

National plan for increasing the number of nearly zero- energy buildings in Ireland



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1 Starting point

Please give a short overview of your national building stock. Describe the most important characteristics and emerging needs. Additionally, illustrate the chronological development of national requirements on the energy performance of buildings (for an example, see guidance document)

Dwellings:

The residential sector currently accounts for 27.1% of Ireland's overall energy use. There was an estimated 2,012,000 million dwellings in Ireland as at end 2010 of which some 52% were built before the Building Regulations 1991 first came into operation on 1st June 1992. Within the overall figure, a total of 128,144 dwellings as at end 2010 were let by local authorities for the purposes of social housing provision.

Part L (Conservation of Fuel and Energy) of the Building Regulations sets out the statutory minimum energy performance standards for new dwellings. In 2005, the regulations were amended in 2005 to provide for the introduction of the Dwelling Energy Assessment Procedure (DEAP) calculation methodology and software to demonstrate compliance with Part L requirements. The energy use addressed by Part L 2005 permitted an energy load of 150 kWh/m²/annum for a typical dwelling. Benchmarking against the 2005 standard, the Part L requirements have been upgraded significantly in 2007 and 2011 to yield a combined improvement of 60% in energy efficiency requirements. U-values for key fabric elements in particular are now set at levels which compare favourably with those of the best performing Member States. A typical performance level under Part L of the Building Regulations 2011 is 59 kWh/m²/yr. Ireland has also made mandatory provision for a reasonable proportion of the remaining energy load to derive from renewable energy sources.

Part L (Conservation of Fuel and Energy) of the Building Regulations also sets out the statutory minimum energy performance standards for existing dwellings undergoing extension, material alteration or which are undergoing conversion from a building previously used for non-residential purposes. U-values for key fabric elements in respect of new dwellings also apply to existing dwellings insofar as they are reasonably practicable where the works related to an extension, material alteration or a material change of use. In addition, where external doors, windows or rooflights are being replaced, the replacement products must meet the minimum energy performance standards required for new dwellings. Similarly, all oil and gas fired boilers installed as replacements in existing dwellings are required to meet a minimum seasonal efficiency of 90% where practicable.

Non-residential:

Part L (Conservation of Fuel and Energy) of the Building Regulations sets out the statutory minimum energy performance standards for new buildings other than dwellings. The regulations were upgraded in 2008 to provide for the introduction of the Non-Domestic Energy Assessment Procedure (NEAP) calculation methodology and software to demonstrate compliance with Part L requirements.

Part L (Conservation of Fuel and Energy) of the Building Regulations also sets out the statutory minimum energy performance standards for existing buildings undergoing extension, material alteration or conversion from a building previously used for different purposes.

A review of Part L (Conservation of Fuel and Energy) of the Building Regulations commenced in the latter half of 2013 in respect of buildings other than dwellings. It is envisaged that the review will be complete by end 2014 and will establish new improved energy performance standards in respect of buildings other than dwellings.

Since 9 January 2013, under the European Union (Energy Performance of Buildings) Regulations 2012, all new buildings other than dwellings commissioned are required by law to undertake a feasibility study to examine the potential for availing of high efficiency alternative energy sources.

2 Application of the definition of nearly zero-energy buildings

Please indicate how a nearly zero-energy building is defined within national context and explain underlying assumptions and factors that provide the rationale for the chosen definition.

For reporting the detailed application in practice of the definition of nearly zero-energy buildings, the table presented in the Annex is to be used.

If a national definition of nearly zero-energy buildings does not exist yet in your country, please indicate here whether precise plans are already under development and if so, please describe these plans. Please also describe if any currently used non-governmental definitions will be considered in these plans and/or a future directive.

Dwellings:

By 2020 all new dwellings in Ireland will have an Energy Performance Coefficient (EPC) and Carbon Performance Coefficient (CPC) of 0.302 and 0.305 in accordance with the common general framework set out in Annex I of Directive 2010/31/EU on the energy performance of buildings (recast). This takes account of the energy load for space heating, water heating, fixed lighting and ventilation. For a typical dwelling this will equate to 45 kWh/m²/annum with a very significant proportion of which will be covered from renewable energy sources produced on-site or nearby. In terms of energy performance certification, this will have the effect that all new dwellings should be rated as A3 or better.

By 2020 the target energy load for space heating, water heating, fixed lighting and ventilation in existing dwellings will be in the order of 125 to 150 kWh/m²/annum with a reasonable proportion of the remaining energy use of the dwelling coming from renewable energy sources produced onsite or nearby. In terms of energy performance certification this nearly zero energy target for existing dwellings equates to a rating of C1 or higher.

Non-residential:

By 2020, subject to cost-optimal calculations, it is proposed that all new buildings other than dwellings in Ireland will achieve a 50% to 60% aggregate improvement in terms of energy efficiency and reduction in CO₂ emissions. The energy metrics to be considered will be as described in Annex I of Directive 2010/31/EU on the energy performance of buildings (recast) which includes the energy load for space heating, water heating, cooling, fixed lighting and ventilation.

By 2020 the target energy load for space heating, water heating, cooling, fixed lighting and ventilation in existing buildings other than dwellings will be reduced further with a reasonable proportion of the remaining energy use of the building other than a dwelling coming from renewable energy sources produced onsite or nearby.

3 Intermediate targets for improving the energy performance of new buildings in order to ensure that by 31 December 2020 all new buildings are nearly zero-energy buildings

Please report the 2015 targets ensuring that by 31 December 2020 all new buildings are nearly zero-energy buildings. Also explain how they relate to and help to ensure that all new buildings are nearly zero-energy buildings by 31 December 2020.

What are the qualitative and quantitative 2015 targets for all new buildings?

3.1.1 Qualitative 2015 targets: Interim energy related requirements for new residential and non-residential buildings

Dwellings:

Requirements on fraction of renewable energies:

Section 1.2 of Technical Guidance document L – Conservation of Fuel and Energy – Dwellings (2011), which sets out how the statutory requirements in the Building Regulations (Part L Amendment) Regulations 2011 (S.I. No. 259 of 2011) can be met in practice, provides for

- 10 kWh/m²/annum contributing to energy use for domestic hot water heating, space heating or cooling; or
- 4 kWh/m²/annum of electrical energy; or
- a combination of these which would have equivalent effect.

Requirements on useful energy demand: N/A

Requirements on primary energy demand:

Under the Building Regulations (Part L Amendment) Regulations 2011, to demonstrate that an acceptable primary energy consumption rate has been achieved, the calculated Energy Performance Coefficient (EPC) of the dwelling being assessed should be no greater than the Maximum Permitted Energy Performance Coefficient (MPEPC) of 0.4 (relative to the 2005 standard). This equates to a primary energy demand of circa 59 kWh/m²/annum.

Non-residential:

Requirements on fraction of renewable energies:

There are no requirements under the Building Regulations (Part L Amendment) Regulations 2008 (S.I. No. 259 of 2008) in respect of the use of renewables in non-residential buildings. A review of Part L of the Building Regulations 1997 in respect of buildings other than dwellings commenced in the latter half of 2013. The current review will examine, inter alia, the potential for the inclusion of renewables in new non-residential buildings going forward. It is envisaged that new regulations / technical guidance will be finalised by end 2014.

