



awakening | relevant | innovative | scalable | equitable

D 2.2 Benchmarking Energy & Digitalisation Skills

Author: Anna Moreno

IBIMI

ISSUE DATE: 3 FEBRUARY 2022

V. 01



Co-funded by the Horizon 2020
Framework Programme of the European Union

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101033864.

D 2.2 Benchmarking Energy & Digitalization Skills

Lead partner	IBIMI
Issue Date	31.12.2021
Produced by	IBIMI
Main author	Anna Moreno
Co-authors	All partners
Version	V0.1
Reviewed by	
Approved by	
Dissemination level	Public

Colophon

Copyright © 2021 by ARISE consortium

Use of any knowledge, information or data contained in this document shall be at the user's sole risk. Neither the ARISE Consortium nor any of its members, their officers, employees or agents shall be liable or responsible, in negligence or otherwise, for any loss, damage or expense whatever sustained by any person as a result of the use, in any manner or form, of any knowledge, information or data contained in this document, or due to any inaccuracy, omission or error therein contained. If you notice information in this publication that you believe should be corrected or updated, please get in contact with the project coordinator.

The authors intended not to use any copyrighted material for the publication or, if not possible, to indicate the copyright of the respective object. The copyright for any material created by the authors is reserved. Any duplication or use of objects such as diagrams, sounds or texts in other electronic or printed publications is not permitted without the author's agreement.

Revision and history chart

Version	Date	Editors	Comment Description
0.1	14-12-2021	IBIMI	First release with partners contribution
0.2	4-2-2022	IBIMI	Second release with finalization of the deliverable in the right format



Publishable executive summary

This report represents the **starting point** for the roadmap that will bring the participating countries, and possibly all Europe, to have a platform for the recognition of competences necessary to fulfil European directives related to energy performance and digitalization.

In the first part of the report, the references to the existing European legislation with the articles requiring a **qualification system** or adequate **training** to support the achievement of objectives declared in the directives are reported with the link to the official documents.

In the second part, tables reporting the implementation of these directives in the national legislation of the partners countries are listed.

List of acronyms and abbreviations

BIM: Building Information Model

CA: Concerted Action

EE: Energy Efficiency

EPB: Energy Performance of Buildings

LCA: Life Cycle Analysis

LCC: Life Cycle Costing

MS: Member State

NGOs: Non-Governmental Organizations

nZEB: Nearly Zero-Energy Buildings

R&D: Research and Development

RES: Renewable Energy Source

SME: Small and Medium-size Enterprise



Table of Contents

Publishable executive summary	3
List of acronyms and abbreviations	3
<i>Table of Contents</i>	4
Concerted actions and certification schemes	5
CA-RES Directive	5
CA-EE Directive.....	11
CA-EPB Directive	14
European directive for the introduction of Building Information Modelling in the public sector	19
Conclusions.....	25



Concerted actions and certification schemes

In the three directives, described in the next paragraphs, there are specific articles related to the need to identify mutual recognition of qualification and certification schemes related to energy issues. Concerted actions have been funded by the European Commission to monitor the implementation of the three directives in the different member states, but this information has not been updated for years. The current situation in the partners' country is reported in tables that summarize the national legislations.

CA-RES DIRECTIVE

The DIRECTIVE (EU) 2018/2001 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 December 2018 on the promotion of the use of energy from renewable sources, is a recast of Directive 2009/28/EC of the European Parliament and of the Council and can be found at this [link](#).

The following paragraphs are part of the last proposal for the revision of the renewable energy directive.

The Commission proposed a revision of the directive in July 2021, as part of the package to deliver on the European Green Deal. The proposal raises the ambition of the existing legislation to align it with the EU's increased climate ambition. It also seeks to introduce new measures to complement the already existing building blocks established by the 2009 and 2018 directives, to ensure that all potentials for the development of renewable energy are optimally exploited – which is the necessary condition to achieve the EU's objective of climate neutrality by 2050.

The proposed revision aims to ensure that renewable energy fully contributes to achieving a higher EU climate ambition for 2030, in line with the 2030 Climate Target Plan. It seeks to convert into EU law some of the concepts outlined in the energy system integration and hydrogen strategies, published in 2020. The 2 strategies outlined ways of creating an integrated energy system, based on renewable energy, and fit for climate neutrality, and turning hydrogen into a viable solution to help reach the objectives of the European Green Deal.

In line with the EU Climate Law, the targets and measures set in the revised directive should be ambitious enough to reduce greenhouse gas emissions by at least 55% in 2030. This includes raising the overall renewables target (proposed to be increased to 40%), but also strengthened measures for transport or heating and cooling. The Commission is also aiming at a more energy efficient and circular energy system that facilitates renewables-based



electrification, and promotes the use of renewable and low-carbon fuels, including hydrogen, in sectors where electrification is not yet a feasible option, such as transport.¹

The new version should be approved within 2022. At this [link](#) the new proposal.

The concerted action on RES can be found at this [link](#).

Following the first emission of 2009, a concerted action was funded and the WG5 delivered a report on training and qualification in 2012, that can be found at this [link](#).

In the report it is stated:

“Certification of installers and harmonization of the whole process is related to the implementation of Article 14, point 3, (Article 18 point 3 in the new edition) ensuring certification schemes or equivalent qualification schemes for installers of 5 Renewable Energy (RE) technologies (small scale biomass boilers and stoves, solar photovoltaic, solar thermal, shallow geothermal and heat pumps). Annex IV of the RES Directive provides criteria for this purpose and several aspects, including the legal ones.

