USING HOME PURCHASE REGULATIONS TO GROW THE MARKET FOR CLEAN HEATING IN SCOTLAND

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A REPORT BY CHANGEWORKS AND NESTA SCOTLAND

nesta CHANGEWORKS.

About Changeworks

We are dedicated to decarbonising Scotland's homes and a just transition to net zero. As a charity we adopt the social enterprise model, continually re-investing to further our impact and tackle the climate emergency. For nearly 40 years we've worked alongside the Scottish Government, local authorities and communities to help households across Scotland to lower their carbon emissions.

Changeworks' vision is for a world where everyone is able to live, work and enjoy life with a low-carbon impact. We recognise climate change is the most significant threat to the environment and our way of life. We deliver services in energy advice, retrofit management, and decarbonisation solutions, alongside independent consultancy to drive energy efficiency in homes and tackle fuel poverty.

Find out more at www.changeworks.org.uk

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We are Nesta. The UK's innovation agency for social good. We design, test and scale solutions to society's biggest problems. Our three missions are to give every child a fair start, help people live healthy lives and create a sustainable future where the economy works for both people and the planet.

For over 20 years, we have worked to support, encourage and inspire innovation.

We work in three roles: as an innovation partner working with frontline organisations to design and test new solutions, as a venture builder supporting new and early-stage businesses and as a system shaper creating the conditions for innovation. Harnessing the rigour of science and the creativity of design, we work relentlessly to change millions of lives for the better.

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Glossary/ Abbreviations Table

Term	Definition
CHMM	Clean Heat Market Mechanism (a UK Government policy)
FTBs	First-Time Buyers
HIBB	Heat in Buildings Bill
LBTT	Land and buildings transaction tax
LTV	Loan to value ration used to determine mortgage lending
PoP	Point of purchase (proposed policy in the Heat in Buildings Bill)

Executive summary

The point of purchase (PoP) requirement outlined in the Scottish Government's 2023 proposals for a Heat in Buildings Bill (HIBB) has the potential to drive significant numbers of additional clean heat installations in Scotland. By design, the policy would have an impact on the housing market, as it aims to require action from homeowners at the point of property purchase. It would reward those homeowners making clean heating upgrades by enabling them to recoup these costs through higher property values. This research investigates, based on available information, what those impacts might be and how to limit disproportionate effects.

The analysis suggests that if designed to mitigate negative impacts, the PoP proposal is a viable solution to grow clean heating installations in the medium-term. The analysis was carried out using desktop research, interviews with housing market professionals, comparison of clean heating installation costs with property and mortgage values and past interactions between policy and the housing market. Estimates of exclusion thresholds and market impacts should be taken as illustrative, as further analysis would be needed to test and confirm the findings.

Benefits

This research finds that the PoP proposal has several benefits:

- **Lower cost of finance:** Including upgrade costs in mortgages could help lower the cost of financing the transition to clean heating. Average interest rates for new mortgages are currently 4.5% compared to 8.5% for new personal loans.[1]
- **Affordability:** Households moving home are more likely to have the resources to afford clean heating upgrades, for example through home equity or access to finance (e.g. a mortgage).
- **Public funding:** By targeting households with a greater ability to pay, limited public funds could be prioritised for at risk groups and those in fuel poverty.
- **Scalability:** Some exemptions could be gradually phased out to steadily increase the clean heating demand generated by the PoP.

Actions to mitigate impacts on the housing market

Successful implementation of the policy will require consideration of key risks to the housing market. The following policy mitigations are identified as necessary to ensure that impacts are both managed and not disproportionately adverse:

- **Ensure that clean heating costs are a small proportion of a property's value.** High clean heating installation costs relative to property value could disrupt the housing market by significantly reducing some property values, discouraging home moves and making some mortgages harder to secure. This study has explored the reduction in impacts achieved by limiting upgrade costs to a hypothetical ~2% of property value. This could be achieved through a mix of low-value property exemptions, government grants to cover upfront costs, or a cap on upgrade costs.
- **Low-value property exemptions** can help mitigate negative impacts. These could be based on existing property transaction tax thresholds (e.g. Land and Buildings Transaction Tax,

[1] Bank of England. "Effective interest rates". Accessed February 2025

LBTT). This study has estimated that the PoP requirements could still deliver results with an exemption for properties purchased for less than £145,000 and an initial short-term exemption for those less than £250,000. Further analysis is required to determine the optimum balance between thresholds for exemptions and overall outcomes.

- **Provide additional financial support for low equity buyers.** Without additional support, a small number of households with high loan-to-value (LTV) ratios—such as first-time buyers—could face borrowing limits, even with grants and exemptions in place. Support could include the UK Government enabling lenders to offer mortgages above 95% LTV or Scottish Government providing low or interest-free loans.

- **Work with lenders to adapt mortgage practices.** Including upgrade costs in mortgages is a key benefit of the PoP, but it could require changes to mortgage practices. Engaging with lenders will be important, for example to clarify how PoP compliance might affect mortgage conditions.

- **Reduce clean heating costs.** Upfront grants will continue to be needed to help reduce the ratio of clean heating installation costs to property value and ensure that households benefit from lower whole-life costs (upfront and running costs). The UK Government should also act to reduce the running costs of heat pumps (e.g. by reforming levies and the electricity market) to provide clear financial benefits and support mortgage affordability.

- **Improve information on clean heating installation costs.** Households will need robust and property-specific information on clean heating installation costs to inform property purchase decisions. Options include online tools or adding typical upgrade costs to Home Reports. A cost-cap could also provide greater certainty on maximum upgrade costs, but its design and enforcement would need careful consideration.

- **Consider exempting most flats from the requirement.** Given the complexity of retrofitting these properties, this study has assumed that all flats would initially be excluded from a PoP requirement. Further analysis is merited to identify whether certain types of flats could be covered by the requirement while limiting negative impacts.

Housing market impacts

Assuming that these mitigations are implemented and that there is a cap of ~2% of property value through exemption thresholds ranging from £145,000 to £250,000, some indicative estimates of potential impacts on the housing market are:

- **Between 16% and 60% of annual transactions could be subject to the PoP,** depending on exemptions. This would deliver 16,000-60,000 additional clean heating installations per year, compared to the 6,000 installations in 2023[2]. The exemptions thresholds modelled in this study would make 16,000 annual transactions initially eligible, increasing to 37,000 as some exemptions are phased out.

- **A difference in price would be created between compliant and non-compliant homes.** Evidence suggests that property prices are likely to adjust in relation to the PoP requirement,

[2] Scottish Government (2024) Heat in Buildings: Progress Report 2024

with a potential reduction in the value of non-compliant properties, leading to a relative increase in the price of compliant properties. This could be driven by changes to the demand for some homes or price negotiation between buyers and sellers. The size of the price changes is uncertain and will vary between properties and geographic areas. For example, the effect could be stronger in low-demand areas where buyers have more leverage. The aggregate impact of these price reductions is not thought to be significant at the national level (e.g. the national average property price).

- **Potential for reduced annual home sales.** Clean heat installation costs could disincentivise home moves, in the same (but inverse) way that reductions to property transaction tax reductions encourage them. Limiting clean heat installation costs to ~2% of property value is estimated to keep any effect from the PoP to a similar scale as past changes to property transaction taxes, with reduced transaction volumes leading to a slight reduction in average property prices. This is an illustrative comparison and there are still uncertainties, such as the proportion of transactions affected, the duration of any effect and factors that could reduce perceived disincentives.

- **Potentially disproportionate negative impacts on specific groups**. Low-equity buyers could find that additional borrowing for clean heat installations adversely impacts their borrowing limits, as they reach maximum LTV ratios. However, mitigations such as exemptions, grants and other forms of support could all but eliminate the risks to these individuals.

- **Potential for market-level reduced transaction volumes and lower property prices.** As the PoP is designed to reward homeowners that make clean heating upgrades through higher property values, it is expected to have impacts at a market level, such as reduced transaction volumes or slightly lower property prices. Illustrative parallels with past periods of housing market change suggests that, with mitigations, the impacts of the PoP could be comparable to recent relatively limited periods of stagnation or contraction, rather than major external shocks like the global financial crisis.

A PoP offers advantages and would be most effective when combined with other regulation

A comparison of the PoP requirement with other regulatory options indicates that the PoP proposal has strengths compared to other options such as the phase out of new installations of fossil fuel boilers and the Clean Heat Market Mechanism. These strengths include targeting households better able to afford clean heating upgrades, enabling them to access lower cost finance and reducing Government subsidy costs. These could complement other regulatory approaches, all of which are likely to be needed to provide the right signals to households and industry. For example, whilst the PoP provides a more scalable boost to demand in the medium-term than the boiler phase out (since it is easier to introduce with exemptions and avoids the challenge of fitting heat pumps at the point where boilers are no longer working), it also makes a weaker contribution to meeting long-term climate targets as some homes are rarely exchanged. As a result, complementary policies from UK or Scottish Governments would be needed to help drive clean heating installations in these homes later in the transition.

This study concludes that the PoP has clear societal and economic benefits that justify its potential impacts on the housing market. Ending the climate change contribution of Scotland's fossil fuel

heating systems by the middle of the century will require a wide array of policies, from both UK and Scottish Governments. The PoP requirement would play an important role in delivering increased clean heating installations in the medium term by leveraging lower-cost private finance. It should be introduced alongside other policies to support the affordability of clean heating and the supply chain, as well as other complementary regulatory measures.

Further analysis is required to determine what an optimal ratio of clean heating installation cost to property value would be, given other costs and benefits and impacts on the housing market. Defining appropriate thresholds for exemptions and levels of grant subsidy will require more granular analysis than was possible in this study, including consideration of regional impacts.

In April 2025, shortly before the completion of this study, Scottish Government announced that the PoP requirement would most likely no longer be part of the HIBB due to be introduced later this year in the Scottish Parliament. The evidence gathered by this study nevertheless demonstrates that that PoP remains an important and high impact regulatory measure that merits further consideration.

1.Introduction

Overview

The Scottish Government has proposed regulations to drive clean heating and energy efficiency improvements in existing homes, to reduce carbon emissions and tackle poor fabric efficiency as a driver of fuel poverty. Regulations proposed in 2023 for a 'Heat in Buildings Bill' (HIBB)[3] would require that privately owned homes meet energy efficiency standards and/or install clean heating.

Accelerating the switch to clean heating

The UK Climate Change Committee has highlighted how the HIBB proposals could help reduce emissions in Scotland and serve as a model for the rest of the UK by providing a 'welcome focus' on upgrading properties at the point of purchase.[4] This approach could have several benefits:

- Targeting households with access to credit (through a mortgage) and/or equity
- Allowing clean heating costs to be included in mortgages, reducing financing costs since mortgage interest rates are typically lower than other types of commercial loans
- Taking advantage of home moves, when renovations are common, to integrate clean heating upgrades into wider works

Concerns

Some stakeholders have warned that the proposals could disrupt Scotland's housing market, slowing property sales and reducing property prices.[5] Whilst previous proposals have suggested linking efficiency improvements to the point of purchase,[6] this is the first time in the UK that a policy has been proposed to link clean heating installation to the point of purchase.

Partnership

Nesta and Changeworks support the HIBB proposals for their potential to drive demand for clean heating and energy efficiency improvements. However, both organisations recognise that a policy that creates significant disruption would be counterproductive. This research aims to explore if and how the proposals could be introduced without disproportionately impacting Scotland's housing market.

1.1 Aims and objectives

The aim of this study is to investigate whether and how the Scottish Government's proposals for a HIBB could be implemented successfully while minimising detrimental impacts, particularly on the functioning of Scotland's housing market. The focus of the study is the on the HIBB requirement proposed in 2023 that some homeowners be required to install clean heating after purchasing a home (Point of Purchase - PoP). Some consideration is given to the impact of the energy efficiency

[3] Scottish Government (2023) Delivering Net Zero for Scotland's Buildings: A Consultation on proposals for a Heat in Buildings Bill
[4] UK Climate Change Committee (2023) Progress in reducing emissions in Scotland - 2023 Report to Parliament
[5] The Times (2023) Patrick Harvie's boiler plan risks 'material shock' to housing market
[6] UK Climate Change Committee (2020) The Sixth Carbon Budget - Buildings

requirement to bring owner-occupied homes up to a minimum energy efficiency standard by 2033, but more detailed analysis was beyond the scope of this project.

In April 2025, immediately prior to the completion of this study, Scottish Government announced that the PoP requirement would most likely no longer be part of the HIBB that will be introduced later this year in the Scottish parliament[7]. The evidence gathered by this study nevertheless demonstrates that that this remains an important and essential regulatory measure that merits further consideration.

1.2 Methodology

This research combined stakeholder interviews and secondary research, following these steps:

Grey literature

A review of grey literature identified key issues and themes relating to the HIBB proposals and the housing market. This involved consulting traditional media sources, reviewing 23 of the HIBB consultation responses from housing market stakeholders and reviewing Scottish Parliament debates and questions.

Housing market analysis

A brief review of housing market structures identified the most relevant aspects for further analysis (see Appendix for more detail).

Review of similar policies

A review of similar policies (see Appendix for more detail) helped develop an initial rationale for potential HIBB impacts to be tested in stakeholder interviews.

The householder journey

The process of buying and selling a home was mapped to identify opportunities and challenges for testing in interviews (see Appendix).

Stakeholder interviews

Seven semi-structured interviews were held with housing sector professionals from the real estate, surveying, financial and legal sectors. These conversations were used to test the rationale for HIBB impacts, the householder journey and to gather views on other challenges and opportunities.

Further research was carried out using the interview findings and available evidence to determine potential risks, impacts and the policy and market conditions under which these might occur. This research uses estimates of the proportion of annual property transactions likely to be affected and comparisons of clean heating installation costs with property and mortgage values. Scales of potential impact were inferred from comparisons with similar housing market policies and events.

[7] Scottish Government (2025) Decarbonising Homes and Buildings, 03.04.25

2.Policy context

Overview

This section provides an overview of the HIBB proposals, how the point of purchase requirement (PoP) could be designed, the clean heating installation costs assumed in this report and briefly considers the costs and impacts of the HIBB energy efficiency requirements. It concludes with a summary of the context for introducing regulation and compares the strengths and weaknesses of the PoP with other regulatory options.

Summary

This study focuses on the PoP proposal. This is to limit the scope of the research and because only this proposal is tied to property transactions. The energy efficiency requirements proposed as part of the HIBB could indirectly affect housing market activity, as some households may incur the cost of both energy efficiency and clean heating upgrades after 2033, but the impact of this is not thought to be significant.

Policy design and cost assumptions. The most recent Scottish Government consultation did not state when the PoP could be introduced and was vague on how it could be designed. This study assumes that it enters force in 2030 and that it exempts all flats, properties below £145,000, and, for an initial period, properties below £250,000. This report uses estimated upfront cost of clean heating upgrades to explore impacts on property purchases and the housing market. Two cost scenarios are used: a scenario with grants, where the upfront cost to households is £6,150 and a scenario without grants, where the upfront cost is £9,900.

The PoP proposal has strengths compared to other options for regulation. A comparison of three options for regulation–the PoP, a phase-out of fossil fuel boiler installations and the Clean Heat Market Mechanism–shows that the PoP has strengths including the targeting of households better able to afford clean heating upgrades, enabling households to access lower cost finance and lower government subsidy costs. Its biggest disadvantage is the potential impact on the housing market, which is the focus of this this report.