Requirements on useful energy demand: N/A

Requirements on primary energy demand:

Under the current review to Part L of the Building Regulations 1997 in respect of buildings other than dwellings, an improvement of at least 40% is being proposed over the existing 2008 standard. In this context, to demonstrate that an acceptable primary energy consumption rate has been achieved, the calculated Energy Performance Coefficient (EPC) of the non-residential building being assessed should be no greater than the Maximum Permitted Energy Performance Coefficient (MPEPC) of 0.6 (relative to the 2008 standard). This will equate to a range of primary energy demands of circa 67 kWh/m²/annum for a naturally ventilated primary school rising to circa 436 kWh/m²/annum for an air-conditioned retail outlet.

3.1.2 Quantitative 2015 targets: Share of nZEB according to official nZEB definition on all newly constructed buildings (define reference parameter e.g. number of buildings, floor area, volume etc.):

No quantitative targets have been set for dwellings or for non-residential buildings to achieve nearly zero energy prior to 31 December 2020. All new dwellings must comply with the Building Regulations (Part L Amendment) Regulations 2011, on and from 1 December 2011 (subject to prescribed transitional arrangements), which sets out the interim target for the achievement of nearly zero energy dwellings while the current review to Part L of the Building Regulations 1997 in respect of buildings other than dwellings will establish the interim target for the achievement of nearly zero energy non domestic buildings in early 2015.

Miscellaneous:

From your point of view, how close is your country at the moment in achieving this target? In case there is no target defined yet, please indicate when it is expected to have such a target.

Dwellings:

The Building Regulations (Part L Amendment) Regulations 2011 already marks an important step on the road to nearly zero energy dwellings and brings Ireland to an advanced level of energy performance. The 2011 step change (at 60 kWh/m²/annum) is regarded as the intermediate step necessary for Ireland to advance towards the proposed 2020 performance levels of 45 kWh/m²/annum. A draft standard will be produced in 2015, which will represent Ireland's nearly zero energy standard for dwellings; this standard will be passed into legislation in the timeframe between 2015 and 2020 but may be applied on a voluntary basis once published.

Non-residential:

The current review to Part L of the Building Regulations in respect of buildings other than dwellings will require a significant step forward in order to lay the groundwork for nearly zero energy non-residential buildings by 31 December 2020. An improvement of between 40% - 50% over the current 2008 standard is proposed as an interim measure to be introduced in early 2015 with a further review to achieve an aggregate improvement of between 50% - 60% over the 2008 standard to be completed by 2018 (to facilitate the public sector in meeting the advanced deadline for nearly zero energy buildings); the latter review will take effect on 31 December 2020.

4 Intermediate targets for improving the energy performance of new buildings in order to ensure that by 31 December 2018, new buildings occupied and owned by public authorities are nearly zero-energy buildings

Please report here the 2015 targets ensuring that by 31 December 2018 all new public buildings are nearly zero-energy buildings. Also explain how they relate to and help to achieve that by 31 December 2018, all new public buildings are nearly zero-energy buildings

What are the qualitative and quantitative 2015 targets for all new buildings occupied and owned by public authorities?

4.1.1 Qualitative 2015 targets: Interim energy related requirements for new public buildings

Requirements on fraction of renewable energies:

The approach for buildings in the public sector will be largely similar to that for non-residential buildings although public sector buildings will lead by example by achieving their defined nearly zero energy standard two years in advance of the private sector. As matters stand, there are no requirements under the Building Regulations (Part L Amendment) Regulations 2008 (S.I. No. 259 of 2008) in respect of the use of renewables in non-residential buildings. However, a review of Part L of the Building Regulations 1997 in respect of buildings other than dwellings commenced in the latter half of 2013. The current review will examine, inter alia, the potential for the inclusion of renewables in new non-residential buildings going forward. It is envisaged that new regulations / technical guidance will be finalised by in early 2015. Typically when new regulations are made, it is normal practice to apply a two year transition period – public buildings will lead by adopting a one year transition period.

Requirements on useful energy demand: N/A

Requirements on primary energy demand:

Under the current review to Part L of the Building Regulations 1997 in respect of buildings other than dwellings, an improvement of at least 40% is being proposed over the existing 2008 standard. In this context, to demonstrate that an acceptable primary energy consumption rate has been achieved, the calculated Energy Performance Coefficient (EPC) of the non-residential building being assessed should be no greater than the Maximum Permitted Energy Performance Coefficient (MPEPC) of 0.6 (relative to the 2008 standard). This will equate to a range of primary energy demands of circa 67 kWh/m²/annum for a naturally ventilated primary school rising to circa 220 kWh/m²/annum for an air-conditioned office.

4.1.2 Quantitative 2015 targets: Share of public nZEB according to official nZEB definition on all newly constructed public buildings (define reference parameter e.g. number of buildings, floor area, volume etc.):

No quantitative targets have been set for newly constructed public buildings to achieve nearly zero energy prior to 31 December 2018. All new public buildings must the requirements of the existing Building Regulations (Part L Amendment) Regulations 2008 and will have to comply the newly proposed regulations when the current review to Part L of the Building Regulations 1997 in respect of buildings other than dwellings is complete, i.e. by end 2014.

Miscellaneous:

From your point of view, how close is your country at the moment in achieving this target? In case there is no target defined yet, please indicate when it is expected to have such a target.

The current review to Part L of the Building Regulations in respect of buildings other than dwellings (which includes public buildings) will require a significant step forward in order to lay the groundwork for nearly zero energy non-residential buildings by 31 December 2020. An improvement of between 40% - 50% over the current 2008 standard is proposed as an interim measure to be introduced in early 2015 with a further review to achieve an aggregate improvement of between 50% - 60% over the 2008 standard to be completed by 2018. This will facilitate the public sector in meeting the advanced deadline for nearly zero energy buildings by 31 December 2018.

The Government is already committed to energy efficiency improvements of the order of 20% by 2020, with an even more challenging target of 33% set for the public sector. In this context, a range of national guidelines are in place to assist public bodies in integrating energy efficiency into the design of projects and to align contractual arrangements with best practices in energy management, vis-à-vis, public bodies –

- procuring capital are strongly encouraged to seek advice on energy efficient design at the earliest possible stage in the project's planning,
- should incorporate the principles of Energy Efficient Design at the design stage of capital projects,
- when procuring capital works, should follow the guidance set out in the national guidelines on energy efficient procurement for capital projects, including the *Guidelines for the Appraisal and Management of Capital Expenditure Projects in the Public Sector*.

5 Policies and measures for the promotion of all new buildings being nearly zero-energy buildings after 31 December 2020

5.1 Residential buildings

5.1.1 Relevant regulations

Building Regulations (Part L Amendment) Regulations 2011:

Compliance with the existing regulations is facilitated via the dissemination of Part L compliance reports from the Sustainable Energy Authority of Ireland on Part L to local building control authorities. As part of the Building Energy Rating (BER) certification process, compliance reports are generated on Part L on the Building Regulations 1997 and have been available to local building control authorities since 1 July 2012.

Building Control (Amendment) Regulations 2014:

On 1 March 2014, the Building Control (Amendment) Regulations 2014 (S.I. No. 9 of 2014) came into effect which require the mandatory certification of compliance with all relevant parts of the Building Regulations 1997 by designers, builders and assigned certifiers.

Review to Part L of the Building Regulations:

Part L of the Building Regulations 1997 will be reviewed in respect of dwellings in 2015 in order to establish Ireland's standard for nearly zero energy dwellings. The resulting regulations will be passed into law in the timeframe between 2015 and 2020 but may be applied on a voluntary basis once published.

