



ASSESSING AMBITION LEVELS IN NEW BUILDING STANDARDS ACROSS THE EU



Our first study of 2022, 'Ready for carbon neutral by 2050?' showed decarbonisation of new buildings in the EU is happening too slowly and inconsistently.

Key message:

Failure to decarbonise new construction will hinder achievement of 2030 and 2050 climate targets.

Ambition levels and definition of NZEB standards should be rigorously reviewed in the EPBD revision, and EU Member States heavy dependence on fossil fuels for heating purposes must be addressed.



ROADMAP TO CLIMATE-PROOF BUILDINGS AND CONSTRUCTION HOW TO EMBED WHOLE-LIFE CARBON IN THE EPBD



Key message:

At minimum, the EPBD should set a strong vision for WLC of buildings and construction that ensures a step-wise approach and timely implementation plan.

Waiting until the next EPBD revision in 2027 to integrate a plan for whole-life carbon will be too late.



INTRODUCTION

In December 2021, the European Commission published its proposal for recasting the Energy Performance of Buildings Directive (EPBD). This revision is a full recast, with many provisions either introduced or modified and covering a broad set of issues. This paper provides a high-level assessment of the main provisions of the EPBD recast proposal, benchmarking the potential impact of the Directive compared to its announced 2050 vision for the building stock, as well as the expected contribution to the 2030 climate target. For a full set of recommendations from BPIE on the EPBD revision, please refer to [the earlier policy paper](#).¹

“An ambitious Buildings Directive is crucial to achieve a climate-neutral building sector, while the proposed carbon pricing in the building sector can be a complementary measure to a successful EPBD.”

The EPBD must be considered a pivotal element of the Fit for 55 Package as it is the key legislative tool to deeply renovate and fully decarbonise the building stock in a way that brings benefits to all citizens and protects the most vulnerable. Delivering on the 2030 and 2050 climate targets in a socially just manner will not be possible by relying only on the legislative measures proposed under the first part of the Fit for 55 Package in July 2021.

The current recast EPBD proposal is a good working basis for improving the building renovation ecosystem (planning, financing, information and advisory tools), but changes might end up meaning less and won't lead to the expected impact if they are not geared towards the right objectives.

¹ BPIE (Buildings Performance Institute Europe) (2021) 'The make-or-break decade: Making the EPBD fit for 2030'. <https://www.bpie.eu/en/publications/make-or-break-decade-making-the-epbd-fit-for-2030>

READY FOR CARBON NEUTRAL BY 2050? ASSESSING AMBITION LEVELS IN NEW BUILDING STANDARDS ACROSS THE EU

2022 started off with a look at two complementary topics of massive strategic importance for the EU decarbonisation agenda: new building standards and whole-life carbon.

Country / Region	Primary energy (PE) requirement	Minimum share of RES in energy demand	Carbon emission limits	Fossil fuel phase-out
Flanders (Belgium)	Green	Yellow	Red	Green
France	Orange	Green	Yellow	Orange
Germany	Yellow	Orange	Red	Orange
Italy	Yellow	Orange	Red	Red
Poland	Yellow	Orange	Red	Yellow
Spain	Yellow	Orange	Red	Orange



Delaying and watering down home renovations is short-sighted and unfair to citizens

A WHOLE-LIFE CARBON ROADMAP

Decarbonisation of new construction will also require measuring the whole-life carbon emissions of a building.

This policy roadmap argues that the EPBD recast should ensure a comprehensive vision of a carbon neutral building and construction sector, and set the requirements and clear triggers to reduce whole-life carbon emissions of the building stock in order to align the provisions of the EPBD with climate neutrality goals.

Mitigate the climate impact of the sector

Improve comfort and indoor air quality

Link buildings to other infrastructure such as e-mobility

Support Member States to make their building stock smart-ready

THE EPBD IS THUS THE OBVIOUS POLICY TOOL TO SET OUT REQUIREMENTS AND CLEAR TRIGGERS FOR REDUCING WHOLE-LIFE CARBON EMISSIONS OF THE BUILDING STOCK

EPBD RECAST: FIRST ASSESSMENT

Responding to the Commission's EPBD recast proposal in December 2021, this high-level analysis finds that the file is not up to task to fulfill EU climate and decarbonisation goals.