Different regulatory approaches could be complementary. Comparison with other regulatory options suggests that they could work effectively together. For example, the ability of the PoP to drive clean heating installations will decline over time as some homes are sold more frequently than others. This could be offset by introducing the boiler phase-out once the clean heating market matures to address remaining fossil fuel boilers. The Clean Heat Market Mechanism could come first to strengthen the market and industry in the near-term.

2.1 HIBB proposals overview

The HIBB proposals used in this research have been drawn from a Scottish Government consultation published in November 2023 which proposed the following regulations for

homeowners. In April 2025, immediately prior to the completion of this study, Scottish Government announced that the PoP requirement would most likely no longer be part of the HIBB that will be introduced later this year in the Scottish parliament[8]. At the time of writing, the final form of the HIBB had yet to be confirmed.

Heat in Buildings Standard

Private homeowners would be required to ensure that their homes meet a 'Heat in Buildings Standard' (HIB standard) covering heating and energy efficiency.

Private homeowners would be required to **install clean heating:**

- **At point of property purchase**. After completing a property purchase within a grace period of two to five years (to be confirmed at a later date). No start date was given, but ministers suggested that the policy could enter force three years after legislation.[9]
- **In a Heat Network Zone.**[10] Following notice from a local authority (e.g. once a heat network connection becomes available). Deadlines will depend on the roll-out of heat networks.
- **By 2045.** All buildings must cease use of "polluting" heating by this date.

Clean heating is defined as 'Zero Direct Emissions Heating' (ZDEH), meaning heating systems that release no direct greenhouse gas emissions at the point of use, such as individual heat pumps, (low carbon) heat network, or electric systems such as storage heaters.[11]

Private homeowners would also be required to meet a **minimum standard of energy efficiency**:

- By **2028:** All privately rented homes must meet the standard[12]
- By **2033:** All owner-occupied homes must meet the standard, unless they already have clean heating.

To avoid homeowners being regulated twice for energy efficiency and clean heating, any owner-occupied property that has clean heating by 2033 would be exempt from meeting the energy efficiency standard. Homeowners would still be allowed to sell homes that do not meet the energy efficiency standard after 2033.

[8] Scottish Government (2025) Decarbonising Homes and Buildings, 03.04.25
[9] Scottish Parliament Website, Accessed 03.2025. Note of the meeting of the Parliament: 28/11/2023
[10] To be designated by local authorities in their 'Local Heat and Energy Efficiency Strategy (LHEES).
[11] Scottish Government (2023) Energy Performance Certificate (EPC) reform: consultation
[12] By fitting measures from a required list (At least 270mm of loft insulation, cavity wall insulation, suspended floor insulation, draught proofing, heating controls and hot water tank insulation) that are 'feasible and cost effective' in a property OR by have a space heating demand of no more than 120 kWh/m2/year

This study focuses on the point of purchase proposal (PoP) and its potential impact on the housing market. This is to limit the scope of the research and because only the PoP proposal is specifically tied to property transactions. The potential impact of the other HIBB proposals is discussed later in this section.

2.2 Policy scenario used in analysis

The 2023 Scottish Government consultation also proposed exemptions and cost-caps to manage the risk of negative impacts on some groups from the HIBB proposals. Since several aspects of policy design were vague or up for consultation in the Scottish Government's proposals, Nesta and Changeworks agreed on several aspects of policy design to form the basis of what was tested through this project. These were informed by both organisations' consultation responses.[13] These are summarised below:

Point of purchase requirement enters into force in 2030: This study assumes that the PoP requirement enters into force in 2030. This allows time for primary and secondary legislation to be agreed by the Scottish Parliament and provides a minimum three-year lead-in time between confirmation of the policy in law and the first households being affected.

An exemption for all flats: The Scottish Government consultation proposed that homes in designated heat network zones would be exempt from the PoP requirement, and instead subject to a different clean heating deadline. This would exempt many flats since they are likely to be located within these zones. It is proposed in this study that *all* flats are exempt from the PoP requirement, since it can be more challenging to install clean heating in flats than in houses. Key issues include finding space for internal and external equipment and gaining consent or permission from neighbours in a building, which could make it difficult to regulate only one property owner.

Exemption for low-value homes: The upfront cost to households installing clean heating in 2030 is assumed to be £6,150 in a scenario with Government grants or £9,900 without grants (see section 2.3). This could represent a high proportion of some properties' value, affecting homeowners' ability to borrow or move home. From the outset of this work, it was assumed that lower-value properties—defined as those qualifying for 0% rate property transaction tax (up to £145,000)—would be exempted from the PoP requirement. This is due to the potential negative impacts on the householder if upgrade costs are a high proportion of a properties' value. For example, the costs of a heat pump installation would disproportionately affect the achievable purchase price for these homes and buyers of these homes will have proportionally less access to finance. A recommendation of this study is that this be extended to a higher level, for example the next property tax threshold (£250,000) on a time limited basis (e.g. the first five years of the policy).

The consultation also proposed the use of a **cost-cap** to limit households' maximum spending when complying with the PoP requirement. Whilst this could prevent excessive installation costs,

[13] Changeworks (2023) Heat in Buildings Bill Consultation Response; Nesta (2023) Nesta responds to the Scottish Government's Heat in Buildings Bill consultation

there are challenges with implementation (e.g. how to prevent a loophole being created). The utility of this proposal was also considered as part of this study.

2.3 Cost assumptions

This report uses estimated upfront cost of clean heating upgrades to explore impacts on property purchases and the housing market. This section presents these costs and those that could arise from other HIBB proposals that were not considered in detail in this report.

Clean heating costs

Installation costs and levels of grant support are drawn from separate research by Nesta on how the lifetime costs of heat pump ownership could reach cost-parity with that of gas boilers.[14] This analysis provides three scenarios showing how different combinations of innovation in heat pump installation costs and operational efficiency, energy prices and upfront grants can deliver cost parity in 2030.

The Nesta research finds that upfront grants will continue to be required in 2030 if the whole life costs of heat pumps (including upfront, running, maintenance and loan repayment costs) are to be cheaper than those of gas boilers. This should be a prerequisite for introducing the PoP, as forcing households to switch to more expensive heating risks undermining the policy and increasing fuel poverty.

Since the Scottish Government can only directly control levels of grant, two scenarios are used in this report: a scenario with grants and a scenario without them (table 1). Both scenarios assume that installation costs will fall by 17.5% from their current average of £12,000,[15] as per the original Nesta analysis, thanks to scale economies and supply chain learning.

Table 1. Clean heating installation cost scenarios used in this report

Scenario	Installation cost, average home	Upfront cost paid by households, after grants	Grant
Grant	£9,900	£6,150	£3,750 (provided by Scottish Government)
No Grant	£9,900	£9,900	None

The ‘Grant’ scenario assumes that the Scottish Government provides an upfront grant of £3,750 per household, consistent with the two more optimistic scenarios in the Nesta study. In this study, a more pessimistic scenario where upfront installation costs and running costs do not fall as quickly, a larger subsidy of £5,000 per home is required to ensure cost parity between heat pumps and gas boilers.

[14] Nesta (2024) How to make heat pumps more affordable
[15] www.Getaheatpump.org.uk heat-pump-costs

Cost of other HIBB proposals

It is possible that other HIBB proposals affect household finances and indirectly affect the housing market. However, the energy efficiency component of the HIB standard is unlikely to have an impact until the 2033 deadline. Until then, households will have a choice to comply with *either* the PoP or the energy efficiency target. Moreover, the energy efficiency target is not tied to property purchases and the Scottish Government does not propose to prevent the sale of homes that do not meet this standard after 2033.

Beyond 2033, some households may need to pay for both energy efficiency and clean heating upgrades within a short period of time. For example, if a household moves shortly after 2033, having already upgraded their current home to the energy efficiency standard, they would be required to install clean heating if they purchase a non-compliant home. The cost of bringing privately owned homes up to a similar standard has been estimated at £3,500 on average per upgraded property.[16] The need to pay for both sets of upgrade costs could impact household finances, particularly for low-income households, potentially dissuading some home moves after the 2033 deadline.

However, the occurrence and impact of both upgrades being required is not expected to be significant. Around half of homes are currently estimated to be below the energy efficiency standard,[17] and, as the following section shows, with exemptions, only 17% to 35% of annual property transactions (17,000 to 35,000) could be eligible for the PoP. Moreover, installing a heat pump in a home that meets the minimum energy efficiency standard is likely to be cheaper, since better energy efficiency can reduce the heat pump size needed and its running costs.

The other HIBB clean heating proposal to require some homes to connect to a heat network is not tied to property transactions.

[16] Scottish Government (2018) "Energy Efficient Scotland Consultation: Making our homes and buildings warmer, greener and more efficient"
[17] Scottish Government (2022) Scottish House Condition Survey

2.4 Policy comparison

Introduction

To meet Scotland and the UK's legally binding climate targets, there is an urgent need to accelerate the transition from fossil fuel boilers to clean heating like heat pumps. Only 11% of Scotland's homes currently have clean heating[18] and around 6,000 heat pumps are installed in existing homes each year,[19] compared to around 100,000 gas boilers.[20] The current policy approach in England, Wales and Scotland relies on incentives (e.g. upfront grants) to increase demand for clean heating, but a widespread transition will likely require regulation.

Regulation can create a more predictable long-term demand than incentives, encouraging growth and investment in the supply chain. The advice from the UK Climate Change Committee calls for a "[..]long-term framework of regulation and financial incentives which provide clarity to homeowners and enable installers to respond."[21] Regulation can also reduce the subsidy required from Government by shifting financial support from incentivising behaviour to ensuring affordability. For example, current grants in Scotland cover about 60% of the average heat pump installation cost. Scenarios used in this study (see section 2.3) suggest that by 2030 grants would need to cover 40% of the average upfront cost to ensure cost-parity with gas boilers.

Before assessing the potential impacts of the PoP proposal, it is useful to consider the advantages and disadvantages of the policy alongside others that have been introduced or proposed in the UK to accelerate the decarbonisation of home heating - these are described in the box below. At the time of writing, only the Clean Heat Market Mechanism (CHMM) has been confirmed for introduction although in the future, a combination of these policies could be implemented.

Other policies to regulate clean heating:

Boiler phase out: a proposal[22] to set an end date (2035) beyond which heating engineers would be prohibited from installing new fossil fuel boilers.

Clean Heat Market Mechanism (CHMM): a new obligation on manufacturers of fossil fuel boilers to ensure that an increasing share of their sales are of clean heating systems. Manufacturers that are not able to meet the quota, which will be slowly increased over time, have the option of paying fines instead. The policy is to be introduced from April 2025 across the UK.

Table 2 below assesses the strengths and weaknesses of the regulatory options currently being considered in the UK. The following criteria were used for the assessment:

[18] Scottish Government (2022) Scottish House Condition Survey
[19] Microgeneration Certification Scheme website. "The MCS Data Dashboard" Accessed March 2025.
[20] UK Government (2022) Improving boiler standards and efficiency consultation
[21] UK Climate Change Committee (2025) The Seventh Carbon Budget
[22] UK Government (2021) Heat and Buildings Strategy

Increasing demand for clean heating

Regulation aims to increase demand for clean heating and provide certainty to industry, encouraging investment and growth. Gradually increasing demand allows supply chains to expand, costs to fall and quality to improve through competition and economies of scale.

Carbon reduction

A core aim of these policies is to reduce climate emissions. Regulation should provide certainty on future emissions reductions, both in the near term and to meet mid-century net-zero targets like Scotland's 2045 target.

Affordability for households

Regulation needs to consider affordability, especially for low-income households and vulnerable groups. Whilst running costs for clean heating are expected to be lower than for fossil fuel systems in the future under scenarios described in section 2.3, upfront costs will likely remain higher.

Costs to Government

Recognising that public finance alone will be insufficient for the transition to clean heating, regulation can incite action while limiting the use of public funds. Governments can use available resources to ensure that adequate financial support is provided to low income and vulnerable households.

Table 2. Strengths and weaknesses of different regulatory options

	PoP	Boiler phase-out	Market mechanism
Demand for clean heating			
Certainty	**Strong**- Tied to property transactions, aiding compliance (as well as potential enforcement and penalties).	**Strong**- Heating systems are replaced at the natural point of failure.	**Moderate**- Quotas provide a trajectory for heat pump sales, but manufacturers can pay fines rather than meet quotas.
Predictability	**Moderate** - Demand varies with property transaction volume, which can fall after major external shocks.	**Strong**- Boiler replacements are unavoidable when system is at the end of its life.	**Moderate**- Fines could reduce heat pump sales.
Scalability	**Strong**- Exemptions can be set at key stages in the housing market (e.g. property tax thresholds) and implemented through existing property purchase mechanisms.	**Moderate**- Designing exemptions would be complex (e.g. difficult to differentiate between types of home or individuals and avoid creating loopholes).	**Strong-** Quota trajectory ensures scale.
Carbon reduction			
Certainty	**Strong**- Emissions reductions potential linked to demand (see above).	**Strong**- Emissions reductions potential linked to demand (see above).	**Moderate**- Emissions reductions potential linked to demand (see above).

Long term contribution to targets	**Moderate-** Impact reduces as some homes are rarely sold. Would require other policies to ensure full transition (e.g. boiler phase out). Risks scrappage of boilers before the end of their lives, resulting in a waste of some embodied carbon.	**Strong**- All boilers would eventually be replaced, due to having a finite lifespan.	**Moderate-** May require further regulation to drive demand if market forces are unable to make heat pumps attractive enough for a widespread switch by 2045.
Households impact			
Affordability	**Strong** - Targets households with access to credit and/or equity: 65% of annual property transactions involve a mortgage, with the rest being cash transactions.[23] Households less likely to be fuel poor: 14% of owner occupiers with a mortgage in fuel poverty compared to 31% across all households.[24] Upgrade costs can be included in mortgages, allowing access to cheaper finance (4.5% vs 8.5%).[25] Risk limiting access to housing for a small proportion of FTBs without additional mitigations.	**Moderate** - Harder to target financially secure households: access to finance likely to be limited for more households (only 28% of homeowners have a mortgage).[26] Would require additional support if costs remain high.	**Moderate** - Relying on voluntary take-up means only those who can afford upgrades will be affected. Costs for remaining gas boiler purchasers could increase if industry pass on costs.
Convenience	**Strong** - Home moves are a typical renovation point, but they can also be a stressful process.	**Moderate** - Boiler replacement is usually the time at which households consider heating options.	**Strong** – Households will choose when to opt for a heat pump.

[23] Registers of Scotland (2023) Property Market Report 2023-24
[24] Scottish Government (2022) Scottish House Condition Survey
[25] Bank of England. "Effective interest rates". Accessed February 2025
[26] Scottish Government (2022) Scotland's Census 2022 - Housing

	Grace period allows household to plan upgrade at more convenient time.	About a third of replacements occur when a boiler fails. Quick installation or temporary solutions will be needed to avoid leaving households without heating.	
Wider impact			
Costs to Government	**Strong**- Fewer low-income households would be impacted (who would require additional support).	**Moderate**- Less targeted, so would affect more low-income households, requiring additional support (or difficult to implement exemptions).	**Moderate**- Industry could provide full subsidy but this is uncertain.
Compliance & enforcement	**Moderate** - Opportunities to build into home buying process.	**Strong** - It is likely to be easier to regulate industry than householders.	**Strong** - It is likely to be easier to regulate industry than householders.
Other opportunities/ challenges	Housing market impacts as identified in this report.		Impacts on gas boiler manufacturers and workforce as they shift to a new technology.

