



DELIVERING FOR TENANTS:

What is needed from the Minimum Energy Efficiency Standards to deliver the health, fuel poverty and comfort outcomes needed for renters?

July 2025

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What is needed from the Minimum Energy Efficiency Standards to deliver the health, fuel poverty and comfort outcomes needed for renters?

Updates to minimum energy efficiency standards have the potential to improve tenants' health and comfort, while reducing fuel poverty. However, the regulation must be well-designed to make full use of this opportunity. This paper explores how these standards could deliver the most positive outcomes for tenants.

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To address long-standing challenges with housing quality in the Private Rented Sector (PRS), the government is proposing new and updated regulations to raise energy efficiency standards. These proposals have the potential to support important outcomes, including lower energy bills, improved comfort, and better health for tenants. However, without fully addressing key risks and implementation gaps, these outcomes may not be realised.

This report focuses on getting MEES regulation right, there are two main areas of concern:

1. Standards may lack ambition

The proposed minimum requirements may not be high enough to drive meaningful improvements across the sector. In addition, the number of exemptions currently proposed risks significantly reducing the overall impact of the policy.

2. Outcomes are not being monitored

At present, there are no systems in place to assess whether upgrades are delivering the intended results. Without some form of outcome monitoring, there is a risk that measures installed in homes may not lead to the anticipated improvements in energy efficiency, health, or wellbeing.

For the proposed MEES regulations to be effective, government must ensure that standards are ambitious, well-designed and outcome-focused.

Effective regulation will also require robust supporting infrastructure: sufficient / adequate enforcement, tenant protections and quality assurance. These topics will be explored in a future report.



The private rental sector (PRS) has some of the poorest quality housing of any tenure. Tenants are experiencing the impacts of this with high bills, damp, mould, poor internal air quality, and poor thermal comfort, which can all exacerbate physical and mental health conditions.

The UK government is seeking to rectify these challenges and has recently consulted on their proposals for revised minimum energy efficiency standards (MEES) in the private rental sector. The Scottish government is currently consulting on MEES, with their consultation closing at the end of August 2025. The National Retrofit Hub (NRH) conducted stakeholder and industry engagement to respond to the consultation covering MEES in England and Wales and plans to respond to the Scottish consultation. This paper provides more detail on the findings of our engagement as well as presenting a long-term vision for how regulation of the PRS could evolve to truly meet the needs of tenants.

METHODOLOGY

This report builds on the findings from our report [Raising Standards in the Private Rental Sector](#) as well as incorporating learnings from the following projects and workstreams:

[EPC reform](#)

[Minimum Energy Efficiency Standards in the PRS](#)

[RetroNetZero Regulatory Science and Innovation Network](#)

The recommendations within this report were informed by: regulatory mapping, desktop research on the condition of private rental homes and the implementation of regulation, interactive stakeholder workshops and meetings, and energy modelling conducted by [Cotality](#).

BACKGROUND

Private renters are currently facing a perfect storm of cost increases with the price of food, rents, and energy bills all rising. Tenants have little power to build financial resilience.

On top of this, poor fabric efficiency means many tenants are living with damp, mould and excessive cold or extreme heat, putting their health and wellbeing at risk.¹ Beyond the personal impacts poor quality housing can have on budgets, health and wellbeing, one in five social workers have seen children removed from their family due to unsafe housing conditions such as damp and mould.²

1 Citizens Advice, [Through the Roof: How rising rents, rising disrepair and rising evictions are pushing private renters into crisis](#), July 2024

2 SWU, [Social workers report housing crisis for children](#), April 2025



10%

of privately rented homes in England have a Category 1 health hazard under the Housing Health and Safety Rating System

8%

of privately rented homes in England fail the Decent Homes Standard due to poor thermal comfort

At least
9%

of privately rented homes in England have problems with damp, compared to 4% of owner-occupied dwellings³

EXISTING REGULATIONS

The Domestic Minimum Energy Efficiency Standard (MEES) Regulations set a minimum standard for domestic private rented properties, based on an energy cost rating:

- Properties must reach an EPC of E, or have a valid exemption in place
- Landlords are required to spend up to £3,500 on energy efficiency improvements every 5 years to attempt to reach EPC E
- For properties that cannot reach EPC E within the cost-cap of £3,500 an 'all improvements made' exemption can be registered

Although the MEES regulations are intended to combat fuel poverty, they currently offer minimal protection to tenants as homes with an EPC of E cost hundreds of pounds more to heat per year than more efficient homes.⁴

The government has rightly recognised that existing regulations are not sufficient and has proposed:

- Setting higher regulations against new metrics, introduced via reform to Energy Performance Certificates (EPC). The proposed metrics cover fabric performance, smart readiness, and emissions of the heating system
- Increasing the landlord investment cost-cap to £15,000 per property, after which landlords could register an exemption to continue to let the property if it does not reach the required standard
- Applying the standard to new tenancies from 2028 and all tenancies by 2030

3 Gov.uk, [Housing Quality statistics](#), January 2025

4 Citizens Advice, [3 reasons why we need better energy efficiency standards in the private rented sector](#), June 2023



Without careful consideration, these regulations may have limited impact for tenants, leaving them without significant improvements to the health and comfort of their homes or reductions in energy bills. The government is aiming to achieve a range of objectives with the revised regulations, including decarbonising homes, improving energy demand flexibility and increasing the uptake of smart meters. However, critical fuel poverty and health objectives will only be met if the regulation requires the adequate fabric and ventilation improvements needed to create healthy homes.

Decarbonisation of buildings is vital to reaching the UK's Net Zero goals, as well as reducing our climate impact, but this is not a challenge specific to the PRS. Similarly, as more renewable energy sources are integrated into the grid, the need for demand flexibility will apply across all building types. Our recommendation is, therefore, to focus the Minimum Energy Efficiency Standards regulation on the issues that are most exacerbated by the state of the PRS - fuel poverty and poor health, and to use market-wide mechanisms to tackle issues that impact all buildings regardless of tenure.



The government is proposing updating the regulations through EPC reform which would see the single Energy Cost Metric replaced with a set of metrics likely to include: Fabric Performance, Heating System type, Smart Readiness, Energy Cost, Energy Use and Carbon Emissions.¹

The MEES reform proposals select the first three of these metrics to govern PRS compliance. The government's preferred proposal is for all properties to meet a Fabric Performance level first, then go on to meet either a Heating System or Smart Readiness Metric. While the high-level principles associated with this strategy make sense, our research has identified multiple potential risks that must be mitigated if the policy is to achieve the intended outcomes for tenants.²

