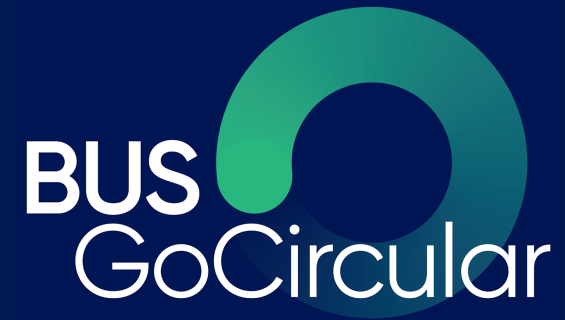


BUS GoCircular

“Training Pack” - EU



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101033740



Shaping a Circular Sustainable Future

Module 1

INTRODUCTION TO CIRCULAR ECONOMY IN CONSTRUCTION

Circular Economy in the Construction Industry Summary



Through this module the learner will gain an understanding of what the Circular Economy is in a general sense and what the benefits and barriers are in order to implement this today. They will explore the current situation within Europe and internationally in relation to the Circular Economy and further explore how this relates to the construction industry.

Click here to discover the module! You will need internet connection.

MODULE 1 - P1



**Duration
4 hours**

More cases studies of circular design in Materials, waste, energy & water

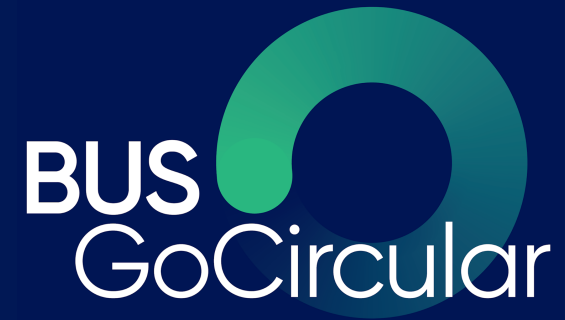


Click here to discover the module! You will need internet connexion.

[MODULE 1 - P2](#)



Duration
2 hours



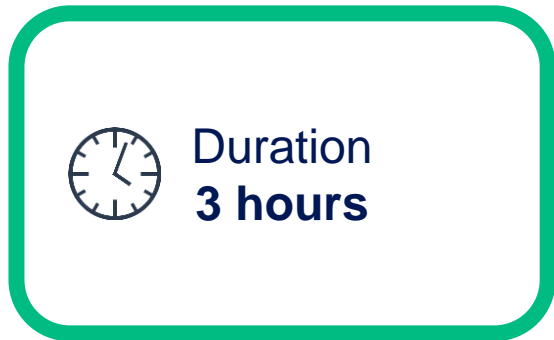
Shaping a Circular Sustainable Future

Module 2

OVERVIEW OF THE EU POLICY FRAMEWORK FOR THE CONSTRUCTION SECTOR

European Policy Framework in the context of design and construction industry and circularity

This module aims to provide a brief overview of the European policy framework most related to the built environment, energy efficiency and decarbonization of the EU building stock in the last decades. The European Green Deal, the European Climate Law, Fit for 55 package, Energy Performance of Buildings Directive (EPBD), the Energy Efficiency Directive (EED) and the Renewable Energy Directive (RED) and the New European Bauhaus will be presented in this module. The module covers the main updates proposed for the on-going revision of the EPBD.

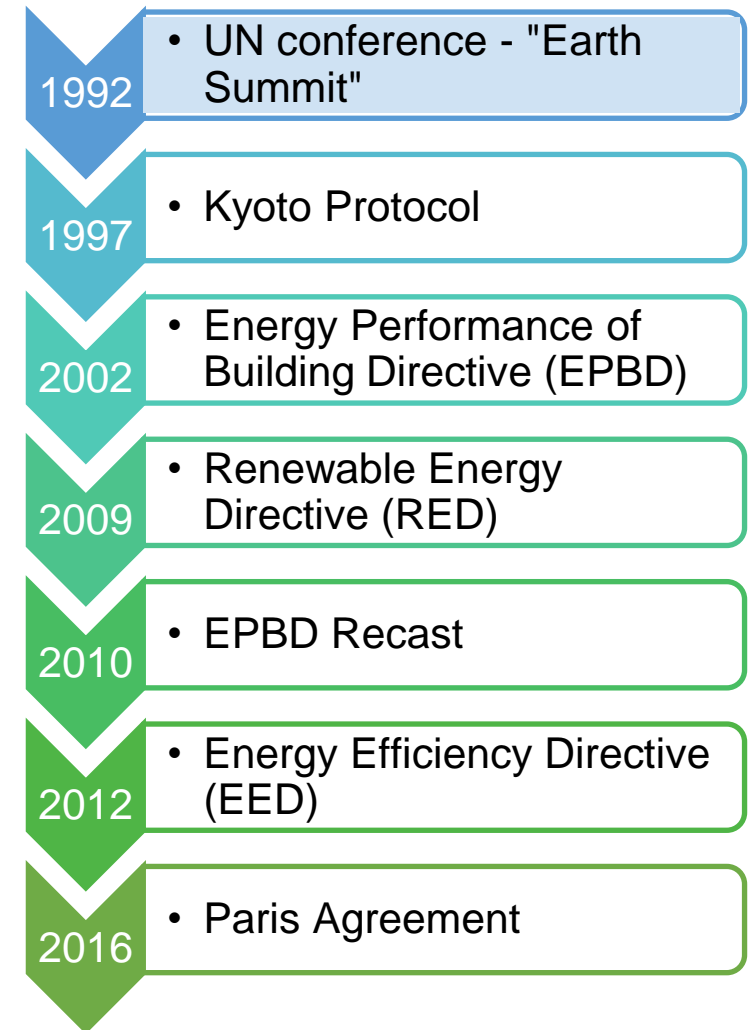


Timeline - Climate policy framework evolution

The international political discussion on the topic of the environment, development and climate have been evolving for some decades now. In 1992, the United Nation conference on environment and development hosted in Rio de Janeiro was the first step to develop a political agenda that considered the balance between the social, economic and environmental dimensions fundamental to maintain human life in the planet.



