



Incentivising Owner Occupiers and Residential Landlords to Undertake Retrofit in the UK

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Abstract: In 2022, owner occupiers and private landlords are insufficiently attracted to the retrofit proposition. These sectors represent approximately 82% of the UK housing stock and contribute an estimated 25% of the UK's total carbon footprint. Through secondary research, the advantages and disadvantages associated with retrofit are reviewed in detail alongside a range of important factors, including policy and industry guidance.

Through literature research, 17 financial models that could be used to incentivise retrofit are defined. These models can be allocated into the following four categories: government financing, borrowing, taxation, and 'All-in Rental Agreements'.

In response to a defined list of advantages, disadvantages, case-specific variables and financial models, quantitative data is gathered from 115 owner occupiers and private landlords. As well as providing a clear 'hierarchy of preference' within these two sectors, the results provide valuable insight into 'knowledge and opportunity' and 'affordability and financial motivation'.

Keywords: Retrofit, incentive, landlord, homeowner, net-zero.

1. Foreword

This short paper is submitted in support of an extensive research dissertation. Only headline extracts, conclusions, and recommendations are included within this summary paper. The full dissertation can be made available upon request.

2. Introduction

In the UK, 30% of homes are expected to be in fuel poverty by the end of 2022. In 2019, the UK domestic sector consumed approximately 480TWh of energy (LETI, 2021). This represents 30% of the UK's total carbon footprint. Of this total, at least 78% can be attributed to space heating and water heating alone (BEIS, 2020).

In 2021, there were approximately 28.1million homes in the UK, 82% of which were either owner occupied or privately rented. It is estimated that up to 25% of the UK building stock is constrained and hard to decarbonise. If electric heating systems were installed within the remaining 75% of UK dwellings with only limited fabric improvements, consumption from the UK domestic sector would reduce from 480TWh to 202TWh. This represents a 58% reduction in energy consumption and a 91% reduction in carbon emissions (LETI, 2021).

Across the UK, a total carbon reduction of 78% is targeted by 2035, compared with 1990 levels. Therefore, a transition to low carbon heating would enable the built environment to meet these targets. In July 2022, the average cost of electricity was approximately four times

higher than the cost of gas. This means that the transition away from gas would result in higher energy costs for the vast majority of UK homes, unless consumption is firstly reduced. Based on secondary research, the impact of different levels of retrofit is summarised at Figure 1 below. The chart below assumes a typical 'pre-retrofit' Energy Use Intensity of 214kWh/m².

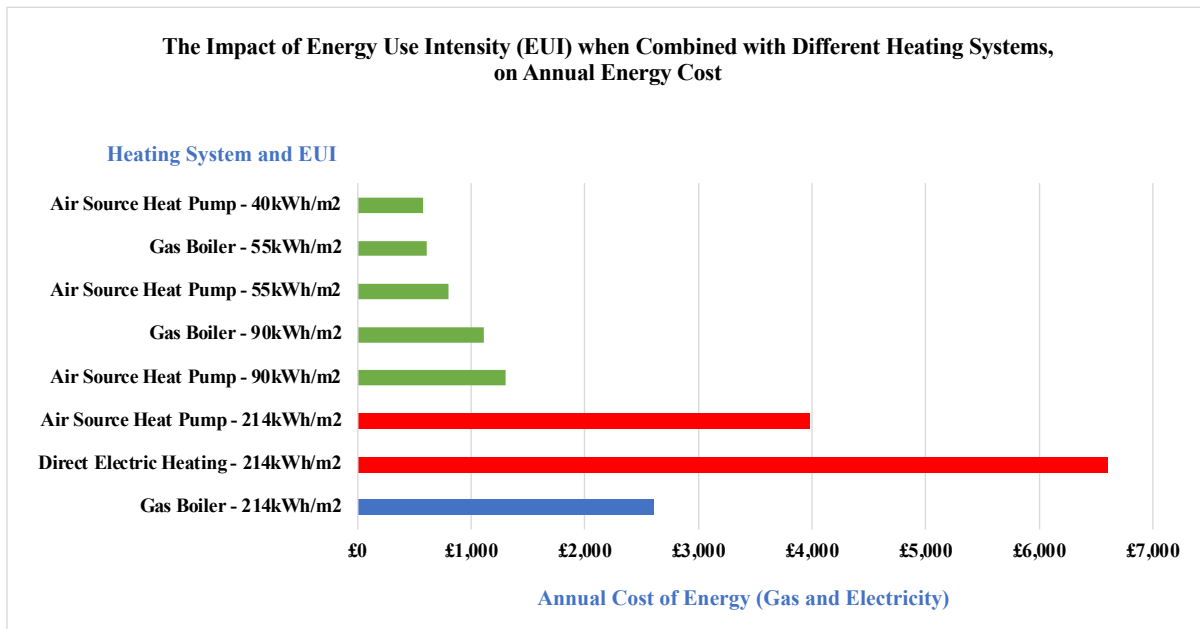


Figure 1 - The impact of EUI and heating system on annual energy cost

3. Literature Review Summary

An extensive literature review has been undertaken, with a focus on the following four areas: background and context, heat pumps and fabric-first, advantages and disadvantages of retrofit, and standards, incentives, and funding.