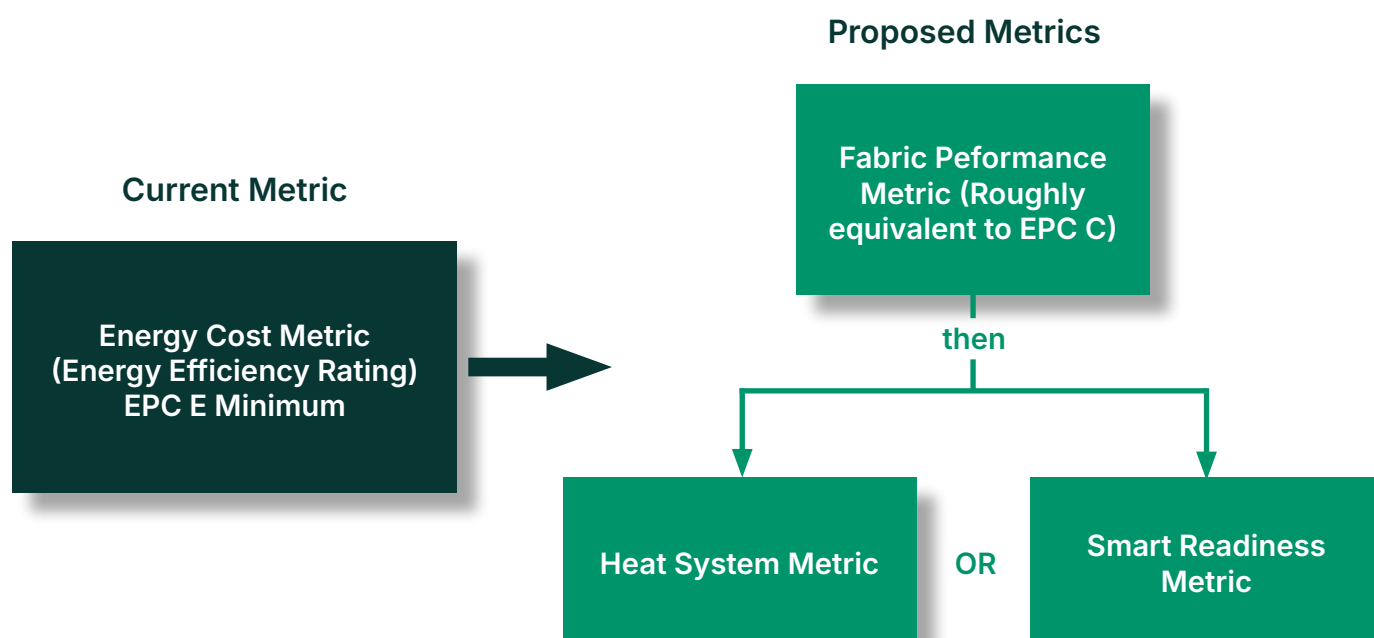


Figure 1 - Current and proposed MEES metrics

FABRIC PERFORMANCE METRIC

A fabric metric would assess the thermal performance of homes and promote the importance of well-insulated, comfortable, and energy efficient spaces.

While we understand the logic behind the proposal to set a primary standard against a fabric performance metric, we're concerned that the level at which the standard is set, and the methodology for calculating the metric, will make the difference between whether the policy delivers meaningful outcomes for tenants, or falls short.

¹ For full details on the proposed metrics see: gov.uk, [Reforms to the Energy Performance of Buildings regime](#), December 2024

² To read more on our suggestions for EPC reform see: <https://nationalretrofithub.org.uk/resource/epc-reform/>



In our response to the EPC reform consultation, we pointed out that a combination of cost, carbon and health metrics would provide better motivation for householders to make performance upgrades, as the benefits associated with each are clear and direct. While the government is not yet ready to incorporate a metric focusing on health, we suggest that the link between fabric rating and occupant benefits, such as thermal comfort and adequate ventilation, must be made clear in the presentation of the EPC.³

In the Options Assessment, published alongside the PRS MEES consultation DESNZ explore two potential fabric rating levels, through 'proxies' based on the SAP dwelling heat loss. The first option is based on only conducting the fabric upgrade required to ensure heat pump suitability. The proxy rating used is a SAP dwelling heat loss of 4 W/m²K. The options assessment shows that setting the fabric rating at this level would mean that 1.1million homes (just 20% of the PRS) would require fabric upgrade. However, with over 40% of private renters reporting issues with condensation, damp and mould, it's likely that more than double that figure need fabric improvements.⁴

Setting the fabric rating at the proposed level risks leaving many homes without the fabric upgrades they need, and many renters still experiencing the negative impacts of poorly performing properties.

Modelling support provided by:



FABRIC PERFORMANCE STANDARDS: MODELLED CASE STUDIES

We wanted to understand what setting the fabric rating at the less ambitious level - 4W/m²K would mean in practice, in the options appraisal this is called the 'Heat pump ready standard'. DESNZ also explored a Higher standard of 3 W/m²K. Our collaborator [Cotality](#) conducted modelling and analysis of two homes to understand what they would need to do to reach the less ambitious target level of 4W/m²K. The homes selected are examples of two common archetypes present across the UK.

We have investigated which measures could most easily allow the following properties to reach a dwelling heat loss of 4W/m²K, and most crucially, what work would NOT be needed.

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³ For our full response see: [EPC Reform Consultation: Our Response](#)

⁴ [Official statistics](#) state 44% of private renters are experiencing issues with condensation, damp or mould. [There are around 5.6 million privately rented homes in the UK](#). 44% of this number is 2.4 million.



Victorian Mid-terrace, with a good form factor:

Current EPC rating: E

Located in the North-West

The following measures could reach a 4W/m²K standard:

300mm insulation
installed within the loft

Single glazing retained

Walls remain uninsulated



Draughtproofing not
conducted

Floors remain uninsulated



1950s Semi-detached

Current EPC rating: D

Located in Yorkshire

The following measures could reach a 4W/m²K standard:

300mm insulation
installed within the loft

Existing double glazing
retained



Cavity walls
remain uninsulated

Floors remain uninsulated

This modelling demonstrates our concern. Setting the fabric rating at this un-ambitious level would leave many walls uninsulated, and some homes with single glazing. Damp, condensation, mould and thermal comfort issues would therefore not be tackled for many homes. Just targeting heat pump readiness, while an important policy goal, should not be the only ambition of MEES in the PRS. A fabric standard must be chosen that leads to the thermal upgrade of walls, floors and roofs, and the installation of double or triple glazing, where technically possible for homes in the private rental sector.



The methodology behind a fabric performance metric is also crucial to ensuring the success of these regulations. The following must be considered by the methodology:

- **Fabric condition:** Requirements for assessors to record and test fabric condition and performance must be included within the methodology for this metric. This is particularly relevant for traditional buildings and where cavity wall insulation has failed. A wet wall can lose significantly more heat than a dry wall. This will also provide an opportunity to identify hazards under the Housing Health & Safety Rating System (HHSRS). Real-world data, from measurements such as the Heat Transfer Coefficient (HTC), could also be used to validate fabric performance.
- **Moisture and Condensation Risk:** Any upgrade to a building's fabric must be considered in the context of moisture, interstitial condensation, mould risk and ventilation. The fabric metric must address ventilation directly. Relying on Building Regulations Part F is not sufficient, given the low levels of enforcement for this scale of work. Guidance should be provided, or existing guidance signposted to, to ensure packages of measures are designed to prevent unintended consequences and deliver good indoor air quality.
- **Thermal Bridges:** The fabric metric must consider thermal bridges, with clear guidance for assessors on how these can be identified, to mitigate the risk of damp, mould, and excess heat loss caused by thermal bridges.