A great variety of situations was detected in the Member States (MS) in relation to the topic of certification of installers from voluntary to mandatory schemes, from schemes pointed to companies and schemes for individual installers. This was also the case in the implementation of the certification scheme itself, with some countries having a well-established process to other countries being in an initial phase of implementation. It is also clear that the envisaged difficulties in the implementation of Annex IV of the RES Directive were better understood by those MS that had already an ongoing process. Harmonizing this situation was clearly necessary. **Finding a common approach for the certification scheme that is comprehensive, easily implemented and accepted by all MS was essential in order to meet the RES Directive requirements for mutual recognition.** The responsible body for the certification scheme in the MS also varies from ministries (education, economy, planning and environment and others) to energy agencies and other bodies, including NGOs.”

The situation for each Member State can be found at this [link](#).

The Implementation of the European directive on the promotion of energy renewable sources (RES) has been accomplished with these national legislations:

¹ https://ec.europa.eu/energy/topics/renewable-energy/directive-targets-and-rules/renewable-energy-directive_en

Country	RES Directive Implementation
Denmark	<p>LBK nr 1533 af 16/12/2019: Bekendtgørelse af lov om anvendelse af Danmarks undergrund.</p> <p>LBK nr 1215 af 06/02/2020: Bekendtgørelse af lov om varmforsyning.</p> <p>LOV nr 883 af 12/05/2021: Lov om ændring af lov om fremme af vedvarende energi, biobrændstofloven, lov om naturgasforsyning og forskellige andre love.</p> <p>LBK nr 1897 af 01/10/2021: Bekendtgørelse af lov om fremme af besparelser i energiforbruget.</p> <p>LBK nr 1923 af 08/10/2021: Bekendtgørelse af lov om fremme af energibesparelser i bygninger.</p> <p>LBK nr 1944 af 12/10/2021: Bekendtgørelse af lov om fjernkøling.</p>
Ireland	<p>Renewable Electricity Support Scheme - https://www.gov.ie/en/publication/36d8d2-renewable-electricity-support-scheme/</p> <p>Biofuels Obligation Scheme for road transport fuels</p> <p>Irish National Renewable Energy Action Plan https://www.ifa.ie/wp-content/uploads/2020/08/2013-National-Renewable-Energy-Action-Plan-2010.pdf</p> <p>Climate Action and Low Carbon Development (Amendment) Act 2021 https://www.irishstatutebook.ie/eli/2021/act/32/enacted/en/html</p>

<p>Italy</p>	<p>Decreto legislativo, 03/03/2011 n° 28, G.U. 28/03/2011 Attuazione direttiva UE sulla promozione dell'uso dell'energia da fonti rinnovabili</p> <p>As modified and integrated by:</p> <ul style="list-style-type: none"> • Legge 7 agosto 2012, n. 134 • Legge 24 dicembre 2012, n. 228 • Legge 3 agosto 2013, n. 90 • Legge 9 agosto 2013, n. 98 • Legge 21 febbraio 2014, n. 9 • Legge 11 agosto 2014, n. 116 • Legge 25 febbraio 2016 n.21 • Legge 28 dicembre 2015, n. 221 • Legge 27 febbraio 2017 n.19 • La Corte costituzionale, con sentenza 21 febbraio 2017, n. 51 ha dichiarato l'illegittimità costituzionale dell'art. 23, comma 3 e dell'art. 43, comma 1. • Legge 21 giugno 2017, n. 31 • Decreto Legislativo 21 marzo 2017, n. 51 • Legge 4 agosto 2017, n. 124 • Legge 20 novembre 2017, n. 167 • Legge 27 dicembre 2017, n. 205 • Legge 28 giugno 2019 n.58 • Legge 2 novembre 2019, n. 128 • Legge 17 luglio 2020 n.77 • Legge 11 settembre 2020 n.120 • La Corte costituzionale, con sentenza 22 ottobre 2020, n. 237 ha dichiarato l'illegittimità costituzionale dell'art. 42, comma 4-sexies. • Legge 29 luglio 2021, n. 108 <p>In red the ones that have modified also the articles regarding training and qualification</p>
<p>Macedonia</p>	<p>Закон за енергетика (Службен весник на Република Македонија, бр. 6/11, 136/11, 79/13, 164/13, 41/14, 151/14, 33/15, 192/15, 215/15, 6/16, 53/16 , 189/16, 96/2018);</p> <p>Правилник за обновливи извори на енергија (Службен весник на Република Македонија, бр 96/2018, 112/2019)</p> <p>Law on Energy Sector (Official Gazette of Republic of North Macedonia no. 6/11, 136/11, 79/13, 164/13, 41/14, 151/14, 33/15, 192/15, 215/15, 6/16, 53/16 , 189/16, 96/2018)</p> <p>Regulation on Renewable Energy Sources (Official Gazette of Republic of North Macedonia, no.96/2018, 112/2019)</p>