Key benefits and disadvantages of PoP

Key benefits of the PoP include targeting households with access to credit and/or equity and who are better able to afford clean heating upgrade costs. Including these costs in mortgages would allow households to access cheaper finance, with current interest rates on mortgages up to half those of other forms of personal finance. This would also reduce the number of vulnerable and fuel poor households affected by the policy, reducing the funding support that Government may need to provide to help cover associated costs. Home moves are often when renovations are carried out by homeowners, making this a more convenient time to install clean heating. The PoP may also be more scalable, as exemptions can be tied to natural points in the housing market (e.g. property tax thresholds) and phased out over time.

There are several key disadvantages of implementing the PoP alone. First, it could lead to the early scrappage of boilers before the end of their economic lives, thus wasting carbon and other resources. Second, the pace of boiler replacement (and carbon reduction) will slow over time as some properties are bought and sold far more frequently than others. These limitations could be addressed by the other policy approaches, suggesting that all three could be used together as a complementary package. For example, the CHMM can help encourage a shift in the supply chain ahead of regulation, whilst the boiler phase out could be used once the clean heating market is more mature to phase out all remaining fossil fuel boilers.

The third and largest disadvantage of the PoP is its potential impact on a sector outside of the heating industry – the property market. As discussed in this report, the PoP would imply potentially significant changes such as the consideration of clean heat installation costs in property valuations, purchasing decisions and mortgage lending. The rest of this report examines these potential impacts to understand if these outweigh the benefits outlined above.

3. Point of Purchase eligible transactions

Overview

This section estimates the proportion of property transactions that could be eligible for the PoP requirement. This will be key in determining impacts on the housing market, as well as the number of additional clean heating installations that could be achieved.

Summary

Exemptions will reduce the number of transactions affected by the PoP requirement. The policy, as defined in the 2023 Scottish Government consultation, would exclude approximately 40% of the ~ 95,000 property transactions that take place each year in Scotland.

Additional exemptions are recommended. This study assumes that exemptions from the PoP are extended to all flats, given the challenge of switching them to individual clean heating systems. This analysis also models a hypothetical exemption for properties purchased for less than £145,000, and suggests extending this, for an initial period, to properties purchased for less than £250,000, to reduce the impact of clean heating installation costs on property values and mortgage lending for lower value properties.

Eligible transactions. The exemptions modelled above would reduce the number of annual transactions eligible for the PoP to 16% initially (around 15,000) and later 37% (34,000) after removal of the exemption for higher value properties.

Exemptions

The policy, as defined in the most recent Scottish Government consultation would clearly exclude properties that made up approximately 40% of annual property transactions in 2023-2024 or 40,000 properties per year:

- **Properties with zero direct emissions heating**: About 20% of transactions. This would include properties that have had a clean heating system installed (around 10%)[27] and new-build properties (also 10%)[28] that are now required to have clean heating installed as standard[29] - 73% of new build homes had clean heating in 2023.[30]
- **Properties within a heat network zone**: About 20% of transactions. Many (but not all) flats are likely to be located within heat network zones, since these will tend to be in areas

[27] The 2022 Scottish House Condition Survey indicates that 10% of existing homes have electric heating.
[28] Registers of Scotland (2023) Property Market Report 2023-24
[29] Scottish Parliament Information Service (2023) The New Build Heat Standard
[30] Scottish Government (2024) Heat in Buildings: progress report 2024

of high heat density. 20% is an estimate since no analysis is available of the exact proportion of homes within heat network zones identified in local authority LHEESs.[31]

Based on the review of the literature and the analysis presented in this report, Nesta and Changeworks have used the following additional hypothetical exemptions from the PoP proposal in this analysis:

- **All flats:** these account for 30% of annual transactions. As discussed in section 2.2, heat pump installations in flats face greater technical and legal challenges than installations in individual houses.
- **Properties purchased for less than £145,000, and for an initial period, below £250,000:** about 40% of transactions (after removing properties with clean heating and flats). As discussed in section 4, this report hypothesises that such exemptions are necessary to avoid disproportionate impacts on some households, since a high ratio of PoP compliance costs to property value could be disruptive, for example, by making it harder to secure some types of mortgages and heavily disincentivising some home moves. Given the lower ratio of compliance costs for homes in the higher property tax threshold, and reduction in clean heating installations that would result, this exemption could be time limited. This would phase in additional demand for installations, giving the supply chain and housing market time to adjust.

Further analysis is needed to more precisely define the exemption thresholds. Those discussed above are for illustrative purposes and based on the estimated market impacts of clean heating installation costs to property value and their potential impact on mortgage loan to value (LTV) ratios (explained in sections 4 and 5).

Resulting Number of Transactions Subject to PoP

There were 93,429 domestic property transactions in Scotland in 2023/24.[32]

- The properties excluded by the proposed bill would reduce the total number of eligible annual transactions to ~**60%** (~55,000 installations annually).
- Additional exemptions for **all flats** and properties purchased for less than **£145,000** would reduce eligible properties to ~**37%** (~34,000 installations annually).
- Extending this to properties purchased for **less than £250,000** would leave **16%** of transactions eligible (~15,000 installations annually).

Table 3 below explains how these estimates have been produced. By reducing the number of PoP eligible transactions to between 37% and 16%, exemptions could play a role in limiting the scale of negative impacts on the housing market. However, this would also reduce the effectiveness of the policy at driving installations of clean heating.

Some interviewees warned that targeting some types of properties and excluding others could create different tiers in the housing market, with some types of homes struggling to attract buyers.

[31] Local Heat and Energy Efficiency Strategy. In practise, the number of flats varies between LHEES, with some placing almost all flatted properties within zones and others drawing their zones much more tightly around areas that are most suitable for early heat network development.
[32] Registers of Scotland (2023) Property Market Report 2023-24

However, it should be noted that there are already differences between housing markets and different geographies, for example with planning policy.

Table 3. Estimating the number of homes eligible for the PoP requirement annually

Exemption	Number of transactions (number & proportion of total 2023/24)		Remaining eligible transactions (cumulative)		Source of the exemption
Homes with clean heating	9,343	10%	84,086	90%	As per HIBB consultation. Note, number will increase over time.
New builds	9,867	10%	74,219	79%	Inferred from HIBB consultation.
Remaining flats	23,281	25%	66,682	55%	Nesta & Changeworks recommendations, data sourced as per note below.
Remaining homes sold for £145,000 or below	16,608	18%	34,329	37%	
Remaining homes sold for £250,000 or below	19,128	20%	15,201	16%	

Source: Registers of Scotland (2023) Property Market Report 2023-24. Total transactions were 93,429. Data on existing homes with clean heating from Scottish House Condition Survey, 2022.

4.Impacts on transaction volumes

Overview

This section looks at the potential impact of the PoP proposal on the volume of property transactions. Findings from the grey literature review and interviews are summarised before key impacts are analysed.

Key findings

The PoP could disincentivise some home moves, leading to a potential reduction in the number of property transactions: Clean heat installation costs could discourage home moves, similar to how reductions to property transaction taxes can encourage them. Previous tax cuts worth 1% to 3% of properties' value led to 8% to 19% increases in the volume of annual transactions. This study assumes that limiting clean heat installation costs to a maximum of ~2% of a property value would limit the impact on transaction volumes to a similar level. This is an illustrative comparison and uncertainties remain, such as the proportion of transactions affected, the duration of any effect and factors that could reduce perceived disincentives.

Grants and exemptions are needed to limit potential reductions in transaction volumes: Keeping clean heating upgrade costs within the ~2% of property value threshold described above will require both grants and exemptions. Without grants, only 8% of properties have upgrade costs below this threshold; this increases to 31% with grants. Exemptions for low value homes can help ensure that regulated households fall within the proposed ~2% threshold. There is a strong case for exempting homes in the two lowest property tax bands (below £145,000) and a moderate case for extending this to the next price band (below £250,000). Since the higher threshold would leave only 16% of annual transactions eligible for the PoP, this could be applied on a temporary basis and could be withdrawn once supply chain capacity increases.

Easy access to information on clean heating installation costs will be required: Home buyers will require reliable information on clean heating installation costs for use during property purchases to inform price negotiations and financial decisions such as including upgrade costs in mortgage lending. Difficulties obtaining this information could make home buyers less willing or unable to bid on non-compliant properties. There are several ways that these risks can be mitigated. First, householders should be provided better bespoke online tools that provide property-specific estimates for upgrade costs. Second, Home Energy Reports should include estimated upgrade costs. Third, a cost cap would provide households with a guaranteed maximum cost, improving both certainty and ability to financially plan for works.

Introduction

To function, a housing market needs both a supply of homes and buyers. Factors influencing this are households' ability and willingness to move, credit availability, housing need, and expectations

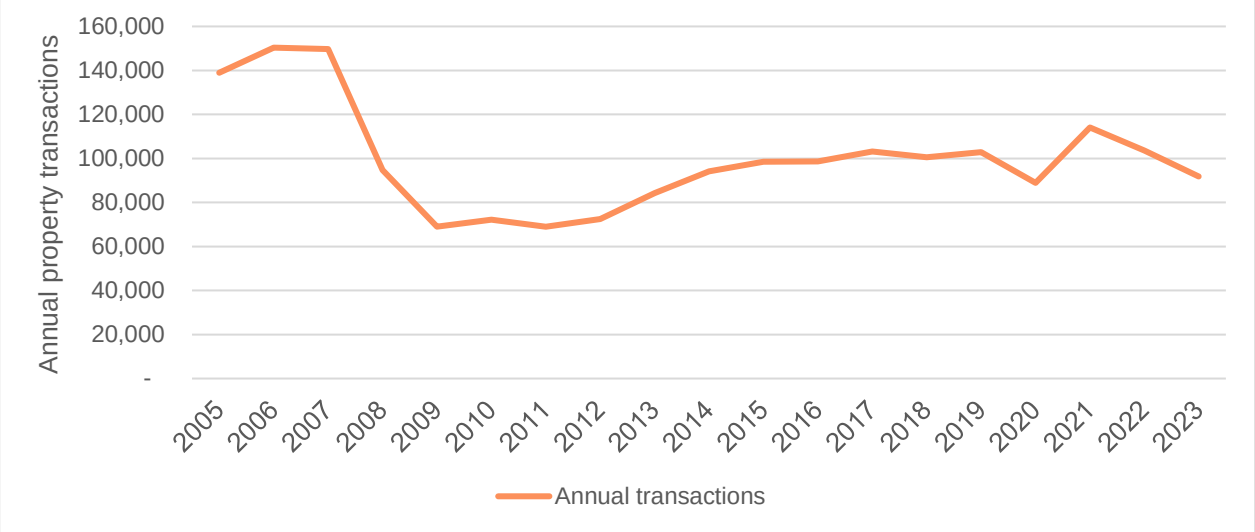
regarding future property prices and economic performance.[33] Whilst newly built homes contribute to housing supply, existing homes account for around 90% of annual property transactions in Scotland.[34]

The number of property transactions is also an important component of property prices: high demand in areas with limited supply can push prices up as buyers compete for homes. Transaction volumes also drive economic activity in the surveying, real estate and construction (renovation) industries. Stakeholder interviews confirmed that housing sector professionals see transaction volumes as an important indicator for the health of the housing market.

Recent trends

Figure 1 illustrates annual domestic property transactions over the past twenty years, with an average of 100,000 per year. There was a significant drop following the global financial crisis, from 146,000 transactions in 2007 to 70,000 in 2009. Volumes slowly recovered to an average of 100,000 per year between 2013 and 2023.

Figure 1. Annual property transaction volumes, Scotland 2005 to 2024



Source: UK House Price Index. Accessed March 2025.

Transaction volumes fell sharply in 2020 due to the pandemic, recovering in 2021. Volumes then fell in response to increasing interest rates in late 2022 and have stabilised at a slightly lower level (around 90,000 per year) in 2024.[35]

Table 4 compares the characteristics of three key periods of slow or falling transaction activity over the past two decades.

[33] Bank of England (1990) A simple model of the housing market, discussion paper 49
[34] Registers of Scotland (2023) Property Market Report 2023-24
[35] Scottish Government (2023) Scottish Housing Market Review: Q3 2024

Table 4. Previous periods of falling property transaction volumes

Time period	Overall reduction in Q3 transactions	Duration of falling volumes[36]	Context
Global financial crisis (2007 to 2009)	50%	24 months	Severe housing market downturn, with large reduction in transaction volumes.
Stagnation (2010 to 2012)	6%	14 months	Housing market reported to be stagnant rather than in crisis.[37]
Rising interest rates (Sept 2022 to end 2023)	14%	14 months	Market slowdown as challenges in mortgage lending accelerated by increasing interest rates.[38]

Source: UK House Price Index. Note. First column compares third quarter transactions between beginning and end of the period; third quarter selected as this is typically the busiest for transactions. Duration of falling volumes records consecutive months with falling transaction volumes.

Issues raised in the grey literature and interviews

Potential impacts on transaction volumes were identified in the grey literature review and analysis of similar policies:

- Media stories and finance sector responses to the HIBB consultation warn of a potential slowdown in transaction volumes as home buyers are put off moving (e.g. upgrades are seen as expensive or impractical, encouraging homeowners to stay put). There are also concerns that the limited capacity of the clean heating supply chain could prevent households from carrying out upgrades.
- The analysis of similar policies found how in the case of combustible external cladding, limited surveying capacity in the UK contributed to a major slowdown in property transactions. Homeowners were unable to obtain documentation proving compliance with updated fire safety standards due to the very limited capacity of surveyors to carry out new types of assessment. This caused bottlenecks and impeded transactions, as fire safety certificates became a requirement for mortgage lending.

These risks were tested in the stakeholder interviews, which gathered further feedback:

- All interviewees agreed that the PoP requirement could put off home moves should property prices fall, with concerns regarding the affordability of clean heating upgrades for most households. However, it was noted that not all home moves are discretionary and that some households will still need to move regardless.

[36] Year to year comparison, per month.
[37] UK Finance (2019) What's the outlook for Scotland's housing market?
[38] Scottish Government (2023) Scottish Housing Market Review: Q2 2023

- Interviewees generally agreed that installation costs could act as a disincentive to home moves, by adding to the 'costs of moving'. Cost, hassle and availability of trades people were cited as factors that would influence households' decisions to move.
- Interviewees agreed that there would likely be an increase in sales before the policy enters force, with a suggestion that this would be followed by a period of at least 18 months of slower activity as households and the market adjust.
- All agreed that transactions could be disrupted if home buyers face challenges in getting accurate information on upgrade costs, with concerns that solicitors and lenders may be reluctant to agree purchases where future liabilities are uncertain. Most agreed that it would be beneficial to include upgrade costs in Home Reports, although surveyors challenged the practicality of this given the current range of installation costs between homes and differing industry views on design (e.g. how much insulation a home needs).
- When asked for best- and worst-case scenarios for property transactions, views ranged from little impact if upgrade costs become more affordable to a multi-year slowdown as home moves are delayed whilst the market adjusts. There were different views regarding the importance of the PoP compared to other factors that impact activity, such as incomes and mortgage rates. Worst-case scenarios generally assumed that current issues such as affordability and supply chain capacity would remain unresolved.