Compliance with this metric could require the installation of measures that cause disruption to tenants, even requiring them to temporarily relocate. Guidance and support should be provided to landlords and tenants on how to limit disruption. The government should consider how landlords can be supported to procure and implement medium-term retrofit plans for their properties, setting out a pathway towards Net Zero. This means that some of the most disruptive measures could be phased for breaks between tenancies, when these naturally occur. This would provide an alternative to landlords seeking a 'third party consent' exemption if their tenant does not wish disruptive work to take place during their tenancy.

HEATING SYSTEM METRIC

A heating system metric would provide information on the efficiency and environmental impact of a property's heating source and encourage the adoption of cleaner heating technologies.

Without careful consideration, a metric of this kind could in fact lead to greater detriment for tenants as it may encourage the adoption of low carbon systems that allow a property to move up a rating but are inefficient and costly to run. Or, conversely, this metric could discourage the upgrade of legacy direct electric heating technologies. The proposed heating system metric references the CCC's 6-point rating system for heating systems that places low emissions and high efficiency heat pumps in band 1. However, the efficiency of a heating system depends heavily on the system's design and operation with the same heat pump working at different efficiencies in different homes.



Air source heat pumps can be between 200% and 400% efficient, that's a large range. Existing standards set minimum efficiency levels, however there is a disparity between advertised efficiencies and values measured in real world testing.⁵

Research conducted by Energy Systems Catapult shows that the efficiency of heat pumps is improving, mainly due to the heat pump units themselves becoming more efficient, but variation in measured performance remains high. Heat pump performance relies not only on the unit itself, but the conditions of the home and how the heat pump is set up. The home's fabric efficiency, the size of heat emitters, pipework runs, the heat pump configuration and controls all have a big impact on how much energy the system will use to heat the home. The use of validated, real-world data, which measures CO2 emissions and energy cost, would be a more effective way of meeting carbon and fuel poverty targets.

The second proposed band is for low emissions technologies such as direct electric, hydrogen and low emissions heat networks. There are risks associated with this band. Given the costs of electricity relative to gas, direct electric systems in homes without significant fabric upgrades can be costly and inefficient to run, costing hundreds of pounds more than gas heating to run per year.⁶ These systems would also place a considerably higher burden on the electricity grid. Privately rented homes make up a disproportionate number of properties heated using inefficient electric technologies.⁷

Without a direct incentive to upgrade these heating systems, the number of tenants using them could increase, which could cause increases to fuel poverty and the health conditions associated with underheating. There are emerging technologies within the electric heating space, which can reduce costs by using heat batteries or heat storage alongside time of use tariffs, or by providing thermal comfort in a different way. The regulation needs to take into account the differences in running costs and grid demand for these systems, rather than grouping them together. The government should also remove focus from hydrogen – this is a distraction in the home heating space and will only delay positive decarbonisation options.

The government may seek to reduce the risk of fuel poverty associated with some forms of electric heating by rebalancing costs of gas and electricity. However, careful consideration would be needed on the extent of rebalancing possible, and whether this could eliminate the fuel poverty risk of direct electric heating for private renters.

5 UK Collaborative Centre for Housing Evidence, [BLOG: The great heat pump mystery: where's the COP?](#), May 2023

6 Citizens Advice, [A cold reality: The hidden costs of living with electric heating](#), December 2023

7 Citizens Advice, [A cold reality: The hidden costs of living with electric heating](#), December 2023



Modelling support provided by:

HEATING METRIC - ENERGY COST MODELLING



We wanted to understand the cost implications of a landlord choosing to install or retain electric storage heaters, rather than heat pumps, should this be included as a possible route to achieve MEES. Our collaborator Cotality conducted further modelling considering our two example buildings, the Victorian mid-terrace, and the 1950s semi.

Once fabric measures to achieve $4W/m^2K$ have been conducted, replacing existing gas boilers with heat pumps would save £77 per year for the Victorian mid-terrace, and £338 per year for the 1950s semi. However, if landlords instead installed electric storage heaters tenants' bills would increase by £924 per year for the Victorian mid-terrace, and £314 per year for the 1950s semi, when compared with keeping the existing gas boilers.

This modelling demonstrates the crucial need to factor energy cost into policy incentivising the heat transition in the PRS.

Detailed consideration should be given to heat networks, which could provide an efficient, lower carbon solution in many circumstances. Heat pumps should be used as the central heat engine in a heat network. Heat networks could also be supplemented by smaller, localised heat pumps in homes to boost heat from an ambient loop and/or to increase temperature for domestic hot water. Regulation must make space for, and incentivise, these solutions.

As mentioned in our EPC consultation response, a ranking of different heating systems could create a barrier to innovation as new heating solutions would need to navigate entry to the list.⁸ We recommended a carbon metric, as it provides a much clearer link to intended policy outcomes of decarbonisation than a heating system ranking. A carbon metric is also easier to understand, and recommendations associated with it could easily include switching to low-carbon heat.

SMART READINESS METRIC

A smart readiness metric would assess a property's potential to integrate smart technologies that can optimise energy consumption and the ability of residents to benefit from cheaper smart tariffs.

We understand that an increase in the uptake of smart meters is needed to enable higher levels of demand flexibility to reduce pressure on the grid. We recognise that this is a national policy aim and not specific to the private rented sector.

⁸ National Retrofit Hub, [EPC reform consultation: our response](#), Accessed 23/05/25



Given the desperate need to reduce energy bills in the PRS, smart readiness should only be a priority in so far as it helps tenants sustainably reduce costs. While some people can save money using their in-home display many report feelings of worry or anxiety seeing their energy costs rise throughout the day, especially in the context of fuel poverty.⁹

Additionally, it's important to consider those who won't be able to access the full benefits of smart technology as they can't flex their energy use to make the most of cheaper rates at different times of day, or who face other barriers to benefitting from smart technology.¹⁰ With this in mind, it's critical that any increased emphasis on smart technologies is accompanied by clear information to help people understand what might work best for them, and that those who face barriers to participation in energy flexibility aren't penalised.

RECOMMENDATIONS

The MEES policy is designed to benefit tenants and should promote tenant health and wellbeing. Metrics should therefore be designed with tenant benefit in mind, seeking to directly address the most significant issues renters face.

Given that decarbonisation and smart readiness are national policy goals that can be incentivised using market-based mechanisms or national policies, we recommend that these metrics, if included in MEES, are promoted in a way that will save tenants money and improve the health of their homes.

Fabric efficiency

- The level of this metric must be set high enough to deliver meaningful thermal and condition improvements across a significant number of homes. This should be a higher standard than the 4W/m²K 'Heat pump ready standard' and go beyond just heat loss to include requirements on condensation risk, ventilation, fabric condition, thermal bridging and thermal comfort.

