeneration’, (referred to as CHP in EPBD1). The definition adopted reflects the widely understood and accepted meaning of the term and is therefore uncontroversial

90. **Paragraph 10.** This paragraph defines ‘cost-optimal level’. We will seek further clarification from the European Commission on the definition as it is unclear. In addition, a number of other issues arise and these are discussed under Article 5. It is not possible at this stage, because of the need for further clarification, to quantify the impact of adopting a cost optimal approach.

91. **Paragraph 11.** This defines ‘air-conditioning system’ and has been changed from EPBD1 to refer only to a system which provides ‘indoor air treatment including ventilation’. The previous definition, which was copied into the implementing Regulations included the term ‘in which the temperature is controlled or can be lowered’. This new definition widens the scope significantly to include simple ventilation systems without temperature control. However, Article 14, which defines the inspection requirements for air-conditioning, also limits the scope by only requiring inspections for systems with an effective rated output over 12kW, and makes reference to the ‘cooling requirements of the building’. Hence, although the definition of air-conditioning systems has been widened, Article 14 restricts the scope to cooling systems with an output over 12kW. This scope is unchanged from the current implementing Regulations and so no impact is anticipated.

92. **Paragraph 12.** The definition of a boiler has been changed to a unit that is designed to transmit heat to a ‘fluid’ rather than to ‘water’. A fluid is defined as either liquid or gas. This change to the definition will capture steam boilers but also fuel-fired air heaters. The latter would not normally be considered as ‘boilers’ It is not clear whether this is an intentional change of scope or a drafting matter. This issue is discussed further under Article 13.

93. **Paragraph 13.** The definition of effective rated output remains unchanged. It reflects the widely understood and accepted meaning of the term and is therefore uncontroversial.

94. **Paragraph 14.** The definition of a heat pump remains unchanged. It reflects the widely understood and accepted meaning of the term and is therefore uncontroversial.

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