<p>Netherlands</p>	<p>RES implementation</p> <p>https://epbd-ca.eu/ca-outcomes/outcomes-2015-2018/book-2018/countries/netherlands</p> <p>http://www.res-legal.eu/en/search-by-country/netherlands/ English details of all aspects</p> <p>http://www.res-legal.eu/en/search-by-country/netherlands/single/s/res-hc/t/policy/aid/certification-programmes-for-res-installations-11/lastp/171/</p> <p>http://www.res-legal.eu/en/search-by-country/netherlands/single/s/res-hc/t/policy/aid/training-programmes-for-installers-14/lastp/171/</p> <p>Overview website (not fully up to date)</p> <p>https://reseu.eu/schemes/netherlands</p>
<p>Portugal</p>	<p>Decree-Law no. 141/2010 (https://dre.pt/dre/detalhe/decreto-lei/141-2010-306619) defined the national targets for renewable energy in final energy consumption and partially transposes Directive no.º 2009/28/EC, of the European Parliament and of the Council, of 23 April,</p> <p>Decree-Law no. 39/2013 (https://dre.pt/dre/detalhe/decreto-lei/39-2013-259898) - proceeds to the first amendment to Decree-Law No. 141/2010, of December 31, which establishes national targets for the use of renewable energy in final consumption and transposes Directive No. 2009/28/EC , of the European Parliament and of the Council, of 23 April</p> <p>Resolution of the Council of Ministers no. 20/2013 establishing the National Plan for Renewable Energy for the period 2013-2020 (PNAER 2020 - https://files.dre.pt/1s/2013/04/07000/0202202091.pdf)</p> <p>Resolution of the Council of Ministers no. 53/2020, of 10 July, approving the National Energy and Climate Plan for the 2030 horizon (PNEC 2030 - https://dre.pt/dre/detalhe/resolucao-conselho-ministers/53-2020-137618093)</p>
<p>UK</p>	<p>The Promotion Of The Use Of Energy From Renewable Sources Regulations 2011 (S1 2011/243)</p> <p>applied the definitions set out in Directive 2009/28 EC (RED)</p> <p>As the deadline for the transposition of the REC2, that replaced REC to UK Law was after the UK's Brexit, to date the transposition hasn't been made, although amendment have been made since its approval of this regulation in 2011 in the UK</p> <p>The Promotion of the Use of Energy from Renewable Sources Regulations 2011 (legislation.gov.uk)</p>

Clean growth strategy 2017

Update on Energy policies

[Clean Growth Strategy - GOV.UK \(www.gov.uk\)](https://www.gov.uk/clean-growth-strategy)

Energy White paper

published Dec 2020 further updates current strategies

[Energy White Paper \(publishing.service.gov.uk\)](https://publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/523211/energy-white-paper.pdf)

The Renewable Energy, Energy Efficiency and Motor Fuel Emissions (Miscellaneous Amendments) (EU Exit) Regulations 2021

“At the end of the Transition Period the UK will no longer align with the 2009 Renewable Energy Directive and 2012 Energy Efficiency Directive. This SI therefore fixes legal deficiencies which arise in regulations transposing part of the requirements of these Directives. Among other fixes, the SI removes references to EU law and EU institutions and removes obligations to submit energy efficiency plans and reports to the Commission after 2020.”

[The Renewable Energy, Energy Efficiency and Motor Fuel Emissions \(Miscellaneous Amendments\) \(EU Exit\) Regulations 2021 - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/consultations/the-renewable-energy-energy-efficiency-and-motor-fuel-emissions-miscellaneous-amendments-eu-exit-regulations-2021)

Note. In devolved nations particular policy can apply. For example:

Northern Ireland Energy Strategy 2050

[Northern Ireland Energy Strategy 2050 | Department for the Economy \(economy-ni.gov.uk\)](https://www.economy-ni.gov.uk/northern-ireland-energy-strategy-2050)

Scotland energy strategy

[The future of energy in Scotland: Scottish energy strategy - gov.scot \(www.gov.scot\)](https://www.gov.scot/publications/the-future-of-energy-in-scotland-scottish-energy-strategy-2018/pages/1-1-introduction.aspx)

Wales energy strategy

[energy-generation-in-wales-2018.pdf \(gov.wales\)](https://www.gov.wales/government/publications/energy-generation-in-wales-2018)

There are also grant and incentives available to help implement and drive these directives. Nut the are usually devolved nations specific. For example, in England there was the

Green Homes Grant

Green Homes Grant: make energy improvements to your home - GOV.UK (www.gov.uk)



CA-EE DIRECTIVE

The Directive (EU) 2018/2002 of the European Parliament and of the Council of 11 December 2018 amending Directive 2012/27/EU on energy efficiency, can be found at this [link](#)

This directive has amended the previous one:

The DIRECTIVE 2012/27/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC, can be found at this [link](#).

The directive will be amended again following the adoption of the European Green Deal. In December 2019, the Commission set out *a new growth strategy that aims to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases in 2050 and where economic growth is decoupled from resource use. It also aims to protect, conserve and enhance the EU's natural capital, and protect the health and well-being of citizens from environment-related risks and impacts*". To reach these objectives, "energy efficiency must be prioritised". At this [link](#) you can find the complete proposal for the new directive.

The concerted action on energy efficiency, related to the implementation of this directive, can be found at this [link](#).

Art.16 is related to Availability of qualification, accreditation and certification schemes and a report made by the Concerted Action can be found at this [link](#).

The Implementation of the European directive on Energy Efficiency has been accomplished with these national legislations:

Country	EE Directive Implementation
Denmark	<p>LOV nr 883 af 12/05/2021: Lov om ændring af lov om fremme af vedvarende energi, biobrændstofloven, lov om naturgasforsyning og forskellige andre love.</p> <p>LOV nr 923 af 18/05/2021: Lov om ændring af lov om naturgasforsyning, lov om fremme af vedvarende energi og forskellige andre love.</p> <p>LBK nr 1897 af 01/10/2021: Bekendtgørelse af lov om fremme af besparelser i energiforbruget.</p> <p>LBK nr 1923 af 08/10/2021: Bekendtgørelse af lov om fremme af energibesparelser i bygninger.</p> <p>LBK nr 1944 af 12/10/2021: Bekendtgørelse af lov om fjernkøling.</p>
Ireland	<p>Ireland's Climate Action Plan sets out an ambitious course of action over the coming years to address this issue.</p> <p>https://www.gov.ie/en/publication/ccb2eo-the-climate-action-plan-2019/</p>

