

Filling the policy gap: Minimum energy performance standards for European buildings

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Summary

Minimum energy performance standards can support a massive increase in the building renovation rate, which is essential for the European Union to meet its climate targets.

The European Union cannot meet its target of becoming a net-zero economy by 2050 without decarbonising the building stock, which accounts for 36% of EU carbon emissions. Existing EU and national building renovation policies fall short of generating enough activity to do this. The number of buildings renovated each year is one-third of the number needed. In addition, the improvements that are happening save relatively little energy — between just 9% and 17% — which means these buildings will have to be renovated again.

Boosting energy renovations would also deliver significant economic, environmental and social benefits across Europe, particularly in terms of jobs, human health and energy poverty, making it a particularly valuable COVID-19 recovery strategy.

This paper proposes minimum energy performance standards (MEPS) as a regulatory tool that can set Europe's buildings on the route to decarbonisation.

¹ The authors thank James Drinkwater and Audrey Nugent of the World Green Building Council, Cliff Majersik and Lotte Schlegel of the Institute for Market Transformation, Steven Nadel of the American Council for an Energy Efficient Economy, Adam Hinge of Sustainable Energy Partnerships, Mieke Deurinck of the Flemish Energy Agency, Kellie Caught of the Australian Council of Social Service, Marion Jammet of the Irish Green Building Council, Martin Mooij of the Dutch Green Building Council, Jenny Holland of the UK Green Building Council, Catrin Maby, Elizabeth Leighton of the Existing Homes Alliance Scotland, Renée Bruel of the European Climate Foundation, Céline Carré of Saint-Gobain and David Farnsworth, Andreas Jahn, Richard Cowart, Samuel Thomas and Jan Rosenow of RAP. Deb Stetler and Tim Simard provided editorial assistance. Supported by EURIMA, the European Insulation Manufacturers Association.

MEPS are regulations that require buildings to meet a minimum performance standard — set in terms of a carbon or energy rating or minimum renovation measures — by a specified compliance deadline or at certain moment in the natural life of the building. These might be at the time of sale or if other building works are taking place. MEPS can apply to the whole building stock or specific sectors, tenures, building types or sizes or privately or publicly owned stock.

MEPS are already in use worldwide, as illustrated by the review presented in this paper. Examples in practice evidence improved standards across the targeted stock, high levels of compliance when the right enforcement framework is in place and a policy-signalling effect on the markets.

This paper argues that MEPS can help overcome the significant barriers that have hindered renovation to date, when introduced as part of a comprehensive renovation policy framework. This comprises funding, finance and incentives, technical and practical support and measures to ensure the poorest are not directly or indirectly burdened. MEPS signal the destination for the whole stock and individual buildings, which helps align the demand and the supply chains, providing space for business and social innovation. They can also drive take-up of existing funding, finance and incentives, improving the effectiveness and efficiency of existing renovation programmes. Currently, even in countries that have generous and coherent programmes of assistance, funds are not being dispersed quickly enough, suggesting that further measures are needed to drive demand.

In the EU, stakeholders see a key role for MEPS. In a recent survey for the European Commission, 84% of respondents felt MEPS are a necessity to meet the EU's goals for the building stock.

Four years ago, in 2016, the European Commission modelled the impact of introducing a simple MEPS, which required renovation of the worst performing buildings — energy performance certificate classes F and G — at sale or rent. The modelling of this MEPS measure revealed benefits that outstripped those provided by all other measures considered. It was not turned into a legislative proposal because statistical data on national building stocks, a precondition for setting the obligation, was not available in the majority of Member States at that time.

This paper provides recommendations on how to move this discussion forward at the EU level. The additional effort needed to achieve the 2030 and 2050 targets, and the fact that the European framework is inadequate to drive the additional activity needed, justifies the introduction of further MEPS measures at the EU level. Several options are described, including (1) expanding existing MEPS legislative provisions, (2) proposing MEPS for the European building stock while leaving some flexibility to Member States to implement the measure or measures and (3) creating an obligation for Member States based on results.

A proposal for the introduction of MEPS at an EU level could form part of the review of climate and energy legislation expected in 2021. The “renovation wave” communication expected from the European Commission in autumn 2020 should also signal this proposal. The introduction of an EU-wide MEPS should be accompanied by an EU-funding mechanism supporting the rollout of the measure by Member States and a reinforcement of the existing EU initiatives to increase data quality and comparability for the building stock.

Finally, this report also provides recommendations for designing specific MEPS at the national level, based on the review of international examples.

Introduction

The building sector is the largest single energy consumer in Europe.² Buildings, therefore, pose a huge decarbonisation challenge on the route to net zero by 2050.

Contributing to the scale of this challenge is that, with just 30 years to reach the target, building renovation activity is still stubbornly low. Of the buildings that will be standing in 2050, 75% to 95% exist today and almost all of these buildings (97%) will need to be renovated to decarbonise.³ To achieve this goal requires the renovation of 3% of the stock a year. The current annual rate of renovation is, however, around only 1%, and many of the building improvements that contribute to this figure achieve very low or negligible energy savings. The average energy savings achieved by renovations were only 9% in domestic and 17% in non-domestic buildings from 2012 to 2016. Deep renovations that save more than 60% of primary energy, and take buildings closer to decarbonisation, are only carried out in 0.2% to 0.3% of the stock a year.⁴

Current measures for information, labelling, financing, subsidising and incentivising energy efficiency have not moved building owners to take up renovations quickly enough or with enough ambition. Even in the Member States that have generous programmes of assistance, funds are not being dispersed quickly enough and the renovation rate is not rising sufficiently.⁵

The existing policy framework has proved to be inadequate and must be reinforced. Alongside the existing measures to facilitate renovation, we also need to drive demand. Relying on more generous subsidies and incentives alone may not prove effective to overcome the many barriers to renovation. Furthermore, it will also be increasingly economically unsustainable to keep pursuing this route and unpalatable from a distributional point of view, as the costs of subsidies to encourage able-to-pay owners to renovate their buildings is socialised amongst all.

Additional policy tools and stronger approaches are essential to swiftly accelerate deep renovations. Minimum energy performance standards (MEPS)⁶ are regulated standards that guarantee renovation of the worst performing buildings. MEPS incrementally improve the performance of the stock along a route map to decarbonisation and signal to building owners their role in getting to the destination. MEPS are becoming increasingly popular with policymakers designing frameworks to meet ambitious, net-zero carbon targets. Stakeholders also see a key role for MEPS in Europe. In a recent survey for the European Commission,⁷ 84% of respondents felt MEPS are a necessity to meet the EU's goals for the building stock.

This paper examines how MEPS, as part of a comprehensive enabling framework, can drive both the rate and depth of renovation in an economically efficient manner that avoids unintended consequences and burdens on the poorest households.

² European Commission. (2019a). *Comprehensive study of building energy renovation activities and the uptake of nearly zero-energy buildings in the EU*. https://ec.europa.eu/energy/sites/ener/files/documents/1.final_report.pdf

³ Buildings Performance Institute Europe (BPIE). (2017). *97% of buildings need to be upgraded*. <http://bpie.eu/publication/97-of-buildings-in-the-eu-need-to-be-upgraded/>

⁴ European Commission, 2019a.

⁵ For example, across Germany's buildings energy efficiency programmes from the Kreditanstalt für Wiederaufbau (KfW), almost 2 billion euros of the 2018 budget went unspent. Noll, C. (2019, 24 September). *Carbon pricing: Perspectives towards energy pricing*. Presentation, DENEFF. RAP workshop: Roundtable on carbon pricing and recycling carbon revenues.

⁶ MEPS are also called mandatory minimum requirements, building performance standards or minimum energy efficiency standards.

⁷ Volt, J. (2020, 14 May). *Overview of survey results*. Presentation, stakeholder workshop on mandatory minimum requirements.

Minimum energy performance standards: Definition and rationale

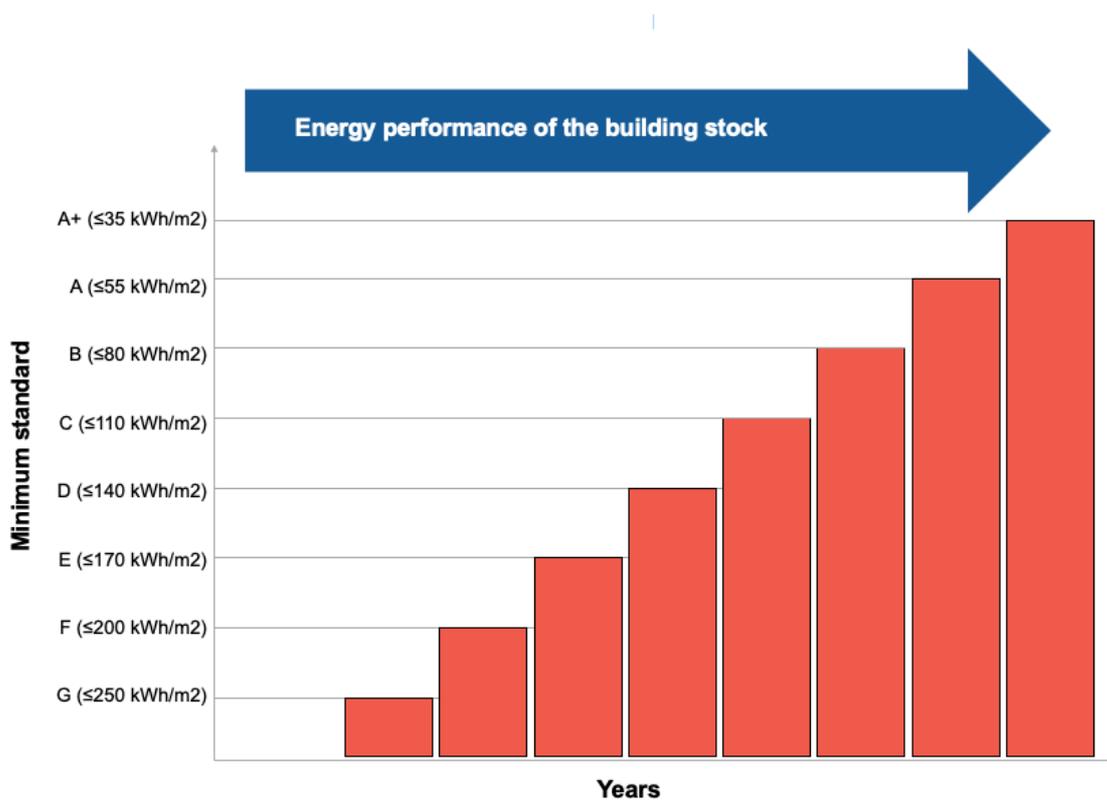
This section defines MEPS and their main design features, outlines their role in driving energy renovations and examines the benefits they bring.

Definition

Minimum energy performance standards are regulated minimum standards for energy use in, or carbon emissions from, existing buildings. MEPS require buildings to be improved to meet a specified standard at a chosen trigger point or date and can include standards that tighten over time. As such, MEPS drive a desired rate of renovation and a required depth of renovation.

The illustrative example in Figure 1⁸ shows a MEPS that requires buildings to reach a certain performance, expressed as an energy performance certificate (EPC) class or as energy consumption per square metre. The level of required performance rises over time, bringing the building stock to the best class by 2050.