Heating systems

- The use of this metric must consider the running costs so as not to incentivise the uptake of inefficient technologies. Integrating real-world data based on operational efficiency could be one route for achieving this.

Smart readiness

- This metric should enable sustainable bill savings, over and above the presence of an in-home display, through the promotion of variable tariffs or other forms of demand flexibility.

⁹ See, for example: BBC, ['I'm obsessed with my smart meter'](#), February 2023 and; QuoteZone, [49% Suffer from Smart Meter Anxiety](#), February 2023

¹⁰ See Citizens Advice, [A Flexible Future](#), August 2023, for examples of barriers to participating in energy flexibility.



Exemptions are situations which legally allow a landlord to not meet regulated minimum standards. The government is consulting on the regulatory exemptions that already exist and proposing a new affordability exemption.

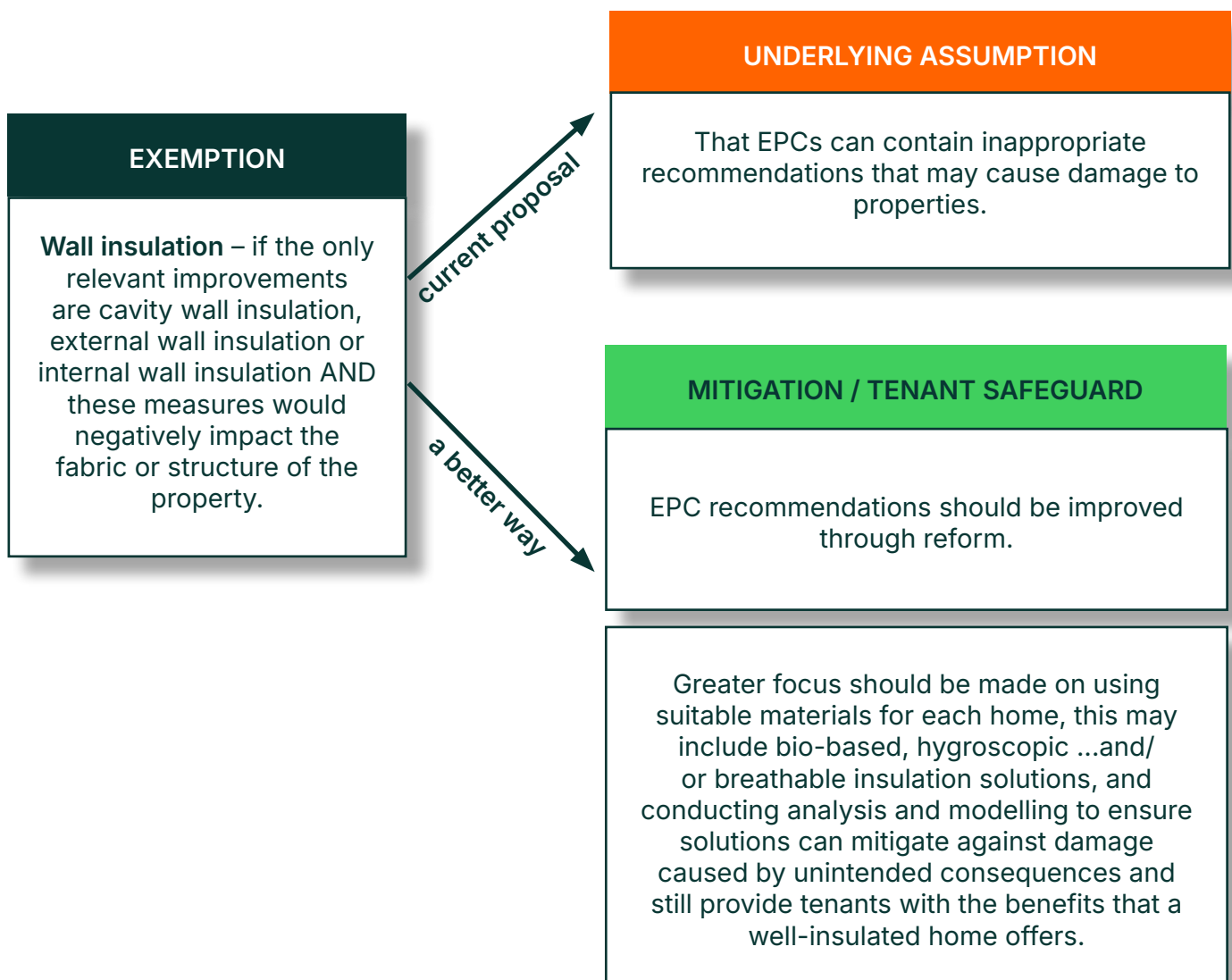
While the idea of exemptions is valid, there are situations where it may not be possible to upgrade properties to meet the standard, it's important that properties are exempt from the regulations for the right reasons. Homes that don't meet the standard are likely to be more expensive to run as well as being less comfortable and healthy to live in. Exemptions should therefore be limited as far as possible if the regulations are to have a significant impact for tenants.