Focus of further analysis

After considering the issues raised above, we decided to focus further analysis on the following risks related to households' willingness and ability to move:

- **Fall in property prices:** The PoP could lead to a fall in property prices, which could reduce the volume of transactions.
- **Disincentive effect**: The cost of compliance could disincentivise some home moves.
- **Access to information:** Difficulty obtaining robust information on compliance and upgrade costs could delay or discourage home moves.

Concerns regarding the capacity of the clean heating installation supply chain to meet demand were not considered further in this analysis. Under the most recent Scottish Government proposals, non-compliant homes could still be sold, since the obligation falls on the purchaser rather than the seller.[39] Households wishing to make upgrades before selling, but struggling to arrange works in time, would still be able to bring the property to market. Limited supply chain capacity could result in some households exceeding the grace period for making upgrades after a move, but this would not directly affect housing market activity. Supply chain capacity is also likely to increase before the PoP enters force, given the long-expected lead time (at least three years) and the investment signal that the policy would provide.

[39] Scottish Government (2023) Delivering Net Zero for Scotland's Buildings: A Consultation on proposals for a Heat in Buildings Bill

4.1 Property prices

Academic research suggests that transaction volumes are sensitive to property prices, and in particular to falling property prices.[40] This may be due to factors that dissuade home moves when prices are falling such as loss aversion or price anchoring (where homeowners are reluctant to sell at a loss, or may fixate on previous higher values),[41] equity constraints and the reduction in sale price outweighing the cost of a delayed sale.[42] These effects generally reflect households' expectations regarding future property prices. This suggests that the volume of transactions could be reduced should the PoP have a negative impact on property prices – this is explored in section 5.

4.2 Disincentive effect

Learning from property tax changes

Based on initial research, stakeholder interviews and the evidence reviewed above, it is hypothesised that the PoP would disincentivise home moves by adding clean heating costs to the overall cost of moving. The scale of the potential impact is difficult to determine, but parallels can be drawn with past tax changes by comparing the size of the economic incentive/disincentives created by the policies. For example, UK and devolved governments reduced transaction taxes following shocks to the housing market (e.g. global financial crisis and the COVID-19 pandemic) in a bid to restart stalled activity.

A sample of academic studies supports that changes to property taxes can lead to increases and decreases in transaction volumes. Volumes were found to have increased by 8% following a cut in transaction taxes by the UK Government in 2008-09.[43] This provided a discount equivalent to around 1% of the total purchase price, with around 20%[44] of transactions eligible. Studies also confirm that tax increases can dissuade home moves, with a 15% decline in transactions reported following a 1.1% tax increase in Toronto[45] and a 3% to 6% decline following a 10% increase in Australia.[46]

Whilst there is a clear correlation between taxes and transaction volumes, the literature indicates that the scale of the impact varies widely. This is due to several factors, such as the specific economic conditions affecting housing supply and demand at the time as tax changes are often introduced during periods of rapid growth or decline in housing market activity. For example, tax discounts introduced during the COVID 19 pandemic occurred alongside lockdown restrictions that

[40] Clayton, Jim & Miller, Norm & Peng, Liang (2009) Price-Volume Correlation in the Housing Market: Causality and Co-Movements. The Journal of Real Estate Finance and Economics. 40.
[41] Joseph Rowntree Foundation (2023) Reboot: building a housing market that works for all
[42] When an owner has little or negative equity, the value of waiting to sell is likely to exceed the net carrying cost. See. Cauley, S. D., & Pavlov, A. D. (2002). Rational delays: the case of real estate. Journal of Real Estate Finance and Economics, 24, 143–165.
[43] Besley, Meads & Surico (2014) The incidence of transaction taxes: Evidence from a stamp duty holiday. Journal of Public Economics, Volume 119
[44] UK Government (2015) Annual UK Property Transactions
[45] Dachis, Duranton & Turner (2011) The Effects of Land Transfer Taxes on Real Estate Markets: Evidence From a Natural Experiment in Toronto. Journal of Economic Geography 12(2)
[46] Davidoff & Leigh (2013) How Do Stamp Duties Affect the Housing Market? Economic Record: Volume 89, Issue 286

encouraged demand for more space inside and outside of properties.[47] As such, these results provide only a high-level indication of the relationship between tax changes and transactions.

Table 5. Impact of property transaction tax changes on transaction volumes, UK

Property tax change	Size of reduction relative to property value	Proportion of annual transactions eligible for discount	Change in transaction volumes
UK Government, 2008-09 (UK- wide)	1% [48]	20% [49]	8% [50]
UK Government, 2020-21 (England & Wales)	1% to 3% [51]	90% [52]	19% [53]
Scottish Government, 2020-21 (Scotland)	2% [54]	65% [55]	8.1% [56]

Note: Change in transaction volumes compare 12 months after the discount was introduced with the preceding 12 months.

The impacts other recent property tax changes in the UK are summarised in Table 5 and reinforce the correlation between tax cuts and increased transaction volumes. Property tax reductions have been worth between 1% and 3% of properties' value and increased the volume of transactions by 8% and 19% during the period of the tax change, compared with the preceding period.

Table 5 also compares the proportion of transactions eligible for tax reductions, a factor that will have influenced the scale of impact, with the most widespread tax reduction also producing the greatest change in transaction volumes. The PoP would affect a similar number of transactions to the smaller property tax reductions, using hypothetical exemptions modelled in this report (see section 3).

Limiting clean heating costs as a proportion of property value

UK property tax changes worth 1% to 3% of property value have resulted in changes to transaction volumes of between 8% and 19% over the duration of the tax change (typically 1 to 1.5 years). For illustrative purposes, this study therefore assumes that limiting the ratio of clean heating upgrade

[47] CBRE UK (2022) How did the stamp duty holiday affect residential property sales?
[48] The Guardian newspaper (2008) Government announces stamp duty holiday for homebuyers
[49] UK Government (2015) Annual UK Property Transactions
[50] Besley, Meads & Surico (2014) The incidence of transaction taxes: Evidence from a stamp duty holiday. Journal of Public Economics, Volume 119
[51] Zoopla (2021) Stamp duty holiday explainer
[52] Ibid
[53] CBRE UK (2022) How did the stamp duty holiday affect residential property sales?
[54] ESPC (2021) LBTT and stamp duty holiday
[55] The zero-tax threshold was raised from £145,000 to £250,000 between July 2020 to March 2021. This reduced taxes for properties worth up to £250,000 by 2%. Around 65% annual property transactions fell within this threshold.
[56] Registers of Scotland (2021) Property Market Report 2021. An 8.1% increase compared with the 12-month period to March 2020.

costs to property value to a hypothetical maximum of ~2%[57] result in changes of a similar scale (8% to 19% in transaction volumes).

This level of impact would be of a similar scale to some of the previous downturns in Scottish property transaction volumes discussed earlier in this section (e.g. stagnation between 2010 and 2012 and following the rise in interest rates in late 2022) where volumes were below the decadal average of 100,000 per year.

Differences between property tax changes and the PoP

Unlike temporary tax cuts, the PoP is a permanent policy, which could lead to different behavioural responses. Tax reductions are typically time-bound, which evidence suggests can enhance their impact. Analysis of the UK Government tax change in 2008/09 found that the effect reversed rapidly after the policy was withdrawn, suggesting mostly a short-term retiming of transactions. The study concludes that the 8% change in transaction volumes is likely an upper-bound estimate.[58]

In contrast, the PoP requirement would be a permanent change to the market, encouraging home moves before it enters force (with a subsequent drop in transactions) but with the impact potentially tapering off over time. The disincentive of clean heating upgrade costs to households could also be mitigated by the prospect of lower energy bills, which estimates suggesting could be much lower for heat pumps than gas boilers by 2030.[59]

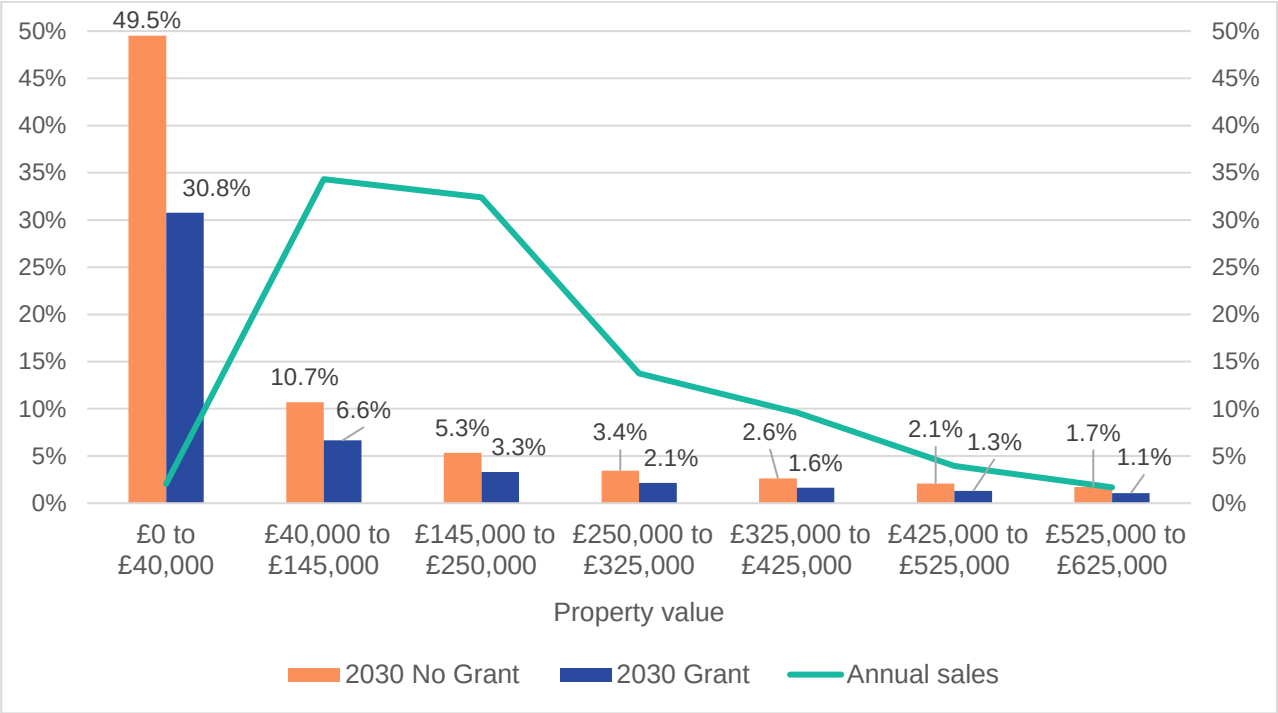
Ratio of clean heating upgrade costs to property values

Without grants or exemptions for low value properties, clean heating upgrade costs for many properties could exceed the ~2% hypothetical threshold beyond which disproportionate impacts on transaction volumes could occur. Figure 2 provides an estimate of the ratio of upgrade costs to (median) property value across the different Scottish property tax bands. Without subsidy, only 8% of properties have upgrade costs below ~2% of property value; this increases to 31% with subsidy. This shows that upfront grants could play an important role in reducing the potential disincentive effect.

However, even with subsidy, homes in the lowest three property tax bands have a ratio of costs to value ranging from 3.3% to 31%, making a strong case for an exemption for these properties. Exempting these properties would exempt 18% of remaining annual transactions. There is a case for extending this exemption to the next price band (£145,000 to £250,000) as average estimated upgrade costs (3.3%) still exceed the hypothetical 2% threshold. However, the case for this exemption is weaker because this is only a small margin, and it would reduce eligible annual transactions by a further 20%. The exemption could be applied on a temporary basis (e.g. five years), to provide a stepped increase in PoP eligible transactions, giving supply chains and the market time to adapt, and cushion the reduction to transaction volumes should there be a disincentive effect. Alternatively, levels of grant could be weighted to properties in lower price bands to reduce the ratio of upgrade cost to property value.

[57] 2% was selected rather than 3% as only a small proportion of the UK property tax discounts described in Table 5 provided discounts above 2%.
[58] Besley, Meads & Surico (2014) The incidence of transaction taxes: Evidence from a stamp duty holiday. Journal of Public Economics, Volume 119
[59] Nesta (2024) How to make heat pumps more affordable

Figure 2. Ratio of upgrade costs to property value, scenarios for 2030



Notes: Bars represent clean heating upgrade costs as a % of property value. Property value for each price band is the median value. Clean heating costs are detailed in section 2.1. Green line shows sales within each price band as a proportion of annual transactions (as per RoS data for 2023/24). Data for properties worth > £675,000 excluded as ratio of clean heating to upgrades is below 2% in all scenarios. This analysis does not factor in increased property prices in 2030.

4.3 Access to information

Another potential impact identified in the grey literature and confirmed during the interviews is the risk that households will struggle to find robust information on compliance and upgrade costs. This could delay or deter property transactions.

Delays or deterrence could occur if home buyers become less willing or unable to bid on non-compliant properties because they cannot obtain reliable information on the cost of required upgrades. Several interviewees suggested that, at least initially, upgrade costs are likely to be negotiated between buyers and sellers. Delays in obtaining the right information could delay purchase offers or dissuade them entirely, particularly where buyers have a choice between compliant and non-compliant homes. Interviewees also suggested that solicitors could take a dim view of prospective purchases where the cost of future liabilities is poorly understood. Longer term, non-compliant homes could be seen as riskier to purchase if upgrade costs prove more expensive than assumed at purchase. This could also impact on mortgage lending (see section 5).

The Grenfell Tower fire of 2017 is an extreme example of disruption caused by inadequate information regarding regulatory requirements.. Sudden fire safety and planning rule changes for buildings with combustible cladding halted transactions for affected properties due to a shortage of surveyors to carry out new assessments, which became a condition for mortgage lending. This example underscores the importance of timely access to accurate regulatory information for homeowners, surveyors, and lenders.

Case study: Combustible cladding in the UK

Following the Grenfell fire in 2017, the UK Government brought in new fire safety rules in 2018 that prohibited the use of combustible cladding systems in high rise buildings, both in new builds and existing buildings. Impacts on the housing market emerged as mortgage lenders and surveyors adjusted to the new rules, requiring new assessments to determine if buildings were cladding free or fire safe.[60] It soon became apparent that there were far too few surveyors to meet the demand for the newly required assessments. Despite efforts by Government and industry to streamline the process, homeowners were unable to obtain the relevant certificates quickly (or at all, in many cases) and left unable to sell and move.[61] As of 2024, many properties still appear to be affected and some are still unable to sell.

Actions to reduce information gaps

To complete property transactions, households will need to know if a home complies with the PoP requirement and, if not, the costs to upgrade the heating system. This information will be needed to inform any negotiation of the purchase price and other financial decisions such as whether to include upgrade costs in mortgage lending. A property's compliance with the regulations should be provided by Energy Performance Certificates (EPCs), as any home being sold requires an up-to-date EPC. The Scottish Government has proposed to reform EPCs to include information on clean heating.[62]

Information on clean heating costs will need to be robust and specific to the property, since costs can vary according to the need for additional works like larger radiators, a new hot water cylinder and insulation. There are at least three options for providing timely and robust information is available to home buyers:

- **Online tools:** Independent information is already available online free of charge (e.g. the Get a Heat Pump website), but the accuracy of this information for informing property purchases has not been tested. One limitation is the use of average cost information, when some properties' costs will vary due to other required changes (e.g. replacing the hot water cylinder or radiators).
- **Home Reports**: A majority of interviewees supported the inclusion of potential upgrade costs in Home Reports, a key benefit being that all purchasers would be using the same information. However, it was acknowledged that, at present, this may not be possible given the complexity and range of costs between homes, and differing views on factors such as the amount of insulation that is required to make a property suitable for a heat pump. Over time, installation costs may become more standardised, and it could be easier to integrate cost estimates into Home Reports.
- **Cost-cap:** A cost cap could provide clarity to households regarding the maximum they would be required to pay for upgrade costs. Interviewees agreed that this could be a helpful measure.