5.1.2 Relevant economic incentives and financing instruments

N/A

5.1.3 Energy performance certificates' use and layout in relation to nZEB standard

BER Certificates:

The Building Energy Rating (BER) certification scheme was first introduced for new dwellings in 2007. Under the scheme, the energy certification of a dwelling is mandatory whenever a dwelling is commissioned or offered for sale or rent. In terms of BER certificates, the proposed standard for nearly zero energy dwellings will ensure that all new dwellings will have an energy rating of A3 or higher.

5.1.4 Supervision (energy advice and audits)

Building Regulations (Part L Amendment) Regulations 2011:

Continued enforcement of Part L of the Building Regulations 1997 by local building control authorities will ensure that new dwellings are compliant with the minimum energy performance standards required in the regulations and accompanying technical guidance.

Building Control (Amendment) Regulations 2014:

Implementation of the new Building Control Regulations will enhance compliance with all Parts of the Building Regulations (including Part L) in respect of both dwellings and non-residential buildings over the months and years ahead.

Dwelling Energy Assessment Procedure (DEAP):

The DEAP software will continue to be reviewed every 2 years to take account of developments in relation to regulatory, technological, and primary energy matters.

5.1.5 Information (tools)

Cost Optimal Calculations:

Cost-optimal calculations and a gap analysis for dwellings were carried out in accordance with Article 5 of Directive 2010/31/EU on the energy performance of buildings (recast), Commission Delegated Regulation (EU) No 244/2012 and the associated supplementary guidelines. These calculations will be used to inform future reviews to Part L of the Building Regulations 1997.

Promotion of nearly zero energy standards on a voluntary basis:

Part L of the Building Regulations 1997 will be reviewed in respect of dwellings in 2015 in order to establish Ireland's standard for nearly zero energy dwellings. The resulting regulations will be passed into law in the timeframe between 2015 and 2020 but may be applied on a voluntary basis once published.

5.1.6 Demonstration

Social Housing:

Ireland's Department of the Environment, Community and Local Government actively promotes the incorporation of higher standards of energy efficiency in social housing. Guidance is also provided in the *Best Practice Guidelines – Quality Housing for Sustainable Communities* (2007) which focus on promoting high standards in design, construction, environmental performance and durability.

5.1.7 Education and training

Build Up Skills Initiative (BUSI):

The Build Up Skills Initiative sets out a roadmap to identify and plan a series of actions which will result in the upskilling of construction workers and crafts people in Ireland with regard to the skills needed to achieve high standards of sustainable construction with particular regard to energy efficiency.

5.2 Non-residential buildings

5.2.1 Relevant regulations

Building Regulations (Part L Amendment) Regulations 2008:

Compliance with the existing regulations is facilitated via the dissemination of Part L compliance reports from the Sustainable Energy Authority of Ireland on Part L to local building control authorities. As part of the Building Energy Rating (BER) certification process, compliance reports are generated on Part L on the Building Regulations 1997 and have been available to local building control authorities since 1 July 2012.

Building Control (Amendment) Regulations 2014:

On 1 March 2014, the Building Control (Amendment) Regulations 2014 (S.I. No. 9 of 2014) came into effect which require the mandatory certification of compliance with all relevant parts of the Building Regulations 1997 by designers, builders and assigned certifiers.

Reviews to Part L of the Building Regulations:

Part L of the Building Regulations 1997 in respect of buildings other than dwellings is under review in order to establish Ireland's intermediate standard for nearly zero energy non-residential buildings. The resulting regulations and accompanying technical guidance will be passed into law in early 2015. A further review to Part L of the Building Regulations 1997 in respect of buildings other than dwellings is also proposed to establish Ireland's standard for nearly zero energy non-residential buildings in advance of the 31 December 2018 deadline for public sector buildings. The latter review will apply to non-residential buildings outside of

the public sector from 31 December 2020.

European Union (Energy Performance of Buildings) Regulations 2012:

Since 9 January 2013, the technical, environmental and economic feasibility of installing high efficiency alternative energy systems must be considered in respect of all new non-residential buildings before construction commences. The alternative energy systems to be considered shall include decentralised energy supply systems based on energy from renewable sources, cogeneration, district or block heating or cooling, particularly where it is based entirely or partially on energy from renewable sources and/or heat pumps.

5.2.2 Relevant economic incentives and financing instruments

N/A

5.2.3 Energy performance certificates' use and layout in relation to nZEB standard

BER Certificates:

The Building Energy Rating (BER) certification scheme was first introduced for buildings other than dwellings on 1 July 2008. Under this scheme the energy certification of a non-residential building is mandatory whenever a building is commissioned or offered for sale or rent.

5.2.4 Supervision (energy advice and audits)

Building Regulations (Part L Amendment) Regulations 2008:

Continued enforcement of Part L of the Building Regulations 1997 by local building control authorities will ensure that new non-residential buildings are compliant with the minimum energy performance standards required in the regulations and accompanying technical guidance.

Building Control (Amendment) Regulations 2014:

Implementation of the new Building Control Regulations will enhance compliance with all Parts of the Building Regulations (including Part L) in respect of both dwellings and non-residential buildings over the months and years ahead.

Non-domestic Energy Assessment Procedure (NEAP):

The NEAP software will be updated on a regular basis to take account of developments in relation to regulatory, technological, and primary energy matters.

5.2.5 Information (tools)

Cost Optimal Calculations:

Cost-optimal calculations and a gap analysis for non-residential buildings were carried out in accordance with Article 5 of Directive 2010/31/EU on the energy performance of buildings (recast), Commission Delegated Regulation (EU) No 244/2012 and the associated supplementary guidelines. These calculations will be used to inform future reviews to Part L of the Building Regulations 1997.

5.2.6 Demonstration

N/A

5.2.7 Education and training

Build Up Skills Initiative (BUSI):

The Build Up Skills Initiative sets out a roadmap to identify and plan a series of actions which will result in the upskilling of construction workers and crafts people in Ireland with regard to the skills needed to achieve high standards of sustainable construction with particular regard to energy efficiency.

5.3 From your point of view, how would you evaluate the current measures that are in force? Please also try to describe the existing gap between what is in force and what should be in force in order to ensure that after 31 December 2020, all new buildings are nearly zero-energy buildings. Are there precise measures planned for the future?

Dwellings:

The above programmes have been very successful in setting the context for change in public perceptions of energy efficiency in dwellings. While examples of low energy dwellings do occur in Ireland, the overall number is low. This situation is expected to change as the market responds to the high standards of performance now in place under the latest Part L requirements for dwellings during the lifetime of this plan.

Non-residential:

Proposals for the current 2014 review are to target a 40% aggregate improvement over the 2008 standard as follows:

Part L: 2015 - Proposed Fabric Improvements

Table 1 Maximum elemental U-value (W/m ² K) ^{1, 2}		
Column 1 Fabric Elements	Column 2 Area-weighted Average Elemental U-Value (Um)	Column 3 Average Elemental U-value – individual element or section of element
Roofs		
Pitched roof		
- Insulation at ceiling	0.16	0.3
- Insulation on slope	0.16	
Flat roof	0.20	
Walls	0.21	0.6
Ground floors ³	0.21	0.6
Other exposed floors	0.21	0.6
External doors, windows and rooflights	1.6 ⁴	3.0
Notes:		
1. The U-value includes the effect of unheated voids or other spaces.		
2. For alternative method of showing compliance see paragraph 1.3.2.3.		
3. For insulation of ground floors and exposed floors incorporating underfloor heating, see paragraph 1.3.2.2.		
4. Windows, doors and rooflights should have a maximum U-value of 1.6 W/m ² K when their combined area is 25% of floor area. However areas and U-values may be varied as set out in Table 2.		