Key message:

While many provisions are either introduced or open for modification, they will not deliver on the Directive's objectives if the ambition is not set at the right level, and if measures are not made more stringent and coherent.

An ambitious Buildings Directive is crucial to achieve a climate-neutral building sector, while the proposed carbon pricing in the building sector can be a complementary measure to a successful EPBD.

FEBRUARY

ADVANCING THE TRANSATLANTIC ECONOMIC RECOVERY WITH BUILDING RENOVATION & CLEAN ENERGY SOLUTIONS

BPIE was proud to conclude a high-level policy dialogue on buildings between the EU and United States, which launched in spring 2021, shortly after US President Biden took office. As signatories of the Paris Agreement, the US has committed to society-wide decarbonization by 2050, and this was affirmed in February 2022 by the 9th US-EU Energy Council in Washington, where the US and EU pledged to base economic recovery on green and sustainable solutions.



POLITICO

Now is the time for transatlantic leadership on decarbonizing buildings



SMARTCITIES DIVE Deep Dive Opinion Library Events

Buildings are a key climate solution: How the U.S. and Europe are cooperating to make progress

Bringing together over 700 stakeholders and decision-makers from the US and the EU, the dialogues demonstrated high interest to share best practice and intensify the trans-Atlantic exchange on energy and buildings policy.

MARCH

UKRAINE CRISIS: STRATEGIC ACTIONS TO REDUCE EU DEPENDENCY ON RUSSIAN FOSSIL FUELS

While the international stage became increasingly preoccupied in getting off Russian fossil fuels, Russia's senseless invasion of Ukraine began.

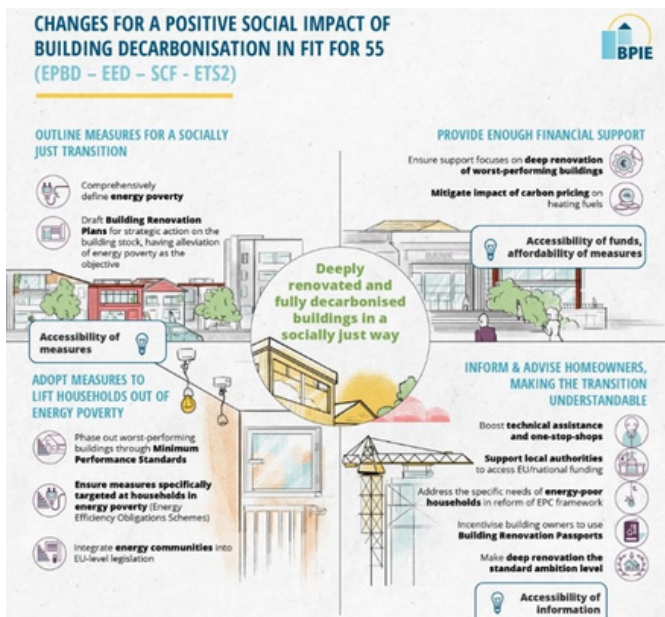
The best reaction we could make was to highlight that the EU's strategy to move away from Russian fossil fuels (which is urgent) should reduce dependency on foreign energy imports overall and that we must focus just as much on reducing demand as changing tactics vis-a-vis supply.



Key message:

Actions taken now must avoid quick fixes which might pose similar future risks. Short and medium-term actions must nonetheless be strategic over the long term.

APRIL



Key message:

It should be the goal of good policy design to ensure that positive impacts prevail, and ultimately it is the responsibility of policymakers to achieve this objective.

QUESTIONING THE NARRATIVE: WHAT ARE THE 'SOCIAL JUSTICE IMPLICATIONS OF BUILDINGS DECARBONISATION POLICIES?

It is easy to lose sight of public perception and wider acceptance (or lack thereof) of decarbonisation policies in the Brussels bubble.

With this in mind, we analysed the implications of EU energy policies on low-to-middle-income, vulnerable and energy-poor households and identified four key areas that policies need to comprehensively address to flip the narrative on building decarbonisation towards a people-centric vision.