[60] FT Adviser (2021) Mortgage market suffering under cladding crisis
[61] The Guardian Newspaper (2020) Thousands of UK flat owners can't sell due to fire safety holdup
[62] Scottish Government (2025) Energy Performance Certificate reform consultation: response

5. Mortgages

Overview

The opportunity to include the costs of clean heating installation in home mortgages is a key benefit of the PoP proposal. However, it also creates concerns for low equity buyers and loan-to-value ratio limits. This section evaluates the potential impacts.

Key findings

Challenges for low equity buyers: Adding clean heating installation costs to mortgages for some households could push them beyond current loan-to-value (LTV) ratio limits. Without additional support, these households would need to delay home moves or significantly reduce property purchase offers. This risk would likely affect first-time-buyers the most. Although only a small proportion of annual property transactions could be affected (around 2%), the impact on individuals could be significant.

Upfront grants and exemptions for lower-value homes could mitigate impacts on mortgage LTVs. Upfront grants and exemptions for homes where upgrade costs are a significant proportion of the property value–such as the hypothetical threshold of ~2% discussed previously—could reduce the impact on mortgages with high LTVs. Even with grants and exemptions, a small number of households may still face challenges and could require additional support. Options include guarantees to lenders to lend beyond 95% LTV or providing low or zero interest rate loans.

Risks of increased mortgage costs can be mitigated by reducing PoP-related default risks: Rolling in the cost of compliance would lead to larger mortgages but is unlikely to significantly increase mortgage rates. Mortgage costs could rise, however, if there is a perceived increase in default risk by households. These risks could be mitigated by 1) the UK Government taking action to reduce the running costs of heat pumps (e.g. reform of policy levies and the electricity market), 2) the Scottish Government ensuring that clear information is provided on EPCs regarding future running costs to encourage adoption of efficient electric heating and 3) by ensuring that households have access to robust and property specific information on clean heating installation costs.

Work with lenders to adapt mortgage practices. Including upgrade costs in mortgages is a key benefit of the PoP, but it could require changes to mortgage practices. Engaging with lenders will be important, for example to clarify how PoP compliance might affect mortgage conditions.

Introduction

Three-quarters of annual property transactions in Scotland involve a mortgage,[63] making the availability and cost of funding an important factor in housing market activity. Mortgage interest rates and lending criteria directly affect how much people can borrow and will influence decisions to move and property prices.

Issues raised in the grey literature and interviews

Potential impacts on mortgage lending were identified in the grey literature review and development of the hypothetical typical householder compliance journey:

- **Limited borrowing options**: Households that can afford a mortgage but do not have additional funds to pay for the cost of upgrades (e.g. first-time buyers) may find their borrowing options limited, in turn affecting housing market activity.
- **Disrupted transactions:** Transactions could be disrupted where the inclusion of clean heating costs in mortgages changes the borrowing beyond 'in principle' terms.
- **Mortgage prisoners:** If PoP compliance becomes a condition of mortgage lending, this could restrict mortgage options for non-compliant homes. Some homes could become unable to sell, with householders becoming 'mortgage prisoners'.
- **Increased lending risks:** Costs could increase should the HIBB proposals increase the risks of lending to Scottish households, for example through a greater risk of arrears or default due to due to the costs of clean heating upgrades or increases in energy bills.
- **Increased costs for Scottish households:** Divergence between the Scottish housing market and the rest of the UK could lead to increased costs for Scottish households (e.g. through additional costs to lenders such as the need to create bespoke mortgage valuation models) or political disruption, as was seen with the proposed Deposit Return Scheme and the UK Internal Markets Act.

These risks were tested in the stakeholder interviews, which also gathered further feedback:

- Interviewees agreed that home buyers would generally add the cost of clean heating upgrades to mortgages or use equity where it was available. Several individuals expected Government grants to remain important. There were concerns regarding the impact on households with limited ability to provide or borrow additional funds to pay for upgrades.
- Almost all interviewees agreed that LTVs would increase where buyers reserve some mortgage borrowing or equity to pay for upgrading their home after a move.
- All agreed that FTBs and low-equity buyers could be particularly impacted by the policy because many could have limited ability to take on more debt.
- All interviewees agreed that mortgage lending criteria could be changed to reflect the PoP requirement. Several suggested that a requirement to upgrade properties could become a condition of lending or that lenders could take upgrade costs into account as part of affordability assessments. One interviewee noted that lenders will ultimately benefit from the PoP requirement, as households will borrow more.
- When asked for best-case scenarios for changes to mortgage lending, answers were limited, but one interviewee suggested that the PoP requirement would not cost more than other typical property upgrades. Worst-case scenarios included a reduced approval of mortgages due to increased risks, non-compliant properties struggling to obtain a mortgage and a mismatch between the pace of typical mortgage approval and the slower timeline for

[63] Registers of Scotland (2023) Property Market Report 2023-24

the delivery of government support. Several respondents suggested that it may reduce homeownership and property transactions.

Focus of further analysis

After considering the issues raised above, we decided to focus further analysis on the following risks:

- **Impact on borrowing capacity** for some households if clean heating installation costs negatively affect their ability to obtain a mortgage.
- **Impact on mortgage costs and affordability**.
- **Changes to mortgage conditions** in response to the PoP, and the resulting impacts on mortgage availability.

Concerns about the potential divergence between the Scottish housing market and the rest of the UK were not considered further. Full consideration of these risks was beyond the scope of this report, but it should be noted that there are already significant differences between the two housing markets arising from Scotland's distinct legal system, with differences in property law and conveyancing.

5.1 Low equity buyers

A key risk identified in the grey literature and confirmed during the stakeholder interviews is the potential negative impact of including clean heating installation costs in mortgages when households are borrowing near the maximum available. This could push them beyond current lending limits with an impact on their purchasing power and willingness or ability to buy.

For example, buyers of non-compliant properties will need to reserve either equity or part of their new mortgage to pay for upgrades. In both cases, this is likely to increase the overall size of the mortgage relative to property value - the loan to value ratio (LTV). In turn, this could push some types of buyers with low equity such as first-time buyers (FTBs) beyond current mortgage lending limits – 95% being the current maximum LTV ratio allowed. Lending at this maximum is already considered higher risk and is currently supported through the UK Government's Mortgage Guarantee Scheme.[64] The scheme is scheduled to run until June 2025, with a new, permanent, scheme proposed to replace it.[65]

Low equity home movers

The potential impact of clean heating costs on mortgage LTVs is illustrated in Table 6, which shows how some borrowers could be pushed beyond the 95% limit. In contrast, the LTV for the average home move (average property value and average LTV) also increases but remains within lending limits.

[64] UK Government The mortgage guarantee scheme Accessed January 2025
[65] UK Government Growth boost to support more first time buyers Accessed March 2025

Table 6. Impact of PoP upgrade costs on LTV ratios

	First time buyer		Average home mover	
	Now	**PoP**	**Now**	**PoP**
Property value	£188,670[1]	£188,670	£190,000[2]	£190,000
Equity/deposit	£9,250	£9,250	£60,800[3]	£60,800
Equity/deposit %	5%	5%	32%	32%
Mortgage + heating (£6,150 with a grant)	£179,420	£185,570	£129,200	£135,350
Mortgage + heating (£9,900 without grant)		£189,320		£139,100
LTV (with grant)	**95.0%**	**98.4%**	**68%**	**71.2%**
LTV (without grant)		**100.3%**		**73.2%**

Notes:
1. Average property value for first time buyers in 2023.[66]
2. Average property value (all buyers) in 2023.[67]
3. Home mover deposit based on average home mover LTV in 2023.[68]

Those pushed beyond the maximum LTV threshold would need to find alternative funding for clean heating upgrades. Interviewees warned that this would be challenging for FTBs given the amount of debt typically taken on. Alternatively, buyers could delay until they accrue a larger deposit, but this would take significant time for most households since clean heating installation costs are likely to be of a similar scale to a minimum deposit for a mortgage.[69] Alternatively, a cheaper property could be purchased. [70] With limited options to pay for clean heating upgrades, low equity movers could defer home moves or, worst-case scenario, be locked out of the housing market.

This risk will affect borrowers with high LTVs, typically those above 90%, since clean heating installation costs are likely to be equivalent to between 3% and 5% of the average property value. UK-wide data[71] shows that in the last year, 5% of new mortgage lending was at LTV ratios over 90%. Most will be first-time buyers, since they typically have less equity than other types of borrowers.[72] Transactions involving mortgages at 90% LTV or over and subject to the PoP could

[66] Lloyds Banking Group (2024) Scottish first-time buyers make up over half of all home loans
[67] Registers of Scotland (2024) UK House Price Index figures for December 2023
[68] Scottish Government (2024) Scottish Housing Market Review Q3 2024
[69] A 5% deposit is the minimum required for a mortgage. Clean heat upgrades estimated here to be 3% to 5% of the average properties' value (£190,000 in 2023/24), depending on grant availability, in 2030.
[70] For example, a household with £17k equity looking to purchase a home for £220k with a 95% LTV mortgage would need to drop their budget to £200k to fit within the 95% LTV (once clean heat upgrade costs are taken into account).
[71] Bank of England (2024) Mortgage Lenders and Administrators Statistics - 2024 Q2
[72] Average LTVs for FTB mortgages in Scotland have been between 80% and 85% over the past two years, compared to around 70% for other home movers. See Scottish Housing Market Review Q3 2024

account for around 2% of total annual property transactions in Scotland. Although this is only a small proportion of property purchases, the impact on those individuals is likely to be disproportionately high. Many FTBs already struggle to access home ownership after two decades of increasing property prices. More broadly, FTBs account for around a third of annual property transactions in Scotland each year,[73, 74] and several interviewees stressed their importance in providing buyers for lower cost homes, which then enable other moves 'further up the chain.'

Mitigations

The impact of clean heating installation costs on mortgage LTVs could be mitigated in several ways. Upfront grants could reduce the amount that households need to borrow, and in turn the need for additional borrowing. Grant schemes may need to be designed to give lenders proof or guarantee of eligibility if they help reduce individual LTVs to within lending limits. Currently, Scottish Government grants assess a homeowner's eligibility and their properties' suitability for upgrades, with the grant provided once the works are complete. A household assessing grant options for a property they are yet to purchase may require a different approach.

Even with grants, clean heating costs would still represent a significant proportion of the value of some homes, strengthening the case for an exemption for properties below a certain value such as the hypothetical £145,000 or £250,000 property tax thresholds proposed in section 4.2. This would limit the ratio of upgrade costs to property value to around 2%, further helping to reduce the impact on mortgages with high LTVs.

A very small number of buyers could still be adversely affected even after grants and exemptions are applied, and the Scottish Government could consider providing zero-interest loans to avoid adding remaining upgrade costs to mortgages. An alternative to these mitigations would enable lenders to lend beyond 95% LTV, as suggested by several interviewees. This could build on the support already provided by UK Government guarantees for 95% mortgages.

Whichever option is selected, its delivery will need to be compatible with the mortgage lending process and requirements, since support will be vital in ensuring that high LTV mortgages pass affordability calculations.

5.2 Mortgage conditions

Another concern in the grey literature is that mortgage lending to certain types of individuals or properties could become restricted because of the PoP requirement.

Sales of non-compliant homes

One concern relates to the proposal in the most recent Scottish Government consultation to explore whether banks and buildings societies could make complying with the HIBB a condition of mortgage as well as home and buildings insurance. It is unclear how this would apply to the PoP

[73] Ibid 59 - 75% of annual property transactions involve a mortgage.
[74] UK Finance (2024) Scotland Mortgage Market: Key data 2024-Q1/Q2/Q3

requirement, but it could be a condition for continued mortgage lending that households upgrade non-compliant properties within the specified grace period.

Stakeholders have warned that this could prevent some from selling non-compliant properties,[75] or from remortgaging, creating 'mortgage prisoners.'[76] However, the PoP requirement seems unlikely to prevent households from selling their homes, since the since the obligation would be on the purchaser, who would be allowed to purchase a non-compliant home provided they make the upgrades after moving. This characterisation is also at odds with the usual definition of a mortgage prisoner, the risks of which are explored below.

Some interviewees called for clarity on situations where a homeowner has already moved, wishes to move again but is within the grace period and has not carried out the upgrades. They questioned whether, if PoP compliance becomes a condition of lending, they would be granted a mortgage on their next purchase.

Mortgage prisoners

There is a risk that 'mortgage prisoners' could be created should mortgage lending become contingent on having a HIBB-compliant property. A mortgage prisoner is usually defined[77] as someone with a mortgage bought under credit terms no longer available in the market and who is unable to meet the terms for available mortgage products, often leaving them on expensive variable interest rates. Many mortgage prisoners were created by mortgages taken out before the global financial crisis under lending conditions that have since been tightened.[78]

If PoP compliance becomes a hard requirement for mortgage lending, households that fail to make upgrades after moving could find themselves unable to remortgage at competitive rates. Contrary to some claims made in the grey literature, these homeowners would still be able to sell. While this would affect household finances, it would not have a direct impact on housing market activity.

It is not certain that the PoP would become a condition of mortgage lending. Whilst the review of similar policies found evidence that some lenders have restricted lending for homes that do not comply with mandatory energy efficiency standards in England and Wales,[79] those regulations are different in nature and the same may not be true for the PoP. Mandatory energy efficiency standards concern private landlords' duty to tenants, while the PoP would be a duty on homeowners to upgrade their own homes.

The Scottish Government could avoid any unintended consequences from making mortgage lending conditional on PoP compliance by introducing alternative enforcement measures.

[75] The Times (2024) "Green heating rules will create mortgage prisoners, says Ewing"
[76] Scottish Government (2024) Response 361623747 to Proposals for a Heat in Buildings Bill: Consultation
[77] House of Commons Library (2023) Mortgage prisoners
[78] Ibid
[79] Sayce, S.L. and Hossain, S.M. (2020), "The initial impacts of Minimum Energy Efficiency Standards (MEES) in England", Journal of Property Investment & Finance, Vol. 38 No. 5, pp. 435-447

5.3 Other potential impacts on mortgage lending

Disrupted transactions

Including clean heating installation costs in mortgages could potentially disrupt transactions where lending is at the 'in-principle' stage. For example, if buyers negotiate a discount on a property to account for upgrade costs, this will increase the mortgage LTV, raising the risk that in-principle mortgage terms become invalid. This would require borrowers to agree an updated mortgage with their lender, which could introduce delays. This was identified during development of the 'householder journey' for this project (see appendix).

While price negotiation is not uncommon during property purchases, the scale of renegotiations could be significant. A potential solution could be to provide different scenarios for compliant/non-compliant properties in mortgage offers. This was tested during the interviews, with most respondents agreeing that this would be useful. Others also indicated that including upgrade costs in a Home Report would help ensure that compliance costs are factored into mortgage discussions.

Changes to lending practices

A common theme during the interviews was the impact that PoP compliance costs could have on mortgage assessments and lending decisions. The most significant impacts appear to be where the inclusion of upgrade costs pushes some borrowers beyond lending limits (e.g. LTV ratios), discussed earlier in this section. This would require lenders to consider grants (or other types of support), which could change lending processes for these affected customers.