	<p>Ireland also has targets under EU legislation to improve our energy efficiency by 2020 and 2030. These targets are set out in the National Energy Efficiency Action Plan (NEEAP) ,</p> <p>https://www.gov.ie/en/publication/93ee2-national-energy-efficiency-action-plan-neeap/</p> <p>the draft Ireland’s National Energy Climate Plan 2021-2030</p> <p>https://www.gov.ie/en/consultation/105804-irelands-draft-national-energy-and-climate-plan-necp-2021-2030/</p> <p>and the Long Term Renovation Strategy</p> <p>https://www.gov.ie/en/publication/a4d69-long-term-renovation-strategy/</p> <p>Ireland also has a strategy to combat energy poverty</p> <p>https://www.gov.ie/en/publication/14e2b-strategy-to-combat-energy-poverty/</p> <p>The latest national policy statement on sustainable energy is Ireland's Transition to a Low Carbon Energy Future 2015-2030.</p> <p>https://www.gov.ie/en/organisation/departement-of-the-environment-climate-and-communications/?referrer=http://www.dcae.gov.ie/documents/Energy%20White%20Paper%20-%20Dec%202015.pdf</p>
<p>Italy</p>	<p>Attuazione della direttiva 2012/27/UE Decreto legislativo, 04/07/2014 n° 102, G.U. 18/07/2014</p> <p>As modified and integrated by</p> <ul style="list-style-type: none"> ● Legge 11 novembre 2014 n.164 ● Legge 25 febbraio 2016 n. 21 ● Decreto Legislativo 18 luglio 2016, n. 141 ● Legge 27 febbraio 2017 n. 18 ● Legge 27 febbraio 2017 n. 19 ● Legge 27 dicembre 2017, n. 205 ● Decreto Legislativo 10 giugno 2020, n. 48 ● Decreto Legislativo 14 luglio 2020, n. 73 Attuazione della direttiva (UE) 2018/2002 che modifica la direttiva 2012/27/UE sull'efficienza energetica

Macedonia	<p>Закон за енергетика (Службен весник на Република Македонија, бр. 6/11, 136/11, 79/13, 164/13, 41/14, 151/14, 33/15, 192/15, 215/15, 6/16, 53/16 , 189/16, 96/2018); Закон за енергетска ефикасност, Службен весник на РСМ (112/2020), Четврт Национален акциски план за енергетска ефикасност (2020 – 2022)</p> <p>Law on Energy Sector (Official Gazette of Republic of North Macedonia no. 6/11, 136/11, 79/13, 164/13, 41/14, 151/14, 33/15, 192/15, 215/15, 6/16, 53/16 , 189/16, 96/2018),</p> <p>Law on Energy Efficiency *(Official Gazette of Republic of North Macedonia, no. 112/2020),</p> <p>Fourth National Action Plan on Energy Efficiency (2020-2022)</p>
Netherlands	<p>https://www.government.nl/topics/climate-change/climate-policy</p> <p>The Dutch government has submitted the Climate Plan and the NECP to the House by the end of 2019.</p>
Portugal	<p>Decree-Law no. 68-A/2015, of April 30 (https://files.dre.pt/is/2015/04/08401/0000200052.pdf), which establishes directives on energy efficiency and production in cogeneration, transposing Directive 2012/27/EU, of the European Parliament and of the Council, of 25 October 2012, on energy efficiency</p> <p>Decree-Law no. 64/2020, of 10 September (https://dre.pt/dre/detalhe/decreto-lei/64-2020-142487103), which establishes directives on energy efficiency, transposing the Directive (EU) 2018/2002. This was the first amendment to Decree-Law No. 68-A/2015</p>
UK	<p>Procurement Policy Note – Implementing Article 6 of the Energy Efficiency Directive (June 2014) related to the implementation of Energy Efficiency Directive 2012/27</p> <p>PPN_07-14_implementing_article_6_of_the_energy_efficiency_directive.pdf (publishing.service.gov.uk)</p> <p>Energy White Paper</p> <p>Set up targets to future de carbonization and energy efficiency</p> <p>Energy White Paper (publishing.service.gov.uk)</p> <p>Energy policy</p> <p>Energy policy: an overview (parliament.uk)</p>

The Renewable Energy, Energy Efficiency and Motor Fuel Emissions (Miscellaneous Amendments) (EU Exit) Regulations 2021

“At the end of the Transition Period the UK will no longer align with the 2009 Renewable Energy Directive and 2012 Energy Efficiency Directive. This SI therefore fixes legal deficiencies which arise in regulations transposing part of the requirements of these Directives. Among other fixes, the SI removes references to EU law and EU institutions and removes obligations to submit energy efficiency plans and reports to the Commission after 2020.”

[The Renewable Energy, Energy Efficiency and Motor Fuel Emissions \(Miscellaneous Amendments\) \(EU Exit\) Regulations 2021 - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/consultations/the-renewable-energy-energy-efficiency-and-motor-fuel-emissions-miscellaneous-amendments-eu-exit-regulations-2021)

Maybe worth considering too the:

Energy Performance of Buildings (EPB) Regulations 2012 partly be transposed Directive 2010/31/EU

In May 2020 there was a consultation to change energy performance of Building regulations of 2012

[Energy Performance of Buildings - consultation \(publishing.service.gov.uk\)](https://publishing.service.gov.uk/government/consultations/energy-performance-of-buildings-consultation)

The scope: “seeks views on proposals to amend the existing Energy Performance of Buildings (England and Wales) Regulations 2012 (SI2012/3118) for domestic and non-domestic buildings which will contribute to improving the energy efficiency and reducing the carbon emissions of buildings”

* As set out in the Preamble, this Law transposes the provisions of Energy Efficiency Directive 2012/27/EU and the Energy Performance of Buildings Directive 2010/31/EC, as adapted and adopted by the Energy Community Ministerial Council.