REPOWEREU ENERGY SAVING PLAN: TIME TO SWITCH TO ACTION

On 8 March the European Commission published its REPowerEU Communication for joint European action for more affordable, secure and sustainable energy, outlining a path for the EU to decrease its reliance on Russian fossil fuels.

This analysis responds by listing a number of short and longer term measures that can deliver energy savings in the next 18 months while putting the EU on a path compatible with its climate targets.

40%

of EU's total energy consumption

Buildings are responsible for 40% of the EU's total energy consumption



Heating, cooling, and domestic hot water represent around 80% of the energy consumed in buildings, with fossil-fuels contributing more than ¾ of this.⁶

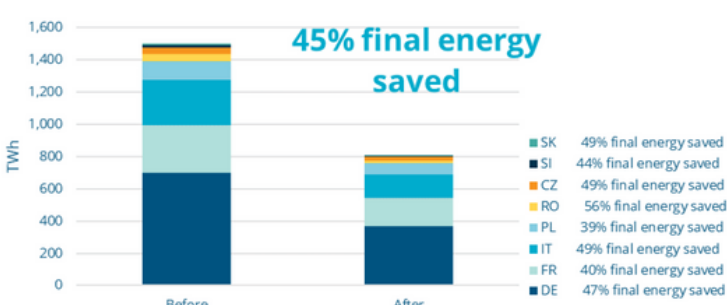
80% fossil-fuels



PUTTING A STOP TO ENERGY WASTE: HOW BUILDING INSULATION CAN REDUCE FOSSIL FUEL IMPORTS AND BOOST EU ENERGY SECURITY

Following the theme of energy security and solidarity with Ukraine, [this study](#) highlights that improving insulation in EU buildings is a potent solution to both cut our energy demand and dependency on fossil fuels while significantly reducing energy waste.

Final energy consumption before and after renovation



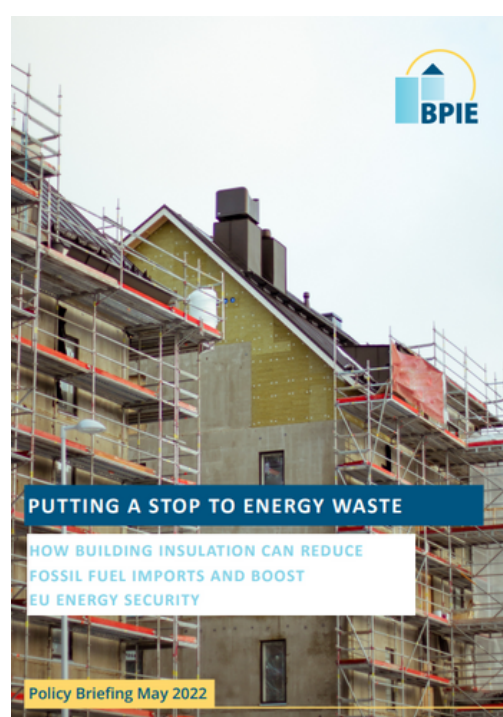
WHY SAVING ENERGY IN BUILDINGS MUST BE A PRIORITY IN THE REPOWEREU ACTION PLAN

With the invasion of Ukraine by Russia and the outbreak of war at the end of February 2022, the situation in the EU has dramatically changed from many perspectives. Many countries in Europe import significant amounts of fossil fuels from Russia, supporting its economy. For example, in 2021, 43.5% of EU imports of natural gas came from Russia¹. Political commitments to put sanctions on Russia and to reduce energy imports imply that securing enough energy supplies for next winter and beyond has become an urgent priority for many Member States and for the EU as a whole.

At the same time, energy prices are high for both electricity and gas, and forecasts indicate they will remain so until at least spring 2023². This will exacerbate an already tense financial situation for many households in Europe, with an increased number being pushed into energy poverty. Besides these urgent concerns, addressing the climate emergency must remain a priority. The latest report of the Intergovernmental Panel on Climate Change (IPCC), published just four days after the start of the war in Ukraine, reiterates the need to limit global temperature rise to 1.5°C to avoid catastrophic social, environmental and economic impacts³. Decisions should be taken quickly, and actions implemented

Key message:

The best way to decrease the EU's energy dependency is to reduce energy consumption, especially in buildings. The sector is responsible for about 40% of the EU's total energy consumption.