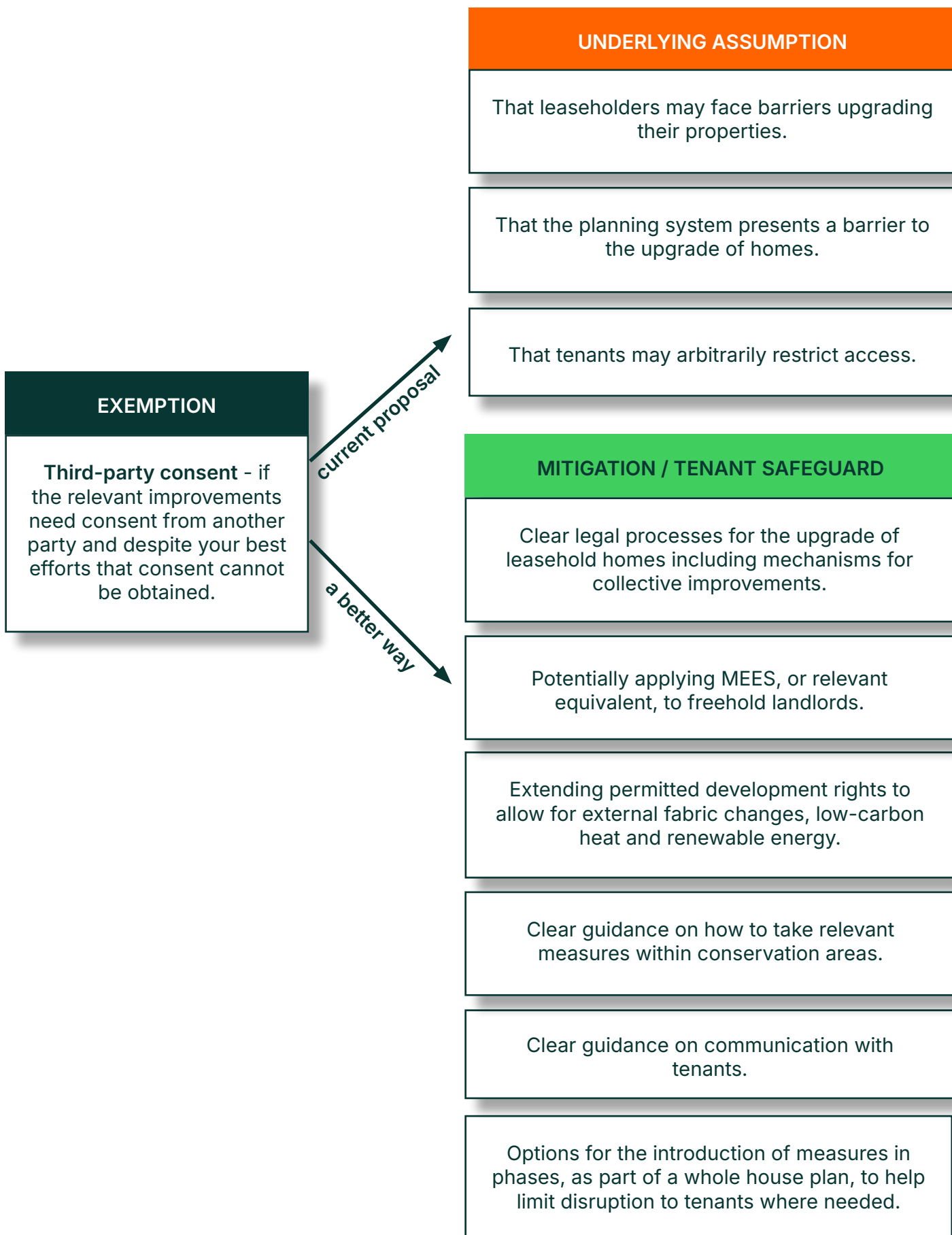
As outlined in our MEES consultation response, we support the proposal to raise the cost cap to reflect updated prices and ensure more homes meet minimum standards. The current cost cap proposal of £15,000 has been modelled based on achieving either 3 or 4w/m²k for the fabric efficiency rating. However, given that setting the fabric metric at this level is likely to leave over 1 million renters still suffering problems associated with condensation, damp and mould, we recommend raising the cost cap in line with a more ambitious fabric rating to ensure that as many homes as possible can be fully upgraded.

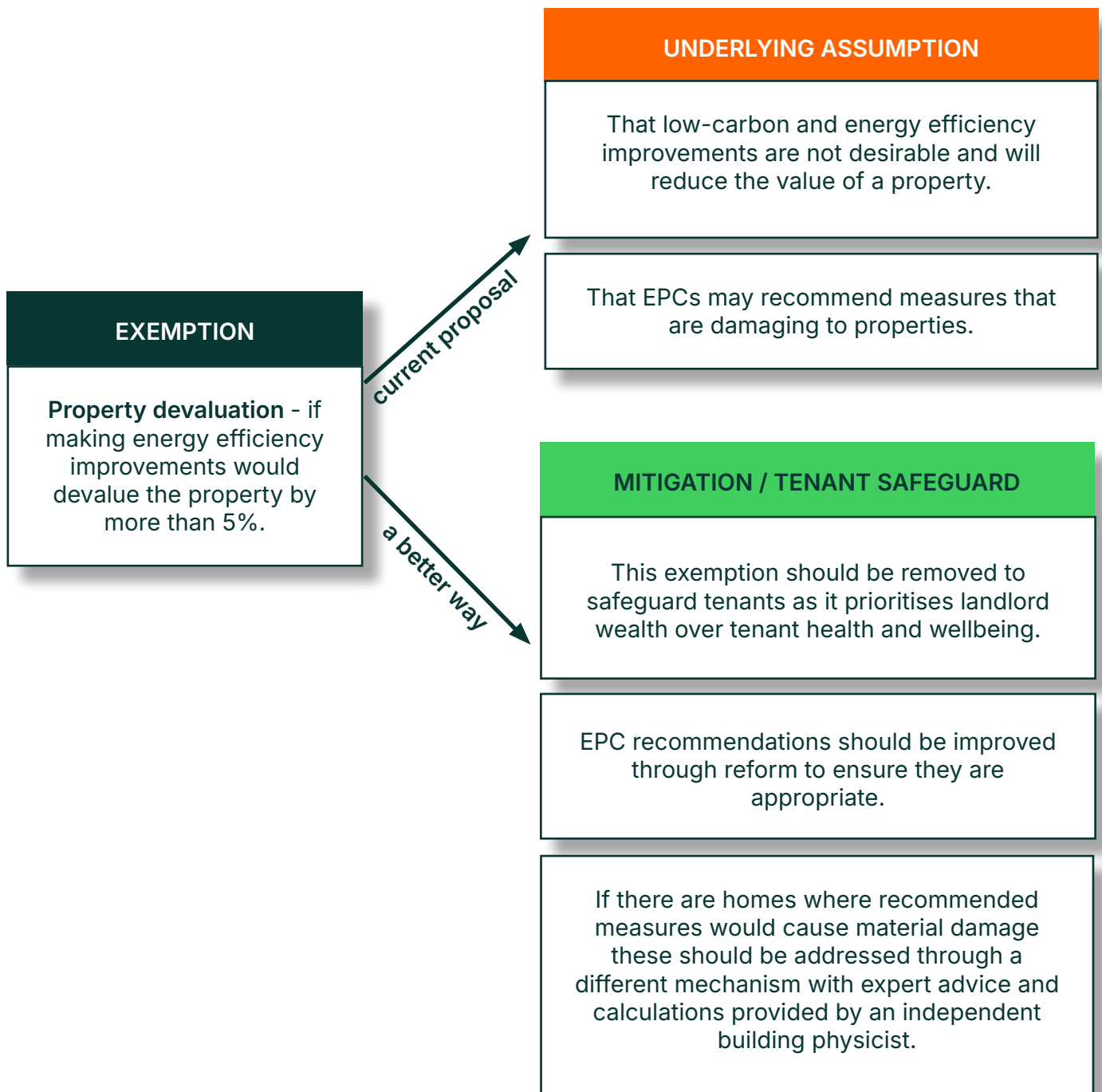
We recommend keeping the existing 5-year exemption period to ensure homes are upgraded as soon as possible. The government should continue work with finance providers to design solutions to fund works required for homes that cost more than £15,000 to upgrade. Additionally, we recommend that MEES regulations be applied to short-term lets to avoid incentivising PRS landlords to switch their homes to short-term lets to avoid improvement works.¹