CA-EPB DIRECTIVE

Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency can be found at this [link](#)

The Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings can be found at this [link](#).

In Article 17 - Independent experts, states that:

“Member States shall ensure that the energy performance certification of buildings and the inspection of heating systems and air-conditioning systems are carried out in an independent



manner by qualified and/or accredited experts, whether operating in a self-employed capacity or employed by public bodies or private enterprises.

Experts shall be accredited taking into account their competence.

Member States shall make available to the public information on training and accreditations. Member States shall ensure that either regularly updated lists of qualified and/or accredited experts or regularly updated lists of accredited companies which offer the services of such experts are made available to the public.”

The concerted action on energy performance of building directive can be found at this [link](#).

One of the activities was related to the setup certification schemes for buildings, to be fully implemented by 2009.

The output of this concerted action developed by each member state can be found at this [link](#).

The Implementation of the European directive on Energy Performance of buildings has been accomplished with these national legislations:

Country	EPB Directive Implementation
Denmark	LBK nr 1533 af 16/12/2019: Bekendtgørelse af lov om anvendelse af Danmarks undergrund LBK nr 1215 af 06/02/2020: Bekendtgørelse af lov om varmforsyning LOV nr 883 af 12/05/2021: Lov om ændring af lov om fremme af vedvarende energi, biobrændstofloven, lov om naturgasforsyning og forskellige andre love LBK nr 1923 af 08/10/2021: Bekendtgørelse af lov om fremme af energibesparelser i bygninger LBK nr 1944 af 12/10/2021: Bekendtgørelse af lov om fjernkøling

Ireland

Part L of the Building Regulations Conservation of Fuel and Energy in Dwellings sets the energy and carbon dioxide emissions requirements for new and existing buildings subject to the Building Regulations.

<https://www.gov.ie/en/publication/39fe4-energy-performance-of-buildings/?referrer=http://www.housing.gov.ie/housing/building-standards/energy-performance-buildings/energy-performance-buildings#energy-performance-of-buildings-directive>

Energy Performance of Buildings Regulations 2021 - Technical Guidance - <https://www.gov.ie/en/publication/83fdc-energy-performance-of-buildings-regulations-2021-technical-guidance/>

The Future Homes Standard: changes to Part L and Part F of the Building Regulations for new dwellings

Following a consultation relating to changes to Part L document .

[The Future Homes Standard: changes to Part L and Part F of the Building Regulations for new dwellings - GOV.UK \(www.gov.uk\)](#)

[The Future Buildings Standard - GOV.UK \(www.gov.uk\)](#)

Italy	<p>DECRETO-LEGGE 4 giugno 2013, n. 63 DECRETO LEGISLATIVO 19 agosto 2005, n. 192 as modified by:</p> <ul style="list-style-type: none"> ● DECRETO LEGISLATIVO 29 dicembre 2006, n. 311 ● DECRETO LEGISLATIVO 6 novembre 2007, n. 201 ● LEGGE 6 agosto 2008, n. 133 ● DECRETO 26 giugno 2009 ● LEGGE 23 luglio 2009, n. 99 ● DECRETO LEGISLATIVO 29 marzo 2010, n. 56 ● DECRETO LEGISLATIVO 3 marzo 2011, n. 28 ● DECRETO 22 novembre 2012 ● LEGGE 3 agosto 2013, n. 90 ● DECRETO-LEGGE 23 dicembre 2013, n. 145 ● LEGGE 27 dicembre 2013, n. 147 ● DECRETO 10 febbraio 2014 ● LEGGE 11 agosto 2014, n. 116 ● DECRETO LEGISLATIVO 21 novembre 2014, n. 175 ● DECRETO 26 giugno 2015 ● DECRETO LEGISLATIVO 10 giugno 2020, n. 48 Attuazione della direttiva (UE) 2018/844 del Parlamento europeo e del Consiglio, del 30 maggio 2018, che modifica la direttiva 2010/31/UE sulla prestazione energetica nell'edilizia e la direttiva 2012/27/UE sull'efficienza energetica. ● DECRETO DEL PRESIDENTE DELLA REPUBBLICA 16 aprile 2013 n.74 Requisiti minimi, professionali e di indipendenza degli organismi esterni incaricati delle ispezioni sugli impianti termici ● DECRETO DEL PRESIDENTE DELLA REPUBBLICA 16 aprile 2013 n.75 (modificato da LEGGE 21 febbraio 2014, n.9 e LEGGE 13 luglio 2015, n. 107) Regolamento recante disciplina dei criteri di accreditamento per assicurare la qualificazione e l'indipendenza degli esperti e degli organismi a cui affidare la certificazione energetica degli edifici
Macedonia	<p>Правилник за енергетски карактеристики на згради, Службен весник бр. 94 (2013), 7 (2015), 176 (2015);</p> <p>Regulation on energy performance of buildings (Official Gazette of Republic of North Macedonia, no. 94 (2013), 7 (2015), 176 (2015);)</p>