The widespread inclusion of clean heating costs in mortgages could also lead to wider changes to mortgage lending practices. Some interviewees felt that including the cost of upgrades required after moving would change the nature of lending, as lenders do not currently include one-off expenditures in their affordability calculations. Lender's willingness to lend at scale in these circumstances is yet to be tested. However, 'green mortgage' products are already available which offer discounted interest rates for heat pumps and retrofit energy efficiency measures.

Overall larger mortgages

If, as expected, the PoP requirement leads to upgrade costs being included in mortgages, this could increase borrowing and potentially lead to higher interest rates. However, this impact is not thought to be significant, given the expected size of the additional borrowing, the potential for prices for non-compliant properties to fall slightly because of the PoP and the limited role of mortgage size in determining interest rates. This is because average costs assumed in this study would be equivalent to between 3% (with grants) and 5% (without grants) of the average new mortgage value in Scotland.[80] Moreover, exemptions could help limit the ratio of upgrade costs to property value to below a set percentage (e.g. ~2%). Even if mortgage sizes increase, loan size is not a major determinant of mortgage interest rates. The Bank of England base rate, deposit size, equity and mortgage type and length are all more significant.[81]

[80] Assuming £190,000 average property price (2023) and 32% equity (based on average LTV for new mortgages in 2023)
[81] Lloyds Bank. How does mortgage interest work? Accessed February 2025.

Increases in mortgage sizes could also be offset by reductions in the price of non-compliant properties, for example if buyers negotiate discounts (explored in more detail in section 6).

Some interviewees noted that the overall increase in borrowing caused by the policy could impact the wider finance sector, as lenders could add several billion pounds of debt to the market. This could have an impact on interest rates in the market but requires further analysis beyond the scope of this study.

Increased lending risk

Mortgage costs could rise if lenders perceive an increased risk of households defaulting. How households choose to meet the PoP requirement could, in turn, impact their ability to make mortgage repayments. Mortgage interest rates could increase if there is a perceived increase in the risk of households defaulting, which could occur if heating bills rise after installing clean heating, or if installation costs turn out more expensive than planned for during the property purchase.

Research by Nesta shows that with different combinations of upfront cost reduction, falling wholesale costs of electricity, rebalancing of energy levies by the UK Government and upfront grants, all UK households could see a net financial benefit after fitting a heat pump in 2030.[82] Energy bills could be higher if households install less efficient direct electric heating such as panel radiators or storage heaters, which would qualify as clean heating. These are cheaper upfront but can be much more expensive to run. Annual bills for storage heaters could be 60% higher and electric boilers up to 100% higher than an air source heat pump in an averagely insulated property.[83]

Some households could face financial difficulties if the funds they set aside for upgrades after moving home are not enough. Interviewees noted that this risk would particularly affect lower-income households and first-time buyers, who may have limited funds or access to credit. If this became a widespread issue, it could lead to higher mortgage default rates, which in turn could increase mortgage rates.

These risks could be mitigated by:

- **Reducing running costs**: The Governments of the UK should act to reduce the running costs of heat pumps (e.g. reform of policy levies and the electricity market) to ensure that all homes have lower heating bills with a heat pump.
- **EPC guidance on system efficiency**: Making it clear on EPCs that less efficient electric systems (that are often cheaper upfront) are likely to have much higher running costs, to encourage adoption of efficient electric heating.
- **Access to cost information:** Ensuring that households have access to robust and property specific information on clean heating installation costs.
- **Cost cap**: Introducing a cost-cap, setting a maximum liability for households complying with the PoP requirement. This would reduce the risks that installation costs are higher than was planned for at the point of the property purchase.

[82] Nesta (2024) How to make heat pumps more affordable
[83] Analysis by Changeworks

6.Property prices

Overview

Changes in property valuation and prices is a necessary effect of the PoP requirement. The policy explicitly seeks to reward homeowners who install clean heating by enabling them to recoup costs through higher property values. This section evaluates the potential impacts.

Key findings

A difference in price would be created between compliant and non-compliant homes. Property prices are likely to adjust in response to the PoP requirement. This could lead to reductions in the value of non-compliant properties and relative increases in the value of compliant ones. The size of these price changes is very uncertain and will vary between properties and geographic areas. For example, the effect could be more pronounced in areas of low demand where buyers are more able to negotiate. Simple analysis of the aggregate impact of price reductions for non-compliant properties suggests a relatively small impact on average property prices at a national level.

Reduced transaction volumes could slightly lower property prices. The volume of transactions helps determine property prices. In section 4 of this report, it is hypothesised that the additional cost of clean heat upgrades could dissuade some households from moving, with the potential to cause a reduction in transaction volumes. With exemptions, the impacts on transaction volumes could be similar to those caused by past changes to property transaction taxes. Recent reductions in the volume of transactions of this scale in the UK have been accompanied by reductions of 0.5% to 3% in average (all market) property prices over the course of the slowdown. These periods had unique housing market conditions, so this comparison can only provide an indication of the scale of potential impact.

Risks from falling property prices: The potential reduction in property prices identified in this report is not expected to be large enough to cause widespread risks of negative equity. However, there is a risk for households with high LTV mortgages, especially owners of low-value homes where the ratio of clean heating upgrade costs to property value is high. This strengthens the case for exempting low-value properties below a certain value.

Introduction

Property prices reflect the balance of housing supply and demand in a housing market. They can also directly influence buyer and seller behaviour as expectations of falling or rising prices have been identified as key considerations in decisions to move home.

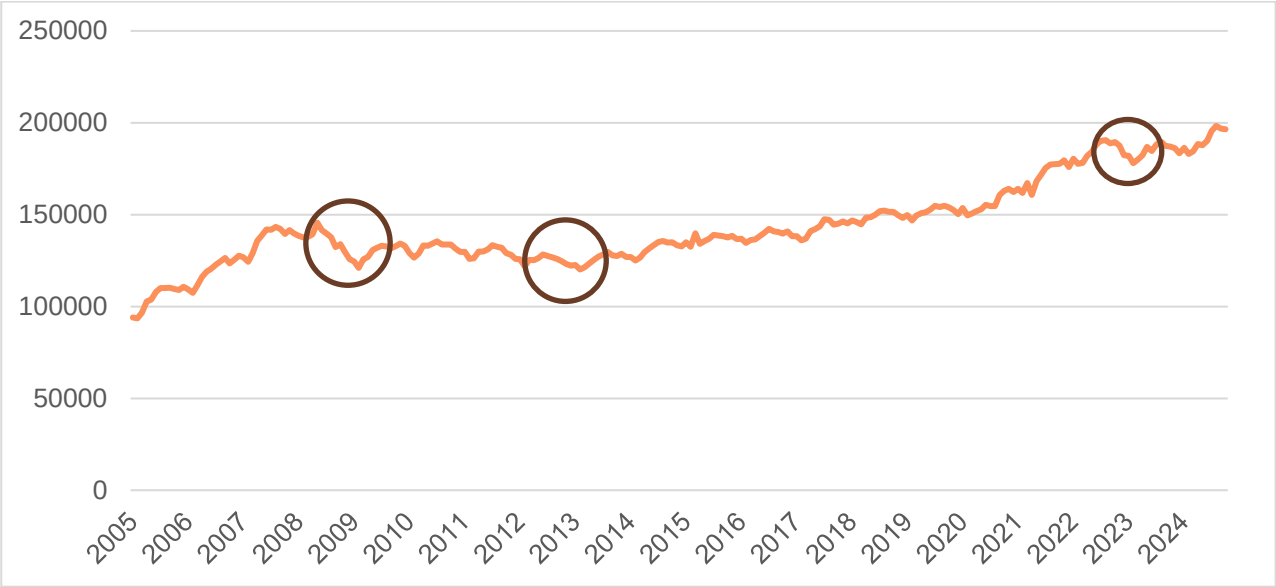
Property prices can have economy-wide impacts, since rising prices drive consumer spending through the release of equity, while falling prices can weaken consumer confidence and spending. Prolonged or significant price falls can also have distributional impacts, leaving some homeowners in negative equity (where the value of a property falls below the size of the mortgage).

Prices are also a key factor in housing affordability. When prices rise faster than wages, households will need to borrow more to buy. The significant property price increases seen in Scotland and the UK over the past 20 years have made housing increasingly less affordable, creating barriers for lower-income households to become homeowners.[84]

Historic context

Property prices in Scotland have increased significantly in the past 20 years, with a very significant drop following the 2007-2008 global financial crisis and a smaller number of shallower declines in the years since[85]. These are illustrated in Figure three below, which plots the average yearly residential property prices.

Figure 3. Monthly average annual property price, Scotland 2005 to 2024



Note: Figure shows average monthly property price; these figures have not been adjusted for inflation.
Source: House Price Statistics - UK House Price Index

The most significant reduction in average prices occurred between 2007 and early 2009, with a reduction of around 10% following the global financial crisis. This led Scotland and the UK into recession in 2008 and 2009, with a severe impact on mortgage lending as lenders sought to secure their financial position. Prices recovered somewhat into 2010 and then stagnated until mid-2013, with average prices falling around 3%.[86] More recently, property prices fell in late 2022 following the Truss Government's September UK 'mini budget' and increases in mortgage rates against a backdrop of rising energy prices and inflation. Average property prices fell by 0.5% between summer 2022 and summer 2023.

[84] Joseph Rowntree Foundation (2023) Reboot: building a housing market that works for all
[85] UK House Price Index. Accessed January 2025
[86] Peak prices in June are compared, to account for the seasonality of the housing market.

Table 7. Previous periods of falling property prices

	Duration of falling prices	Overall reduction in average price	Reduction in peak monthly transactions	Comments
Global financial crisis (2007 to 2009)	c.1.5 years (2007 to 2009)	-10%	-60%	Severe housing market downturn, with large reduction in transaction volumes.
Slow recovery (2010 to 2012)	c.3 years (2010 to 2013)	-3%	-9.5%	Housing market reported to be stagnant rather than in crisis[87].
Rising interest rates (Sept 2022 to end 2023)	c.1 year (2022 to 2023)	-0.5%	-22%	Market slowdown as challenges in mortgage lending accelerated by increasing interest rates[88].

Data sources: UK House Price Index. Overall reduction in average price compares peak/trough of monthly average prices. Peak monthly transactions compare change between June of each year (typically the busiest month for transactions).

Issues raised in the grey literature and interviews

Potential impacts on property prices were identified in the grey literature review and review of similar policies:

- Property prices could fall, creating risks of negative equity and wider economic instability.
- Buyers are increasingly prioritising sustainability and lower running costs. As a result, energy-efficient homes could have higher market value.
- Evidence from other countries suggests that the value of non-compliant properties will be reduced, with the value of compliant properties increasing as a result.
- The size of the price reduction could reflect the cost of the required heating upgrades.

These risks were tested in the stakeholder interviews, which also gathered further feedback:

- Respondents largely agreed that there will be an increase in demand for compliant homes, with reduced demand or prices for non-compliant homes.
- There were a range of views on how property values could be affected, with some arguing that prices would be discounted by the cost of upgrades, and uncertainty about how much these would counteract other factors that determine property prices.
- Interviewees suggested that there is a risk that homeowners may not recoup the cost of retrofit upgrades when selling their homes, particularly for those who move home more frequently.
- When asked about the best-case scenario for property prices, responses ranged from prices reflecting the cost of upgrades, property prices not significantly increasing due to

[87] UK Finance (2019) What's the outlook for Scotland's housing market?
[88] Scottish Government (2023) Scottish Housing Market Review: Q2 2023

grant support from Scottish Government and no change to prices. When asked about the worst-case scenario, responses included a reduction in turnover as properties are no longer affordable for low-income households, older houses not selling, repossession of homes and misinformation for buyers and sellers.
- There were mixed views on the overall risk of negative equity, but agreement that households at high LTV mortgages would be most at risk, including households in both lower and higher-end property price brackets.

Focus of further analysis

After considering the issues raised above, we decided to focus further analysis on the following risks:

- **Reduction in value:** Potential for property prices for non-compliant properties to be reduced (e.g. buyers negotiate discounts).
- **Reduced transaction volumes:** The impact of reduced transaction volumes on property prices.
- **Risks of falling prices:** Risks of falling property prices on individuals (e.g. though negative equity).

6.1 Property values

Potential for a price difference between compliant and non-compliant homes

This study assumes that property prices are likely to adjust in response to the PoP requirement, with a potential reduction in the value of non-compliant properties and a relative increase in the value of compliant properties. However, the size of the price changes is very uncertain and likely to vary between properties and geographic areas. For example, the effect could be more pronounced in areas of low demand where buyers are better able to negotiate on price.

An aggregate reduction in property prices was cited as a potential impact in the grey literature and supported by a review of similar (albeit smaller scale) policies introduced in other countries (outlined in the appendix). A large body of literature[89] has examined the potential impact of energy efficiency on property prices, with many studies finding a positive correlation between higher energy performance ratings and sales/rental prices.[90] Some describe a 'brown discount' for lower rated properties and a 'green premium' for higher rated ones.[91,92]

A similar effect has been reported for heat pumps, with a recent study finding that homes with a heat pump in England and Wales commanded sales prices of between +1.7% to +3% higher than other homes.[93] However, there is no consensus in the literature on what drives these price changes and whether the green premium or brown discount is stronger. There is also disagreement on the ability of statistical methods to control for the variety of the other factors that

[89] Hoeller, P., et al. (2023), "Home, green home: Policies to decarbonise housing", *OECD Economics Department Working Papers*, No. 1751, OECD Publishing, Paris
[90] Taruttis, Weber (2022) "Estimating the impact of energy efficiency on housing prices in Germany: Does regional disparity matter?" Energy Economics, Volume 105
[91] Wilkinson & Sayce (2020) Decarbonising real estate: The evolving relationship between energy efficiency and housing in Europe Journal of European Real Estate Research, Vol. 13 No. 3, pp. 387-408
[92] Royal Institute of Chartered Surveyors (2019) Insights into energy efficiency and residential values
[93] WWF & Scottish Power (2023) Better Home, Cooler Planet Report

influence property prices.[94] While there is agreement that there can be some effect, this can be context-dependent and influenced by other such as local supply, demand for housing,[95] and individual buyer preferences.

Most relevant to this study is analysis from the Netherlands and England of the impact of mandatory energy efficiency standards, introduced for commercial buildings, on property and rental prices. In both cases, the regulations were found to have led to decreased sales prices and rents for non-compliant properties, and increased values for compliant properties. Both studies explore the price difference between compliant and non-compliant properties, with price changes in the Dutch study primarily driven by reductions in the value of the least compliant properties.[96,97] This could be explained by several factors, such as higher/lower demand for certain properties or buyers negotiating lower prices for less desirable or non-compliant properties. In both cases, non-compliant properties were a small minority of the overall property stock in comparison to compliant properties.

These findings were mirrored in the stakeholder interviews, with most agreeing that property prices would likely reflect compliance with the PoP requirement, for example as buyers factor the cost of upgrades into their property purchase bids. However, views were split on the extent of the changes. Some interviewees felt that compliant properties would not necessarily increase in value. Others argued that other factors, such as location, local demand, would remain more important. This could especially be the case in areas of high demand where buyers are competing.