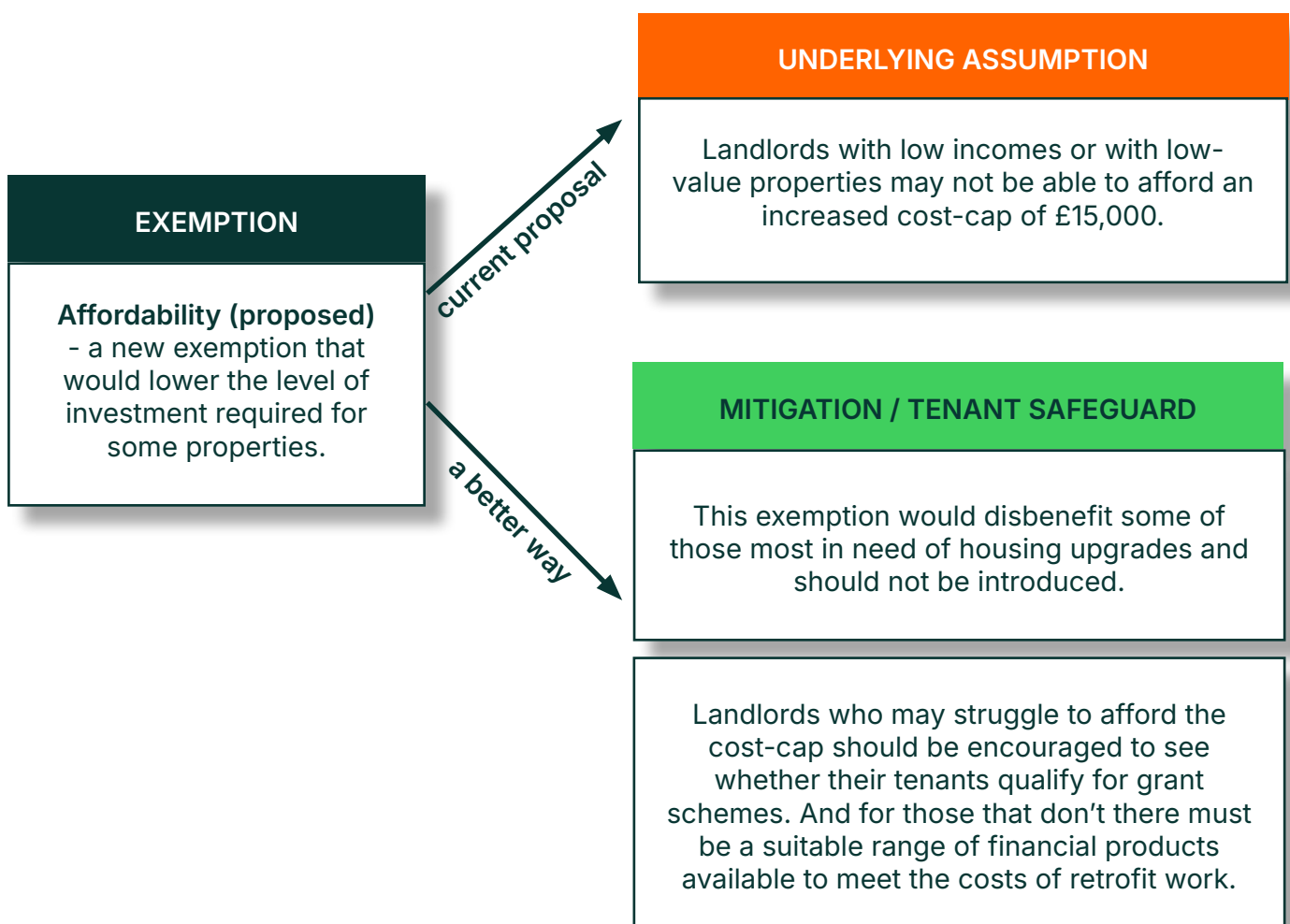
Outside of this, most of the suggested exemptions assume deficiencies elsewhere in the system that the exemption seeks to mitigate. To ensure benefits to tenants are as widespread as possible, government should take this opportunity to address these barriers rather than to write their mitigations into legislation. This would streamline regulations, making them simpler to follow for landlords, easier to understand for tenants, and to ensure as many homes are upgraded as completely as possible.

¹ National Retrofit Hub, [Minimum Energy Efficiency Standards \(MEES\) consultation response](#), Accessed 23/05/2025











RECOMMENDATIONS

Exemptions to minimum standards by design will limit the impact of MEES regulations. Government should therefore seek to reduce the need for exemptions as far as possible. To do this we recommend resolving the blockers in the system rather than writing them into regulation by:

- Ensuring EPC reform results in recommendations that are accurate, tailored to the home, and aligned with whole-building retrofit principles
- Ensuring analysis and modelling are used to design robust solutions, with clear emphasis on the benefits of using materials appropriate to the specific building
- Introducing clear processes for the upgrade of flats and other leasehold buildings, potentially including regulation on freeholders
- Reform to the planning system to allow for home upgrades as well as clear guidance on retrofit in conservation areas
- Guidance on tenant engagement and how to promote the benefits of retrofit
- Ensuring an adequate range of financial products to suit different landlord circumstances
- Consider how whole house retrofit planning can be used to effectively phase work and minimise disruption to tenants where required



ACHIEVING POSITIVE OUTCOMES



The proposed MEES regulations follow a rules-based regulatory approach, where detailed requirements specify the actions that must be taken by landlords. For example, it's assumed that installing loft insulation will improve thermal efficiency, making a home cheaper to run and easier to heat. However, rules-based systems often fail to assess whether these prescribed inputs actually lead to the intended outcomes. In practice, insulation may be poorly installed, or the property may be so draughty that the impact is minimal. If the desired outcome is improved tenant comfort, a more effective measure in some cases might be draught-proofing rather than loft insulation.

To ensure that benefits for tenants are realised, methods for monitoring outcomes should be considered at the same time as bringing in new standards to ensure that any alterations to homes are having the intended effect.

We have explored the opportunity for different approaches with stakeholder groups, such as Outcomes Based Regulation, remote monitoring, reform of the Housing Health and Safety Rating System, and introducing a health metric into the EPC methodology, to deliver better outcomes for tenants.



Outcomes based regulation (OBR) is a regulatory approach which lays out final outcomes but does not prescribe how the outcome is to be reached. This allows for greater flexibility and innovation than rules-based regulation, with regulated entities choosing the best methods to achieve outcome goals.

This type of regulation has a clear focus on impact, relying on regulated entities to take ownership of their outcomes rather than just ticking boxes, promoting ideas of responsibility and continual improvement.

However, the flexibility of outcomes-based regulation can lead to uncertainty as regulatory requirements are subject to interpretation. With the large numbers of single-property landlords in the PRS this approach could cause confusion around how best to interpret target outcomes, for both regulated entities and enforcement bodies.

STAKEHOLDER FEEDBACK

In our stakeholder workshops participants concluded that outcomes-based regulation (OBR) alone would be difficult to implement in the PRS. Discussion centred around:

Implementation and Enforcement:

- The high-level outcomes associated with OBR such as 'the building shouldn't make you sick' or 'the building should be affordable to heat' can be easier for tenants to engage with and understand than technical standards like 'the building should have an airtightness of 5 m3/(hr.m2) @ 50pa'.
- Enforcement of high-level outcomes can be difficult as the burden of proof often falls on the tenant to prove how the building has failed in what way. Proving causal links between the condition of the building and a negative outcome could be very difficult and open to push-back from the landlord.