Do you know Severn Cullis-Suzuki's speech at the UN Conference in 1992?

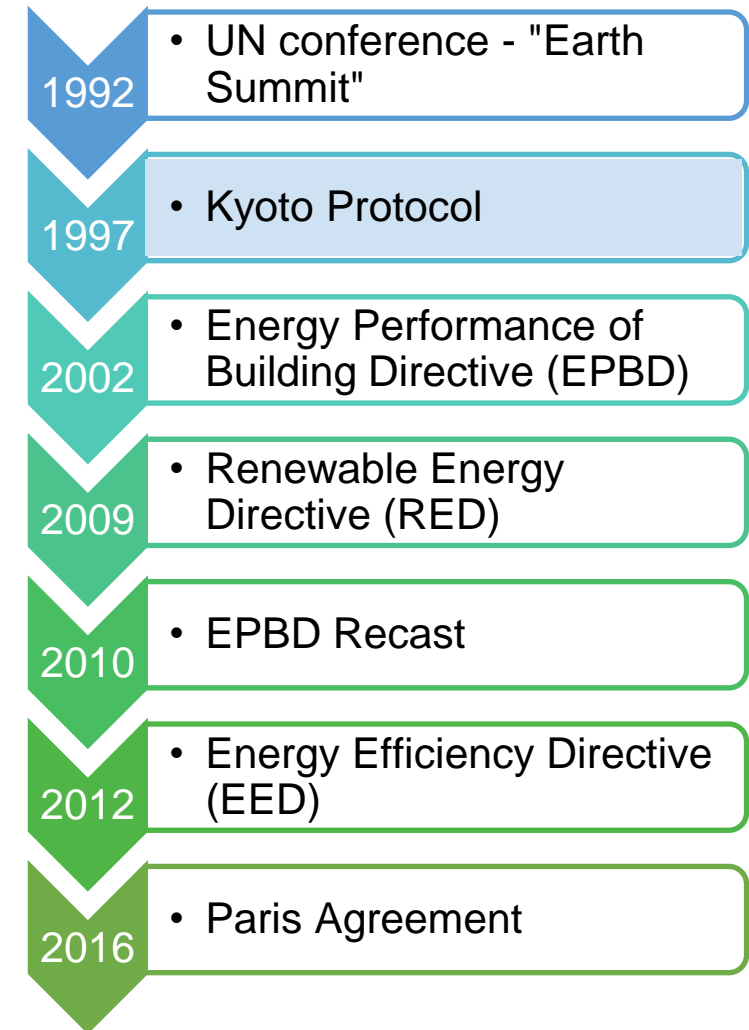


Timeline - Climate policy framework evolution

In 1997, the discussions have progressed and the Kyoto Protocol was agreed under the United Nations Framework Convention on Climate Change. The Protocol required the adoption of policies to limit and reduce the greenhouse gas emissions to the agreed individual targets for industrialised countries.



Why was the Kyoto protocol so important? - CNN

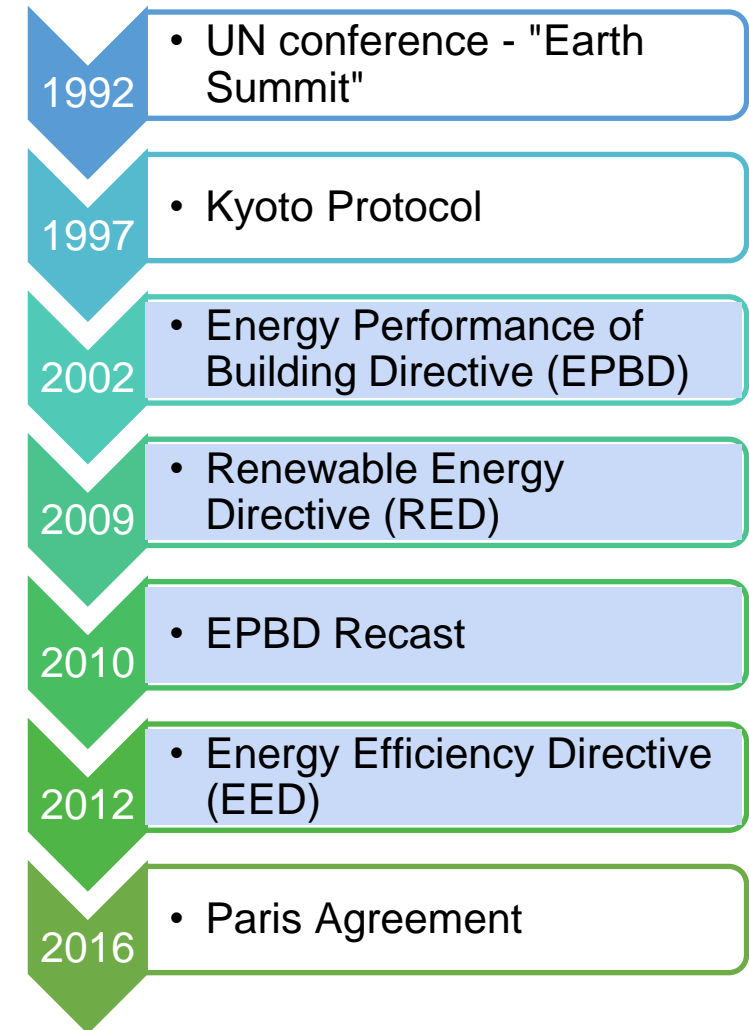


Timeline - Climate policy framework evolution

In the framework of the building sector in Europe, the European Commission have established a set of directives such as the Energy Performance of Buildings Directive (EPBD), the Renewable Energy Directive (RED) and the Energy Efficiency Directive (EED). The directives aim to improve the European building stock by reducing the sector's contribution of 36% of the EU's annual greenhouse gas (GHG) emissions and 40% of the EU's annual energy consumption.