Based on secondary research, the appropriate amount that should be spent on retrofit is considered to be between £207 and £600 per square meter (based on Gross Internal Area). It should however be noted that deep retrofit can cost significantly more than this, at up to £1,200 per square meter. Based on the lower range of cost, it is estimated that retrofit will cost the UK between £525billion and £1.5trillion over the next 27 years. This equates to between £19.4billion and £55.6billion per year. By comparison, the cost of NHS staff was approximately £56.1billion in 2019 (Kingsfund, 2022). The UK government must acknowledge the shortfalls of their respective funding schemes. That said, where low income and fuel poor homes are not the target, it is acknowledged that taxpayer funding should not be the primary source of finance for retrofit. Private investment is essential and green financing solutions must become more widely available in the UK. Furthermore, a reform of fiscal policy is needed which targets those that are 'able to pay'.

A successful incentivisation strategy must be supported by an attractive and viable financial model. By assessing 56 available solutions against a set of criteria, a shortlist has been determined containing 17 financial strategies. These strategies are listed in Table 1 below.

Table 1 – Shortlist of financial strategies

Government Funding	
1	Energy Company Obligation (Phase 4)
2	Local Authority Decarbonisation Scheme (Phase 3)
3	Home Upgrade Grant (Phase 1)
4	Building Upgrade Scheme
5	EU 'Energy Transition Tax Credit' Grants – Capped Grants Covering up to 40% of Eligible Retrofit Costs
Borrowing	
6	Property Assessed Clean Energy (PACE) Financing
7	Help to Green Equity Loan
8	Demand Aggregation Financing
9	Secured and Unsecured Financing (Green Mortgages etc.)
10	EU Low Interest Loans – Between 0-2.4% Interest
Taxation	
11	Domestic Energy Efficiency Salary Sacrifice Scheme (VAT and National Insurance Tax Reductions)
12	Stamp Duty Land Tax (SDLT) Reductions
13	Council Tax
14	Capital Gains Tax
15	Income Tax & Corporation Tax
16	Inheritance Tax
All-In Rental Agreements	
17	Energy Alignment Clause

4. Conclusions

Through secondary research, a set of 'Retrofit Financing Success Criteria' have been identified. The criteria were used when analysing the financial strategies listed above. Additionally, quantitative data was gathered through market research. By combining this data with the aforementioned criteria, a series of conclusions and recommendations are made.

4.1 Government Financing

Due to the implications on taxpayer spending, the UK government is evidently reluctant to introduce retrofit funding streams that are 'available to all', within the private rented and owner occupied sectors. It should however be noted that across Europe, 'Energy Transition Tax Credit' solutions (or similar), which cover up to 40% of eligible retrofit costs, have been successful. If the government was to bring forward an additional, condition-free funding scheme, solutions such as this (which have proved successful in France, Germany, and Belgium) should be considered.

A grant scheme which offers condition-free finance to all homeowners is not likely to secure government support. A scheme which offers financing for a proportion of the retrofit cost is more realistic. Under the 'UK Energy Transition Tax Credit' model (available within full dissertation), up to 40% of deep retrofit costs would be paid by HM Treasury. Government funding, capped at a given amount per property, would only be provided following completion of a whole house retrofit. The initial 60-80% of retrofit costs would need to be self-funded. This would ensure that strategies are in place to deliver deep retrofit and high energy reductions. This would also ensure that contractors and homeowners are incentivised to follow through with the full Medium Term Improvement Plan (or similar) over a shorter timescale. Rather than expanding the availability of existing UK funding schemes, an 'Energy

Transition Tax Credit' is likely to have a lower demand on taxpayer funding. This model is therefore the preferred direct government funding strategy.