The inclusion of a renewables requirement is being considered under the review while an air-tightness target of 5 to 7m³/hr/m² is also proposed. 2020 will see a target of a 60% aggregate improvement over the 2008 standard, subject to cost-optimal calculations.

6 Policies and measures for the promotion of all new buildings occupied and owned by public authorities being nearly zero-energy buildings after 31 December 2018

6.1 All new buildings occupied and owned by public authorities

6.1.1 Relevant regulations

Building Regulations (Part L Amendment) Regulations 2011:

Compliance with the existing regulations is facilitated via the dissemination of Part L compliance reports from the Sustainable Energy Authority of Ireland on Part L to local building control authorities. As part of the Building Energy Rating (BER) certification process, compliance reports are generated on Part L on the Building Regulations 1997 and have been available to local building control authorities since 1 July 2012.

Building Regulations (Part L Amendment) Regulations 2008:

Compliance with the existing regulations is facilitated via the dissemination of Part L compliance reports from the Sustainable Energy Authority of Ireland on Part L to local building control authorities. As part of the Building Energy Rating (BER) certification process, compliance reports are generated on Part L on the Building Regulations 1997 and have been available to local building control authorities since 1 July 2012.

Building Control (Amendment) Regulations 2014:

On 1 March 2014, the Building Control (Amendment) Regulations 2014 (S.I. No. 9 of 2014) came into effect which require the mandatory certification of compliance with all relevant parts of the Building Regulations 1997 by designers, builders and assigned certifiers.

European Union (Energy Performance of Buildings) Regulations 2012:

Since 9 January 2013, the technical, environmental and economic feasibility of installing high efficiency alternative energy systems must be considered in respect of all new non-residential buildings before construction commences. The alternative energy systems to be considered shall include decentralised energy supply systems based on energy from renewable sources, cogeneration, district or block heating or cooling, particularly where it is based entirely or partially on energy from renewable sources and/or heat pumps.

European Communities (Energy End-use Efficiency and Energy Services) Regulations 2009:

Under Ireland's European Communities (Energy End-use Efficiency and Energy Services) Regulations 2009 (S.I. No. 542/2009), public bodies are required to only purchase or lease buildings with a BER of B3 or higher (from 1 January 2012) and A3 or higher (from 1 January 2015) unless specified exemptions are invoked. The regulations also introduce obligation on all public bodies to develop, maintain and report on their energy management programmes.

European Communities (Renewable Energy) Regulations 2011:

Under the European Communities (Renewable Energy) Regulations 2011, public bodies are required to fulfil an exemplary role (in the context of Directive 2009/28/EC on the promotion of the use of energy from renewable sources) when constructing or renovating public buildings after 31 December 2011.

European Union (Energy Efficient Public Procurement) Regulations 2011:

The European Union (Energy Efficient Public Procurement) Regulations 2011 place obligations on public bodies

relating to the procurement of energy efficient products from the Energy Efficient Equipment (Triple E) register maintained by the Sustainable Energy Authority of Ireland.

Future reviews to Part L of the Building Regulations:

Part L of the Building Regulations 1997 will be reviewed in respect of dwellings in 2015 in order to establish Ireland's standard for nearly zero energy dwellings. The resulting regulations will be passed into law in the timeframe between 2015 and 2020 but may be applied on a voluntary basis once published. Part L of the Building Regulations 1997 in respect of buildings other than dwellings is under review in order to establish Ireland's intermediate standard for nearly zero energy non-residential buildings. The resulting regulations and accompanying technical guidance will be passed into law in early 2015. A further review to Part L of the Building Regulations 1997 in respect of buildings other than dwellings is also proposed to establish Ireland's standard for nearly zero energy non-residential buildings in advance of the 31 December 2018 deadline for public sector buildings. The latter review will apply to non-residential buildings outside of the public sector from 31 December 2020.

6.1.2 Relevant economic incentives and financing instruments

N/A

6.1.3 Energy performance certificates' use and layout in relation to nZEB standard

N/A

6.1.4 Supervision (energy advice and audits)

Energy Efficient Design:

Public bodies contracting the development of capital projects with projected energy consumption in excess of 1 GWh per annum are obligated, under the Public Spending Code, to integrate energy efficient design principles during project development phase.

European Communities (Energy End-use Efficiency and Energy Services) Regulations 2009:

Energy monitoring and reporting systems have been developed to facilitate public bodies in reporting on energy efficiency in their annual reports.

Building Regulations (Part L Amendment) Regulations 2011:

Continued enforcement of Part L of the Building Regulations 1997 by local building control authorities will ensure that new dwellings are compliant with the minimum energy performance standards required in the regulations and accompanying technical guidance.

Dwelling Energy Assessment Procedure (DEAP):

The DEAP software will continue to be reviewed every 2 years to take account of developments in relation to regulatory, technological, and primary energy matters.

Building Regulations (Part L Amendment) Regulations 2008:

Continued enforcement of Part L of the Building Regulations 1997 by local building control authorities will ensure that new non-residential buildings are compliant with the minimum energy performance standards required in the regulations and accompanying technical guidance.

Non-domestic Energy Assessment Procedure (NEAP):

The NEAP software will be updated on a regular basis to take account of developments in relation to regulatory, technological, and primary energy matters.

Building Control (Amendment) Regulations 2014:

Implementation of the new Building Control Regulations will enhance compliance with all Parts of the Building Regulations (including Part L) in respect of both dwellings and non-residential buildings over the months and years ahead.

6.1.5 Information (tools)

Cost Optimal Calculations:

Cost-optimal calculations and a gap analysis for dwellings and for non-residential buildings were carried out in accordance with Article 5 of Directive 2010/31/EU on the energy performance of buildings (recast), Commission Delegated Regulation (EU) No 244/2012 and the associated supplementary guidelines. These calculations will be used to inform future reviews to Part L of the Building Regulations 1997.

Energy Service Companies:

Model contracts will be developed to spearhead the deployment of Energy Performance Contracting (EPC) and Energy Service Companies (ESCOs).

6.1.6 Demonstration

N/A

6.1.7 Education and training

Public Sector Energy Partnership:

The Public Sector Partnership Programme is a comprehensive support package available from the Sustainable Energy Authority of Ireland for large public sector organisations. The Partnership is between the relevant public sector organisation and the Sustainable Energy Authority of Ireland and offers a clear roadmap and defined support actions to facilitate the achievement of targeted energy savings. The Sustainable Energy Authority of Ireland systematically guides the relevant public sector organisation to develop, execute and maintain energy reduction plans, while the organisation commits to drive the programme forward and aims for year on year savings targets of greater than 3%.

6.2 From your point of view, how would you evaluate the current measures that are in force? Please also describe the existing gap between what is in force and what should be in force in order to ensure that after 31 December 2018, all new public buildings are nearly zero-energy buildings. Are there precise measures planned for the future?