Subjectivity of OBR:

- Using building-centred metrics, rather than those influenced by changing occupancy, could help overcome issues of subjectivity.
- Suitable metrics could be cost to heat per year and carbon dioxide equivalent per year, using a normalised heating profile, like that used to calculate average fuel economy of cars.
- Combining OBR with remote monitoring could be a way to remove subjectivity from the system. Landlords could have a mix of metrics to meet, some upfront such as a certain fabric performance rating, and others ongoing such as a certain relative humidity over time.

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OBR in other areas:

- Principles of outcomes-based approaches have been used to regulate the energy market, however Ofgem have needed to introduce increasingly specific and prescriptive interventions to correct failures.
- Building regulations offer a comparable example of outcomes-based regulation, with the Approved Documents providing prescriptive routes to compliance. However, in practice, there are currently few viable alternatives to using these documents. The Building Safety Regulator is now exploring how to demonstrate that outcomes have been met when prescriptive pathways are not followed.
- A balanced approach that combines outcomes-based regulation with prescriptive rule-based compliance could offer a more effective route to improving building performance and safety outcomes.



The government is keen to incentivise the installation of smart meters in the PRS. These, as well as other monitoring equipment, can be used to provide indications of where homes are not performing as well as expected. For example, energy usage data could be used to indicate where people are using more energy than would be expected in a property of that size, or thermostat data could help identify outcomes which are excessively hot or cold. There are calls from across the industry to embed real world data within methodologies for compliance metrics.

SMETERS

DESNZ has been enabling research projects that develop and test new methods for measuring the thermal performance of homes using 'Smart Meter Enabled Thermal Efficiency Ratings' (SMETERS). These methods use smart meter, internal and external temperature data, and can also incorporate other types of sensor data. The current focus of this research is on the Heat Transfer Coefficient (HTC) measurement which would show how much heat is needed to keep a home warm. This technology also has the potential to monitor indoor air quality and the risk of damp and mould.

Some housing providers and local authorities are already using HTC measurements to both identify homes for retrofit and monitor the performance of homes post-retrofit works.

DESNZ is currently working on a validation methodology, so that companies who provide remote monitoring using SMETERS can validate the accuracy of their measurements.

SMETERS could provide a series of options for remote monitoring, and other monitoring techniques and technologies are being used and developed.

Opportunities:

- Remote monitoring allows for constant assessment of outcomes and can alert the relevant bodies as soon as homes become noncompliant.
- Monitoring can cover multiple metrics from energy costs to humidity and temperature. Innovation in this area means new products are entering the market that can monitor metrics such as indoor air quality and damp and mould.
- Tenants can be alerted immediately to poor conditions or non-compliance allowing them to approach the relevant parties for investigation, remediation or repair. This bypasses the need for tenants to be aware of relevant housing standards and makes it easier for them to act if something is not working as it should.



Challenges:

- A significant minority of homes still don't have smart meters.¹ Upgrading these homes and needing to install additional monitoring equipment may prove difficult.
- Monitoring devices generate significant amounts of data. There are questions around who would be responsible for monitoring the data and taking the appropriate action in the case of non-compliance.
- There has been some reluctance to install smart meters due to privacy and security concerns. This reluctance may be even greater for monitoring devices.

¹ Gov.uk, [Smart meters in Great Britain](#), quarterly update December 2024, March 2025



STAKEHOLDER FEEDBACK

Workshop participants were generally positive about the benefits of remote monitoring and the potential impact it could have on the sector. Discussion centred around the following themes:

Data:

- The Welsh Optimised Retrofit Programme has generated significant learnings on the practical application of remote monitoring which should be investigated if considering the wider application of remote monitoring.
- In workshop participants' experience most people are happy to have remote monitoring installed when they understand what it's for, but this requires effective communication and clear rules around access.
- Live monitoring data at this scale could have additional applications beyond monitoring compliance but would need to be adequately protected to ensure data security.

Protections:

- Some participants felt that all work paid for through government funding should have monitoring installed as standard.
- Product warranties and guarantees could be linked to remotely monitored data to reduce insurance costs and to help evidence effective installation and product performance.

Implementation:

- Participants shared a concern that remote monitoring could provide false confidence if devices aren't positioned correctly, as well as citing the need to introduce standards to ensure accuracy and consistency. The DESNZ SMETERS validation workstream could help overcome this challenge.
- Participants also mentioned that it's important to get the fundamentals right first, and that many people have smart meters that aren't working correctly which should be fixed or upgraded before considering additional monitoring equipment.

Enforcement:

- Remote monitoring offers opportunities to streamline the reporting and enforcement process as data can be shared directly with a licensing body.
- Monitoring equipment can also immediately alert tenants to poor conditions bypassing the need for them to be aware of all the relevant regulations and standards.



The government has recognised that, as priorities change EPC metrics will need to change to reflect and support policy ambitions.¹ We recommend that, in the future a combination of cost, carbon, smart, health and climate resilience metrics would provide better motivation for householders to make performance upgrades as well as providing a clear link between EPC ratings and building performance for tenants. While there are already standards in place to regulate the health of buildings, EPC assessments provide an opportune moment to identify health hazards as these are the only routine time when an independent, qualified professional must visit and assess a rental home.

The Housing Health and Safety Rating System is currently used to evaluate and enforce improvement to the health of socially and privately rented homes. The system identifies 29 health hazards, three of which are related to energy efficiency and performance improvements:

- Damp and mould growth
- Excess cold
- Excess heat

Councils can perform environmental health checks on homes of any tenure and assess hazards based on the chance of harm, the severity of harm, and any extra risks to vulnerable people. The hazards are then rated as 'category 1' or 'category 2'. The council must act to ensure remediation of category 1 hazards and may choose to act on category 2 hazards.² Evidence suggests that local authorities are not fully utilising the HHSRS system to issue civil penalties or improvement notices.³

Only
1 in 3
housing complaints are
responded to by local
authorities⁴

Fewer than
1 in 10
civil penalties issued by
councils are related to the
HHSRS³

50%
of all HHSRS inspections
are performed by just 20
local authorities³

These low inspection numbers are evidence of a clear missed opportunity to measure actual outcomes for tenants and to ensure that any improvements made to properties lead to improvements to tenants living conditions.

Updating MEES offers an opportunity to rectify this imbalance as EPC assessments are the only regulated, regular physical inspections of a property's condition. Upskilling EPC assessors to be able to recognise potential energy efficiency related hazards would provide councils with valuable information on where full inspections may need to be carried out and improvements may be needed.

1 Gov.uk, [Reforms to the Energy Performance of Buildings regime](#), December 2024

2 Gov.uk, [Housing health and safety rating system \(HHSRS\): guidance for landlords and property-related professionals](#), May 2006; Shelter, [Health and safety standards for rented homes \(HHSRS\)](#), June 2024

3 NRLA, [The Enforcement Lottery: Local authority enforcement 2021-2023](#), May 2024

4 localgov.co.uk, [Councils only respond to third of housing complaints](#), June 2024



This approach creates a clear pathway from the inputs specified by MEES such as insulation and efficient heating systems to tenant outcomes of healthy, comfortable homes that are enforceable through the HHSRS.