Changes to property values are an intended effect of the PoP proposal, since one of its aims is to reward homeowners that make clean heating upgrades by enabling them to recoup these costs through higher values. In the absence of regulation, the value that clean heating brings to a property would depend on individual buyer preferences and therefore would likely not be fully priced in the marketplace. Regulation can help ensure that it is valued by all buyers and priced into transactions. In the future, purchase decisions may also be based on property running costs, as EPCs and other tools make these clearer. If clean heating becomes significantly cheaper than fossil fuel heating, this could reduce the size of discounts applied to non-compliant homes by property purchasers.

What aggregate impact could discounts have?

The extent of price reductions on non-compliant properties will vary between properties and the overall impact is beyond the scope of this analysis to accurately predict. However, it is possible to provide a sense of scale of what the aggregate impact of these reductions could be. Table 8 shows the change to the average property price in Scotland after applying high and low levels of discount (a 25% and 75% reduction on property price) to the price of non-compliant properties, in scenarios with and without upfront grants. It is assumed that the price of compliant properties remains static which the authors consider a cautious assumption.

[94] Nesta (2024) How to make heat pumps more affordable
[95] Lloyds Bank. How does mortgage interest work? Accessed February 2025.
[96] Real Estate Research Institute (2024) The Impact of Minimum Energy Performance Standards on the Commercial Real Estate Market
[97] Akhtyrska & Fuerst, (2024) "The effectiveness of climate change regulations in the commercial real estate market" Energy Policy, Volume 185, 2024

Table 8. Potential change to the average property price in Scotland (using 2023/24 sales data)

	With Grants	No Grants
Reduction: 25% of clean heating cost on non-compliant properties	-0.2%	-0.8%
Reduction: 75% of clean heating cost on non-compliant properties	-0.5%	-1.3%

Note: This shows the change the average property price in Scotland after reducing the purchase price of non-compliant properties by 25% and 75% of the assumed cost of clean heating upgrades (see section 2.4). Exemptions are applied as outlined in section 2.3. Average price change across all properties (compliant and non-compliant). Source: Changeworks analysis using Registers of Scotland 2023/24 data.

The results in Table 8 provide an indication of the scale of change that could occur to average property prices at a national level, assuming prices for non-compliant properties are reduced and prices for compliant properties remain static. The maximum impact on the average property price would be a 1.3% reduction in a scenario with no upfront grants and a large reduction to each property (equivalent to 75% of clean heating upgrade costs). This falls to a 0.2% reduction with upfront grants and smaller price reductions of 25%. These results assume that 16% of annual transactions are eligible for the PoP, as per the scenarios assessed in section 3. When fewer low-value homes are exempted (with ~37% of transactions remain subject to the PoP) the average price falls by 1.5% (assuming a 75% price reduction and no grants).

This basic analysis suggests that the aggregate impact of price reductions is unlikely to be significant, given the ratio of clean heating costs to average property values and the number of transactions likely to be eligible for the PoP requirement. In practice, the scale of discounts and premiums will vary according to the balance of housing supply and demand and the availability of compliant and non-compliant properties, which will change over time.

6.2 Impact of transaction volumes

The volume of transactions helps determine property prices, with the effect being more pronounced in constrained housing markets (e.g. where supply cannot easily be increased).[98] Section 4 identifies that the PoP could reduce transaction volumes by creating a disincentive to move, raising questions about its potential impact on property prices.

The cost of upgrades may dissuade some households from moving in a similar, if inverse, way that reductions in property transaction taxes in the UK led to 8% to 19% increases in the annual volume of transactions. Limiting clean heat installation costs to around 2% of a property's value is estimated to, in turn, limit the impact on transaction volumes to a similar range as past changes to property transaction taxes in the UK, which saw volumes increase by 8% to 19% over the duration of the tax change (typically 1 to 1.5 years).

[98] Clayton, Jim & Miller, Norm & Peng, Liang (2009) Price-Volume Correlation in the Housing Market: Causality and Co-Movements. The Journal of Real Estate Finance and Economics. 40.

Past reductions in the volume of transactions of this scale in Scotland have been accompanied by reductions of 0.5% to 3% in average (all market) property prices over the course of the downturn. This includes the 2010-2012 slow recovery from the global financial crisis and rising interest rates in late 2022. These periods had unique housing market conditions, so this comparison is only intended to provide a sense of the scale of potential impact.

6.3 Risks from falling prices

Concerns were raised in the grey literature that property prices could fall as a result of the PoP requirement, causing issues such as negative equity. This occurs when property prices fall below the owner's outstanding mortgage amount. If a property is found to be in negative equity at the point of sale, then the owner would be dissuaded from moving since they would have to sell at a loss, with reduced equity to use against their next purchase. If a property falls into negative equity during the remortgaging process, it would likely attract a higher rate of interest, which can add pressure to a households' finances and could ultimately lead to repossession if households are unable to continue monthly debt repayments.

Interviewees had mixed views on the overall risk of negative equity, likely due to the uncertainty around impacts on property prices. However, there was agreement that households at high LTV mortgages would be most at risk. In the past, widespread occurrences of negative equity have typically occurred following major shocks to the housing market, such as after the global financial crisis.[99] The scale of some potential impacts to property prices identified in this report are not of the same order of magnitude as the changes that occurred after this shock. For example, this study estimates reductions in average property prices of 0.5% to 3% (due to reduced transaction volumes) and 0.2% to 1.3% (from price reductions to non-compliant properties). Whilst these are far short of definitive and sophisticated estimates, they suggest that, with mitigations (grants and exemptions), the scale of impact is unlikely to lead to widespread issues of negative equity.

Risks for some households

While the risk of widespread negative equity may be small, there remains a risk for households with high LTV mortgages. For example, a household with an LTV of 95% risks falling into negative equity if the property value reduces at all.

UK-wide data[100] shows that in the last year, 5% of new lending was at LTV ratios of over 90%. Risks will be particularly acute for owners of low-value homes where the ratio of upgrade costs to property value is high. Analysis in section 4.1 shows that upgrade costs could exceed a hypothetical cap of 2% of property value for properties below £145,000. This could result in relatively large reductions of sale prices if buyers are able to negotiate discounts. In this scenario, sellers may find themselves unable to find a suitable home with the reduced funds from their sale, or they could find themselves in negative equity if this discount is applied in a future valuation (e.g. when remortgaging). This risk strengthens the case for exempting low-value properties as discussed in sections 4.2 and 5.1.

[99] The Guardian newspaper (2009) 900,000 homeowners pushed into negative equity, says mortgage body
[100] Bank of England (2024) Mortgage Lenders and Administrators Statistics - 2024 Q2

7.Conclusion

This study has identified several benefits of the PoP proposal, including:

- Targeting households that are more likely to be able to afford clean heating upgrades
- Enabling households to access cheaper finance
- Encouraging action at a time when many carry out renovations
- Scaling demand for clean heating gradually over time.

The largest disadvantage of the PoP is its potential impact on the housing market, since it would necessarily change the value of properties in relation to the presence of clean heating. This research indicates that the policy could have a moderate but manageable impact, with potential reductions in transactions and price adjustments for non-compliant properties. However, these effects would be within the range of historical market fluctuations and could be limited through upfront grants and exemptions for low-value properties.

This study has relied on an evidence review, stakeholder interviews and limited analysis based on comparisons of property values, transaction volumes and clean heating costs. Further analysis is required to determine what an optimal ratio of clean heating installation cost to property value would be given other costs and benefits and impacts on the housing market. Thresholds for exemptions and levels of grant subsidy would benefit from more granular analysis than was possible in this study. Finally, it was only possible to consider market impacts at a national (e.g. Scotland) scale, and further analysis could explore potential impacts at a regional level, given disparities between some very active housing markets (e.g. parts of Edinburgh and Glasgow) and those that are less active (e.g. Aberdeen, some rural areas).

7.1 Policy recommendations

The evaluation of housing market impacts provides insights into how to design the PoP to avoid disproportionate effects.

Establish a minimum property value threshold for exemption. Exempting properties below a given threshold could reduce disproportionate impacts on the lowest value properties. For property where upgrade costs as a proportion of value would be highest, PoP could impact property prices, mortgage lending and could disincentivise home moves. Based on a hypothetical cap of cost to property value of ~2%, this analysis has modelled a minimum threshold of £145,000. In the short term, the exemption could be extended to higher value properties (in this analysis up to £250,000). This would also give the supply chain and housing market time to adjust to the policy through a more gradual introduction. However, this should be on a time limited basis given the lower risks faced by properties in this tax band and the reduction to clean heating installations that would result.

Provide additional financial support for first-time and other low-equity buyers. Without additional support, in addition to upfront grants and exemptions, a small minority of households

could still see their mortgage borrowing impacted. Additional support could take the form of support for lenders to provide mortgages beyond 95% LTV or low or interest-free loans.

Improve information on clean heating installation costs. Households will require robust and property-specific information on clean heating installation costs for use in property purchase decisions. Options include online tools or the inclusion of typical upgrade costs in Home Reports. Alternatively, a cost-cap could provide greater certainty on maximum upgrade costs but has challenges in terms of design and fair enforcement.

Work with lenders to adapt mortgage practices. The inclusion of upgrade costs within mortgages is a key benefit of the PoP proposal, but the widespread inclusion of clean heating upgrade costs is likely to imply wider changes to mortgage practices. Engaging lenders will be important, especially to help clarify if and how PoP compliance could be factored into mortgage conditions.

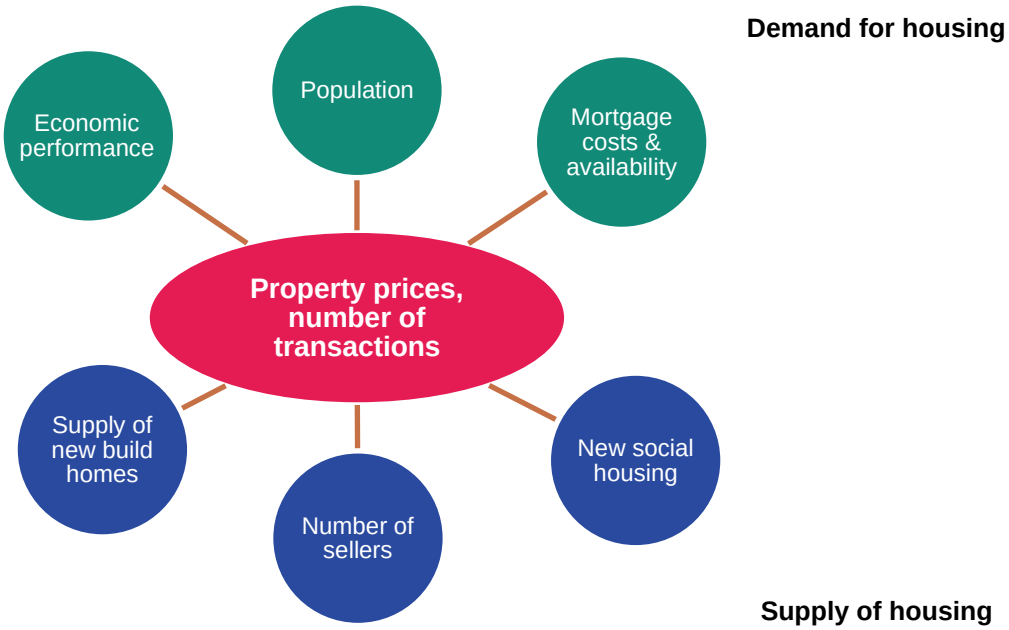
Ensure that any cost-cap introduced are clearly defined and minimise loopholes. This study has found several cases where a cost-cap could be useful: (1) to provide clarity to home buyers (and the home moving supply chain) about the maximum cost of upgrades that they could face, and (2) as an extra protection to avoid upgrade costs being a high proportion of property value, for example where a home has unusually high costs. However, more evidence is required as to the scale of this risk to understand if some types of home (e.g. unusual and harder to treat) could have higher costs than those assumed in the upgrade cost scenarios outlined in this report. Designing and implementing a cost-cap presents challenges. An additional administrative mechanism would need to be created to set and monitor the cap, in comparison to exemptions based on property value that could be designed using the existing property transaction tax thresholds. There are also risks of a cap being exploited as a loophole (e.g., households inflating costs to claim an exemption). Similarly, if PoP compliance were enforced through financial penalties, those penalties could effectively function as a cost-cap (e.g. the penalty could be set at the same level as a cost cap would be).

Finally, beyond the HIBB itself, it will be essential for government to reduce clean heating costs. Upfront grants will continue to be needed to reduce the ratio of clean heating installation costs to property value and ensure that households benefit from lower whole-life costs (considering both upfront and running costs) after switching to clean heating. The UK Government should also act to reduce the running costs of heat pumps by reforming levies and the electricity market to ensure clear benefits to households and to avoid increases in heating bills impacting on mortgage repayments.

Appendix. Housing market framework

A brief review the housing market and its structure was carried out to help structure the analysis. Economic analyses focus on house prices as the key indicator of supply and demand. Key factors affecting supply and demand are illustrated in Figure 4:

Figure 4. Simple model of the housing market



Key factors affecting demand for housing include:[101]

Availability of credit and mortgage costs: Most homes are bought with a mortgage, and interest rates will therefore affect households' spending power. Rising interest rates will make lending more expensive and reduce demand. The amount that banks and other lenders are willing to provide reflects their appetite for risk and will be reflected in the terms that they provide. This is especially the case for higher risk lending where borrowers have low amounts of equity compared to the size of borrowing. The PoP requirement could impact on mortgage lending since the intention is to encourage households to use mortgage lending or equity to pay the cost of clean heating upgrades.

Other key factors that influence the demand for housing include **economic performance** (and in particular household income and employment) and **population** changes. Areas with more rapidly growing population (typically urban areas) will see higher demand for housing, which can lead to rising house prices.

[101] Supply and demand: the housing market – The Sloman Economics News Site

Key factors affecting the supply of housing include:

Number of sellers: this is affected by households' ability to move (influenced by levels of income, credit availability) and willingness to move.[102] For example, some moves will be due to life changes (e.g. a growing family, downsizing) whilst others will be more discretionary and affected by factors such as property prices and economic expectations. The ratio of buyers to sellers can impact on property prices, and high demand for housing in an area can push prices up as buyers compete to secure homes. The PoP could affect the number of sellers by acting as a disincentive to move, supressing demand, or slowing transactions down.

Other factors that influence the supply of housing are construction sector activity and the transfer of homes between the rented and owner-occupied sectors. New build homes account for around 10% of annual property transactions in Scotland.[103]

Areas of focus

The outline of the housing market above is far from exhaustive but provides a simple framework from which three aspects of the housing market were selected as the focus for this project:

- The volume of transactions
- Mortgage lending
- Property prices

The volume of transactions and property prices are typically discussed in analyses of housing market performance, and mortgage lending was highlighted as a significant area of concern in the grey literature.

[102] Bank of England Discussion Paper No. 49
[103] Property market report 2023-24 - Registers of Scotland

Appendix. Grey literature review

Summary of method

The literature review summarises the potential impacts on the housing market of the HIBB proposals, pros and cons of the proposed approach and alternative policy suggestions. This involved consulting media sources, principally ‘The Telegraph’, ‘The Herald’ and ‘The Times’ and a review of 20 of the HIBB consultation responses from stakeholders involved in the housing market. Scottish Parliament debates and questions were briefly examined.