The public sector will improve its energy efficiency by 33% by 2020 and will be seen to lead by example, thus showing all sectors what is possible through strong, committed action. Public Sector buildings will adopt the nearly zero-energy standard for all new buildings by the deadline of 31 December 2018.

7 Policies and measures for the promotion of existing buildings undergoing major renovation being transformed to nearly zero-energy buildings

7.1 Residential buildings

7.1.1 Relevant regulations

Building Regulations (Part L Amendment) Regulations 2011:

Compliance with the existing regulations is facilitated via the dissemination of Part L compliance reports from the Sustainable Energy Authority of Ireland on Part L to local building control authorities. As part of the Building Energy Rating (BER) certification process, compliance reports are generated on Part L on the Building Regulations 1997 and have been available to local building control authorities since 1 July 2012. These regulations apply, insofar as practicable, to existing dwellings where an extension, a material alteration or a material change of use is proposed.

Building Control (Amendment) Regulations 2014:

On 1 March 2014, the Building Control (Amendment) Regulations 2014 (S.I. No. 9 of 2014) came into effect which require the mandatory certification of compliance with all relevant parts of the Building Regulations 1997 by designers, builders and assigned certifiers. These regulations apply to existing dwellings where the proposed works, material alteration or material change of use requires a commencement notice.

Future reviews to Part L of the Building Regulations:

Part L of the Building Regulations 1997 will be reviewed in respect of dwellings in 2015 in order to establish Ireland's standard for nearly zero energy dwellings. The resulting regulations will be passed into law in the timeframe between 2015 and 2020 but may be applied on a voluntary basis once published. Future regulations will continue to apply, insofar as practicable, to existing dwellings and to non-residential buildings where extensions, material alterations or material changes of use are proposed.

7.1.2 Relevant economic incentives and financing instruments

Better Energy Homes Scheme:

The Better Energy Home scheme is administered by the Sustainable Energy Authority of Ireland and provides grants to homeowners to upgrade their homes with energy efficiency measures, thus reducing energy use, costs and greenhouse gas emissions.

Better Energy Warmer Homes Scheme:

The Better Energy Warmer Homes scheme is also administered by the Sustainable Energy Authority of Ireland and funds energy efficiency improvements in the homes of the elderly and vulnerable, making the homes more comfortable, healthier and more cost effective to run.

Energy Efficiency - Retrofitting Measure:

Under the Social Housing Investment Programme, operated by the Department of the Environment, Community and Local Government, local authorities are allocated capital funding each year in respect of a range of measures to improve the standard and overall quality of their social housing stock. The programme includes a retrofitting measure aimed at improving the energy efficiency of older apartments and houses by reducing heat loss through the fabric of the building and the installation of high-efficiency condensing boilers. A total of €20

million has been made available to local authorities to upgrade vacant houses, and apartment complexes, to achieve a minimum BER of C1, as well as a €5 million investment in a number of demonstration projects which will inform future energy efficiency improvement works.

Pay As You Save (PAYS):

The introduction of a *Pay As You Save* (PAYS) framework to incentivise homeowner investment in energy efficiency improvements is proposed for 2014.

7.1.3 Energy performance certificates' use and layout in relation to nZEB standard

Building Energy Rating (BER) Certificates:

The Building Energy Rating (BER) certification scheme was introduced for existing dwellings in 2009. Energy certification is now mandatory whenever a dwelling is offered for sale or for rent or when a homeowner applies for a grant for the retrofitting of energy efficient measures under the Better Energy Homes scheme or the Better Energy Warmer Homes scheme. The BER certificate is accompanied by an Advisory Report, with recommendations for cost effective improvements to energy performance, allowing householders to plan for further improving the energy performance of the dwelling and saving money on their energy bills. Currently, there are some 400,000 BER certificates for dwellings in place (representing some 20% of the total housing stock). It is proposed to review the layout and content of the existing BER certificate with a view to improving the relevance of information provided to homeowners.

7.1.4 Supervision (energy advice and audits)

Dwelling Energy Assessment Procedure (DEAP):

The DEAP software will continue to be reviewed every 2 years to take account of developments in relation to regulatory, technological, and primary energy matters.

Advisory Reports:

Over the course of 2014, it is proposed to revise the existing Advisory Reports which accompany BER Certificates to highlight cost optimal measures.

7.1.5 Information (tools)

Power of One Campaign:

The *Power of One* Campaign has brought the message of the importance of energy efficiency to all consumers and has provided practical steps to help the public improve their own personal energy efficiency through small changes in behaviour and choices.

Cost Optimal Calculations:

Cost-optimal calculations and a gap analysis for dwellings were carried out in accordance with Article 5 of Directive 2010/31/EU on the energy performance of buildings (recast), Commission Delegated Regulation (EU) No 244/2012 and the associated supplementary guidelines. These calculations will be used to inform future reviews to Part L of the Building Regulations 1997.

Retrofit Code of Practice:

Technical guidance is provided in this Code of Practice (S.R. 54:2014) on the energy efficient retrofit of dwellings having particular regard to fabric and building services, the application of retrofit measures on a whole dwelling basis, general building science and the management of retrofit projects in respect of dwellings. The intended audience for this Code of Practice are property managers, designers, specifiers and installers working on energy efficient retrofit projects for dwellings.)

Media Campaigns:

The Sustainable Energy Authority of Ireland will continue to promote energy efficiency in homes via periodic media campaigns.

7.1.6 Demonstration

A number of demonstration projects will be used to inform future energy efficiency improvement works.

7.1.7 Education and training

Build Up Skills Initiative (BUSI):

The Build Up Skills Initiative sets out a roadmap to identify and plan a series of actions which will result in the upskilling of construction workers and crafts people in Ireland with regard to the skills needed to achieve high standards of sustainable construction with particular regard to energy efficiency.

Miscellaneous:

The relevant authorities in Ireland will continue to work with industry to build capacity and develop quality of energy efficiency products and practitioners (i.e. Training Schemes, Installer Schemes, Product Certification, etc.).

7.2 Non-residential buildings

7.2.1 Relevant regulations

Building Regulations (Part L Amendment) Regulations 2008:

Compliance with the existing regulations is facilitated via the dissemination of Part L compliance reports from the Sustainable Energy Authority of Ireland on Part L to local building control authorities. As part of the Building Energy Rating (BER) certification process, compliance reports are generated on Part L on the Building Regulations 1997 and have been available to local building control authorities since 1 July 2012. These regulations apply, insofar as practicable, to existing non-residential buildings where an extension, a material alteration or a material change of use is proposed.

Building Control (Amendment) Regulations 2014:

On 1 March 2014, the Building Control (Amendment) Regulations 2014 (S.I. No. 9 of 2014) came into effect which require the mandatory certification of compliance with all relevant parts of the Building Regulations 1997 by designers, builders and assigned certifiers. These regulations apply to existing non-residential buildings where the proposed works, material alteration or material change of use requires a commencement notice.

Future reviews to Part L of the Building Regulations:

Part L of the Building Regulations 1997 in respect of buildings other than dwellings is under review in order to establish Ireland's intermediate standard for nearly zero energy non-residential buildings. The resulting regulations and accompanying technical guidance will be passed into law by end 2014. A further review to Part L of the Building Regulations 1997 in respect of buildings other than dwellings is also proposed to establish Ireland's standard for nearly zero energy non-residential buildings in advance of the 31 December 2018 deadline for public sector buildings. The latter review will apply to non-residential buildings outside of the public sector from 31 December 2020. Future regulations will continue to apply, insofar as practicable, to existing dwellings and to non-residential buildings where extensions, material alterations or material changes of use are proposed.