How does the EU decision-making process works? - EU parliament

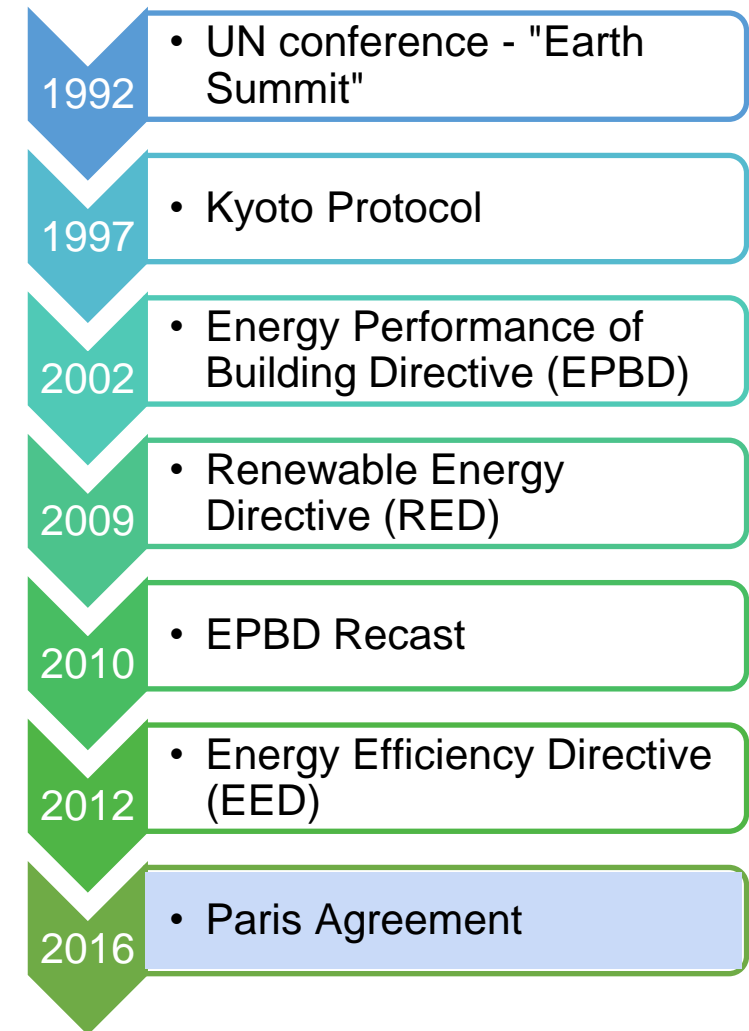


Timeline - Climate policy framework evolution

In 2015, another international political milestone was achieved in the Paris Agreement (2016) at the United Nations Climate Change Conference (COP21). The main objective of the legally binding international agreement is to hold “the increase in the global average temperature to well below 2°C above pre-industrial levels” and pursue efforts “to limit the temperature increase to 1.5°C above pre-industrial levels.”



What is the 'Paris Agreement', and how does it work? - UN Climate Change



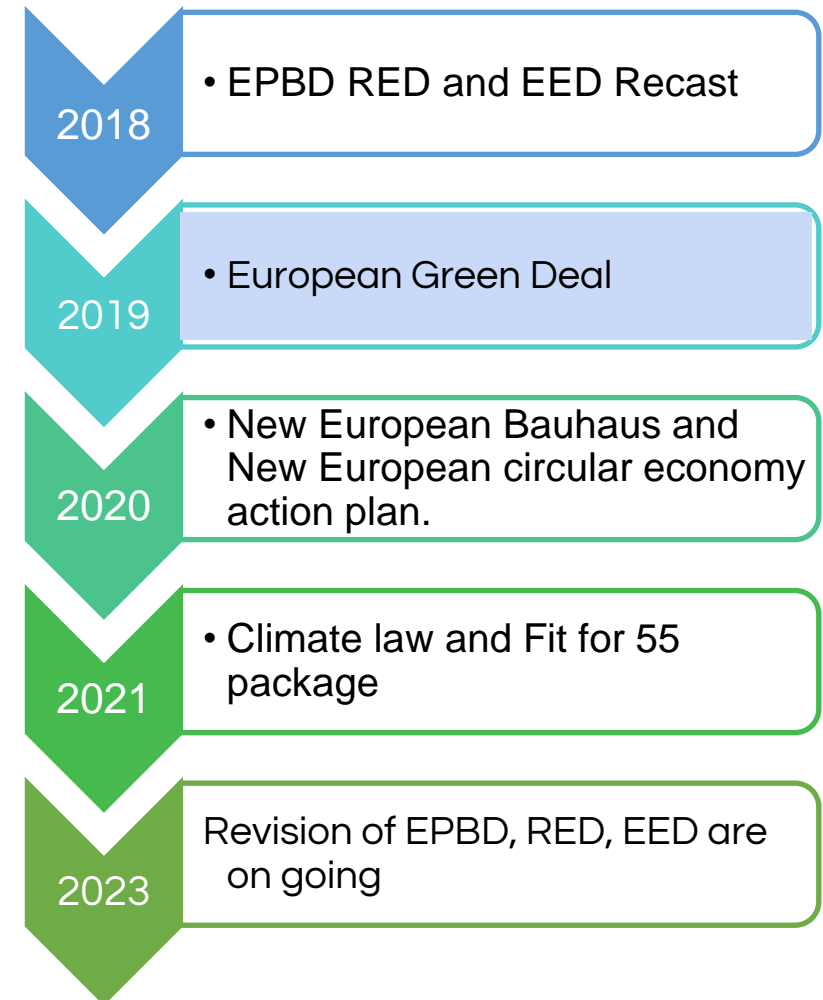
Timeline - Climate policy framework evolution

In 2018, the EPBD, RED, and EED were revised. The directives advance on the decarbonization of the building stock by 2050.