Key message:

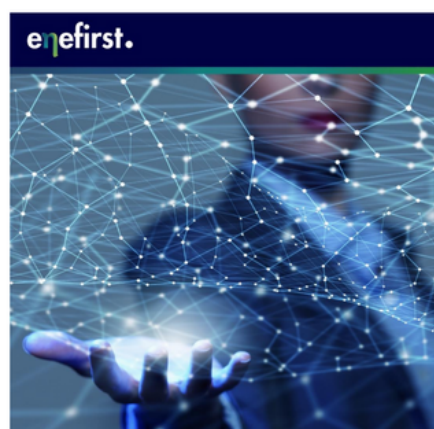
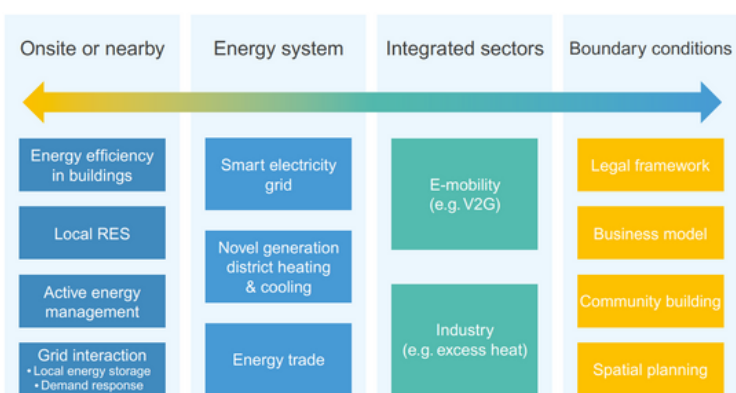
Investing in building renovation offers huge savings & security potential & should be an EU priority: it can reduce the use of fossil fuels for heating in buildings, reaching 44% in gas savings, save 45% of final energy demand.

HOW TO IMPLEMENT THE ENERGY EFFICIENCY FIRST PRINCIPLE & BOOST EUROPE'S ENERGY SECURITY?

Drawing on lessons learned from Germany, Spain and Hungary, BPIE published a set of recommendations for Member States to support the implementation of the energy efficiency first principle in their policies

Key message:

Most current policies are not designed around the EE1st principle, but can be adapted to reflect it, and new policies can be designed to integrate it.



How to operationalise Energy Efficiency First (EE1st) in the EU?

Key recommendations to Member States



POSITIVE ENERGY NEIGHBOURHOODS: DRIVERS OF TRANSFORMATIONAL CHANGE

With 75% of Europeans living in urban areas, [this analysis](#) argues there is significant opportunity and need to hone innovative solutions in neighbourhoods and homes, beyond the individual building.

Key message:

Successful decarbonisation of the EU building stock calls for an integrated, participatory and neighbourhood-based approach.



HOW TO SCALE UP INDUSTRIAL RENOVATION?

Action and innovation are needed to achieve the EU climate goal of society-wide decarbonisation by 2050 and industrially prefabricated renovation solutions are a strategic area that should be leveraged by policymakers.

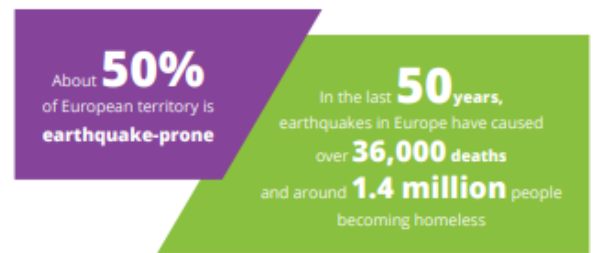
Key message:

Beyond delivering carbon emission savings, industrial prefabrication has the potential to drive innovation in the construction sector.

HOW TO INTEGRATE SEISMIC SAFETY WITH ENERGY RENOVATIONS IN THE EPBD?

About 50% of European territory is earthquake-prone. Seismic safety has traditionally been considered separately from energy performance. Maintaining this separation can lead to wasted investments and may even multiply the number of renovations and interventions over time.