7.2.2 Relevant economic incentives and financing instruments

Pay As You Save (PAYS):

The introduction of a *Pay As You Save* (PAYS) framework to incentivise investment in energy efficiency improvements is proposed for 2014.

Accelerated Capital Allowances Scheme:

The Accelerated Capital Allowances Scheme, whose purpose is to encourage businesses to purchase plant and machinery that is highly energy efficient and thus make significant savings on energy costs and reduce carbon emissions, has provided a substantial tax incentive to industry to invest in a range of energy efficient technologies and systems.

7.2.3 Energy performance certificates' use and layout in relation to nZEB standard

Building Energy Rating (BER) Certificates:

The Building Energy Rating (BER) certification scheme was first introduced for existing non-residential buildings on 1 January 2009. Energy certification is now mandatory whenever a building is offered for sale or for rent or when a building owner applies for a grant from the Sustainable Energy Authority of Ireland for retrofitting of energy efficient measures. The BER Certificate is accompanied by an Advisory Report, with recommendations for cost effective improvements to energy performance, allowing building owners to plan for further improving the energy performance of the building and save money on their energy bills. Currently, there are some 10,000 BER certificates for non-residential buildings in place. It is proposed to review the layout and content of the existing BER certificate with a view to improving the relevance of information provided to building owners.

7.2.4 Supervision (energy advice and audits)

Non-domestic Energy Assessment Procedure (NEAP):

The NEAP software will be updated on a regular basis to take account of developments in relation to regulatory, technological, and primary energy matters.

Advisory Reports:

Over the course of 2014, it is proposed to revise the existing Advisory Reports which accompany BER Certificates to highlight cost optimal measures.

7.2.5 Information (tools)

Cost Optimal Calculations:

Cost-optimal calculations and a gap analysis for non-residential buildings were carried out in accordance with Article 5 of Directive 2010/31/EU on the energy performance of buildings (recast), Commission Delegated Regulation (EU) No 244/2012 and the associated supplementary guidelines. These calculations will be used to inform future reviews to Part L of the Building Regulations 1997.

Media Campaigns:

The Sustainable Energy Authority of Ireland will continue to promote energy efficiency in homes via periodic media campaigns.

Miscellaneous:

The relevant authorities in Ireland would work to ensure the Small and Medium Enterprise sector has access to necessary supports to reap financial benefits of investment in energy management practices.

7.2.6 Demonstration

7.2.7 Education and training

Build Up Skills Initiative (BUSI):

The Build Up Skills Initiative sets out a roadmap to identify and plan a series of actions which will result in the upskilling of construction workers and crafts people in Ireland with regard to the skills needed to achieve high standards of sustainable construction with particular regard to energy efficiency.

Miscellaneous:

The relevant authorities in Ireland will continue to work with industry to build capacity and develop quality of

energy efficiency products and practitioners (i.e. Training Schemes, Installer Schemes, Product Certification, etc.).

7.3 From your point of view, how would you evaluate the current measures that are in force? Please also try to describe the existing gap between what is in force and what should be in force in order to stimulate the transformation of buildings that are refurbished into nZEB. Are there precise measures planned for the future?

Planning exemptions for renewable technologies in domestic dwellings (which enable the installation of certain exempted technologies, such as micro wind turbines, solar panels, heat pumps and biomass boilers to be installed on or within the curtilage of a dwelling, subject to certain conditions relating to siting, scale and operation) have been in place since 2007.

Planning exemptions for renewable technologies in commercial, industrial and agricultural settings (which enable the installation of certain exempted technologies, such as micro wind turbines, solar panels, heat pumps and biomass boilers to be installed on or within the curtilage of a dwelling, subject to certain conditions relating to siting, scale and operation) have also been in place since 2007.

Ireland's Climate Change Targets require Ireland to achieve 6,000 GWh PEE (c.f. National Energy Efficiency Action Plan) of savings from the existing residential stock. This equates to 1 million dwellings making a contribution of 48kWh/m²/yr. To avoid a 'lock in' effect due to sub optimal improvements the target for retrofit is set such that each individual element is improved to a minimum of the cost-optimal performance level. This will ensure that if only one element is improved at each stage it will be improved at least to the cost-optimal level. Subject to cost optimum calculations being performed the cost-optimum performance level for a whole dwelling when each element is improved to the cost-optimum level is 125kWh/m²/yr to 150kWh/m²/yr primary energy when calculated using the DEAP software to EN 13790 (i.e. the calculation methodology established under Directive 2010/31/EU on the energy performance of buildings (recast), its predecessor Directive 2002/91/EC on the energy performance of buildings and required under Part L of Ireland's Building Regulations 1997). To bring the performance of buildings below 125 kWh/m²/yr will require the addition of renewables, active ventilation systems etc. Decarbonisation of the grid will also help reduce the carbon impact of existing dwellings and increase the feasibility of electrical energy efficient technologies.

8 Additional Information

Please fill in any additional information on actions taken to increase the number of nearly zero-energy buildings in your country.

1.1.3 Detailed performance standards for NZEB e.g. U-value, kWh/m²/yr

EXAMPLE DWELLING RESULTS			
	Dwelling heated by gas with Solar Thermal DWH	Dwelling heated by oil with Solar Thermal DWH	Dwelling heated by Wood pellet Biomass without Solar Thermal.
Primary Energy (kWh/m ² yr)	45.33	45.33	71.41
CO ₂ Emissions (Kg/m ² yr)	9.75	9.75	6.83
EPC	302	302	476
CPC	305	305	214

Existing dwellings:

The definition of nearly zero energy for existing dwellings has 3 tiers. The tiers are designed to be complementary to each other in order to avoid the 'lock in' effect: -

- Improvement of individual elements to beyond cost-optimum level when works are being performed -
 - Target: each element to be improved beyond cost-optimal,
 - Schedule: 2013,
 - Mechanism: Grant schemes, Building Regulations, financial support schemes (e.g. pay as you save).
- Improvement of whole dwelling to beyond cost-optimum performance through accumulated fabric efficiency improvements or whole house retrofit. Active ventilation systems to be installed where feasible. Where individual components are being replaced these components shall be replaced to a performance standard that will make it feasible for the remainder of the dwelling to achieve the stated whole dwelling performance when upgraded -
 - Target: 150 – 170 kWh/m²/yr (C1); 125 -150 kWh/m²/yr (B3),
 - Schedule: 2011 (for C1), 2013 (for B3),
 - Mechanism: Building Regulations, Financial support schemes (e.g. pay as you save).

3. Further improvement of the dwelling through addition of renewables, e.g. PV, Heat Pumps, Solar Thermal, Biomass -
 - Target: 75 – 125 kWh/m²/yr (B1),
 - Schedule: 2007-2020,
 - Mechanism: Grant supported and voluntary.

9 Possible improvements

Where do you see most room for improvement in order to increase the number of nearly zero-energy buildings in your country? Please also try to give examples for appropriate measures.