In 2019, the European Green Deal was introduced by the European Commission aiming to make Europe the first climate neutral continent in the world. The ambition was translated into the European Climate law in 2021 and the reduction of EU emissions by at least 55% by 2030 became a legal obligation.



What does it means "a climate neutral EU"? - European Parliament

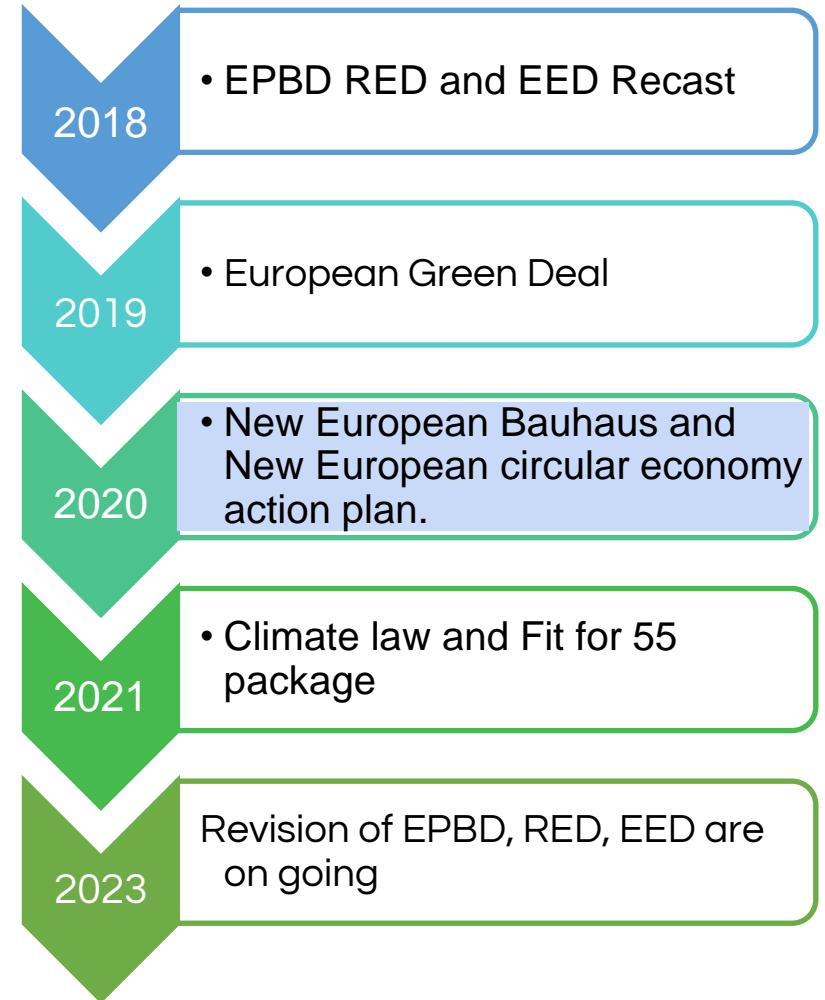


Timeline - Climate policy framework evolution

In 2020, the New European Bauhaus initiative called on European citizens to imagine a built environment that is sustainable, inclusive and beautiful.