Figure 1. Illustration of an incrementally increasing minimum energy performance standard, based on energy performance certificate class



Source: Steuer, S., Jahn, A., & Rosenow, J. (2018). *Energetische Mindeststandards für eine sozial gerechte Wärmewende* [Minimum energy efficiency standards for a fair heat transition].

⁸ Steuer, S., Jahn, A., & Rosenow, J. (2018). *Energetische Mindeststandards für eine sozial gerechte Wärmewende* [Minimum energy efficiency standards for a fair heat transition]. Regulatory Assistance Project. <https://www.raonline.org/knowledge-center/energetische-mindeststandards-fur-sozial-gerechte-warmewende/>

Although MEPS all establish regulated standards for buildings, their designs vary according to local or national priorities, building stocks and targets, as shown in the next section.

Key design features

The regulations all define a metric and standard to be achieved (what), a section of the stock to be targeted (where) and trigger(s) for compliance (when). These are illustrated in Figure 2.

- Metric and standard.** The most common metrics used are carbon, measured in CO₂ per square metre, or energy ratings, such as kilowatt-hour per square metre or the EPC class. The ratings used can be either asset based or operational. A smaller number of minimum standards are defined as the presence of a minimum set of building fabric and heating system measures. Policymakers can design regulations to eliminate the worst performing buildings, for example, by setting a minimum EPC class, or target a larger proportion of the stock through the use of stock benchmarks, for example, targeting buildings with below-average performance.
- Section of stock.** The standards reviewed address different building stock sectors, tenures and ownership. They can also be based on building type or size.
- Trigger(s) for compliance.** The trigger for compliance with a standard can be a hard date by which all obligated buildings must comply; this may also be accompanied by a time frame for incremental improvements. Or compliance could be based on a date that coincides with one of the trigger points in a building's life cycle. Existing standards use building life-cycle trigger points, including major renovation, inspection or building transactions such as sale or change of rental contract. Other policy proposals use further repair, maintenance and improvement trigger points, like building extension, kitchen and bathroom replacements and other general works.⁹

Specific standard or part of a set of standards?

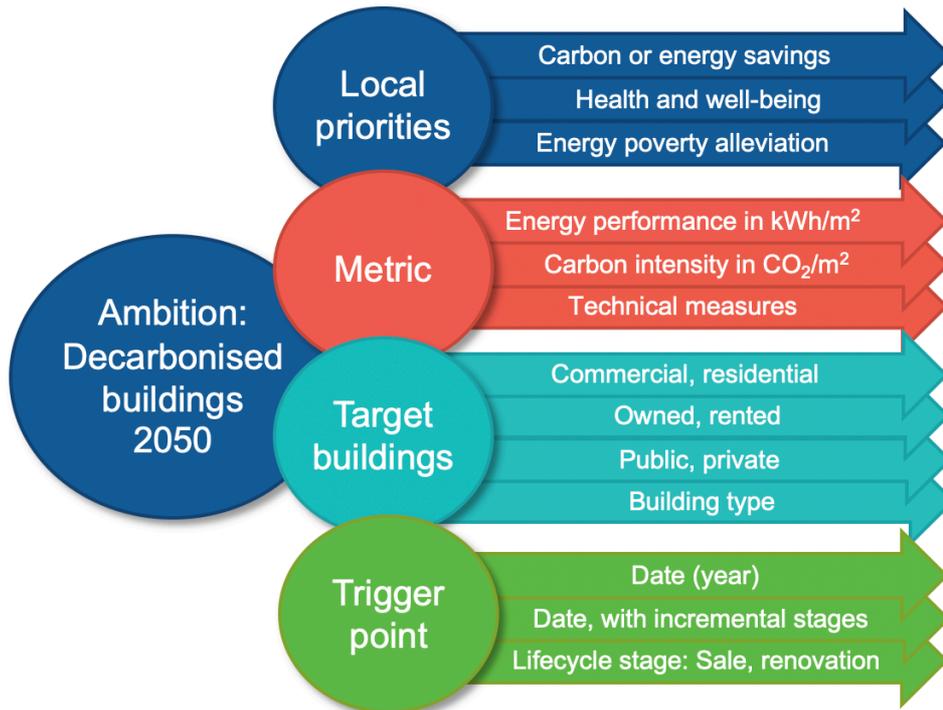
Although in most jurisdictions, the legislative provisions specifically target energy or carbon performance, other countries are looking at improvement of the building stock from a more holistic perspective. For example, the standards in Australia and New Zealand and a standard for social housing in the UK all use a wider set of health-based metrics that include minimum energy standards.

MEPS for local priorities

Jurisdictions target segments of the stock to deliver on local priorities. For example, for many of the standards recently introduced in the United States, MEPS are part of a strategy to deliver on city-based carbon targets. The design is therefore focused on achieving the greatest carbon savings by targeting large commercial buildings. Policies in Great Britain (England, Wales, Scotland) and New Zealand focus on improving housing standards, energy affordability and health and well-being, so the regulations target housing, in particular private, rented housing.

⁹ Existing Homes Alliance, Scotland. (2020, April). *Strong support for energy performance standards in Scotland's homes*. <http://existinghomesalliancescotland.co.uk/policy/istrong-support-for-energy-performance-standards-in-scotlands-homes/>

Figure 2. Illustration of key design features of minimum energy performance standards



The role of MEPS in overcoming the barriers to renovation

As part of a comprehensive building decarbonisation strategy, MEPS drive ambition on decarbonisation and energy efficiency by:

- **Signalling the finishing line.** MEPS provide certainty by signalling the long-term decarbonisation destination for the building sector and can specify incremental steppingstones.
- **Ensuring no one is left behind.** MEPS guarantee action to improve the worst performing segments of the building stock.
- **Removing the obstacles.** MEPS help overcome barriers to renovation (see sidebar on following page¹⁰).
- **Enabling timely action.** MEPS signal building owners and occupiers to adopt energy saving and clean energy measures at the appropriate time in the building, business or household life cycle.
- **Enabling the enablers.** MEPS can provide the supply chain and other enablers — such as technology manufacturers, installers, construction trades, finance providers and others — with the confidence to invest, innovate and upskill with certainty. This ensures a sustained renovation market and good quality jobs. It also encourages enablers to design

¹⁰ EmBuild. (2017). *Barriers that hinder deep renovation in the building sector*.

http://embuild.eu/site/assets/files/1316/d4_1_embuild_final_report-1.pdf

appealing customer offers, promote renovation services and communicate the driver of the regulation. In other words, successful market transformations in the energy and buildings sectors, such as the transition to condensing boilers, these actors have been instrumental in promoting the transition and accelerating pre-regulation action.¹¹

- **Making other renovation support more efficient.** MEPS help to drive take-up of existing funding, finance and incentives well in advance of the regulation, improving the effectiveness and efficiency of renovation programmes. They can also produce a “demand floor” for renovation finance and create continuity, predictability and scalability in renovation markets. In contrast to market-driven renovation, the more predictable level of demand can help aggregators to direct and absorb new sources of finance, particularly from institutional providers, that seek guaranteed demand.

Barriers to renovation

A building decarbonisation strategy needs to address the barriers to renovation:

- **Financial:** high up-front cost, limited public funds, split incentives, weak price signals, lack of clear property value differential, transaction costs.
- **Consumer:** knowledge, time and hassle factors, inertia, perceived risk, attachment to incumbent technologies.
- **Communication:** lack of well-communicated decarbonisation trajectory, insufficient attention to the benefits of renovation, lack of technical and practical support.
- **Supply chain:** lack of low-carbon renovation skills and capacity in renovation sector, lack of quality assurance for complex renovation.
- **Legislative and regulatory:** complex administrative procedures, piecemeal and overlapping policies and laws, previous promotion of low-hanging fruit, lack of specific legislation to overcome barriers like split incentives.
- **Building complexity:** multiple ownership, mixed use, commercial lease barriers.

Adapted from: EmBuild, 2017.

MEPS as part of a broader policy framework

MEPS regulation should be fully integrated into wider decarbonisation strategies, particularly those for the energy system and for the building stock. The latter are set out in the national long-term renovation strategies.

For the renovations triggered by a MEPS to be successful, efficient and not unduly burdensome, jurisdictions need a comprehensive framework of support to address the barriers to renovation. Robust and reliable tools to assess building performance and improvement options are essential, alongside locally available practical assistance for renovation. The funding and financing options must be suitable for all building types and tenures. This is particularly

¹¹ Weber, C., Gebhardt, B., & Fahl, U. (2002). Market transformation for energy efficient technologies: Success factors and empirical evidence for gas condensing boilers. *Energy*, 27(3), 287-315.

https://www.researchgate.net/publication/222387829_Market_transformation_for_energy_efficient_technologies_-_Success_factors_and_empirical_evidence_for_gas_condensing_boilers

important for low-income households and small and medium-sized enterprises. Adequate financial provisions can avoid burdening the poorest with costs that they are unable to pay. When renovations are mandated, quality assurance in the building assessment and renovation supply chain, and customer protection are more important. Effective monitoring and review of the policy, enforcement of compliance, and assessment of the quality of renovations are also crucial, as are mechanisms for eliminating unintended consequences. The section “Considerations when introducing MEPS” expands on this framework.

Precedents for the introduction of MEPS

Forms of regulation similar to MEPS have proved to be amongst the most effective policies in the buildings sector. EcoDesign standards have improved the efficiency of products and eliminated sales of the most inefficient heating systems. A number of Member States have also regulated technology phaseout, such as fossil boilers,¹² and phase-in, for example, for highly efficient condensing boilers and smart meters.

Across Europe, regulation that requires building owners or occupiers to make physical changes to their buildings or that impacts their use of the building is commonplace. Over time, building owners have been obligated to comply with a series of requirements, for example, to connect to the sewerage system, to install fire protection measures or to ensure access for the disabled. There is clear precedent, therefore, for regulations that require owners or occupier of buildings to adapt their existing buildings for the common good or to serve a societal objective.

Economic, environmental and social benefits

The multiple benefits of energy efficiency and renovation have been well documented.¹³ This section summarises documented benefits of renovation and MEPS.

Benefits of energy renovation

Modelling of the impacts of investment in energy renovations reveals strong economic, environmental and social benefits. The benefits generated from doubling or tripling the renovation rate are significant, particularly in jobs, human health and energy poverty.

The construction sector is dominated by small and medium-sized enterprises, with 94% of companies having fewer than nine employees.¹⁴ Boosting renovation activity thus supports this valuable sector of the European economy, delivering local jobs across all geographies.¹⁵

¹² Rosenow, J., & Lowes, R. (2020). *Heating without the hot air: Principles for smart heat electrification*. Regulatory Assistance Project. <https://www.raponline.org/wp-content/uploads/2020/03/rap-rosenow-lowes-principles-heat-decarbonisation-march-2020.pdf>

¹³ International Energy Agency. (2015). *Capturing the multiple benefits of energy efficiency*. <https://webstore.iea.org/capturing-the-multiple-benefits-of-energy-efficiency>

¹⁴ Saheb, Y. (2016). *Energy transition of the EU building stock: Unleashing the 4th Industrial Revolution in Europe*. OpenExp. https://www.openexp.eu/sites/default/files/publication/files/energy_transition_of_the_eu_building_stock_full_report.pdf

¹⁵ European Commission. (2019, May). *Energy performance of buildings directive*. Last updated 16 June 2020. https://ec.europa.eu/energy/topics/energy-efficiency/energy-efficient-buildings/energy-performance-buildings-directive_en

Europeans spend 90% of their time indoors¹⁶ so poor internal environments have a huge impact on health and productivity. Deficient indoor environments are characterised by low or high temperature, damp and mould, poor indoor air quality and inadequate lighting. The main health risks related to cold, damp and poorly ventilated buildings are more than halved in renovated buildings.¹⁷ Renovation to higher energy performance is the most cost-effective, long-term way to alleviate energy poverty. Furthermore, there is growing evidence that links the energy performance of a building to its value.¹⁸ Studies indicate that better performing buildings have shorter vacancy periods, sell more quickly, have lower loss of rental income and therefore provide better operating returns for owners.¹⁹ To date, the evidence of energy performance increasing sales prices is varied, and it is unlikely that the full value of energy performance has been reflected in market values.²⁰

Benefits of renovation

Raising the annual rate of renovation by 1.15 percentage points, or roughly doubling it, is calculated to deliver:



101 billion euros additional investment per annum in 2030, doubling the energy renovation market.