A new specific metric on home health would further strengthen the EPCs ability to influence outcomes for tenants. We have explored potential new metrics in detail in our report *The Future of Energy Performance Certificates: A Roadmap for Change* where, through extensive research and stakeholder engagement, we concluded that a health metric would benefit residents by encouraging a more holistic approach to the upgrade and maintenance of homes.

Research is required to determine how this metric would be calculated. One approach is to use a combination of measured internal temperature and relative humidity data; outdoor air quality data; ventilation rate information; and thermal imaging to identify thermal bridges and condensation risk. Developments in SMETERS, discussed earlier, may be able to facilitate this measurement.

If health indicators and/or a health metric are included within EPC assessments the process will take longer and have a higher associated cost. Domestic Energy Assessors (DEAs) will also need to spend time upskilling, which should be valued. In the NRH's paper on EPC reform we recommend the introduction of EPCs with different 'confidence ratings.' For properties in the PRS, or in areas with a modelled higher risk of HHSRS hazards, a higher 'confidence' EPC, which includes a home health inspection, could be mandated. These could have a higher cost, with the potential for this to be included in the MEES cost-cap.

STAKEHOLDER FEEDBACK

In our workshop, participants considered the potential to introduce a health metric into EPCs and whether this should be something required for all homes or only in regulated tenures. Most participants thought a health metric should be included in all EPCs. Comments focused on:

Scope:

- EPCs could be expanded in the future to become a Buildings Performance Certificate rather than focusing solely on energy. A certificate of this kind could be matched against the risk profile of the occupants to identify bespoke areas for action. For example, some residents may be able to afford higher bills but for others that may lead to underheating, damp and fuel poverty.
- The data points for a health metric should be developed in reference to medical data as well as building performance issues and take learnings from relevant existing projects such as [IN-HABIT](#) and [HEARTH](#).

CONTINUES ON NEXT PAGE...



Implementation:

- A health metric should be supported by remote monitoring to ensure ongoing compliance. While some participants suggested time bound monitoring, most agreed that this would need to be ongoing given that there is no set time on failure.
- If a monitoring element is required, it makes sense for EPCs to become dynamic rather than static. This could be integrated into a wider building passport or logbook which combines all relevant data into a single place.⁵
- If EPCs increase in scope and detail, it's likely that the cost of assessments will go up. However, given that EPCs are a statutory requirement for many, it's important that they remain affordable.

RECOMMENDATIONS

Proposed MEES regulation has the potential to be enhanced to guarantee health, thermal comfort and fuel poverty reduction outcomes for tenants. We recommend the following actions:

- **Introduce 'Outcomes Based' components to the proposed rules-based regulation.** This would utilise remote monitoring, potentially through SMETERS technologies, to confirm the achievement and maintenance of target performance standards. This monitoring could be incentivised through the 'Smart Readiness Metric,' or be introduced in phases, first to areas where councils have identified a high HHSRS risk level, or where there are higher instances of fuel poverty.
- **Increasing inspection capacity by upskilling EPC assessors to be able to identify relevant hazards under the HHSRS.** EPC assessors will be visiting all homes in the PRS and, if upskilled appropriately, can provide an assessment of each property's condition, provide recommendations on remediating Category 2 hazards, and take the appropriate action if any Category 1 hazards are identified.
- **Develop and introduce a Health Metric into EPCs,** identifying specific risks and providing recommendations to improve the building's indoor air quality and thermal comfort, and reduce damp and mould.
- **Make EPCs dynamic,** to incorporate building performance data from remote monitoring, or link EPCs to building logbooks which could record and provide access to this information.

⁵ For more on logbooks and how they could be used to help overcome multiple barriers to retrofit at scale see our [Digital Building Logbooks Explainer & Data Matrix](#).



MEES regulations are a step in the right direction. They are designed to make homes easier to heat, tackle fuel poverty, and cut carbon emissions. But for them to work, we need to make sure the changes made to homes actually deliver on those promises, improving comfort, health, and wellbeing for tenants.

In this report we've focused on getting the MEES regulation right, which relies on two key components:

1. Clear, prescriptive regulations

- Landlords need simple, clear rules they can follow. Just like the Approved Documents for Building Regulations, MEES needs to show not just what the goal is, but how to get there.
- Metrics must be set at a level that will deliver fabric improvements for all the homes that need it, this includes homes with a risk of damp, mould, and poor thermal comfort. Risks associated with the selected metrics must be addressed, to prevent increased bills and other negative outcomes.
- There should be as few exemptions as possible. Retrofit needs to happen at scale. And where barriers exist, like problems with planning permission, the answer is to fix those issues, not build them into the rules.

2. Outcomes monitoring

- Installing a measure does not guarantee it is working. Regulations should include outcomes-based elements such as remote monitoring to make sure upgrades are actually delivering the benefits.
- We do not need to reinvent the wheel. Projects like SMETERS are already generating useful insights. Government should build on these and encourage the use of monitoring through funding requirements, the Smart Readiness Metric or through phased approaches.
- Regulation must target outcomes beyond energy efficiency and leverage the potential for MEES and Domestic Energy Assessors to help identify and remediate health hazards in PRS homes. Moving beyond the very worst hazards, a health metric would incentivise the improvement of homes to deliver positive health outcomes and best practice.



WHAT ELSE IS NEEDED?

We also know that a well-designed MEES regulation will not deliver positive outcomes on its own. Our next piece of investigation and engagement will focus on the supporting infrastructure and policy needed to make MEES a success. We will explore three themes:

- **Implementation & Enforcement:** Rules mean nothing if they are not enforced. While there are numerous tools that theoretically protect tenants from poor housing conditions, including the impacts of poor energy efficiency, there is much evidence to suggest that these standards are not being adequately enforced.¹ We will explore the tools, capacity and roles needed to drive high levels of compliance with MEES.
- **Tenant Protections:** As MEES is updated, and compliance efforts increase, there is a risk that some landlords may respond by raising rents after carrying out upgrade works, or by evicting tenants who raise concerns about poor property standards instead of making the necessary improvements. We will consider the additional protections needed for tenants to protect them from un-affordability, fuel poverty, rent increases and evictions, and identify how these protections can help build tenant trust.
- **Quality Assurance:** Scaling up the pace of fabric upgrades could increase the rate of unintended consequences, if upgrades are poorly designed, installed or coordinated. The retrofit system must be transitioned to ensure good quality work, that considers the needs to tenants, is always delivered. We will report on the industry's insights on the frameworks and supporting infrastructure required to enable high levels of consumer satisfaction.

¹ localgov.co.uk, [Councils only respond to third of housing complaints](#), June 2024

DELIVERING FOR TENANTS:



What is needed from the Minimum Energy Efficiency Standards to deliver the health, fuel poverty and comfort outcomes needed for renters?

If you would like to learn more or arrange a call to discuss further, please get in touch via:



nationalretrofit.org.uk



info@nationalretrofit.org.uk



National Retrofit Hub

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