The New European Bauhaus in a nutshell - European Commission

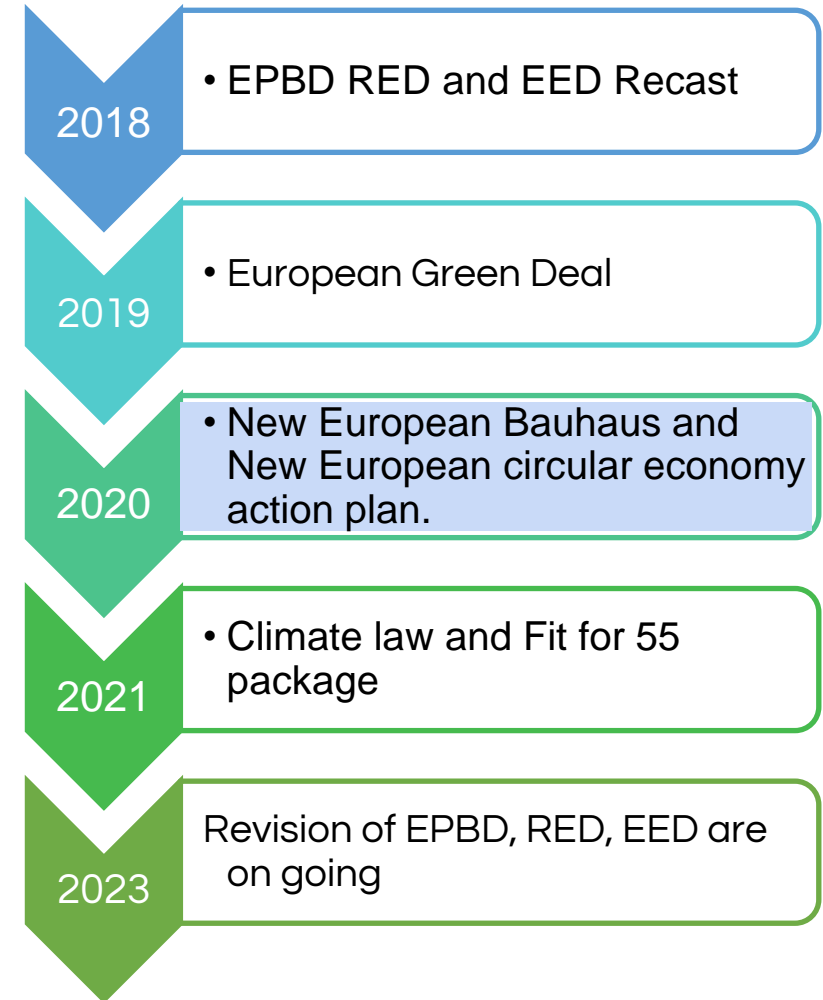


Timeline - Climate policy framework evolution

The Green Deal and the Climate Law brought a wave of revisions to directives and plans. In 2020, the Circular Economy Action Plan was revised to monitor the EU policy and measures effectiveness on circular economy goals.



Circular Economy Action Plan - European Commission

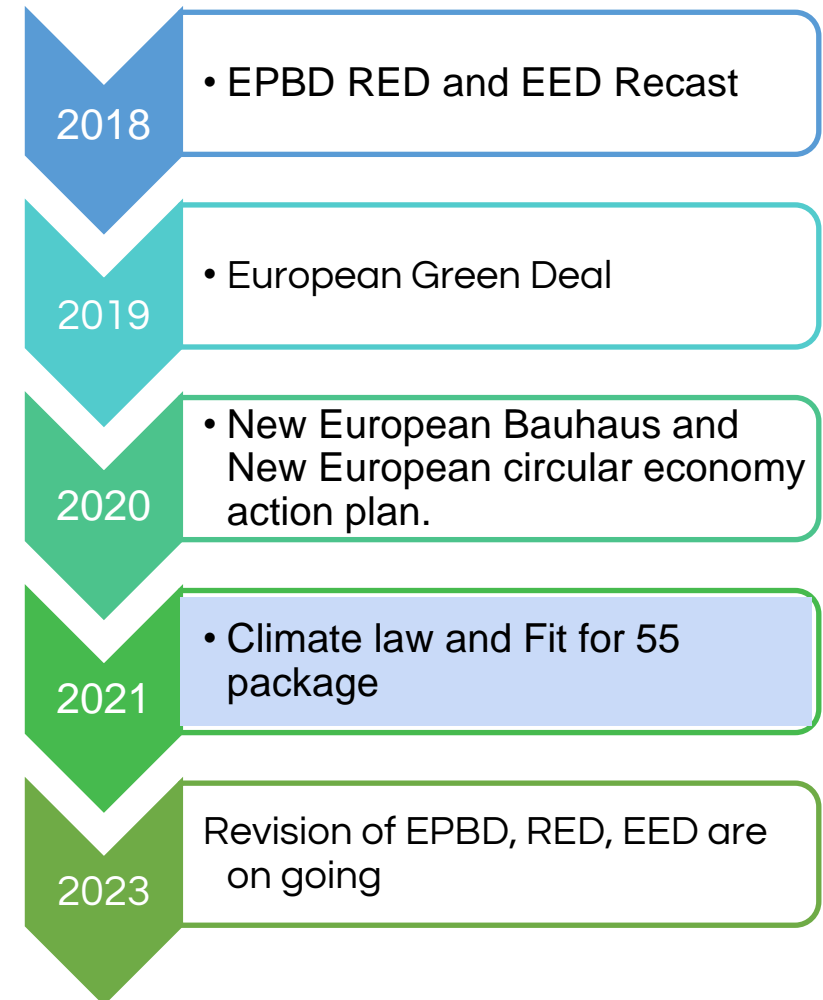


Timeline - Climate policy framework evolution

In 2021, the Fit for 55 package is launched as a set of revision and updates proposed to the EU legislation. By the end of 2023, the RED and EED revisions have been adopted and the EPBD revision is under negotiation.



What is the Fit for 55 package? - European Parliamentary Research Service



Time to know more about your country

Do you know your country's regulations on building performance, energy efficiency and renewable energy?

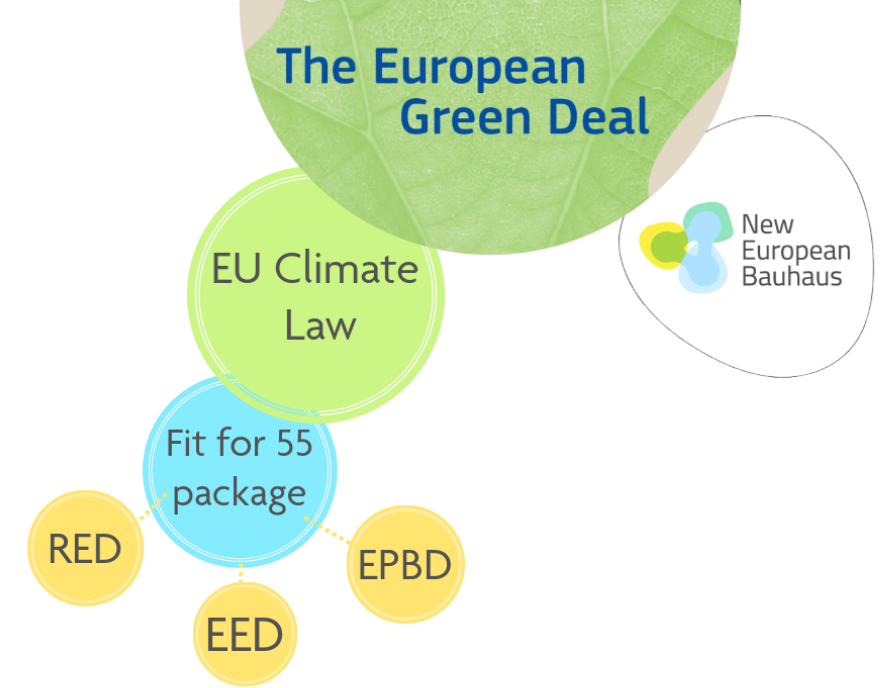
- Do a quick online search and list the main regulations in your country.
- Share your findings with your colleagues. Do you have the same list?