<p>Netherlands</p>	<p>https://epbd-ca.eu/ca-outcomes/outcomes-2015-2018/book-2018/countries/netherlands</p> <p>EPBD II implementation</p> <p>https://www.rijksoverheid.nl/documenten/kamerstukken/2020/12/02/dutch-response-to-revision-renewable-energy-directive-red-ii</p> <p>https://www.rvo.nl/onderwerpen/duurzaam-ondernemen/gebouwen/wetten-en-regels/nieuwbouw/epbd-iii/systeemeisen-technische-bouwsystemen</p>
<p>Portugal</p>	<p>Decree-Law No. 101-D/2020, of 7 December, which establishes the requirements applicable to buildings to improve their energy performance and regulates the Energy Certification System for Buildings, transposing Directive (EU) 2018/844 and partially Directive (EU) 2019/944</p> <p>Council of Ministers Resolution No. 8-A/2021, of 3 February, approving the Long-Term Strategy for the Renewal of Buildings (ELPRE)</p>
<p>UK</p>	<p>Specific Building control regulations for Conservation of fuel and power in each UK regions:</p> <p>England</p> <p>Approved Document L1A: conservation of fuel and power in new dwellings, 2013 edition with 2016 amendments</p> <p>Approved Document L1A: conservation of fuel and power in new dwellings, 2013 edition with 2016 amendments</p> <p>Approved Document L1B: conservation of fuel and power in existing dwellings, 2013 edition with 2016 amendments</p> <p>Approved Document L1B: conservation of fuel and power in existing dwellings, 2010 edition (incorporating 2010, 2011, 2013, 2016 and 2018 amendments)</p> <p>Approved Document L2A: conservation of fuel and power in new buildings other than dwellings, 2013 edition with 2016 amendments</p> <p>Approved Document L2A: conservation of fuel and power in new buildings other than dwellings, 2013 edition with 2016 amendments</p> <p>Conservation of fuel and power: Approved Document L</p> <p>Conservation of fuel and power: Approved Document L - GOV.UK (www.gov.uk)</p> <p>Scotland</p> <p>Building standards technical handbook 2020: domestic</p>

[Building standards technical handbook 2020: domestic - gov.scot \(www.gov.scot\)](http://www.gov.scot/publications/building-standards-technical-handbook-2020-domestic/)

Building standards technical handbook 2020: non-domestic - gov.scot (www.gov.scot)

<https://www.gov.scot/publications/building-standards-technical-handbook-2020-non-domestic/>

Northen Ireland

Building Control technical booklet F1 Conservation of fuel and power in dwellings

[ech Booklet FI MASTER \(buildingcontrol-ni.com\)](http://buildingcontrol-ni.com)

Building Control technical booklet F2

Conservation of fuel and power in buildings other than dwellings

[TB F2 online version.pdf \(buildingcontrol-ni.com\)](http://buildingcontrol-ni.com)

Building Control technical booklet F1& F2 2014 amendments

[Technical-booklet-amendments-F1-and-F2-2014 \(buildingcontrol-ni.com\)](http://buildingcontrol-ni.com)

Walles

Building Control technical booklets Part L: conservation of fuel and power (parts L: 2014 L1A; 2014 L1B; 2014 L12A; 2014 L2B)

[Building regulations guidance: part L \(conservation of fuel and power\) | GOV.WALES](http://gov.wales)

Approved software software's

[building-regulations-guidance-part-l-conservation-of-fuel-and-power-approved-software-programmes.pdf \(gov.wales\)](http://gov.wales)

Domestic-building-services-compliance-guide.pdf

[building-regulations-guidance-part-l-conservation-of-fuel-and-power-domestic-building-services-compliance-guide.pdf \(gov.wales\)](http://gov.wales)

European directive for the introduction of Building Information Modelling in the public sector

In 2016, the European Commission awarded the EU BIM Task Group for two years funding to deliver a common European network aimed at aligning the use of Building Information Modelling in public works. The group has provided a multilingual handbook that can be downloaded at this [link](#). The following paragraphs were extracted from the handbook.



*Digitalisation is the adoption or increase in the use of digital or computer technology by an entity such as an organisation, industry sector or country. The introduction of Building Information Modelling (BIM) represents the construction sector's moment of digitalisation. It is undisputed that the wider use of technology, digital processes, automation and **higher-skilled workers** contribute greatly to our economic, social and environmental future. The construction sector is strategically important to economies in terms of output, job creation and for the delivery and maintenance of the built environment. The European construction sector output of €1.3tn⁴ (trillion) is approximately 9% of the region's GDP and it employs over 18 million people; 95% of which are employed by small and medium sized enterprises (SME). However, **it is one of the least digitised sectors with flat or falling productivity rates**. The sector's annual productivity rate has increased by only 1% over the past twenty years. Several industry reports identify systemic issues in the construction process relating to its levels of collaboration, under-investment in technology and R&D; and **poor information management**. These issues result in poor value for public money and higher financial risk due to unpredictable cost overruns, late delivery of public infrastructure and avoidable project changes*

*Reports estimate the financial opportunity for digitalising engineering, construction and operations processes to be in the range of 10%–20% of capital project expenditure across vertical construction (buildings) and infrastructure projects. Even using the lower threshold, a 10% productivity improvement of the European construction sector would generate savings of €130 billion. This is a prize worthy of Europe's investment and one that **requires a coordinated and common approach**. This will require leadership and the procurement leverage from Government and public sector clients across Europe who represent the construction industry's single biggest client. Digitalisation of the construction sector represents a once in a generation opportunity to tackle these structural challenges by taking advantage of the general availability of best practices from other industrial sectors and of engineering methods and tools, **digital workflows and technology skills** to shift to a higher level of performance – and to become a digital construction sector.²*

Regarding skills and competences the handbook underlines the importance of the right skills to manage any information along the building process:

The importance and complexity of project and asset information management activities and responsibilities are often underestimated. Every single person working on a construction project requires and generates an enormous amount of data and information. This is not limited to models and drawings. It includes all types of project data, for example schedules, emails, photographs, specifications, etc. Choosing and implementing the most efficient and

²

http://www.eubim.eu/wp-content/uploads/2017/07/EUBIM_Handbook_Web_Optimized-1.pdf



appropriate technical solution that best supports the processes, security and other requirements as well as the needs of the people with the data, is not a trivial task.