14.8% reduction of final energy consumption in the buildings sector and a 6.9% reduction across the whole EU27 and UK economy in 2030.



7.8% reduction of EU27 and UK economy-wide CO₂ emissions.



568,000 net additional direct jobs in 2030, increasing by two-thirds the number of energy efficiency renovation jobs.



925.9 million euros per year of monetised health benefits, in the form of lower mortality and health-care costs for the period from 2020 to 2030.



Productivity gains of 53.4 million to 88.9 million euros per year from 2020 to 2030, based on renovation activity in nondomestic buildings only.



The removal of between 5.17 million and 8.26 million of the 23.3 million households from energy poverty in 2030 (if coupled with an energy poverty alleviation target).

¹⁶ Joint Research Centre. (2003). *Indoor air pollution: New EU research reveals higher risk than previously thought*. European Commission. https://ec.europa.eu/commission/presscorner/detail/en/IP_03_1278

¹⁷ Grün, G., & Urlaub, S. (2016). *Towards an identification of European indoor environments' impact on health and performance: Mould and dampness*. Fraunhofer IBP. http://velcdn.azureedge.net/~media/com/articles/fraunhoferibp_studyreport_mouldanddampness_161010.pdf; and Marmot Review Team. (2011). *The health impacts of cold homes and fuel poverty*. Friends of the Earth. <http://www.instituteofhealthequity.org/resources-reports/the-health-impacts-of-cold-homes-and-fuel-poverty>

¹⁸ European Commission. (2013). *Energy performance certificates in buildings and their impact on transaction prices and rents in selected EU countries*. https://ec.europa.eu/energy/sites/ener/files/documents/20130619-energy_performance_certificates_in_buildings.pdf

¹⁹ European Commission. (2016a). *The macroeconomic and other benefits of energy efficiency*. https://ec.europa.eu/energy/sites/ener/files/documents/final_report_v4_final.pdf; and Dutch Green Building Council. (2018) *Creating an energy efficient mortgage for Europe: Building assessment briefing: The Netherlands*. https://eemap.energyefficientmortgages.eu/wp-content/uploads/2018/04/EeMAP_Building_Assessment_Briefing_NETHERLANDS.pdf

²⁰ European Commission, 2013.

Benefits of minimum energy performance standards

Evidence of the measured impacts of MEPS in practice is limited. The most recent impact assessment of the Energy Performance of Buildings Directive (EPBD)²¹ did, however, specifically model the impact of such a policy. Of all of the policy options assessed, the MEPS modelled delivered some of the greatest impacts.

The impact assessment evaluated the introduction of a simple, one-stage minimum requirement for the whole of Europe to renovate the worst buildings (e.g., EPC classes F and G) at the point of sale or rent, for both domestic and nondomestic buildings.

The report estimates that this measure alone could reduce final energy consumption for space and water heating in households and services by 40 to 45 million tonnes of oil equivalent (Mtoe) in 2030, a 14% reduction of the reference scenario of 305 Mtoe of final energy. For context, the MEPS measure is calculated to create 1.5 times the final energy savings of all the measures combined in the Commission's preferred policy option. The MEPS measure in the modelling reduced energy expenditures by 40 to 45 billion euros per year in 2030, a 12% reduction of the reference scenario of 343 billion euros in energy expenditures. It also generated 50 to 55 billion euros of construction activity annually between 2020 and 2030.

The MEPS measure was presented as part of the most ambitious of the three policy options assessed.²² The impact assessment did not specifically isolate the impact of the MEPS measure on energy poverty. It can be expected, however, that much of the energy poverty alleviation resulting from the ambitious policy option, compared to the preferred option, can be attributed to the inclusion of this measure.²³ Therefore, the MEPS measure can largely be credited with taking between 1 million and 5.1 million households out of energy poverty by 2030.²⁴

In 2016, the Commission did not include the MEPS measure in its proposal, despite the fact that the assessment showed it to produce the most significant impacts of all of the measures evaluated. The Commission reasoned that, although the introduction of minimum requirements at an EU level would respect subsidiarity and proportionality limits,²⁵ the lack of building stock data at the national level was a barrier. The later sections of this report discuss these issues further.

²¹ European Commission. (2016b). Proposal for a Directive of the European Parliament and of the Council amending Directive 2010/31/EU on the energy performance of buildings. Commission staff working document: Impact assessment. https://ec.europa.eu/energy/sites/ener/files/documents/1_en_impact_assessment_part1_v3.pdf

²² The ambitious policy scenario included three measures over and above the Commission's preferred option: the MEPS measure, harmonisation of EPCs and amendments to the cost-optimality calculation to insert more of the co-benefits.

²³ The MEPS measure is one of three measures included in the ambitious scenario, not included in the preferred option. As energy poor households disproportionately live in the worst performing homes, which the MEPS measure specifically addresses, it can be expected that this measure would contribute significantly to energy poverty alleviation.

²⁴ The range in these figures illustrates the outputs when different individual energy poverty indicator data sets are used for the calculation. The three energy poverty indicators used in the assessment are three proxy indicators selected as most appropriate from the EU-SILC database by the Energy Poverty Observatory: arrears on energy bills, presence of leak, damp and rot in the home, inability to keep the dwelling warm.

²⁵ The principles of proportionality and subsidiarity stem from Article 5 of the Treaty on European Union. The proportionality principle requires that any action by the EU should not go beyond what is necessary to achieve the objectives of the Treaties. The subsidiarity principle means that the EU does not take action, except in the areas that fall within its exclusive competence, unless it is more effective than action taken at the national, regional or local level. See EUR-Lex. (n.d.). *Glossary of summaries*. <https://eur-lex.europa.eu/summary/glossary.html>

MEPS around the world: Practice, impact and lessons learned

The use of MEPS is expanding. In recent years, governments in a number of jurisdictions across the world have begun to develop and adopt MEPS in different forms, for different purposes. Although not exhaustive, the review of examples in this section provides insight into how MEPS can be designed to respond to national or local priorities, within a coherent European decarbonisation framework. The section also summarises the documented impacts of these MEPS and early lessons from this experience.

Europe

A number of mandatory requirements are already enshrined in European directives, and Member States have transposed them into their building codes.

Mandatory approaches and MEPS in existing European directives

The requirements listed below, from the Energy Efficiency Directive (EED) and Energy Performance of Buildings Directive (EPBD), establish a precedent for the further use of regulated standards. Their piecemeal nature and limited scope limits their impact.

- The EED has required, since 2014, that 3% of the floor area of central government buildings be renovated annually to meet a minimum, cost-optimal efficiency standard (Art. 5).
- At the trigger point of major renovations, the EPBD requires building elements to be upgraded to a minimum, cost-optimal, energy performance level (Art. 7).
- The EPBD also sets minimum energy performance requirements for new, upgraded and replacement building systems and establishes minimum requirements for electric vehicle charging and enabling infrastructure at renovation (Art. 8).

Member States have gone further to develop or legislate MEPS that trigger more renovation activity than the European directives require. The regulations that Member States have planned or adopted are varied. They focus on owner-occupied, rented, domestic and nondomestic buildings and use metrics based on both measures and minimum energy performance. Longer case studies on European examples accompany this paper.²⁶

In addition to the examples outlined below, countries and regions have taken other regulated approaches to reducing carbon emission from buildings. The Netherlands has announced the phaseout of gas for use in buildings by 2050, with an interim target for 2030.²⁷ All regions across Poland have banned the use of coal boilers in buildings.²⁸ In Baden-Württemberg,

²⁶ Case studies can be found at <https://www.raonline.org/knowledge-center/case-studies-minimum-energy-performance-standards-for-european-buildings/>.

²⁷ Beckman, K., & van den Beukel, J. (2019). *The great Dutch gas transition*. Oxford Institute for Energy Studies, University of Oxford. <https://www.oxfordenergy.org/publications/the-great-dutch-gas-transition/>

²⁸ Rosenow, J., & Cowart, R. (2020). *Polish coal boiler phase-out an inspiration for clean heat*. Regulatory Assistance Project. <https://www.raonline.org/blog/polish-coal-boiler-phase-out-an-inspiration-for-clean-heat/>

Germany, building owners must secure a minimum share of renewable energy equal to 15% of the building's heat demand when a heating system is replaced or undertake energy efficiency measures as an alternative.²⁹

Great Britain

Primary legislation was adopted in 2011 that enabled MEPS to be enforced in the countries of Great Britain.³⁰

In England and Wales, regulation introduced in 2015 defined the standard. It requires works be carried out in privately rented buildings, both domestic and nondomestic, to bring them to a minimum EPC class of E as of 2020, unless eligible for an exemption.³¹

In Scotland, a regulation introduced in 2020 requires homes in the private rented sector to meet the EPC class E standard at change of tenancy from later this year.³² The standard will be extended to all rented homes by 2022. Scotland is notable in its design of MEPS policy in that the regulation sets out a trajectory for tightening the standard to EPC D for new tenancies in 2022 and for all rented homes in 2025.

In 2019, the Scottish government set out, in a public consultation, a further plan to extend the minimum standards to owner-occupied homes. From 2024, the government proposes that owner-occupied homes will need to meet an EPC C standard, where technically feasible and cost effective, at the trigger points of sale and possibly major renovation. Based only on the trigger point of sale, this requirement is estimated to generate renovations in 20% of the stock that is currently below an EPC C within five years and 36% within 10 years.³³

The Decent Homes³⁴ standard, a housing quality standard setting out thermal requirements that social housing providers were required to meet by 2010, preceded the current standards in the UK. The Housing Health and Safety Rating Standard,³⁵ a risk-based system used to assess threats to human health in housing, underpinned Decent Homes. Within this system, properties below an EPC E rating were deemed a category one hazard, which is defined as a serious and immediate risk to a person's health and safety.

²⁹ Pehnt, M. et al. (2019). *Evaluating the renewable heating and efficiency obligation for existing buildings: Insights into the mechanisms of mandatory building requirements*. ECEEE summer study proceedings.

https://www.eceee.org/library/conference_proceedings/eceee_Summer_Studies/2019/7-make-buildings-policies-great-again/evaluating-the-renewable-heating-and-efficiency-obligation-for-existing-buildings-insights-into-the-mechanisms-of-mandatory-building-requirements/

³⁰ UK government. (2011). Energy Act 2011. <http://www.legislation.gov.uk/ukpga/2011/16/part/1/chapter/4/enacted>

³¹ UK government. (2015). *Energy Efficiency (Private Rented Property) (England and Wales) Regulations 2015*.