As stated previously, Part L of the Building Regulations 1997 will be reviewed in respect of dwellings in 2015 in order to establish Ireland's standard for nearly zero energy dwellings. The resulting regulations will be passed into law in the timeframe between 2015 and 2020 but may be applied on a voluntary basis once published. Future regulations will continue to apply, insofar as practicable, to existing dwellings and to non-residential buildings where extensions, material alterations or material changes of use are proposed. From quantitative perspective, the energy performance of new dwellings in Ireland is already close to the definition of nearly zero energy; the completion of the review to Part L in 2015 and its subsequent publication will facilitate its application on a voluntary basis thereby increasing the number of nearly zero energy dwellings in advance of the 31 December 2020 deadline.

Annex- Definition of nZEB

1. General Information		
Country		
Name of regulation ,directive, certification scheme		
Editor of regulation, directive, certification scheme		
Year of introduction of current version	Click and choose.	
benchmark of current version (Select one)	<input type="radio"/> Energy Autonomous building <input type="radio"/> Efficient buildings <input type="radio"/> Net zero energy buildings <input type="radio"/> Plus energy buildings <input type="radio"/> Nearly zero energy buildings <input type="radio"/> Zero energy buildigns <input checked="" type="radio"/> Other	
Integration and consideration in national directive	Please add explanation/ comment/ source Click and choose.	
2. Field of Application		
2.1 Building category Select one and describe right is this typology included in the directive? Are special requirements or exceptions defined for this typology? If more than one definition exists, you can duplicate this appendix for each of them.		
<i>Member States shall ensure that all new buildings are nearly zero- energy buildings by 31 December 2020 respectively after 31 December 2018 (occupied and owned by public authorities). For the purpose of the calculation buildings should be adequately classified into the [...] categories. References: EPBD article 9.1a/b, EPBD Annex I.</i>		
Category <input checked="" type="radio"/> Residential <input type="radio"/> Non-residential <input type="radio"/> Residential and Non-residential		
single family houses	Click and choose.	Please add explanation/ comment/ source
apartment blocks	Click and choose.	Please add explanation/ comment/ source
Offices	Click and choose.	Please add explanation/ comment/ source
educational buildings	Click and choose.	Please add explanation/ comment/ source
hospitals	Click and choose.	Please add explanation/ comment/ source
hotels and restaurants	Click and choose.	Please add explanation/ comment/ source
sports facilities	Click and choose.	Please add explanation/ comment/ source
wholesale and retail trade service buildings	Click and choose.	Please add explanation/ comment/ source
other types of energy-consuming buildings	Click and choose.	Please add explanation/ comment/ source
2.2 New/retrofit buildings		
Select one and describe right. If more than one definition exists, you can duplicate this appendix for each of them.		
<i>New, and existing buildings that are subject to major renovation, should meet minimum energy performance requirements adapted to the local climate.</i>		
<i>Member States shall furthermore [...] stimulate the transformation of buildings that are refurbished into nearly zero-energy buildings.</i>		
<i>Reference: EPBD preamble recital 15, EPBD article 9.2.</i>		

<input type="radio"/> New buildings <input type="radio"/> Retrofit <input checked="" type="radio"/> New and retrofit	
2.3 Private/public buildings Select one and describe right. If more than one definition exists, you can duplicate this appendix for each of them. <i>Member States shall ensure that by 31 December 2020, all new buildings are nearly zero- energy buildings and after 31 December 2018, new buildings occupied and owned by public authorities are nearly zero-energy buildings. Reference: EPBD article 9.1a/b</i>	
<input type="radio"/> Private <input type="radio"/> Public <input checked="" type="radio"/> Public and private	Please add explanation/ comment/ source
3. Energy Balance and calculation	
3.1 Balance Type Describe how renewable energy is calculated / included in the energy balance (e.g. renewable heat from solar thermal collectors reduces energy use for heat and DHW; renewable electricity reduces/compensates delivered electricity). <i>[...] The nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources, including energy from renewable sources</i> <i>Energy performance of a building means the calculated or measured amount of energy needed to meet the energy demand [...]. Reference: EPBD article 2.2, EPBD article 2.4</i>	
<input type="radio"/> energy demand vs energy generation <input type="radio"/> energy import vs energy export <input type="radio"/> virtual balance between demand and generation <input type="radio"/> not specified <input checked="" type="radio"/> other	
3.2 Physical boundary Select the widest possible boundary and describe right if/which further subdivisions are possible <i>This directive lays down requirements as regards the common general framework for [...] buildings and building units. [...] building' means a roofed construction having walls, for which energy is used to condition the indoor climate. Reference: EPBD article 1.2, EPBD article 2.1</i>	
<input type="radio"/> single building <input type="radio"/> building unit <input type="radio"/> building unit <input type="radio"/> building site <input type="radio"/> cluster of buildings <input type="radio"/> quarter or city <input checked="" type="radio"/> other	
3.3 System boundary demand / energy uses included Define if this load sector is included in the energy balance calculation (other requirements like maximum consumption values can be described below under item 5, further requirements). <i>[...] energy performance of a building means the calculated or measured amount of energy needed to meet the energy demand associated with a typical use of the building, which includes, inter alia, energy used for heating, cooling, ventilation, hot water and lighting. Reference: EPBD article 2.4</i>	

space heating, domestic hot water	Click and choose.	Please add explanation/ comment/ source		
ventilation, cooling, air conditioning	Click and choose.	Please add explanation/ comment/ source		
auxiliary energy	Click and choose.	Please add explanation/ comment/ source		
Lighting	Click and choose.	Please add explanation/ comment/ source		
plug loads, appliances, IT	Click and choose.	Please add explanation/ comment/ source		
central services	Click and choose.	Please add explanation/ comment/ source		
electric vehicles	Click and choose.	Please add explanation/ comment/ source		
embodied energy	Click and choose.	Please add explanation/ comment/ source		
3.4 System boundary generation / renewable energy sources included Select and explain right (e.g. only in building's physical footprint, on-site, on-site incl. import of off-site renewables like pellets, wood chips, rape oil etc.). How is CHP (based on non-renewable energy carriers like natural gas or oil) included? <i>[...] The nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources, including energy from renewable sources produced on-site or nearby. [...] energy from renewable sources means energy from renewable non-fossil sources, namely wind, solar, aerothermal, geothermal, hydrothermal and ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases. [...] minimum levels of energy from renewable sources [...] to be fulfilled, inter alia, through district heating and cooling [...]. Reference: EPBD article 2.2, EPBD article 2.6, EPBD article 13.4</i>				
generation on-site	Click and choose.	Please add explanation/ comment/ source		
generation near by	Click and choose.	Please add explanation/ comment/ source		
generation external	Click and choose.	Please add explanation/ comment/ source		
Crediting	Click and choose.	Please add explanation/ comment/ source		
3.5 Balance period / calculation step What is the defined period of time over which the balance is calculated? Is the calculation period divided into calculation steps (e.g. one hour, one month or one heating and/or cooling season)? <i>[...] The methodology for calculating energy performance should be based not only on the season in which heating is required, but should cover the annual energy performance of a building [...]. Reference: EPBD preamble recital 9</i> <i>[...] requirements should be set with a view to [...] the cost-optimal balance between the investments involved and the energy costs saved throughout the lifecycle of the building [...] Reference: EPBD preamble recital 10.</i>				
<input type="radio"/> Life cycle balance <input checked="" type="radio"/> Yearly <input type="radio"/> Seasonal <input type="radio"/> Other				
3.6 Monthly accounting limitation Is a monthly accounting limit defined? Is it based on end energy (e.g. monthly electricity generation compensates monthly electricity loads) or on primary energy (any monthly generation compensates any loads)? Are surpluses transferred to an annual balance?				
<input type="radio"/> monthly source based end energy crediting <input type="radio"/> monthly primary energy crediting <input checked="" type="radio"/> nothing defined <input type="radio"/> other	Please add explanation/ comment/ source			
4. Accounting system				
4.1 Normalization				
<i>[...] including a numerical indicator of primary energy use expressed in kWh/m² per year. Reference: EPBD article 9.3a</i>				
<input type="radio"/> person <input type="radio"/> gross floor area				