Besides, it is highly recommended that responsibilities for data and information management should be assigned to competent and qualified individuals and information management roles should not refer to design responsibilities. Of course, resourcing of data and information management responsibilities should be proportionate to the size and complexity of the project and identifying the information needs, related tasks and required workflows form the basis to fill the roles needed for any contract should be appropriately assigned.

The EU Public Procurement Directive (2014) reference to the encouragement of BIM in public works. The directive can be found at this [link](#). In particular Article 22: Rules applicable to communication, Comma 4 states: *For public works contracts and design contests, Member States may require the **use of specific electronic tools, such as of building information electronic modelling tools or similar.***

A specific reference to the qualification of workers employed in the public tender is recalled in the beginning of the Directive at point (94):

*(94) Wherever the quality of the staff employed is relevant to the level of performance of the contract, contracting authorities should also be allowed to use as an **award criterion the organisation, qualification and experience of the staff assigned to performing the contract in question**, as this can affect the quality of contract performance and, as a result, the economic value of the tender. This might be the case, for example, in contracts for intellectual services such as consultancy or architectural services. Contracting authorities which make use of this possibility should ensure, by appropriate contractual means, that the **staff assigned to contract performance effectively fulfil the specified quality standards** and that such staff can only be replaced with the consent of the contracting authority which verifies that the replacement staff affords an equivalent level of quality.*

The same concept is recalled at Article 19: Economic operators

1. *Economic operators that, under the law of the Member State in which they are established, are entitled to provide the relevant service, shall not be rejected solely on the ground that, under the law of the Member State in which the contract is awarded, they would be required to be either natural or legal persons.*

*However, in the case of public service and public works contracts as well as public supply contracts covering in addition services or siting and installation operations, legal persons may be required to indicate, in the tender or the request to participate, the names and **relevant professional qualifications of the staff to be responsible for the performance of the contract in question.***

Finally, in the same directive award criteria are set for professional qualification. in particular Article 58: Selection criteria, states:

1. *Selection criteria may relate to:*



- (a) suitability to pursue the professional activity;
- (b) economic and financial standing;
- (c) **technical and professional ability.**

Contracting authorities may only impose criteria referred to in paragraphs 2, 3 and 4 on economic operators as requirements for participation. They shall limit any requirements to those that are appropriate to ensure that a candidate or tenderer has the legal and financial capacities and the **technical and professional abilities** to perform the contract to be awarded. All requirements shall be related and proportionate to the subject-matter of the contract.

2. With regard to suitability to pursue the professional activity, **contracting authorities may require economic operators to be enrolled in one of the professional or trade registers** kept in their Member State of establishment, as described in Annex XI, or to comply with any other request set out in that Annex

The implementation of these directive in the different countries is represented in the following table:

Country	Introduction of Building Information Modelling in public works
Denmark	<p>Denmark was the first country to mandate that their state clients use BIM. This was in 2007, and they have since made other projects mandatory too. In 2016, 78% of Danish design companies had a grasp of BIM and used it for a variety of purposes.</p> <p>In the construction industry, 65% of companies that use BIM expect to use it for all projects in the next 5 years. And 85% of those companies believe BIM can bring value to a construction site.</p> <p>Furthermore, 30% of designers handed their BIM projects over to facility managers. This indicates that there is a growing use of BIM in the FM sector.</p> <p>In Denmark, there is much interest from the public sector regarding BIM. The Palaces and Properties Agency, the Danish University and Property Agency, and the Defence Construction Service have a large impact on the construction market due to IFC requirements. Additionally, BIM is part of Denmark’s building regulatory laws.</p> <p>Denmark also launched the Digital Construction project. From this, they developed guidelines for using 3D CAD in future projects.</p> <p>Bips, a private company, built on the Digital Construction project and has actively pursued R&D for BIM. They published BIM guidelines in 2006.</p> <p>Denmark mandated that all government offices and university buildings implement BIM in 2012. Furthermore, since 2011, all public projects need to implement BIM as well.</p>