<https://www.legislation.gov.uk/ukdsi/2015/9780111128350/contents>

³² Scottish government. (2020). *Energy Efficiency (Private Rented Property) (Scotland) Regulations 2020*.

<http://www.legislation.gov.uk/sdsi/2020/9780111043912>

³³ Scottish government. (2019). *Energy Efficient Scotland: Improving energy efficiency in owner occupied homes*.

<https://consult.gov.scot/housing-and-social-justice/energy-efficient-scotland-owner-occupier-proposals/>

³⁴ UK government, Department for Communities and Local Government. (2006, June). *A decent home: Definition and guidance for implementation*. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/7812/138355.pdf

³⁵ UK government, Department for Communities and Local Government. (2006). *Housing health and safety rating system: Guidance for landlords and property related professionals*.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/9425/150940.pdf

The Netherlands

The Netherlands adopted a regulation in 2018 that focusses on office buildings and requires them to reach a minimum EPC class C by 2023.³⁶ There is an expectation, although not written into the legislation, that this standard will be tightened to class A in 2030.

The Dutch standard for offices joins requirements for rented homes that have been in place in the Netherlands since 2013 under voluntary agreements between the government and private and social housing sector bodies. The social rented sector is expected to reach EPC class B by 2020, and 80% of the private rented sector is expected to meet EPC C by 2020.³⁷

France

Another notable use of energy performance metrics in Europe is in France. The 2015 Energy Transition Law³⁸ sets the objective for France's building stock to be renovated in line with the Bâtiment Basse Consommation low energy building standard, or equivalent, by 2050.³⁹

France has introduced a number of measures in recent years to work towards this goal. Measures to phase out F and G class homes include a freeze on rent from 2021 and a ban of new rent agreements for the worst performing buildings from 2023.⁴⁰ An obligation to renovate F and G class homes will start in 2028, with penalties for noncompliance still to be defined.⁴¹

Staged standards, defined either as savings targets or minimum performance, for large commercial-sector buildings were introduced in 2019.⁴² Buildings must reduce their final energy consumption, compared to 2010, by 40% by 2030, by 50% by 2040 and by 60% by 2050, or comply with minimum energy performance levels, which are yet to be announced.

Belgium

Whilst the previous examples use an energy performance or EPC metric to define the standard, the Belgian regions of Flanders and Brussels-Capital use measures-based metrics.

³⁶ Netherlands Enterprise Agency (RVO). (2020). *Energielabel C kantoren: de stand van zaken* [Energy label C offices: The state of affairs]. <https://www.rvo.nl/actueel/nieuws/energielabel-c-kantoren-de-stand-van-zaken>

³⁷ van Eck, H. (2016). *EPBD Implementation in the Netherlands: Status in December 2016*. Netherlands Enterprise Agency (RVO). <http://epbd-ca.eu/wp-content/uploads/2018/08/CA-EPBD-IV-The-Netherlands-2018.pdf>

³⁸ French government. (2015, 17 August). Article L100-4: *Les objectifs de la politique énergétique* [The objectives of energy policy]. Code de l'énergie: L'organisation générale du secteur de l'énergie [Energy code: The general organisation of the energy sector]. <https://www.legifrance.gouv.fr/affichCodeArticle.do?cidTexte=LEGITEXT000023983208&idArticle=LEGIARTI000031063168&dateTexte=&categorieLien=id>

³⁹ The "Bâtiment Basse Consommation" label has been the basis upon which the French 2012 code for new buildings (RT 2012) was drafted. The maximum level of energy consumption is 50 kWh/m²/year in average. This figure also varies across regions, altitude, building surface and use and greenhouse gas emissions. See Ministère de la Transition Énergétique et Solidaire [Ministry of Ecology]. (2020, May). *Exigences réglementaires pour la construction des bâtiments* [Regulatory requirements for the construction of buildings]. <https://www.ecologique-solidaire.gouv.fr/exigences-reglementaires-construction-des-batiments>

⁴⁰ Decency standards applicable to rental agreements will be tightened to include a maximum final energy consumption level. A decree shall be published by 1 January 2023 to define this level.

⁴¹ French government. (2019a). Law n° 2019-1147 of 8 November 2019 relating to energy and climate. https://www.legifrance.gouv.fr/affichTexte.do?sessionId=E6EAE1FDE69B0117388E7420AD6D3CA3.tplqfr41s_2?categorieLien=id&cidTexte=JORFTEXT000039355955

⁴² French government. (2019b). Decree n° 2019-771 of 23 July 2019 relating to obligations to reduce final energy consumption in buildings for tertiary use. <https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000038812251&categorieLien=id>

In 2015, Flanders introduced a requirement for a minimum level of loft insulation in homes, enforced for rental homes from 2020. New laws introduced in 2019 extend the minimum standard to a requirement for double glazing, as part of a broader housing standard, to be enforced for rental homes from 2023.⁴³ There is a further proposal, yet to be defined in regulation but expected to be introduced from 2021, that will require nondomestic buildings to undergo renovation within five years of purchase.

In the Brussels-Capital Region, the 2019 renovation strategy proposed the introduction of a regulation in 2021 that will require domestic and nondomestic buildings to have building-specific measures, as defined by the EPC, installed at five staged enforcement dates. The first of these will be in 2030. The target is for the whole stock to reach a minimum of EPC C by 2050. For multi-family buildings, separate measures will be defined for the individual unit and building.⁴⁴

Table 1. Regulated minimum energy performance standards in European Member States and Great Britain

Where	Introduced	Enforced	Building stock sector, tenure, building type	Metric	Minimum standard
England and Wales	2011 (Legislation) 2016 (Regulation)	2018, 2019, 2020	Privately rented buildings (domestic and nondomestic)	EPC	EPC E
Scotland	2011 (Legislation) 2020 (Regulation)	2020, 2022, 2025	Domestic privately rented buildings	EPC	EPC E, 2020 and 2022 D, 2022 and 2025
The Netherlands	2018	2023	Office buildings	EPC	EPC C
France	2019	2028	Private residential	EPC	EPC E
France	2019	2030, 2040, 2050	Large commercial buildings	Energy consumption /performance	40% in 2030, 50% in 2040, 60% in 2050
Flanders, Belgium	2015	2020	All homes, but only enforced for privately rented homes	Technical measures	Minimum roof insulation
Flanders, Belgium	2019	2023	All homes, but only enforced for privately rented homes	Technical measures	Double glazing
Brussels-Capital, Belgium	2019 (Announced) 2021 (Regulation expected)	2030, five yearly to 2050	All domestic and nondomestic buildings	Technical measures	Measures specified by EPC

⁴³ Flemish government. (2019, 29 May). Decree of the Flemish government regarding home quality control.

<https://codex.vlaanderen.be/Zoeken/Document.aspx?DID=1032181¶m=inhoud>

⁴⁴ Regional Government of Brussels-Capital. (2019). *Stratégie de réduction de l'impact environnemental du bâti existant en région de Bruxelles-Capitale aux horizons 2030-2050* [Strategy to reduce the environmental impact of buildings in the Brussels-Capital Region by 2030-2050]. https://ec.europa.eu/energy/sites/ener/files/documents/bruxelles_capitale_2020_ltrs.pdf

United States of America and Canada

A number of cities and states in America are exploring and adopting MEPS. A forthcoming paper from the American Council for an Energy-Efficient Economy⁴⁵ describes 12 different whole building standards in the United States and a large number of other building efficiency, audit and “tune-up” requirements.

Of the 12 whole building standards: Two have already been regulated, a further four have been enabled through legislation, with regulatory details still in development, and six jurisdictions have begun public processes to develop a standard. Of the six established standards, the design in Boulder, Colorado, is unique in that it focusses on rented homes, where other standards focus on larger buildings. Introduced in 2010, it required that rental homes be brought up to 1999 new-build energy efficiency standards by 2019.

The other five standards share many similar design features. Reno, Nevada, introduced a minimum standard through regulation in 2019, and legislation has been enacted in Washington, D.C. (2018), New York City (2019), Washington state (2019), and St. Louis, Missouri (2020) to enable the introduction of minimum standards through regulation at a later date. Each standard is slightly different (see Table 2), but they commonly apply to large buildings, that is, larger than 10,000 square feet,⁴⁶ including multi-family buildings in all but Washington state. Enforcement starts around the middle of this decade. The standards use either energy use intensity or CO₂ emission as metrics and often make use of an existing building rating system like Energy Star. They commonly use the average or median performance of the stock for that building type as a benchmark to identify buildings that must take action. The designs often propose multiple compliance routes. Finally, the standards specifically apply to the largest buildings, or the greatest carbon emitters, first and extend to smaller buildings through predetermined incremental stages. The New York standard, for

Features of leading U.S. examples

Building size thresholds that bring more buildings under the regulation over time. Washington, D.C., and Washington state have set out building size thresholds that reduce over time. The Washington, D.C., standard covers buildings of 50,000 square feet or more in 2026, incrementally extending to cover all buildings of 10,000 square feet or more by 2031.

Tightening standards. The New York standard will require much deeper savings over the different compliance periods. Some buildings in the first period will be obligated to reduce emissions by as little as 10%, compared to 50% in the second period. The law allows for more stringent limits at further incremental stages.

Incentive programme for voluntary early action. Washington state has introduced a financial incentive, equivalent to \$0.85 per square foot (or 8.07 euros per square metre), for building owners who can demonstrate that they have taken early action to comply with the standard in the five years prior to the enforcement date.

⁴⁵ Nadel, S., & Hinge, A. (2020, June). *Mandatory building performance standards: A key policy for achieving climate goals*. ACEEE white paper. Forthcoming.

⁴⁶ The standards all have a different minimum size threshold from 25,000 square feet in the New York standard to a minimum of 50,000 square feet in the Washington state and Washington, D.C., standards.

example, covers only 5% of the stock, but this segment accounts for 60% of energy use in buildings in the city.⁴⁷

Table 2. Leading minimum energy performance standards in the United States

Where	Introduced	Enforced	Building stock sector, tenure, building type	Metric	Minimum standard
Boulder, Colorado	2010	2019	Privately rented homes	Points (which are based on energy and carbon)	Points threshold: national rating system or prescriptive table of points ⁴⁸
Washington, D.C.	2018	2026	Commercial and multi-family buildings, larger than 10,000 sq. ft	Energy Star Benchmark score	Median Energy Star score for building type or reduce energy use intensity by >20%
Reno, Nevada	2019	2026	Commercial and multi-family buildings, larger than 30,000 sq. ft	Energy Star score or energy use intensity and water use intensity	Multiple energy and water options ⁴⁹
New York City, New York	2019	2024	Commercial and many multi-family buildings, larger than 25,000 sq. ft	Carbon intensity (CO ₂ /sq. ft)	40% reduction by 2030, 80% by 2050
Washington state	2019	2026	Commercial buildings, larger than 50,000 sq. ft	Energy intensity (kBtu/sf)	Median energy use intensity for building type
St. Louis, Missouri⁵⁰	2020	2025	Commercial, multi-family, institutional and municipal buildings larger than 50,000 sq. ft	Energy use intensity	To be decided; will require 65% of buildings to improve, based on benchmark

Further standards are under consideration in four additional U.S. jurisdictions and in the Canadian province of British Columbia. Other notable examples from the United States include the city of Austin, Texas, which requires multi-family properties whose energy use intensity exceeds 150% of the average to reduce energy use by 20%, and San Francisco, California, which

⁴⁷ Majersik, C. (2019). *A DC vs. NYC comparison that matters: What you need to know about both cities' bold new building performance laws*. Institute for Market Transformation. <https://www.imt.org/a-dc-vs-nyc-comparison-that-matters-what-you-need-to-know-about-both-cities-bold-new-building-performance-laws/>

⁴⁸ The national Home Energy Rating Score (HERS), is a nationwide rating system. The minimum standard is equivalent to 120 points under this system or 100 points on a prescriptive scoring checklist developed by the city of Boulder based on energy and carbon savings for specific measures.