Summary of findings

The viewpoints identified are summarised in Table 1. The consultation responses were supportive of HIBB’s goal to decarbonise homes through the wider rollout of clean heating. However, many were concerned about potential impacts on the housing market. One major concern was falling property prices, leading to risks of negative equity and ‘mortgage prisoners.’ A decrease in property transactions could further dampen prices and economic activity, including new home construction. Tighter mortgage lending, especially for first-time buyers (FTBs), could limit market participation and impact property prices. There were also concerns that private landlords might exit the market, increasing pressure on the rented sector. Overall, uncertainty about the policy would dampen market confidence.

Alternatively, some argued that the point of sale is a good time to encourage investment in retrofitting homes and that using the equity within property values is a fair way to secure the required investment given the significant rise in property values over the past two decades. Similarly, others suggested that implementation of HIBB would provide businesses with certainty and lead to more investment and expansion in clean heating and retrofit sectors. Finally, some suggested that buyers will increasingly prioritise sustainability and lower running costs. As a result, energy-efficient homes would have higher market value.

Concerns were also raised regarding impacts on some types of buyers and properties. The cost of upgrades may make it more difficult for potential first-time buyers to enter the market because it reduces their spending power. People who move frequently may face repeated costs to comply. Mortgage rates could rise for certain property types, such as heritage homes or those requiring extensive retrofitting, and some homes may become un-mortgageable. Some sources were worried that any increases in energy bills after clean heating system upgrades could worsen challenges with housing affordability. There was strong support for the continuation of financial support to help households meet the costs of compliance.

Other relevant issues included a potential divergence between Scotland and the rest of the UK. The HIBB could lead to higher mortgage rates in Scotland, at least partly due to potential costs for the creation of bespoke Scottish lending models. One story noted that different regulatory systems between Scotland and the rest of the UK risks breaching the UK Internal Markets Act, which previously destabilised the Scottish deposit return scheme.

Several alternative or complementary policies were proposed, such as boiler replacement as a trigger point, a boiler scrappage scheme, debt tied to the property rather than the individual, and financial support for homeowners.

There was a notable degree of confusion regarding the specific policies. Many comments assumed that the energy efficiency component of the HIBB standard would be implemented at the point of purchase (rather than solely the clean heating requirement) and that homes that do not comply with the standard could not be sold. This highlights the importance of clarity about the regulation from the Scottish Government.

Figure 5: A key to show how frequently each topic area was mentioned in the grey literature.

Mentioned ≥ 10 times	
Mentioned between 5 - 9 times	
Mentioned between 1 - 4 times	

Table 9: Potential positive and negative impacts of the HIBB on the housing market.

Housing market impacts	Positive/ Negative	Frequency
Property prices could fall, creating risks of negative equity and wider economic instability.	Negative	≥ 10 times
Slowdown in property transaction volumes, as home buyers are put off moving or are unable to (e.g. upgrades are seen as expensive or are unaffordable).	Negative	5 - 9 times
Mortgage lending reduces (e.g. to certain groups like first time buyers, FTBs) then impacting volume and potentially price.	Negative	
Private landlords could leave the market (by selling) putting more pressure on private rented stock.	Negative	
It could create new 'mortgage prisoners' if the owners of non-compliant homes are unable to sell by law.	Negative	1 - 4 times
Need to create bespoke mortgage valuation models in Scotland, cost would likely fall to consumers.	Negative	
New build construction will slow.	Negative	
Implementation of the bill could encourage investment and expansion in the sector.	Positive	
Increase in market value for compliant properties, discount applied to non-compliant ones.	Neutral	
Impacts on individuals/types of home, relevant to housing market		
Higher mortgage rates for some homes, such as hard to treat/heritage homes, some could become un-mortgageable.	Negative	≥ 10 times
First time buyers spending power could be further reduced, exacerbating challenge of getting onto the housing ladder.	Negative	1 - 4 times
People who move often may be required to pay for upgrades more than once.	Negative	
Affordability of mortgage repayments at risk if heating costs go up as a result of heat decarbonisation.	Negative	
Limitations of the heating installation supply chain could impact on households' ability to meet regulations.	Negative	

Other relevant considerations		
Economic impacts of regulatory uncertainty dampening housing market.	Negative	1 - 4 times
Divergence between Scottish and UK housing markets may breach UK Internal Markets Act, which previously destabilised Scottish deposit return scheme.	Negative	
Recognized as a fair way to fund the transition for homes given the large increase in property values over the past 20 years.	Positive	
Reduced property transaction activity negatively impacts related sectors of real estate, renovation and new home construction.	Negative	
Alternative policy suggestions		
Grants and Financial Support – respondents also highlighted the need for support, guidance, stable regulation, and a consistent UK-wide approach	Neutral	5 - 9 times
Phase out like-for-like gas boiler replacements (e.g. end new installations and require the installation of clean heating systems instead).	Neutral	1 - 4 times
Gas and oil boiler scrappage scheme – better intervention point	Neutral	
Property-linked finance: Debt linked the property rather than the individual – This means that if an owner only had the property for a short time, they would only pay a proportional percentage of the cost, and the remaining debt is repaid by incoming buyers.	Neutral	
Repair of existing heating equipment to avoid unnecessary embodied carbon costs of replacement	Neutral	

List of references used in the grey literature review

Barratt Developments PLC (2024) "Proposals for a Heat in Buildings Bill: Consultation, Published Responses"

Building Societies Association (2024) "Proposals for a Heat in Buildings Bill: Consultation, Published Responses"

Chartered Institute of Building (2024) "Proposals for a Heat in Buildings Bill: Consultation, Published Responses"

East Dunbartonshire Council (2024) "Proposals for a Heat in Buildings Bill: Consultation, Published Responses"

ESPC (UK) Ltd (2024) "Proposals for a Heat in Buildings Bill: Consultation, Published Responses"

Holyrood Magazine (2024) "Home heating legislation 'absolutely essential' to meet multi-billion cost of net zero targets"

Home for Scotland (2024) "Proposals for a Heat in Buildings Bill: Consultation, Published Responses"

Law Society of Scotland (2024) "Proposals for a Heat in Buildings Bill: Consultation, Published Responses"

Local Government Authority (Individual response) (2024) "Proposals for a Heat in Buildings Bill: Consultation, Published Responses"

Nationwide Building Society (2024) "Proposals for a Heat in Buildings Bill: Consultation, Published Responses"

Property Energy Professionals Association (2024) "Proposals for a Heat in Buildings Bill: Consultation, Published Responses"

Propertymark (2024) "Proposals for a Heat in Buildings Bill: Consultation, Published Responses"

Registers of Scotland (2024) "Proposals for a Heat in Buildings Bill: Consultation, Published Responses"
RICS (2024) "Proposals for a Heat in Buildings Bill: Consultation, Published Responses"
Scotland Excel (2024) "Proposals for a Heat in Buildings Bill: Consultation, Published Responses"
Scottish Association of Landlords (2024) "Proposals for a Heat in Buildings Bill: Consultation, Published Responses"
Scottish Financial Enterprise (2024) "Proposals for a Heat in Buildings Bill: Consultation, Published Responses"
Scottish Government (2024) "Heat in Buildings: letter to Minister"
Scottish Lands and Estates (2024) "Proposals for a Heat in Buildings Bill: Consultation, Published Responses"
Scottish Property Federation (2024) "Proposals for a Heat in Buildings Bill: Consultation, Published Responses"
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The Herald (2023) "Ewing leads MSPs call to Harvie to drop heat pump plan for rural homes"
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The Telegraph (2021) "Heat pump cost could be added to mortgages to hit net zero"
The Telegraph (2023) "Net zero drive risks making housing crisis worse, Sunak told"
The Telegraph (2023) "Scots could be 'fined' with tax rises if don't fit heat pumps"
The Telegraph (2023) "Telegraph readers denounce the Government's plan to ban oil boilers, exclusive poll reveals"
The Telegraph (2024) "Miliband vows to scrap 2035 Tory ban on new gas boilers"
The Times (2020) "That poorly insulated home may leave you in a mortgage trap"
The Times (2021) "No more mortgages on homes with low energy efficiency ratings"
The Times (2023) "Mandatory clean heating systems a 'ticking time bomb', Tories warn"
The Times (2023) "What does the EPC U-turn mean for landlords and homeowners?"
The Times (2024) "'Only the rich can afford to make their homes greener'"
The Times (2024) "Green heating rules will create mortgage prisoners"
The Times (2024) "Patrick Harvie's boiler plan risks 'material shock' to housing market"
UK Finance (2024) "Proposals for a Heat in Buildings Bill: Consultation, Published Responses"

Appendix. Review of similar policies

Five examples of mandatory regulation regarding energy upgrades to homes and buildings were identified from the UK, Netherlands and France. These were reviewed for evidence of impacts on property prices, transaction volumes and mortgage lending. The findings are summarised in Table 10 below. Key findings from this review are:

- Comparisons of property prices before and after regulation is announced or introduced show that prices for non-compliant properties fall relative to compliant ones.
- The limited evidence available suggests that discounts applied to non-compliant properties are greater than the premium added to compliant ones.
- The impact of property price changes is likely to vary across the market, with other factors such as local market conditions (e.g. 'hot' or 'cold' markets) also having an impact.
- The discount applied to non-compliant properties is likely to be based on the cost of upgrades and/or a surveyor's evaluation of future risk to property value. The effect will vary according to local market conditions (e.g. demand and the degree of competition between buyers).
- Price changes may take effect from the date the standard is announced or legislated, as market actors begin to adjust their behaviour in advance of mandatory deadlines.
- There is evidence that financial institutions will adjust mortgage lending strategies, for example by limiting lending to non-compliant properties.
- The availability of workforce to undertake building surveys and assessments can cause bottlenecks and impede transactions where building owners and lenders are unable to obtain documentation that proves compliance with standards.

Table 10. Lessons from other mandatory regulations affecting existing properties

Policy	Impact on prices / rents	Transaction volumes, mortgage lending	Effectiveness
Netherlands, non-domestic private rentals: since 2023 office buildings >100m2 must be EPC C; the use of lower banded properties as offices is illegal and subject to sanction.[104] The policy was announced in 2018.	Statistical comparison of property prices before and after the 2018 announcement (using sales data from 2010 to 2022) found that after the announcement, properties with a rating of C or above experienced a 20% increase in value per m2 relative to the price for properties below the standard. The biggest		Absolute and relative increase in volume of buildings improved after announcement of regulation in 2018. Pricing in of energy efficiency has taken place for many buildings despite the lack of a clear enforcement mechanism. Overall compliance is moderate – by early 2024

[104] Savills (2019) Savills Blog | What investors need to know about the upcoming Dutch building regulations

	relative change affected properties rated G or below which experienced a 40% decrease in value.		60% of buildings comply with the regulation.
England & Wales domestic private rentals: it is illegal since April 2020 for private landlords to grant new leases for homes with an EPC rating of E or lower.		No empirical analyses available.	Evidence suggests a positive impact on energy efficiency of PRS homes and high compliance.[105]
England & Wales non-domestic private rentals: Announced in 2011 and implemented in 2018. Landlords banned from granting new tenancies for properties below an EPC rating of E. Extended to F and G rated properties in 2023.	Statistical comparison of property transaction data[106] in London before and after the announcement/ implementation of the policy found that rents for non-compliant properties fell 6%-8% compared with compliant properties. Quantitative research[107] suggests that discounts for non-compliant properties based on evaluation of risk to future rents or potential capital expenditure to become compliant.	Some financial institutions have adjusted their lending (e.g limited or no lending for non-compliant properties).[108]	Significant reduction in the number of non-compliant properties on the market following policy implementation.[109] Research[110] suggests high compliance by multi-building and corporate landlords, less so amongst smaller landlords. Very low levels of enforcement reported due to lack of institutional capacity (local authorities).
France, domestic private rentals: since 2022 private landlords cannot grant new leases for homes with an EPC F or G rating, and from 2028 will be banned from increasing rents for these properties.	Property transaction data shows large increase (17% in 2023) in the number of non-compliant properties put up for sale, with a 6% median price reduction for these homes and a 1% to 2% premium for some homes with higher EPC ratings.[111]		Other factors are likely influencing prices and landlord decisions to sell, such as higher interest rates since 2022. The policy is apparently driving improvements: 32% of landlords report making upgrades.[112]
Combustible cladding, UK: building standards were updated following the Grenfell fire tragedy to	The value of properties where remediation works required (and to be paid by leaseholders) was affected	Initially prevented all sales of potentially affected flats in	Raised awareness of potentially dangerous buildings but lack of capacity in the surveyor

[105] UK Government (2021) "Evaluation of the Domestic Private Rented Sector Minimum Energy Efficiency Standard Regulations" Technical Annex
[106] Akhtyrska & Fuerst, (2024) "The effectiveness of climate change regulations in the commercial real estate market" Energy Policy, Volume 185, 2024
[107] Sayce & Marji Hossain (2020) "The initial impacts of Minimum Energy Efficiency Standards (MEES) in England". Journal of Property Investment & Finance, Vol. 38 No. 5, pp. 435-447
[108] Ibid
[109] Ibid
[110] UK Government (2021) Non-Domestic Private Rented Sector Minimum Energy Efficiency Standards research
[111] Valeur verte des logements : la part des logements énergivores vendus | Notaires de France
[112] Passoires thermiques : les mises en vente explosent et l'offre locative s'amoindrit | L'immobilier par SeLoger

make use of combustible cladding illegal in new and existing multi storey buildings.	by the cost of these upgrades.[113]	2018 with issues still ongoing today.	supply chain caused severe delays to buying/selling of at-risk properties.

[113] RICS (2023) Valuation approach for properties in multi-storey, multioccupancy residential buildings with cladding

Appendix: Householder journey

The table below illustrates how the purchase of a home *could* work under the PoP proposal. This was developed at the outset of the project and tested during the stakeholder interviews; the table below represents the assumptions of Changeworks and a wider group of stakeholders.

Step in the property purchase process	Changes due to the PoP requirement
1. Initial property search	• EPC certificate should notify if a property meets PoP requirement.
2. Arrange in principle mortgage, appoint a solicitor	• Borrowers at high LTVs (e.g. 90%-95%) wishing to add upgrade costs to mortgage may need to factor this in at the outset. • In future, in principle mortgage offers could include different scenarios for purchase of compliant/non-compliant property (e.g. adjusted LTV, interest rate).
3. Find property, make an offer	• Price negotiation may take place for non-compliant properties (e.g. discount for part/all expected upgrade costs). • In future, Home Report valuations could include cost of upgrades, should clean heating costs become more standardised between properties. • Solicitor may need to do increased research into the property to inform a purchase offer that includes upgrade costs.
4. Finalise mortgage	• Mortgage will need to reflect cost of upgrades where buyer wishes to hold back equity from current property or borrow additional funds. • Buyers incorporating upgrade costs into their mortgage and who are reliant on Government grants/loans to keep within LTV limits may need to receive firm offer of support to finalise mortgage. • This could be the point at which conditions for buying a non-compliant property are applied (e.g. agree to make upgrades within specified grace period).
5. Conveyancing	• PoP compliance: solicitor will need to advise of grace period. • Buyer's solicitor may need to have increased contact with seller's solicitor to understand liabilities, if their lender with cover this extra work etc.
6. Settlement Ownership transfers, transaction registered, taxes and fees paid.	• Grace period to meet PoP requirement begins.

	• Receive a letter from Government notifying that new home purchase has been identified as eligible for PoP requirement.
7. Post Purchase	• Submit updated EPC showing work has taken place (or) receive notice of enforcement (e.g. fine) and terms of this and/or support organisation (e.g. Home Energy Scotland).

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