	<p>Since 2013, Denmark has used a BIM framework based on ICT regulations 118 and 119.</p> <p>The Digital Construction Project commissioned the National Agency for Enterprise and Construction to release guidelines for working with BIM applications.</p>
Ireland	<p>https://www.gov.ie/en/press-release/7cefd-government-strategy-to-increase-use-of-digital-technology-in-key-pub/</p> <p>https://www.tudublin.ie/explore/news/minister-mcgrath-announces-winner-of-the-construction-sector-build-digital-grant.html</p>
Italy	<p>DIRETTIVA 2014/24/UE DEL PARLAMENTO EUROPEO E DEL CONSIGLIO del 26 febbraio 2014 sugli appalti pubblici e che abroga la direttiva 2004/18/CE link</p> <p>DECRETO LEGISLATIVO 18 aprile 2016, n. 50 Attuazione delle direttive 2014/23/UE, 2014/24/UE e 2014/25/UE sull'aggiudicazione dei contratti di concessione, sugli appalti pubblici e sulle procedure d'appalto degli enti erogatori nei settori dell'acqua, dell'energia, dei trasporti e dei servizi postali, nonché per il riordino della disciplina vigente in materia di contratti pubblici relativi a lavori, servizi e forniture link</p> <p>Decreto Ministeriale numero 312 del 02/08/2021 link</p> <p>LEGGE 29 luglio 2021, n. 108 Conversione in legge, con modificazioni, del decreto-legge 31 maggio 2021, n. 77, recante governance del Piano nazionale di ripresa e resilienza e prime misure di rafforzamento delle strutture amministrative e di accelerazione e snellimento delle procedure link</p>
Macedonia	<p>There is no directive for BIM implementation in public procurement in force in Macedonia</p>
Netherlands	<p>Directive 2014/24/EU on public procurement is implemented in the Netherlands in the Public Procurement Act 2016 (Aanbestedingswet 2016 (Aw)). This act not only implements the applicable directive, but also contains a national framework for procurement.</p> <p>The use of EIRs with BIM requirements in the Netherlands</p> <p>The EIRs most commonly used (by the larger contracting authorities) in the Netherlands are those from the Dutch Roads and Waterways Authority (Rijkswaterstaat), Prorail (contracting authority regarding the development and maintenance of railroads) and the Central Real Estate Agency (Rijksvastgoedbedrijf). By the way, in Dutch is the EIR is called an Informatie Levering Specificatie (ILS). Those EIR'S are very detailed, and very technical. In practice, EIRs in the Netherlands come, like BIM, in different shapes and sizes. There is a differentiation in ways of describing the digital needs: using technical or functional requirements,</p>

	<p>or a mix of both. Furthermore, there is a differentiation in specification of the more technical requirements, ranging from very technical and detailed, to very simple output specifications aimed at ‘bare’ data regarding certain aspects of the physical building. This approach complies with the approach recommended in the EU BIM Handbook (p. 22) to protect against over-specified requirements that may incur additional costs and introduce waste to the process. Source and more info: https://www.linkedin.com/pulse/bim-procurement-law-netherlands-part-1-evelien-bruggeman/ https://www.linkedin.com/in/evelien-bruggeman-2a24383/detail/recent-activity/posts/</p>
<p>Portugal</p>	<p>There is no directive for BIM implementation in public procurement in force in Portugal</p>
<p>UK</p>	<p>Government Construction Strategy - UK Government's BIM Mandate Building Information Modelling (BIM) Level 2 became mandatory for use on all public sector works in 2016</p> <p>Construction 2025: industrial strategy for construction - government and industry in partnership reinforces the requirement for using BIM Industrial Strategy: government and industry in partnership (publishing.service.gov.uk)</p> <p>Creating a Digital Built Britain (withdrawn in Aug2021) “a partnership between the Department of Business, Energy & Industrial Strategy (BEIS) and Innovate UK to create a digital economy for infrastructure, buildings and services.</p> <p>The programme was designed to transform how the UK construction industry and operations management professionals approach social and economic infrastructure through digital technology. This includes the way we plan, build, maintain and use that infrastructure, as well as the renewal, replacement and creation of new built assets.”</p> <p>[Withdrawn] Creating a Digital Built Britain: what you need to know - GOV.UK (www.gov.uk)</p> <p>Digital Built Britain Level 3 Building Information Modelling - Strategic Plan Digital Built Britain – Level 3 Strategy (publishing.service.gov.uk)</p> <p>UK Digital Strategy UK Digital Strategy - GOV.UK (www.gov.uk)</p> <p>Scotland Scottish guidance for Implementation of Building Information Modelling within construction projects</p>

[Implementation of building information modelling within construction projects: SSPN 01/2017 - gov.scot \(www.gov.scot\)](https://www.gov.scot/publications/implementation-of-building-information-modelling-within-construction-projects/implementation-of-building-information-modelling-within-construction-projects-sspn-01-2017-10-2017/implementation-of-building-information-modelling-within-construction-projects-sspn-01-2017-10-2017.pdf)

Northern Ireland

Procurement guidance note- PGN 03/15: Building Information Modelling (BIM)

[PGN 03/15: Building Information Modelling \(BIM\) | Department of Finance \(finance-ni.gov.uk\)](https://www.finance-ni.gov.uk/procurement-guidance-note-pgn-03-15-building-information-modelling-bim)

“The Northern Ireland BIM policy is that from 1 April 2016, all government centrally procured construction projects with a value greater than the European Union procurement threshold for construction works shall, where there is potential for efficiency savings, be delivered to BIM 'Maturity Level 2'

[Building Information Modelling \(BIM\) | Department of Finance \(finance-ni.gov.uk\)](https://www.finance-ni.gov.uk/building-information-modelling-bim)

Conclusions

In all the above-mentioned directives there is a specific reference to the employment of trained/qualified human resources. The use of these resources is always recommended in public tenders. However, the qualification systems are different in each country and to make the qualification comparable, the European qualification framework (EQF) was set up in 2008 and later revised in 2017. Its revision has kept the core objectives of creating transparency and mutual trust in the landscape of qualifications in Europe. The EQF approach should supersede the need to have mutual recognition of different qualification/certification systems in each member state.

The ARISE partner will use the EQF approach to describe the competences in the domain of energy performance and digitalization of buildings recalled in the above directives and already identified in previous European projects developed within the H2020 build-up skills initiative and the Erasmus program.

The ARISE platform will then provide the tools to demonstrate the possession of the required skills and competences. The system will be proposed as “the European platform” that any public administration could use to ensure the employment of workforce with the right skills and competences, in public tenders addressed to the design, the realization, the management, and the maintenance of high energy performance buildings.