⁴⁹ An Energy Star score of 50 or higher, energy use intensity equal or better than average for building type, Energy Star score 15 points better than baseline year, energy use intensity score reduce by 10% compared to baseline year, or one from a list of prescriptive routes to compliance.

⁵⁰ Majersik, C., & Miller, J. (2020, 21 April). *St. Louis passes first building performance standard in the Midwest*. Institute for Market Transformation. <https://www.imt.org/st-louis-passes-first-building-performance-standard-in-the-midwest/>

requires residential properties built before 1978 to have installed a minimum set of water and energy efficiency measures before sale.

Australia and New Zealand

In both Australia and New Zealand, the development of minimum energy performance standards has focussed on rental homes, with tenant health and well-being as key drivers. See Table 3 for a summary.

In New Zealand, the Healthy Homes Guarantee Act 2017⁵¹ requires all landlords to meet nationally consistent standards for heating, insulation, ventilation, draught proofing, drainage and moisture. The standards are defined in the residential tenancies regulations⁵² (Healthy Homes Standards), which came into force in July 2019. They set minimum levels for floor and ceiling insulation, the latter equivalent to 2008 new-build standards of 120 mm. Building-integrated heating systems are required for all properties, with specific requirements for affordability and efficiency.

In Victoria, Australia, legislation⁵³ was passed in 2018 to enable a set of minimum rental standards to be enforced from 2021. The proposed regulations⁵⁴ establish a broad set of housing quality standards that include energy efficiency requirements for heating and cooling systems and appliances. At the national level, the Council of Australian Governments (COAG) Energy Council has proposed to establish a national framework for minimum energy efficiency requirements for rental properties, building on existing rental standard schemes.⁵⁵

Table 3. Minimum energy performance standards for rental homes in New Zealand and Australia

Where	Introduced	Enforced	Building stock sector, tenure, building type	Metric	Minimum standard
New Zealand	2017	2019	Privately rented homes	Measures based	Minimum ceiling and floor insulation; fixed heating systems
Victoria, Australia	2018	2021	Privately rented homes	System and appliance efficiency standards	Efficiency standards for heating, cooling and appliances

⁵¹ New Zealand government. (2017). *Healthy Homes Guarantee Act 2017*.

<http://www.legislation.govt.nz/act/public/2017/0046/latest/whole.html>

⁵² New Zealand government. (2019). *Residential Tenancies (Healthy Homes Standards) Regulations 2019*.

<http://www.legislation.govt.nz/regulation/public/2019/0088/latest/whole.html#LMS173420>

⁵³ Government of Victoria. (n.d.). *Fairer safer housing*. <https://engage.vic.gov.au/fairersaferhousing>

⁵⁴ Government of Victoria. (n.d.). *New regulations for rental housing*. <https://engage.vic.gov.au/rentingregulations>

⁵⁵ COAG Energy Council. (2019). *Addendum to the trajectory for low energy buildings: Existing buildings*. Commonwealth of Australia.

http://coagenergycouncil.gov.au/sites/prod.energycouncil/files/publications/documents/Trajectory%20Addendum%20-%20ADDENDUM%20TRAJECTORY%20FOR%20LOW%20ENERGY%20BUILDINGS_0.pdf

Impact of implemented MEPS

Although most of the MEPS reviewed in this briefing have not yet been evaluated ex-post — largely because most of them have not reached enforcement — a small number of examples from around the world provide an indication of initial impact. These examples evidence improved standards across the targeted stock, high levels of compliance with the right enforcement framework and the potential for providing policy signals to alter markets.

The three standards established as agreements between governments and the target housing sectors, Decent Homes in the UK and the two Dutch rental housing sector standards, have been broadly effective in improving the efficiency of the target stock. Decent Homes improved 1 million social sector homes between 2001 and the enforcement date of 2010.⁵⁶ The social housing stock, as of 2018, performs better than the rest of the stock: it has a higher average EPC rating than the rest of the stock and only 1% of the social housing stock is in the lowest EPC classes (E and F), compared to 6% in the rest of the housing stock.⁵⁷

Under the Dutch standard for the social housing stock, 90% of housing has now undergone energy efficiency improvements. The stock has been making steady progress, and although the EPC B target in 2020 will not be met, it is on trajectory to reach it by 2021. It has improved from an energy index of 1.85 in 2016 to 1.57 in 2019; the target of class B is 1.4.⁵⁸ Slower progress has been made in the private rented sector. In 2016, 60% of the EPCs registered met the standard, up from 40% in 2008, against of target of 80% in 2020. At that time, the target was estimated to be 70% achieved.⁵⁹

All three agreed standards made significant progress but missed the enforcement date. Nevertheless, stakeholders put plans in place to continue efficiency works and meet the standard at a later date.⁶⁰

The standard for rental homes in Boulder, Colorado, has also shown very high levels of compliance. By the enforcement date of 2019, all but 500 of the 23,000 obligated units had achieved compliance.⁶¹

These examples feature strong compliance and the potential of MEPS to trigger renovations in a large proportion of the stock — Scotland's proposed measure for owner-occupied homes would trigger renovations in up to 36% of obligated properties (below EPC C) within 10 years. This illustrates the potential of the MEPS tool.

⁵⁶ House of Commons, Committee of Public Accounts. (2010). *Decent Homes Programme: Twenty-first report of session 2009-2010*. <https://publications.parliament.uk/pa/cm200910/cmselect/cmpubacc/350/350.pdf>

⁵⁷ Ministry of Housing, Communities and Local Government. (2019). *English Housing Survey: Social rented sector, 2017-18*. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/856046/EHS_2017-18_SRS_report_revised.pdf

⁵⁸ Aedes. (2019). *Betere prestaties & grote uitdagingen: Reportage Aedes-benchmark 2019* [Better performance & big challenges: Report Aedes benchmark 2019]. https://dkvwg750av2j6.cloudfront.net/m/620ffd480af237f1/original/Aedes-benchmark_2019_online.pdf

⁵⁹ Government of the Netherlands. (2017). *Rapport Monitoring convenant particuliere huur* [Report monitoring covenant on private rent]. https://energieakkoord.ser.nl/Uploaded_files/Documenten/292-MonitorvoortgangLabelCafsprakenparticulierewoningverhuurdecember2017ID293.pdf

⁶⁰ House of Commons, Committee of Public Accounts, 2010; and Aedes, 2019.

⁶¹ Nadel & Hinge, 2020.

Compliance with the standard in England and Wales for privately rented buildings is less convincing. In a study for the government, experts identified the main barriers to effective and efficient enforcement.⁶² These include the limited capacity of local authorities to enforce the regulations due to resource constraints — resulting in part from austerity measures — the absence of landlord registration or licencing, a lack of confidence in EPC data and the complexity of the regulation.

It is useful to compare the experience in England and Wales with that of Boulder, Colorado. The MEPS in Boulder made use of an existing rental license programme, which requires landlords to renew their licence every four years and have the property inspected. The regulation gave landlords two rental license cycles to comply. In the UK, no such register, license or inspection regime exists, and therefore the MEPS is not embedded in an existing enforcement process. In response to the low enforcement rate, the government has commissioned pilots across England in partnership with local authorities to explore options for implementation of the regulations (see sidebar).

In other jurisdictions, indirect impact is evidenced even before enforcement. Early notification in the Netherlands that offices will be required to achieve an EPC class C standard by 2023 has triggered significant changes in the lending behaviours of the country's biggest banks. ABN Amro, ING Real Estate and Rabobank have signalled that they will no longer finance office assets of a class D or lower. ABN Amro extends this requirement beyond offices to retail, logistics and residential assets. ING Real Estate has adopted additional requirements for the refinancing of existing clients, who need to have in place a plan to improve their building to class C.⁶³ The banks have proactively communicated the impending standard, and Rabobank

MEPS enforcement pilots in England

Seven pilots have recently been completed by local authorities across England to explore mechanisms to improve implementation and enforcement of MEPS. Successful techniques include:

- Bringing together data from council and external sources and using machine learning to predict where obligated buildings exist.
- Working with community organisations and charities to engage tenants and locate “under the radar” landlords.
- Introducing local landlord licensing schemes.
- Directly engaging landlords through landlord forums and letting agents.
- Using “nudge” letters and signposting landlords to funding for measures as a carrot for positive engagement alongside the stick of the regulation.

Source: Centre for Sustainable Energy. (2019). PRS MEES pilots presentation

⁶² RSM. (2019). *Enforcing the enhancement of the energy efficiency regulations in the English private rented sector*.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/825485/enforcing-enhancement-energy-efficiency-regulations-English-private-rented-sector.pdf

⁶³ Irish Green Building Council. (2019). *Introducing minimum energy performance standards for the rental sector*.

<https://www.igbc.ie/wp-content/uploads/2019/06/IGBC-SEAI-Report-Final.pdf>; ABN-Amro. (2018). *Summary: Commercial real estate*. https://www.abnamro.com/en/images/Documents/040_Sustainable_banking/070_Sustainability_policy/ABN_AMRO_CRE_Sustainability_Policy_summary.pdf; Redactie, D. (2016). *ING financiert alleen nog kantoorpanden met groen energielabel* [ING only finances office buildings with green energy label]. *Energie Vastgoed*. <https://www.energievastgoed.nl/2016/12/17/ing-financiert-alleen-nog-kantoorpanden-met-groen-energielabel/>; and Dutch Green Building Council, 2018.

encourages building owners to go further than class C in expectation of tightening standards beyond 2023.⁶⁴ This evidences the policy-signalling impact of announcing a MEPS early.

Lessons

Whilst there is limited evidence on the impact of the enforced MEPS thus far, the growing examples of MEPS policy design and the initial experience of implementation provide lessons for future policy design.

The design of individual MEPS is highly flexible and can serve different priorities. The examples included in this report are designed to target the largest carbon emitters first, to overcome specific barriers to renovation, and can also be incorporated with other standards. They can, for example, help mitigate the split incentive between landlords and tenants and improve health and well-being. The impact has been evidenced in both commercial and residential sectors.

The design and implementation of MEPS relies on solid data and established metrics or building assessment tools and labels. Building stock and related data are essential to design a MEPS that delivers against local priorities. Data can, for example, help identify the worst performing stock or calculate the expected renovation activity that results from different trigger points. MEPS build on metrics, commonly the EPC in Europe and Energy Star in the U.S., or on technical measures, which are known by or are understandable to the public, such as the minimum insulation requirements in Flanders.

A long lead time, commonly between four and 10 years, is necessary.⁶⁵ Early announcement, coupled with clear goals, sustained messaging and additional incentives all contribute to high levels of compliance with the standard and ultimately reduce the amount of

Robust framework enables an ambitious and effective MEPS

Scotland's MEPS requires privately rented homes to meet an incrementally tightening standard. Alongside the regulated standard is a strong framework of financial and practical support for building owners and tenants. This framework comprises free advice on energy efficiency and renewable energy, as well as area-based schemes that actively engage hard-to-reach households. Interest-free loans, equity release finance and heavily subsidised measures for low-income households support the up-front costs.