Current EU policy framework

The next slides will focus on the European Green Deal, the European Climate Law, the Fit for 55 package, the Energy Performance of Buildings Directive (EPBD), the Energy Efficiency Directive (EED) and the Renewable Energy Directive (RED) and the New European Bauhaus initiative. It will also highlight some aspects of the proposed revision of the EPBD (2021).

Note: The European Green Deal, the European Climate law and the Fit for 55 Package have a broad scope targeting all sectors of the European economy. The following slides focus on the design and construction sector only. For more information on other sectors, please refer to the links provided in the "Extra Material" slides.



European Green Deal

The European Green Deal presented in December 2019 aims to make Europe the first continent to achieve climate neutrality by 2050 meaning that all 27 EU members states are committed to reduce emissions by at least 55% by 2030, compare to 1990 levels.

This initiative aims to drive Europe towards a green transition in all sectors of the economy, not only to reduce emissions but also to create jobs and growth, fight energy poverty, reduce external energy dependency and improve the health and well-being of citizens.

Considering the building design and construction sector, the European Commission main objectives encompasses an increase of 40% of renewable sources in the EU energy grid, the potential creation of 160.000 additional green jobs in the construction sector and the potential renovation of 35 million buildings by 2030.

The initiative also requires that public buildings to lead by example by having at least 3% of the total floor area of all public buildings annually renovated, 49% of renewable in buildings adopted by 2030 and a increase of 1,1 % each year in renewable energy for heating and cooling by 1.1% until 2030.



European Climate law

The European Climate law makes the European Green Deal's target of net zero greenhouse gas emissions by 2050 legally binding. The law also aims to ensure that all EU policies are aligned with this target, bringing in all sectors of the economy and society.

One of the law main points are

- The **reduction of greenhouse gas emissions by at least 55%** net emission target for 2030 compare to 1990 levels.
- The legal objective to **reach climate neutrality target by 2050** in Europe.
- The establishment of a **European Scientific Advisory Board on Climate Change**, that will provide independent scientific advice.
- Stronger provisions on adaptation to climate change.
- A commitment to engage with sectors and **prepare sector-specific roadmaps to achieve climate neutrality in different areas of the economy.**

The European climate law entered into force on the 29th July 2021.



Fit for 55 package

The Fit for 55 package is a set of proposals to revise, update EU directives in order to implement the European Green Deal climate goals agreed by the European Council and the Parliament and in line with the European Climate Law.

The proposed framework encompasses different sectors of the European economy. In this learning material, we will focus on the directives related to the building design and construction sector, such as the Energy Performance in Buildings Directive (EPBD), the Energy Efficiency Directive (EED) and the Renewable Energy Efficiency Directive (RED).

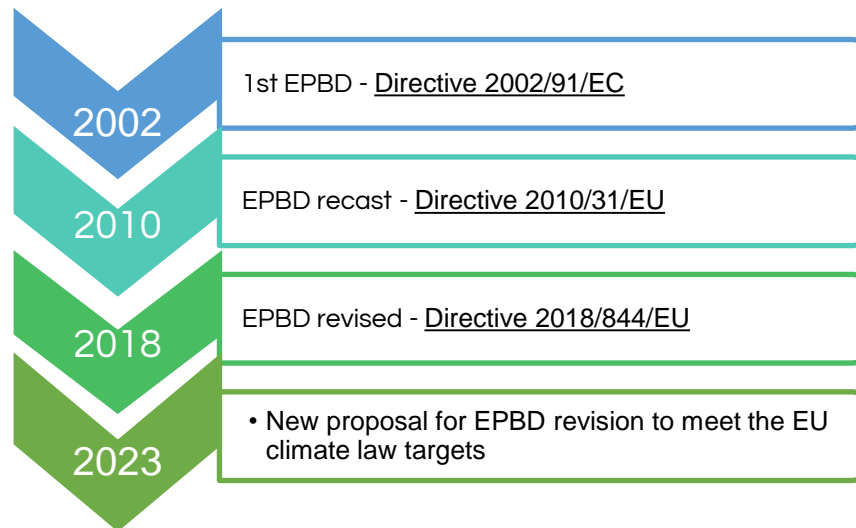
The revision/updating of EPBD, EED, RED are part of the activities of the Fit for 55 package. The next slides will introduce the main points of these directives.



Energy Performance of Building Directive - EPBD

The Energy Performance of Buildings Directive contributes to the framework of energy efficiency in EU buildings. The first Directive, published in 2002, set the framework to improve energy performance of new and existing buildings. In 2010, the Directive revision set the ambition to achieve nearly zero energy building (nZEB) using renewable energies by 2020. The last update/revision ([Directive 2018/844/EU](#)) in 2018 focused on the decarbonisation of the building stock by 2050, and the adoption of smart technologies.

The European Commission's proposal to revise the EPBD ([COM/2021/802 final](#)) is currently under negotiation. The following slides highlight some key elements of the proposal.



EPBD proposal 2021

Zero-emission Buildings (ZEB))

In 2018, Directive revision set the requirement for all new buildings to be nearly zero-energy by 2020 and all new public buildings to be zero-energy after the end of 2018.