Amidst this urgency to rapidly upscale deep energy renovations, the European building stock faces another significant challenge.



Key message:

The EPBD can be used to maximise the benefits of renovation by allowing Member States to adopt - where suitable - an integrated approach to decarbonise and protect citizens.

BAUSTEINE EINER LEBENSZYKLUSPERSPEKTIVE FÜR MEHR KLIMASCHUTZ UND RESSOURCENSCHONUNG IM GEBÄUDESEKTOR - DER DEUTSCHE RECHTSRAHMEN UND GUT BEISPIELE AUS DER PRAXIS

The German government has set itself the goal of becoming climate neutral by 2045. Germany is the largest energy consumer in Europe.

This report (in German only) provides an overview of relevant strategies, laws, initiatives and examples of good practice for a life cycle perspective on the building sector in Germany



BAUSTEINE EINER LEBENSZYKLUSPERSPEKTIVE FÜR MEHR KLIMASCHUTZ UND RESSOURCENSCHONUNG IM GEBÄUDESEKTOR
DER DEUTSCHE RECHTSRAHMEN UND GUTE BEISPIELE AUS DER PRAXIS



Key message:

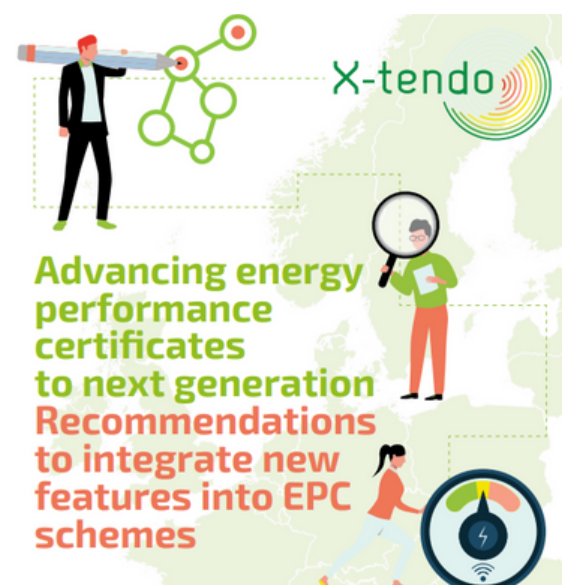
It is only through a life cycle perspective on the building sector that emissions and the ecological footprint can be reduced holistically and in the long term.

FUTURE-PROOFING ENERGY PERFORMANCE CERTIFICATES

This X-tendo briefing provides recommendations on how to take EPC schemes to the next level and is targeted at policymakers at EU and Member State level, public authorities and institutions responsible for their design, implementation and management.

Key message:

The EPC is the only mandatory policy instrument that is embedded in Member States' policies and widely known by end-users. Better coverage of the building stock with EPCs is a precondition for their improvement, but at the same time Member States must ensure that they are affordable and accessible..





Key message:
Member States and EU Parliament should aim at transformational EPBD revision, EU Buildings Climate Tracker shows.



IMPACT ASSESSMENT OF THE MEPS UNDER DISCUSSION IN THE CONTEXT OF THE EPBD REVISION

Minimum Energy Performance Standards (MEPS) are a new tool introduced by the Commission in the EPBD with the potential to massively reduce GHG emissions and energy poverty.

However, many member states might be undermining the tool's potential by seeking to apply weakened MEPS compared to the Commission's proposal.

To inform this discussion, Climact and BPIE modelled the impacts of MEPS schemes on the European building stock, using three main scenarios: the Commission's EPBD revision proposal, the REPower EU MEPS proposal, and a third more ambitious option.

REDUCING CARBON EMISSIONS OVER THE LIFE OF A BUILDING: OPPORTUNITIES IN THE 2022 EPBD RECAST

Less than a year after publishing our WLC policy roadmap, little progress was yet observed vis-a-vis ambition of whole-life carbon provisions in the EPBD negotiations.