In part due to this strong framework of support, the design of Scotland's MEPS is particularly robust when compared to the very similar standard in England and Wales. It requires measures to be installed to achieve the standard, up to a cost of £5,000 (around 5,557 euros) for each incremental standard, or cumulative expenditure of £10,000 (approximately 11,114 euros). By comparison, the cost cap for measures under the standard in England and Wales is just £3,500 (about 3,890 euros). It is estimated that 52% of obligated properties in England and Wales cannot be brought up to the standard within this cost cap, significantly reducing the impact of the regulation.

Case studies on Scotland, England and Wales.

⁶⁴ Rabobank. (n.d.). *Energielabel kantoorgebouwen verplicht* [Energy label mandatory for office buildings].

<https://www.rabobank.nl/bedrijven/cijfers-en-trends/vastgoed/energielabel-kantoorgebouwen-verplicht/>

⁶⁵ Irish Green Building Council, 2019; Nadel & Hinge, 2020; and Maby, 2019.

resources needed for enforcement. A long lead time can help building owners plan for compliance, can signal to market actors the need to adapt and can facilitate early impact, as it did in the Netherlands. We must, however, balance the need for a long lead time with the urgency for prompt action by Member States on climate change.

Incrementally increasing standards sets out a clear trajectory. Incrementally tightening standards can ensure progress along decarbonisation pathways. The incremental stages over time can be defined in many ways: through rising performance standards, as in Scotland and New York; by a sequence of measures, similar to measures proposed in the Brussels-Capital Region; and by increasing the proportion of the stock covered, as seen in Washington, D.C., New York and St Louis.

An enabling framework is essential to robust regulation and impact. A strong framework of support, funding and finance is essential to both the acceptability of robust regulation and achieving impact. In Europe, Scotland stands out as having a strong framework, and when compared to England and Wales, this framework is credited with enabling a more robust MEPS (see sidebar on the previous page).

Practical enforcement must be considered as part of the MEPS design. Enforcement at the local level is a feature of almost all of the MEPS examples reviewed. It is important, however, to design a standard with adequate resources that can be enforced within existing structures, such as those for inspection, licencing or permissions. This can contribute significantly to achieving high levels of compliance, as we saw in Boulder, Colorado.

Complexity and exemptions can create unintended consequences, hinder enforcement and reduce impact. As shown in the case studies accompanying this study, many of the standards include exemptions. They can provide necessary protections, for example, for buildings pending demolition or for building owners in temporary financial distress, as illustrated in England and Wales, the Netherlands and Washington, D.C., or when renovation works will result in damage or significant loss of property value, as in the design in England and Wales. The use of exemptions can, however, create unintended consequences, such as difficulties with enforcement, as England and Wales experienced, or an underclass of buildings or occupants who miss out on improvements. In New York, for example, multi-family buildings with at least one rent-regulated unit and other low-income or subsidised housing units are exempt.

Considerations when introducing MEPS

This section looks at key considerations for jurisdictions developing a MEPS policy. Although the design of MEPS depends on local priorities and building stocks, they all need to be:

- Fully integrated into EU and national decarbonisation strategies.
- Part of a comprehensive framework designed to overcome the barriers to renovation.
- Designed, together with renovation and housing strategies, to avoid burdening the poorest and creating distortions in the housing market.
- Supported by robust data and by enforcement and review mechanisms.

These points are examined in more detail below.

Integration with decarbonisation strategies

MEPS should be well integrated with an ambitious road map for decarbonisation of the building stock and with the wider decarbonisation strategy.

Road map to a decarbonised building stock

The EPBD requires Member States to present a comprehensive plan that sets out the pathway to a decarbonised building stock by 2050 in the form of national long-term renovation strategies. The long-term renovation strategies provide an overview of the building stock and set out a road map with measurable progress indicators. The strategy must include indicative milestones for 2030, 2040 and 2050. Member States were required to submit these strategies, which also cover policy measures such as MEPS, by March 2020.

MEPS can create a bridge between the overarching national and European building sector decarbonisation targets and an individual building's role in achieving those targets.

Some jurisdictions that have introduced MEPS, such as Scotland, set out the long-term destination and incremental performance standards at the start of the regulatory process. Others have introduced the regulated standard at a minimum level and have committed to a review of the standard, for example, on a five-year basis, with a view to possible incremental increases, as was the case in England and Wales. The first approach is likely to be stronger in that it provides a clear and communicable route to the headline decarbonisation target.

Energy system decarbonisation strategy

Many MEPS are based on either an energy metric or a carbon metric. In Europe, EPCs are based on an energy rating or a combination of energy, cost and carbon ratings. Whilst a minimum standard based on a carbon rating places more focus on the decarbonisation of energy use in buildings, energy ratings place a greater focus on the building fabric and systems than on the carbon content of energy.

This has implications for the MEPS design. MEPS that use an energy metric can be coupled with separate measures to address the carbon intensity of the energy delivered. If appropriate, energy metrics can also be coupled with or replaced with carbon metrics as building rating systems are developed or improved over time.

Wider decarbonisation activities should be considered alongside MEPS,⁶⁶ including:

- **Heating and cooling planning.** Area-based planning needs to take account of the interaction between buildings and new or expanded district heating and cooling systems. Building owners must be enabled to plan for connection into efficient, decarbonised district systems when complying with a MEPS.
- **Promotion of beneficial electrification.** Measures to enable individual buildings to electrify efficiently and interact with the energy system are also needed. Fuel switching, building-level heat and power storage and demand response measures may not be driven by a MEPS alone.

In practice, jurisdictions are exploring a number of strategies to develop MEPS and supporting tools that consider wider decarbonisation and sustainability objectives. Scotland is weighing the introduction of a MEPS that considers both energy and environmental (carbon) metrics.⁶⁷ The Brussels-Capital Region, for example, is also developing building renovation passports⁶⁸ and enhanced EPCs to provide recommendations on measures that go beyond energy efficiency and efficient heating systems to include a range of sustainability measures that could include storage and demand response.

Getting the balance right

Reducing energy use in buildings and ensuring that buildings can vary the time at which they use electricity are essential measures for decarbonisation. However, as MEPS become progressively stricter and buildings undergo greater renovations, it is important to establish a cost-effective balance between decarbonisation at the building level and at the electricity system and heat network level, in line with the Efficiency First principle. This may be different for different types of buildings, in different locations, with different grid conditions and markets. MEPS need to be set at an ambitious but achievable level for the majority of the buildings. The requirements must aim to strike the right balance of costs and effort between the building costs, which are private, and the socialised system costs.

Neighbourhood-scale planning

Neighbourhood-scale planning is particularly relevant for heat decarbonisation and is the approach the Dutch government has taken to implement its ambitious gas phaseout. If planned at a neighbourhood level, building decarbonisation strategies can be linked to locally designed assistance programmes, can identify and prioritise assistance to energy poor and vulnerable households and can monitor and manage equity concerns and unintended consequences. All of this requires local-level resourcing.

⁶⁶ For an overview of the relation between building and heating policies, see Rosenow & Lowes, 2020.

⁶⁷ Scottish government, 2019.

⁶⁸ Fabbri, M., De Groote, M., & Rapf, Oliver. (2016). *Building Renovation Passports: Customised roadmaps towards deep renovations and better homes*. BPIE. http://bpie.eu/wp-content/uploads/2017/01/Building-Passport-Report_2nd-edition.pdf

Comprehensive renovation framework

A comprehensive renovation framework should be in place well before the enforcement date of the MEPS. The framework should address the barriers to renovation.

Financial barriers

Public subsidies, financial incentives and private finance

A comprehensive framework of public subsidies, financial incentives and private finance products, designed to suit different sectors of the stock and situations of the building owners and occupants, is fundamental for the successful and equitable implementation of an ambitious renovation strategy. Equally, the introduction of credible, measurable and enforceable MEPS provides a signal for financial institutions to design suitable private finance products. This financial framework should be in place as early as possible, following the announcement of the MEPS and the start of policy signalling. Where adequate support is in place, the design of MEPS also becomes simpler, clearer and more robust because support, rather than exemptions, can be used to overcome resistance and assist in situations where compliance is harder to achieve.

Public subsidies are needed on both economic and distributional grounds. Providing subsidies for early adopters of the deepest renovations can help to build the market and drive down costs ahead of wider take-up as the MEPS deadlines approach. Meanwhile, the ongoing subsidisation of measures for low-income households can ensure an equitable distribution of energy transition costs. These subsidies could come from a variety of sources — including general taxation, specific energy or carbon taxes, EU Emissions Trading Scheme allowance auction revenues and levies on energy consumption — and the distributional impacts of these sources should be considered. There are also many options for policy design, such as grants, tenders, auctions, tax rebates and energy efficiency obligations on utilities. Crucially, they should be linked to the performance criteria set out in the MEPS, binding together the stick and carrot elements of the policy framework and making it less likely that the stick will need to be used.

Financial incentives for early compliance can be an effective way of driving early action, creating a market and bringing down costs before the enforcement of the regulation. Bonus malus property tax differentials,⁶⁹ particularly if applied to property transactions, are relevant tools to influence decision-making and normalise the consideration of energy performance at key trigger points. These can be designed in a revenue-neutral way, as is the case with many vehicle registration taxation programmes, such as those in the UK and Ireland, which both employ a form of variegated excise duty. These could be aligned with the progressively tightening MEPS, providing the incentive to renovate more deeply.

Private finance will be crucial in funding the vast majority of renovation works in most jurisdictions. Financial products that enable the costs to building owners to be spread over many years, for example, through green mortgages and on-bill financing, will need to be developed. MEPS should create a stream of demand for such products; however, their development will depend upon other elements of the policy framework being in place. Financial institutions will need to have confidence in the performance metrics used to judge whether MEPS have been met.

⁶⁹ Jahn, A., & Rosenow, J. (2017). *Property transfer tax reform: A game changer for energy efficiency retrofits?* ECEEE summer study proceedings. <https://www.raonline.org/knowledge-center/property-transfer-tax-reform-game-changer-energy-efficiency-retrofits/>

Consumer and communication barriers

Policy signalling and public communications

Clear communication of the MEPS and their role in achieving the objectives of long-term renovation strategies will inform building owners and occupants about their role in decarbonisation. Stakeholder consultation on the design of the standard can build broad support. Communication must start with a reasonable lead time — commonly four to eight years — before enforcement of the regulation.⁷⁰ Experience to date teaches us that inadequate communication and awareness raising, as in England and Wales, or changing enforcement dates, as was the case in France, can limit the potential of the policy to have early impact. Adopting the right framing — emphasising health benefits, affordability, climate change mitigation and other aspects — can, on the other hand, increase acceptance of the policy.

Communication ahead of the regulation enables building owners and operators to plan, respond to nudges and trigger points and take up incentives and finance when it is most suitable. This may be in line with investment or repair and maintenance and improvement cycles or according to voids or family situations. High levels of public engagement have been a feature in other successful and swift energy system transitions.