The proposal to revise the Directive from December 2021, requires that that



- **All new buildings** to be **zero emission** by 2030.
- new public buildings must be **zero emission** already by 2027.

Nearly Zero Energy Buildings (nZEB)

“nZEB is a building with a very high energy performance, with the very low amount of energy still required fully covered by energy from renewable sources and without on-site carbon emissions from fossil fuels.”

Definition from the EPBD proposal 2021

EPBD proposal 2021

Global Warming Potential (GWP)

The proposal also requires that



- Global Warming Potential (GWP) lifecycle calculations in accordance with the Level(s) framework should be included in the **Building Certificate** from the 1 January 2027 for all new buildings with a useful floor area greater than 2.000m² and from 1 January 2030 for all new buildings.

Global Warming Potential (GWP)

In buildings, the GWP indicated the buildings contribution to climate change encompassing embodied greenhouse emissions in the construction products considering direct and indirect emissions from “in use” stage.

Thresholds for different European climatic zones and building typologies are established in the Annex III.

EPBD proposal 2021

Energy Performance Certificate - EPC

The Energy Performance Certificate (EPC) for buildings was introduced in the first EPBD Directive in 2002 . The certificate contains information on the energy performance rating and should be provided to consumers when renting or purchase a property.

The new proposal requires that



By 2030, **all buildings with EPC label G have to be renovated to achieve at least label F**. Public buildings and non-residential Building have to achieve this by 2027. Residential buildings should be renovated to achieve at least F by 2030 and at least E by 2033.



- The **EPC must be in place for all public buildings, renewed rental properties and major building renovations**. The EPC label should be included all rental or sale advertisements.

- also put forward the **harmonisation of EPC scale across Europe**, considering national differences. It states that **Class A EPC label represent Zero-Emission Buildings (ZEB), while Class G includes the 15% worst performing buildings in the national stock**.

The proposal requires **all EPCs to be issued digitally and all EPCs to be stored in a national database** which will also include information on the renovation passport and smart readiness. The national database information should be transferred to the Building Stock Observatory developed by the European Commission.



EPBD proposal 2021

Renovation Passport

The Renovation Passport provides a roadmap for the building owners to plan and set steps to their renovations to achieve Zero-Emission by 2050. The Renovation Passport can include information on energy savings, and reductions in energy bills and greenhouse gas emissions and benefits on improved health and comfort as well the adaptive capacity of the building for climate change.

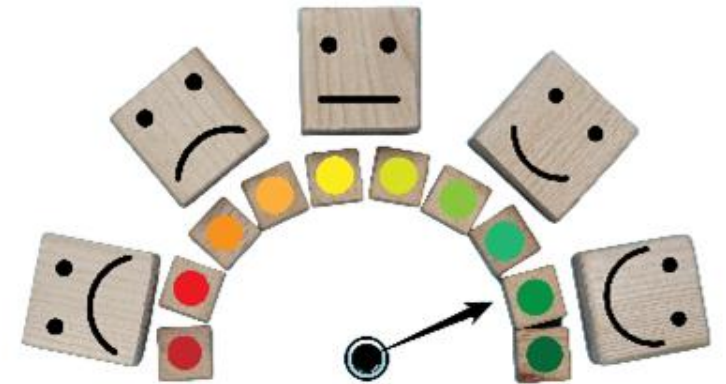
Overall the **Renovation Passport will be issued by an expert** and will present a step-by-step renovation strategy towards Zero-Emission target, providing easily accessible information for building owners.



EPBD proposal 2021

Smart Readiness indicator

The Smart Readiness indicator, introduced in 2018 the EPBD recast, rates the building on its capacity to adapt to the occupants requirements and the energy grid availability to improve the overall building performance and energy efficiency based on data collected during the building use. It is particularly useful for buildings with a high energy demand that are equipped with building automation and electronic monitoring of their systems.



EPBD proposal 2021

National Building Renovation Plan (NBRP)

The National Building Renovation Plan (NBRP) evolves from the existing Long Term Renovation Strategy (LTRS). **Each country should present a national strategy to achieve a building stock highly energy efficient and support the transition to Zero-Emission Buildings (ZEB).**

National Building Renovation Plans must be aligned with the National Energy and Climate Plans setting the target for the renovation and decarbonisation of the building stock at National level, to be reported every two years. Mandatory and optional target indicators are established at the EPBD proposal (Annex II).



EPBD proposal 2021

Minimum Energy Performance Standards (MEPS)

The Minimum Energy Performance Standards (MEPS) is one of the main addition to the proposal. The MEPS requires that

	Achieve Class F by	Achieve Class E by
Buildings owned by public bodies	2027	2030
Non-residential buildings	2027	2030
Residential buildings	2030	2033

MEPS may be established nationally for the renovation of all other buildings. A national roadmap should establish targets for 2030, 2040 and 2050 considering the MEPS.

Time to know more about your country

Group work

- Form a team of 4 people
- Each member chooses a topic from the list below.
- Each member should make a brief research on the national regulation for each topic.
- Each member should give a short presentation of his/her findings to the group.

List of topics:

- EPC,
- Building Passport,
- Smart Readiness Indicator,
- National Building Renovation Plans.



Renewable Energy Directive - RED

The Renewable Energy Directive (RED) is a legal framework to support the adoption of clean energy across all economic sectors in Europe. In October 2023, the Council adopted the revision of the RED. In the framework of the building sector, the main target is to achieve **at least 49% of renewable energy share**.

The targets for heating and cooling in buildings will increase **by 0.8% every year at national level until 2026 and 1.1% from 2026 to 2030**. It was also approved a faster permit approval for renewable energy projects.