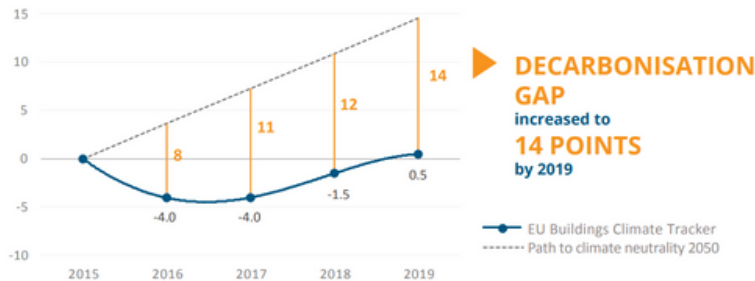
Most estimates suggest that embodied carbon accounts for about 10% of total yearly greenhouse gas emissions worldwide.

The relative importance is expected to grow as more buildings are constructed and renovated to higher efficiency standards and could account for over 50% of all emissions from the buildings sector in the near future.

THE EU BUILDINGS CLIMATE TRACKER - FIRST EDITION

In September, BPIE officially launched its new EU Building Climate Tracker. Designed as a high-level index based on 6 indicators, the Tracker is a response to the challenges of collecting and using data to monitor and assess decarbonisation in the EU building stock and will monitor progress annually.

The results of the first edition of the Tracker show that the buildings sector is not even close to being on track to achieve climate neutrality in 2050, the decarbonisation gap between where the EU should be and actually is, increased to 14 points by 2019.



Key message:
The EU must immediately, rapidly, and strongly accelerate the rate of building decarbonisation. Progress must be drastically increased if the EU is to reach climate neutrality in 2050 in the building stock.

CLIMACT

Impact assessment of the MEPS under discussion in the context of the EPBD revision

Factsheet
Meeting the targets set by Fit55 requires a comprehensive set of policy measures, of which MEPS are a key component. Together with appropriate accompanying policy measures, an ambitious design of the MEPS could contribute to achieving L23 of the building sector target for 2050.

Context
Minimum Energy Performance Standards (MEPS) are under discussion in the frame of the revision of the Energy Performance of Buildings Directive (EPBD) as a tool to trigger renovation of buildings in the European Union and reduce GHG emissions. To inform this discussion, Climact and BPIE modelled the impacts of MEPS schemes on the European building stock. This allows comparing the ambition of MEPS as originally proposed by the European Commission with two other scenarios: the REPowerEU plan and a scenario aligned with the EU climate and energy consumption reduction targets set by Fit55. The modelling was done in June 2022 and mainly accounts for the proposals from the EU Commission, REPowerEU and the EP rapporteur for the EPBD revision, Claire Cuffe.

Modelling staged EPC level improvements on the EU buildings stock
As the starting point of the analysis, the distribution of European buildings across EPC categories was gathered based on national or regional EPC databases or computed based on proxy when data were not available. Energy consumption data resulting from EPC levels have then been calibrated with the national energy balances. Details of the methodology are available in the Annex.

In order to define the EPC classes for the EU, the analysis followed the European Commission Proposal from December 2022 to define the G category as 'the 15% worst performing buildings'. The resulting classes are shown in Figure 1a, while Figure 1b shows the calibrated average final energy consumption per EPC label at EU level and the energy consumption reductions corresponding to EPC level improvements.

Scenarios then consisted in progressive improvements of EPC levels, starting with the worst performing buildings, with varying string and level of ambition as illustrated in Table 1.

Scenarios

Three main scenarios are considered and summarised in Table 1:

- EPBD baseline: is the MEPS design suggested by the Commission in its EPBD revision proposal,
- REPower EU: is the one proposed in the REPower EU plan,
- Comprehensive: is a MEPS designed to trigger deeper renovations of the worst-performing buildings.

¹ This work was funded by the European Climate Foundation.

² The 'fit for 55' aims at cutting GHG emissions in the building sector by 60% by 2030 compared to 2021 levels.

Key message:

Both the Commission proposal and REPowerEU are insufficient to bring the EU in line with Fit for 55 targets. Weakening the Commission proposal would completely negate the significant benefits MEPS could bring to Europe's struggling families.