<input type="radio"/> net floor area <input type="radio"/> gross volume <input type="radio"/> net volume <input type="radio"/> usable floor area <input type="radio"/> treated floor area <input type="radio"/> conditioned area <input checked="" type="radio"/> other	
4.2 Primary metric Indicate which metric is used for the energy performance calculation / energy balance and give input on (the source of) the conversion factors on the right. Possible sources are e.g. EN 15603 or national and regional codes.	
<i>The energy performance of a building shall be expressed in a transparent manner and shall include an energy performance indicator and a numeric indicator of primary energy use, based on primary energy factors per energy carrier, which may be based on national or regional annual weighted averages or a specific value for on-site production. Reference: EPBD Annex 1.</i> <i>[...] including a numerical indicator of primary energy use expressed in kWh/m² per year. Reference: EPBD 9.3a</i> <i>[...] primary energy' means energy from renewable and non-renewable sources which has not undergone any conversion or transformation process. Reference: EPBD article 2.5</i>	
<input type="radio"/> energy need <input checked="" type="radio"/> energy use <input type="radio"/> delivered/site energy <input type="radio"/> primary / source energy (renewable part included) <input type="radio"/> primary / source energy (renewable part not included) <input type="radio"/> (equivalent) carbon emissions <input type="radio"/> exergy <input type="radio"/> energy costs <input type="radio"/> environmental credits <input type="radio"/> points (labeling system) <input type="radio"/> other	
4.3 Secondary metric	
<input type="radio"/> energy use <input type="radio"/> energy need <input type="radio"/> delivered/site energy <input type="radio"/> primary / source energy (renewable part included) <input type="radio"/> primary / source energy (renewable part not included)	Please add explanation/ comment/ source

<input type="radio"/> (equivalent) carbon emissions <input type="radio"/> exergy <input type="radio"/> energy costs <input type="radio"/> environmental credits <input type="radio"/> points (labeling system) <input type="radio"/> other	
4.4 Symmetric or asymmetric weighting	
<input type="radio"/> symmetrical weighting <input type="radio"/> asymmetrical weighting	Please add explanation/ comment/ source
4.5 Time dependent weighting Static: no time dependent weighting (annual constant weighting/factors) Quasi-static: seasonal/monthly average weighting factors Dynamic: weighting factors based on shorter time periods /hourly basis (according to energy offer and demand in the grid)	
<i>Primary energy factors [...] may be based on national or regional yearly average values and may take into account [...] European standards. Reference: EPBD 9.3a</i>	
<input type="radio"/> static conversion factors <input type="radio"/> quasi static conversion factors <input type="radio"/> dynamic conversion factors	
5. Further requirements	
5.1 Fraction of renewables Select and describe right if guidelines are given for any fraction of renewable energy and indicate how/at which level a certain fraction is calculated (e.g. solar thermal heat might be a fraction of energy use, electricity from PV a fraction of delivered energy.)	
<i>Member States shall introduce [...] appropriate measures [...] to increase the share of all kinds of energy from renewable sources in the building sector [...]. By 31 December 2014, Member States shall [...] require the use of minimum levels of energy from renewable sources in new buildings and in existing buildings [...] Reference: RED article 13.4</i> <i>[...] The nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources [...]Reference : EPBD article 2.2</i>	
<input type="radio"/> defined <input checked="" type="radio"/> not defined <input type="radio"/> defined in other regulation	
5.2 Temporal performance Describe if any requirements are given for a temporal match between on-site energy load and on-site energy generation (load match) and which calculation procedures are applied.	
Load match <input type="radio"/> defined <input type="radio"/> not defined	Please add explanation/ comment/ source
Grid interaction	

<input type="radio"/> defined <input type="radio"/> not defined	Please add explanation/ comment/ source
5.3 Energy performance or rating requirements Are limitations given for a standard energy rating, an energy indicator or maximum demands for heating, cooling, embodied energy, demand of appliances, etc.? If yes, type the values and give explanations on the right <i>nearly zero-energy building means a building that has a very high energy performance [...]. The nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources [...]</i> <i>The energy performance [...] shall [...] include an energy performance indicator and a numeric indicator of primary energy use [...]. Reference : EPBD article 2.2, EPBD Annex 1.</i>	
Performance or rating <input checked="" type="radio"/> defined <input type="radio"/> not defined <input type="radio"/> defined in other regulation	
Energy Performance indicator Is an energy performance indicator defined? If yes, type the values and the according unit.	
Numeric indicator of primary energy use Is a numeric indicator of primary energy use defined? If yes, type the values and the according unit.	
5.4 General framework / prescriptive requirements Describe which guidelines are given for: Thermal characteristics (insulation, thermal bridges, thermal capacity, passive heating, internal loads, solar protection) Efficiency of installations (hot water supply, air-conditioning, lighting fan power) <i>The methodology shall [...] take into consideration: thermal characteristics (thermal capacity, insulation, passive heating, cooling elements, and thermal bridges), heating installation and hot water supply, air-conditioning installations, natural and mechanical ventilation, built-in lighting, the design, positioning and orientation of the building, outdoor climate, passive solar systems and solar protection, [...], internal loads. Reference: EPBD Annex 1</i>	
<input type="radio"/> defined <input checked="" type="radio"/> not defined <input type="radio"/> defined in other regulation	Please add explanation/ comment/ source
5.5 Definition of comfort level & IAQ requirements (for winter and summer season, beside other national directives) Describe which guidelines are given for indoor climatic conditions, minimum or maximum indoor temperature, minimum lighting levels/ daylight availability, minimum ventilation rates/ natural ventilation, indoor air quality, max. CO2 levels, etc. <i>This Directive [...] takes into account [...] indoor climate requirements [...] Reference: EPBD article 1.1</i> <i>The methodology shall [...] take into consideration: [...] indoor climatic conditions [...]Reference: EPBD Annex 1</i> <i>That includes [...] indoor air-quality, adequate natural light [...].Reference:</i>	

EPBD preamble recital 9	
<input type="radio"/> defined <input checked="" type="radio"/> not defined <input type="radio"/> defined in other regulation	Please add explanation/ comment/ source
5.6 Monitoring procedure Describe if and how a monitoring mandatory is formulated; calculated or measured values are used; an evaluation of the indoor environmental quality is considered; which calculation step is used.	
<i>[...] energy performance of a building means the calculated or measured amount of energy needed [...] Reference: EPBD article 2.4</i> <i>Member States shall encourage the introduction of intelligent metering systems [...] and the installation of automation, control and monitoring systems [...]. Reference: EPBD article 8.2</i>	
<input checked="" type="radio"/> defined <input type="radio"/> not defined	

ECOFYS



sustainable energy for everyone



sustainable energy for everyone



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