Energy Efficiency Directive - EED

First adopted in 2012, the directive was updated in 2018 and 2023, setting rules and obligations for achieving the EU's ambitious energy efficiency in all sectors of the European market. The main target agreed in the last revision is **the reduction of at least 11.7% in 2030 of energy consumption compared to the projections of the 2020 EU Reference Scenario.**

Regarding the building sector the main points in the directive are

- **At least 3%** of the total heated and/or cooled floor area of all building owned by public bodies should be **renovated to achieve nearly Zero Energy Buildings or Zero Energy Buildings.**
- **At least 1.9% annually of energy consumption reduction** in the public sector.
- Energy improvements actions should prioritise vulnerable citizens and energy poor households.
- Introduce a legal requirement to put energy efficiency first in planning and investment decisions.



Time to know more about your country

- Give examples from your country of buildings that apply renewable energy sources.
- Give examples of nZEB building in your country.
- Share with your colleagues.



New European Bauhaus - NEB

The New European Bauhaus (NEB) is an initiative launched by the European Commission in 2021 as part of the European Green Deal. The initiative ambition is to create a sustainable environment, inspired by art and culture, bringing together people from all walks of life, backgrounds and needs. The movement **embraces art, culture, science and technology in a collaborative and life-centred perspective inspired by and learning from nature.**

The movement propose a collaborative rethinking the building environment based on three main pillars: **beautiful, sustainable, and together.**



New European Bauhaus - NEB



The information about New European Bauhaus initiative can be found in the **“New European Bauhaus: a handbook”**, developed by the EU-funded [NEBULA project](#). The handbook aims to provide a full overview of the New European Bauhaus initiative, addressing topics such as

- the NEB concept,
- NEB labs,
- NEB dashboard,
- NEB festival,
- NEB compass ("NEB by design"),
- funding programs, and
- NEB prize.

The document also includes a number of NEB project examples, organised along the three NEB core values: “Beautiful”, “Sustainable”, and “Inclusive”.



<https://built4people.eu/everything-you-ever-wanted-to-know-on-the-new-european-bauhaus-is-in-nebulas-handbook/>

Time to know more about your country

- Have you ever been involved in the design and/or construction of a building that could be considered NEB by design?
- Look at the NEB compass in the New European Bauhaus: a handbook and apply the criteria to a building you have worked on.
 - Could this building be NEB by design?
 - What are the elements that could have been used to make the building NEB by design?
- Share your findings with your colleagues.



EXTRA MATERIAL - Level(s) Framework

Level(s) is a European framework that provides a common language for **assessing and reporting the sustainable performance of buildings throughout their life cycle**. The framework supports the design and construction sector in achieving the objectives of the EU Green Deal and the EU Circular Economy Plan.

Level(s) is not a certification scheme. Rather, **it is a free and open framework that provides a set of indicators that inform on the building performance and set sustainable benchmarks for the design and construction sector**.



What is Level(s)? - EU Environment

Level(s) platform

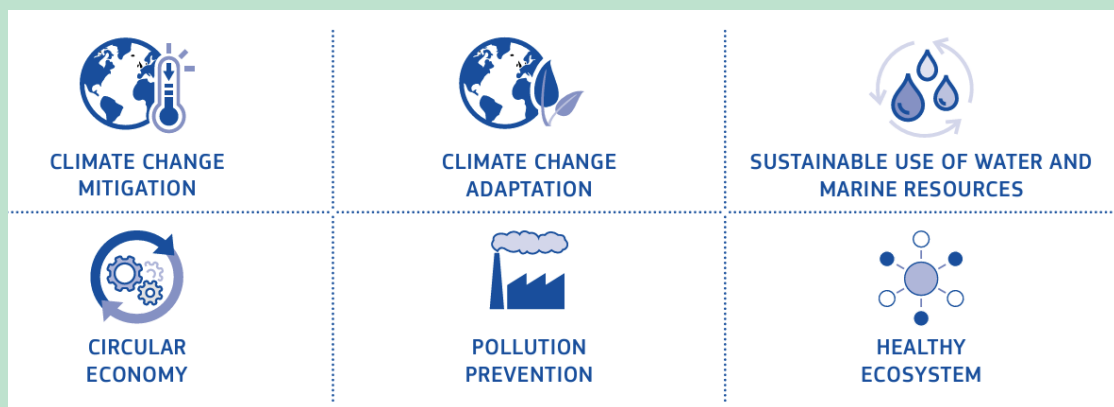
The Level(s) framework has a rich and resourceful website that covers all conceptual aspects of the framework, providing eLearning tools and materials, manuals and communication and participation channels.

Access the website in the link below.
https://environment.ec.europa.eu/topics/circular-economy/levels_en

EXTRA MATERIAL - EU taxonomy

The EU Green Classification System, or simply the EU Taxonomy, provides an EU-wide system for classifying environmentally sustainable economic activities. In other words, it is a common language that provides definitions of economic activities that can be considered environmentally sustainable. It is an important tool for achieving the objective set in the EU Green Deal by helping researchers, policy makers and industry to identify environmentally sustainable economic activities.

The [Taxonomy Regulation](#) will enter into force in July 2020. The regulation sets six environmental targets, as shown below.



Source: Finance and sustainable growth factsheet. European Union 2019

An environmentally sustainable economic activities **must make a substantial contribution to at least one goal**, while **doing no significant harm to any of the other five goals**. It should also comply with the minimum safeguards and technical screening criteria set out in the [Taxonomy delegated acts](#).

EU taxonomy compass

It is a user-friendly website that provides tools for applying and better understanding the principles of the EU taxonomy. The website includes the EU Taxonomy Compass, the EU Taxonomy Calculator, a Frequently Asked Questions section and the EU Taxonomy Guide (2023).

Access the website in the link below.
<https://ec.europa.eu/sustainable-finance-taxonomy/>

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Colophon

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