Delaying and watering down home renovations is short-sighted and unfair to citizens



The current Commission proposal does not go far enough in addressing operational and embodied carbon emissions on building lifecycle global warming potential (lifecycle-GWP), often referred to as Whole Life Carbon (WLC). Deploying WLC measures in the EU Energy Performance of Buildings Directive (EPBD) recast will be a win-win for energy performance and climate action at the building and industry level. Therefore, a stepwise approach and a clear timeline that go beyond 2030 needs to be set out in the EPBD recast.



Key message:

Deploying whole-life carbon (WLC) measures in the EU Energy Performance of Buildings Directive (EPBD) recast will be a win-win for energy performance and climate action at the building and industry level. A stepwise approach and a clear timeline that go beyond 2030 needs to be set out in the EPBD recast.

OCTOBER



Key message:

Minimum Energy Performance Standards have the potential to decisively transform the renovation market if designed correctly. By rigorously applying 5 principles to MEPS design, it is possible for the policy tool to ensure maximum effectiveness and fairness to citizens.

#RENOVATE2REPOWEREU #TIMETOACT

REDay2022 took place amidst intensifying EPBD negotiations, with co-rapporteurs in the Parliament actively engaged on agreeing a Parliament position.

5 principles for fair & effective #MEPS

- 1 Worst buildings first
- 2 Design to meet ability to #invest
- 3 Accelerate innovation in #construction & #renovation services
- 4 Effective compliance & penalty system
- 5 Regular & frequent milestones - avoid renovation procrastination!

Overview of MEPS principles
Creating Impact and dynamic

- Worst first
- Design to meet ability to invest
- Accelerate innovation in renovation supply chain
- Design effective compliance & penalty system
- Define regular and frequent milestones

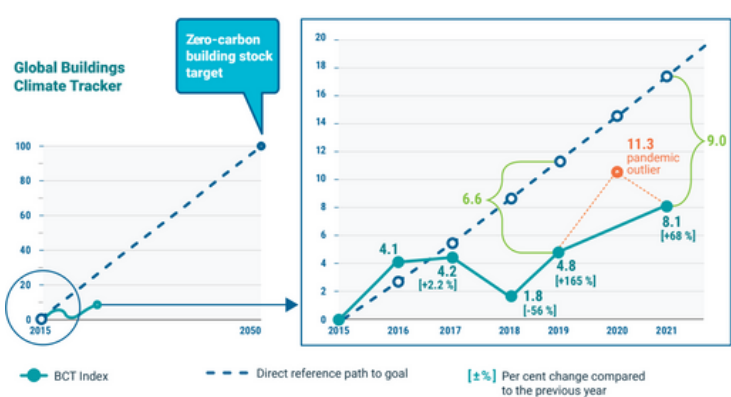
17/10/2022 | Designing effective and fair MEPS

NOVEMBER

IS THE GLOBAL BUILDINGS SECTOR ON TRACK TOWARDS THE PARIS AGREEMENT GOALS?

Despite a substantial increase in investment and success at a global level lowering the energy intensity of buildings, the sector's total energy consumption and CO2 emissions increased in 2021 above pre-pandemic levels.

The relative importance is expected to grow as more buildings are constructed and renovated to higher efficiency standards and could account for over 50% of all emissions from the buildings sector in the near future.



UN environment programme 2022 GLOBAL STATUS REPORT FOR BUILDINGS AND CONSTRUCTION

Towards a zero-emissions, efficient and resilient buildings and construction sector



Key messages:

Emissions from buildings and construction hit a new high, leaving the sector off track to decarbonize by 2050.

Policies and action remains slow. For example, only 26 per cent of countries have mandatory energy codes for the entire building sector.

Embodied carbon in buildings need immediate action to avoid undermining the carbon reductions achieved from energy efficiency.

DECEMBER



Key message:

Setting the regulatory framework for whole life-carbon is getting urgent, as is removing administrative and legal hurdles and set clear goals.

EXPERTS CONFIRM NEED TO SET THE REGULATORY FRAMEWORK TO REDUCE WHOLE-LIFE CARBON EMISSIONS

The reduction of life cycle emissions in the building sector will play an increasingly important role in the future, and there is increasing urgency to set regulatory framework to reduce whole-life carbon emissions.

BPIE brought together a panel of experts in Berlin, who highlighted urgency is to set whole-life carbon regulatory framework, remove administrative and legal hurdles and set clear goals.