Building-level information

Information on building performance and a long-term plan for each building to meet decarbonisation targets are essential to identify technical “no regrets” solutions that can be deployed to meet a short-term standard. EPCs provide some of this information, but in many Member States, the drive to keep assessment costs down have resulted in basic data collection and analysis that is not sufficient to support the design of deep renovation. The building renovation passport⁷¹ provides a more suitable tool to support buildings in their long-term transition. The passport presents an improvement plan based on the condition of the building and on occupants’ needs. It provides a route for deep renovation or staged, no regrets options.

An enhanced EPC or building renovation passport can set out the final destination for each building. It can also illustrate the road map for each building to arrive at the destination, either incrementally or through a single deep renovation.

Advisory services and one-stop shops

Building owners, occupiers and managers need renovation advisory services or one-stop shops to provide independent technical and financial assistance, project management, quality assurance and verification support. This support can ensure that the owners can successfully specify, finance and implement projects that achieve the desired results. These services are particularly important for households and small and medium-sized enterprises and ideally should be free at the point of use for these groups. Services are provided through a number of routes, by local authorities or energy agencies,⁷² industry⁷³ or by the not-for-profit sector.⁷⁴

⁷⁰ Nadel & Hinge, 2020; Existing Homes Alliance, Scotland, 2020; and Irish Green Building Council, 2019b.

⁷¹ Fabbri et al., 2016.

⁷² For example, Energy Saving Trust. (n.d.). *Home Energy Scotland*. <https://energysavingtrust.org.uk/scotland/home-energy-scotland>; and Hauts-de-France: Pass Rénovation. (n.d.). <https://www.pass-renovation.picardie.fr>

⁷³ For example, BPIE. (2016). BetterHome. <http://bpie.eu/publication/boosting-renovation-with-an-innovative-service-for-home-owners/>; and RetrofitWorks. (n.d.). <https://retrofitworks.co.uk>

⁷⁴ Energy Communities Tipperary Cooperative. (n.d.). Blog. <https://energycommunitiestipp.ie/blog/>

Multi-family, multi-tenanted and mixed-use buildings

The renovation of multi-family or complex-tenure buildings faces specific hurdles. Securing the participation, agreement or financing contributions of all unit owners and occupiers is a significant challenge for building-level renovations — works to external fabric, common areas or heating, cooling and ventilation systems — and renovations of individual units alike.

MEPS can provide a point of coalescence for the multiple stakeholders in multi-family and multi-tenanted buildings to overcome the barriers of consents and collaboration. Tenure-blind or cross-tenure standards that apply to all units in the building are more effective than single-tenure standards for this purpose.

The most common model of condominium ownership and management in Europe is a homeowner association or community. These organisations are already charged with complying with energy efficiency regulation, for example, the requirement in the EPBD for efficiency upgrades at the point of major renovation. A 2018 report by the Joint Research Centre⁷⁵ on energy efficiency in multi-owner residential buildings recommended that funding and finance needs be structured to provide better access to homeowner associations, in particular private sector finance, and to be tailor-made for condominiums. Pay-for-performance contracting has a specific role for this sector. The report also recommended that minimum energy performance requirements specifically for common areas could be an important driver in this sector.

Supply chain barriers

Quality assurance, consumer protection and skills

More than 90% of domestic energy renovations take place as part of a wider, non-energy renovation.⁷⁶ Building renovation should be supported by a framework for quality assurance and consumer protection, as should all product and services markets. The introduction of a regulation that will eventually mandate products and services to be procured places more attention on the robustness of this framework. Policymakers can maintain consumer confidence and support for a regulated standard by setting high standards in the building renovation, building assessment and certification industries.

Energy-efficient and low-carbon renovation awareness, knowledge and skills need to be integrated into the education, training and continuing professional development of all construction trades in a similar way to other regulated building standards, such as fire or gas safety. It is this training and awareness that underpins the quality of assessment, advice and renovations. Warranties that cover technologies, installers and general trades are also needed. However, the framework of accreditation and warranties must be proportionate to the renovation and balance consumer protection with access to the market for small and medium-sized enterprises. Subsidised training and certification for small and medium-sized enterprises is one way that this barrier can be overcome. The guaranteed market created by a regulation is a key driver for investment and upskilling in industry.

⁷⁵ Joint Research Centre. (2018). *Energy efficiency upgrades in multi-owner residential buildings*. European Commission.

https://publications.jrc.ec.europa.eu/repository/bitstream/JRC110289/energy_efficiency_upgrades_in_multiowner_apartment_buildings_final.pdf

⁷⁶ European Commission, 2019a.

Equity and affordability concerns

Low-income households disproportionately occupy the worst performing buildings.⁷⁷ As MEPS often require the worst performing buildings to be improved first, these households, or their landlords, will be burdened first. But it will also be these households that benefit first from better housing. The cost of complying with minimum standards, therefore, should not be an argument for avoiding improvement of the worst buildings.

The design of MEPS and the surrounding framework must carefully consider how to protect low-income households from the burden of the costs of the regulation and ensure that the regulation does not create distortions in the housing market or exacerbate existing shortages.

To minimise this risk, funding and finance must be specifically targeted to enable heavily subsidised or free renovation measures for target groups prior to enforcement of the regulation.

Many of the MEPS reviewed for this paper include a measure, either a cost cap or a maximum payback period, to limit the financial cost of complying with the standard. Although a cost cap can increase acceptability of the regulation, exempting worst performing properties from the regulation based on cost can create an underclass of properties that fall further behind the standard of the main stock. Furthermore, as standards tighten and deeper renovations are required, cost effectiveness or payback periods based only on the value of energy savings, rather than broader multiple benefits, become less relevant. One solution could be to consider cost-effectiveness not as a prerequisite for the regulation but rather as a trigger to access additional support.⁷⁸ Creative policy design can limit the unintended consequences associated with the cost of complying with the standard. In Scotland, the proposed standard for owner-occupied homes includes the option to transfer the renovation obligation to the purchaser upon sale of the building, ensuring that those who don't have the finances or ability to renovate are not prevented from selling their home.

Perhaps because many of the existing standards for homes specifically target the rental sector — as seen in examples from Flanders, Great Britain (England, Scotland, Wales), New Zealand and Australia — many of the equity concerns associated with MEPS have focussed on the potential for rent rises and housing shortages in this sector.⁷⁹ Evidence, post-implementation, of the impact of MEPS on rental prices is still limited and may be difficult to distil. Prices in the rental sector are influenced by a number of local factors that are much stronger drivers than efficiency standards, for example, location, density, local supply and land prices. Literature on the effect of energy efficiency on rents is not comprehensive but indicates a 1.4% to 5.2% increase in value for rental homes.⁸⁰ This increase in value is based on a market in which properties can use energy efficiency to differentiate; therefore, the isolated impact of a minimum standard that applies evenly across all stock in the same market may well be small.

MEPS that affect a single tenure may risk altering the housing supply as homes are moved from a regulated to an unregulated tenure. Tenure-blind standards, that extend to the whole stock or sector, would avoid this distortion. Regulated standards that apply evenly to the whole stock or

⁷⁷ Sunderland, L., Jahn, A., Hogan, M., Rosenow, J., & Cowart, R. (2020). *Equity in the energy transition: Who pays and who benefits?* Regulatory Assistance Project. <https://www.raponline.org/knowledge-center/equity-in-energy-transition-who-pays-who-benefits/>

⁷⁸ Existing Homes Alliance, Scotland, 2020.

⁷⁹ Maby, 2019.

⁸⁰ European Commission, 2016a.

sector can be expected to be less distorting to rents than piecemeal renovation. Rental homes that meet the minimum standard cannot use this standard as a differentiator in the market.

To ensure policies are fair and do not burden the poorest, energy and buildings policy needs to interact with energy poverty strategies and local approaches. MEPS that target homes should be introduced within the context of a broader housing supply and affordability strategy.⁸¹

Buildings data, MEPS enforcement and review

Building stock data and benchmarking

Design of a MEPS that is proportionate and addresses political priorities is heavily reliant on stock-level energy performance data. These data are used to identify the distribution of energy performance across the entire stock and the worst performing elements, to identify sector-specific priorities and to track energy performance trends over long time periods.

EPCs, required by the EPBD in every Member State since 2009, provide a method for assessing buildings. They establish a building label that communicates performance and allows for comparison. The EPC system has now been in place in most Member States for over a decade. In this time, the percentage of the building stock covered by certificates has grown, and further measures have been put in place to improve quality and compliance.⁸² Although the EPBD does not mandate a register or database of EPC data across the whole stock, the majority of Member States collect data and set up databases voluntarily.⁸³ The EPC label and stock data foster the assessments and benchmarking needed to design a targeted MEPS.

The EPBD establishes the use of the EPC as a compliance tool; a pre-renovation and post-renovation EPC is one way of determining whether building renovations achieve the energy performance improvements linked to renovation finance. In a number of Member States, creation of an EPC⁸⁴ or achievement of a minimum EPC class is a prerequisite for access to finance schemes. This is the case, for example, with the UK renewable heat incentive and feed-in-tariff. EPCs are therefore an established tool for Member States implementing a MEPS.

However, the use of EPCs for enforcement of a MEPS is not without issues. Poor quality assessments and inconsistent data are persistent problems.⁸⁵ The introduction of a minimum standards regulation, based on an EPC class, effectively puts a value on the result of the assessment, meaning the quality, consistency and oversight of the assessment industry becomes more important. Although using the EPC as evidence of compliance creates a risk, it also places new focus on the instrument as more than a bureaucratic exercise, which could and should improve quality. Member States need to review and strengthen the training and evaluation processes for EPC assessors and the auditing and quality control for EPCs. Quality control and

⁸¹ Maby, 2019.

⁸² Arcipowska, A., Anagnostopoulos, F., Mariottini, F., & Kunkel, S. (2014). *Energy Performance Certificates across the EU: A mapping of national approaches*. BPIE. <http://bpie.eu/wp-content/uploads/2015/10/Energy-Performance-Certificates-EPC-across-the-EU.-A-mapping-of-national-approaches-2014.pdf>

⁸³ European Commission. (n.d.). *Public EPC registers*. https://ec.europa.eu/energy/content/public-epc-registers_en; and European Commission, 2016b.

⁸⁴ An EPC is obligatory or is seen as a beneficial criterion in, for example, Austria, Belgium (Flanders), Bulgaria, Croatia, Portugal and Greece, when applying for energy efficiency refurbishment subsidy programmes. Arcipowska et al., 2014.

⁸⁵ Arcipowska et al., 2014.

enforcement of the MEPS regulation and proof of compliance are essential. Public confidence and support rely on accuracy and fairness. Initiatives are ongoing, at both the Member State level and European level,⁸⁶ to review and improve the quality, usefulness and coverage of EPCs.

Open and transparent access to EPC data is important for public confidence and useful to building owners and supply chain stakeholders.⁸⁷ Public access to this data varies across Europe.⁸⁸ The EU Building Stock Observatory combines national EPC data with data from Eurostat, the Joint Research Centre, national stats and EU-funded projects to provide national-level data that is comparable on an EU scale. A number of good practice examples amongst Member States, such as the Netherlands⁸⁹ and Sweden,⁹⁰ provide open access to building-level EPC data. Member States introducing MEPS have introduced parallel measures to improve stock coverage⁹¹ and suitability of the EPC assessment.⁹²

Enforcement, monitoring and review

Well-designed MEPS that are communicated clearly, well in advance of enforcement, and set within a robust enabling framework should only require enforcement action for the very few.

For most of the MEPS reviewed, compliance checking and enforcement of the standard happen at the local level, usually by the local authority or municipality. If well resourced, enforcement at the local level can be integrated with “forceful nudges” and local enabling services.⁹³

A number of suitable enforcement mechanisms at the local level already exist that could absorb the compliance requirement for MEPS, depending on the design. For example, the trigger point of renovation may already require planning or building control oversight or sign off. Sale of a property requires survey, conveyancing and/or local authority searches. Inspections also provide enforcement opportunities, for example, gas safety checks or rented home health and safety inspections. Requirements for periodic auditing or reporting are more common in the commercial sector and provide opportunities to check for compliance. Buildings targeted by many of the U.S. standards are already required to report energy or carbon use annually.

Monitoring, compliance checking and enforcement at the local level can be enabled by providing access to and coordinating existing data sets, which may include building type and use data, EPC data and landlord and ownership registers. Local compliance checking and enforcement must be coupled with national-level rolling monitoring and evaluation of renovation activity and assessment of any unintended consequences of the MEPS regulation.

⁸⁶ For example, the European Commission's Horizon-2020-funded project X-tendo, which has reviewed the status and quality of EPCs and will develop improvements to the use of data and indicators. See X-tendo. (n.d.) <https://x-tendo.eu>

⁸⁷ Energy Efficiency Financial Institutions Group. (2014). *Energy Efficiency: The first fuel for the EU Economy; How to drive new finance for energy efficiency investments*. https://ec.europa.eu/energy/sites/ener/files/documents/2014_fig_how_drive_finance_for_economy_1.pdf

⁸⁸ Arcipowska et al., 2014.

⁸⁹ Government of the Netherlands. (n.d.). *Energielabel zoeken* [Find energy label]. <https://www.ep-online.nl/ep-online>

⁹⁰ Arcipowska et al., 2014.

⁹¹ The Brussels-Capital Region of Belgium will require all buildings to have an EPC by 2025, and the Netherlands' MEPS for offices requires buildings to create an EPC as part of compliance with the standard.

⁹² The Scottish government has proposed an improved assessment procedure for buildings undergoing assessment at the MEPS trigger points and a two-level assessment that offers building owners an occupancy-based assessment to aid planning of works.

⁹³ Existing Homes Alliance, Scotland, 2020.

Next steps and recommendations

The European Commission examined reinforcing MEPS at the EU level in the EPBD impact assessment in 2016.⁹⁴ The measure considered was a requirement to renovate the worst performing domestic and nondomestic buildings, in EPC classes F and G, before sale or rent.⁹⁵

The measure was not included in the policy proposals leading to the revision of the EPBD, despite the fact that it was assessed to produce the most significant impacts of all measures considered. The reason given was concern over practical implementation as statistical data on national building stocks, a precondition for setting the obligation, was generally not available in the majority of Member States. The Commission also considered subsidiarity and proportionality, and the MEPS measure was found to respect these principles if Member States are afforded the flexibility to decide on the specific performance standard.

Prerequisites for EU-level action

Respect of proportionality principle

The legal framework for building renovation is not sufficient to achieve EU climate protection objectives, justifying new measures by the EU.

First, there is a gap in efforts to meet several targets. The assessment of Member States' national energy and climate plans, expected later in 2020, will likely show that their contributions in the area of energy efficiency will not be sufficient for the EU to reach its 2030 energy efficiency target. This creates an obligation⁹⁶ for the European Commission to propose further EU measures. Additional measures are also needed for the EU to achieve carbon neutrality by 2050, and to contribute to staying within the Paris Agreement's temperature goals.⁹⁷

Second, the legislative framework is piecemeal. The present renovation rate and depth, as well as the investment gap identified in the building sector,⁹⁸ suggest that current EU and national legislation is inadequate. The EU MEPS framework has a limited scope. Article 5 of the EED

⁹⁴ European Commission, 2016b.

⁹⁵ This requirement would include some degree of flexibility to ensure the cost effectiveness of the required works and would enter into force gradually, starting with public buildings such as social housing.

⁹⁶ This is required by Article 32-2 (b) of the Governance Regulation. European Union. (2018). Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action. *Official Journal of the European Union*. <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32018R1999&from=EN>

⁹⁷ The impact of current policies is not sufficient for the EU to contribute to the Paris Agreement's temperature goals. See: EUR-Lex. (2020). Proposal for a Regulation of the European Parliament and of the Council establishing the framework for achieving climate neutrality and amending Regulation (EU) 2018/1999 (European Climate Law). COM/2020/80 final. European Commission. <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1588581905912&uri=CELEX:52020PC0080>

⁹⁸ See for example: EUR-Lex. (2019). Setting the foundations for a successful clean energy transition. COM/2019/285 final. European Commission. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52019DC0285>; and European Commission. (2020). Identifying Europe's recovery needs. Commission staff working document. SWD (2020) 98 final. https://ec.europa.eu/info/sites/info/files/economy-finance/assessment_of_economic_and_investment_needs.pdf

drives renovation rates — but only for a small share of the building stock⁹⁹ — while the impact of Article 7 of the EPBD is limited to cases where “major renovations” are undertaken.

Respect of subsidiarity principle

It is possible to introduce a MEPS measure while respecting subsidiarity by leaving sufficient flexibility to Member States, as evidenced by the existence of Article 5 EED and Article 7 EPBD and confirmed by the 2016 EPBD impact assessment.

Technical feasibility

The 2016 impact assessment noted that detailed statistical data on national building stocks is a precondition for being able to set obligations for building renovation and is generally not available in the majority of Member States. Since 2016, progress has been made in this area. The European Building Stock Observatory¹⁰⁰ was established in 2016, making significant contributions to providing transparent information on buildings to support policy design and monitoring. A number of EU-funded projects have also contributed to enhanced EPC data collection and an improved evidence base to support national renovation strategies.¹⁰¹ The data framework could be further enhanced during the lead time needed between the announcement of the measure and its enforcement.

EU-level options for improving the MEPS framework

The European Commission and Member States should reinforce MEPS at the EU and national levels, as a tool to boost renovation rates. The Commission should make proposals in the “renovation wave” communication expected in autumn 2020 and, at the latest, in 2021, when climate and energy legislation will be revised. Several options should be considered:

- **Expansion of existing tools:** There is value to increasing the scope of existing tools, including Article 5 EED and Article 7 EPBD. This could include incremental steps to cover more building types in Article 5 EED or to require action at more trigger points by amending Article 7 EPBD.
- **European-level MEPS:** In line with the 2016 impact assessment, the Commission could propose a European MEPS that applies across the whole building stock while providing some flexibility to Member States. This flexibility could take several forms. It could give Member States flexibility in setting the exact minimum performance level and could potentially provide an option for Member States to put in place alternative measures.¹⁰² It is important that this flexibility does not reduce the impact of the measure. The MEPS could include incremental targets that, for example, require a more stringent EPC class over time.

⁹⁹ Art. 5 EED targets heated and/or cooled buildings that are owned and occupied by central governments.

¹⁰⁰ European Commission. (n.d.). *EU building stock observatory*. https://ec.europa.eu/energy/topics/energy-efficiency/energy-efficient-buildings/eu-bso_en

¹⁰¹ For example, BUILD UPON. (n.d.). <http://buildupon.eu>

¹⁰² As an Article 7 EED obligation, where Member States have the option to implement measures with an impact equivalent to putting in place an energy efficiency obligation scheme.

- **Obligations based on results:** The Commission can hand over responsibility to Member States for designing a locally relevant MEPS, while setting an obligation based on results. The MEPS must set a deadline, or deadlines, as well as a target to be achieved through the MEPS. The latter can be expressed in different ways, such as energy consumption of the building stock, percentage of buildings brought to a certain level or similar measures.

The proposal could be launched together with:

- **An EU funding mechanism** supporting the rollout of the MEPS measures by Member States.
- **Reinforcement of EU initiatives** to increase data quality and comparability for the building stock.
- **Further research and deeper examination** of international experience with MEPS design, as well as facilitated exchange between policymakers and stakeholders to generate a richer evidence base. This should draw upon the considerable work already undertaken on developing effective national renovation strategies and policy frameworks. It could also be discussed in the context of the renovation platform foreseen by the Commission as part of the European Green Deal.¹⁰³

If the revised European legislation were to be approved in 2022, transposition of the new requirements could be expected in 2024 — in time for the deadline for Member States to submit a revised national energy and climate plan on 30 June 2024.

Member State-level recommendations for improving the MEPS framework

The review of policy design and early implementation experience in this paper has informed the following initial recommendations for Member States designing and implementing MEPS.

Integrated and informed strategies

Member States should design MEPS policies that deliver against decarbonisation goals. This involves:

- **Definition:** Clearly define the role of minimum standards for buildings within the long-term renovation strategies and the wider decarbonisation strategies.
- **Collaboration:** Involve stakeholders — owners, occupiers, aggregators, energy service providers, one-stop shops, supply chain, interest groups and others — in designing MEPS policy. Collaboratively design buildings policy alongside local and national energy poverty and housing affordability strategies, to reduce unintended impacts on the poorest.
- **Exchange:** Draw on the policy and legislative design of other jurisdictions and the growing experience of delivering MEPS policies.

¹⁰³ European Commission. (2019b). The European Green Deal. COM (2019) 640 final.

https://ec.europa.eu/info/sites/info/files/european-green-deal-communication_en.pdf

Smart policy design

Member States should design MEPS policies that respond to local context and priorities and communicate these policies clearly and with advance notice. This involves:

- **Clarity:** Define a robust and measurable metric, segments of the stock and trigger points or dates for enforcement.
- **Simplicity:** Balance the need to avoid unintended consequences with simple policy design. Policy design that is ambitious often needs to be balanced with exemptions or caveats that make allowances for outlying situations. One example is the exemptions for some historic buildings, where reaching a specified standard would result in property damage or be prohibitively expensive. However, overly complex policy design is hard to communicate and understand, difficult to enforce and can ultimately undermine the overall goal and impact.
- **Long-term visibility:** Set out the long-term destination and incremental steps to communicate a clear route to the headline decarbonisation target. The incremental steps could include rising standards or a larger scope over time.
- **Evidence-based policy design:** Review and reinforce building assessments and certification, stock data and performance monitoring for use as tools for checking compliance and monitoring policy. Where relevant, include measures to improve stock data in the design of the MEPS regulation, for example, through extended requirements for generating EPCs.
- **Monitoring and enforcement:** Link monitoring, review and enforcement mechanisms that are effective and have sufficient resources to existing procedures where possible. Ensure capacity and resources at a local level to monitor impacts, intended and unintended, to enforce the standard and to integrate the MEPS within a broader local strategy.

Comprehensive renovation framework

Member States should design MEPS policies that are part of a policy framework that addresses the barriers to renovation in a comprehensive fashion. This should look at:

- **Supply chains:** Provide support for the development of new business offers through pilots, research and development or public programmes that can accelerate market development. Work with the supply chain to upskill the renovation trades and building assessment professionals and put in place customer protections and quality assurance measures.
- **Demand:** Align subsidy and financial support mechanisms with MEPS requirements and ensure that the financial provision is suitable for all building types and occupants. Provide heavily subsidised or free measures to those who are least able to pay, and integrate MEPS design with local strategies on housing standards, supply and affordability and energy poverty.
- **Planning tools:** Strengthen building assessments, EPCs and renovation plan tools to make them robust and fit for purpose. Reinforce these tools with local information and practical support to enable stakeholders to take up renovations with confidence.



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