4.2 Borrowing

Primary research identifies a low level of interest amongst owner occupiers and private landlords. That said, where cost and risk can be reduced, through Demand Aggregation Financing, the majority of owner occupiers and private landlords would be significantly more incentivised to take out a loan. A successful loan scheme must have an attractive level of interest. In the UK, with interest rates on the rise, a government-backed loan scheme is the only realistic route to attractive borrowing. For HM Treasury to consider such a scheme, the adverse fiscal implications would need to be negligible. The Netherlands model, where the government caps interest at between 1.7% and 2.4%, is considered to be fiscally neutral.

By combining Demand Aggregation Financing with a fiscally viable government-backed interest rate, a solution has been proposed within the full dissertation which is likely to secure higher levels of interest from both policy makers and homeowners. The model is unprecedented which increases risk. Additionally, primary research has indicated that median affordability makes this solution viable only for those with higher levels of income. Otherwise, deep retrofit is unlikely to be achievable.

4.3 Taxation

Within the domestic energy efficiency sector, there is a growing call for fiscal reform. When considering the preferences of owner occupiers and private landlords, primary research was inconclusive. Of the Table 1 options, only SDLT has been worked into a realistic taxation model. Without workable models for each taxation option, it was difficult to gain meaningful insight through market research. The UKGBC SDLT model is significantly advanced, and an updated version is due to be released during 2022. Considering total tax receipts for the year 2019, residential and commercial property sales generated a total revenue of £16.1billion in SDLT. Comparatively, Capital Gains Tax and Inheritance Tax generated £10billion and £5.2billion respectively.

Council Tax revenues were in the order of £36.6billion in 2019, highlighting that energy related variations in Council Tax would be significantly impactful at national scale. Landlords in particular are likely to see Council Tax variations as a significant motivator. Where increased payment liabilities cannot be passed on to tenants, landlords with larger portfolios would be faced with significant increases. Conversely, where reduced levels of Council Tax are realised, rental property would become more attractive to prospective tenants. Council Tax can be applied on a 'bonus-malus' basis, meaning that it would be fiscally neutral.

Taxation models are unlikely to facilitate deep retrofit at high levels of capital outlay per property. If linked to current MEES targets, fiscal variations are also unlikely to result in the required levels of energy efficiency improvement at national scale. That said, with fiscal structures in place, incremental target enhancements could be made. Individual psychological ideologies are a significant barrier to retrofit. Systemic, mandatory changes to taxation policy are the only guaranteed route to reaching 'hard to decarbonise' properties and reluctant homeowners. Variations in Council Tax and SDLT are the preferred fiscal measures.

4.4 All-In Rental Agreements

Primary data shows that 'All-in Rental Agreements', which allow landlords to recover upfront retrofit costs from tenants over a period of time, are seen as a motivator. The majority of landlords would be significantly more motivated to undertake retrofit works, if 'Energy Alignment Clauses' were included within rental terms. As with the Energiesprong model, this mechanism provides a structural route to cost recovery, where ordinarily reduced energy bills would be a benefit to tenants and not the landlord.

It is suggested that 'All-in Rental Agreements' are considered in more detail by the private sector in particular. The Energiesprong model is successful because 'Comfort Guarantees' are provided through the high quality Energiesprong product. Investors can appraise the investment opportunity based on Net Zero operational energy demand post retrofit. It would be interesting to understand whether the Passivhaus EnerPHit performance model, for example, would result in profitable investment options. If so, a potential for increased levels of private investment would make the case for 'Comfort Guarantees' to become standard practice under PAS 2035 and other retrofit standards.

5. Key Findings and Recommendations

- a. As a minimum, changes to the MEES Regulations should require an EPC of A or B for private rented properties. Increasing the minimum requirement to EPC C is not sufficient to meet UK climate goals. That said, the preference is a reform of the energy performance metric. Energy Use Intensity is recommended.
- b. Amongst private landlords, MEES compliance is considered to be one of the highest ranked advantages to retrofit. The majority of private landlords would rather spend higher levels of upfront cost, to meet the requirements for future changes in MEES requirements. The government should provide the maximum amount of notice in advance of MEES changes. This is likely to act as an early incentive amongst the majority of landlords.
- c. Both owner occupiers and private landlords can afford to spend a median amount of approximately £5,000 on retrofit. This highlights an 'affordability gap' of between £15,000 - £50,000 for a typical UK home.
- d. Owner occupiers can afford to spend a median amount of 1.1% of the asset value on retrofit. This compares to 1.9% amongst private landlords.
- e. Low interest loans have been considered. Based on a low interest loan, 51% of owner occupiers aged between 26-35 would be willing to repay between £18,360 - £90,000 over a 30 year period. Conversely, 27% of private landlords aged between 46-65 would be willing to repay between £18,180 and £45,000 over a 15 year period.
- f. To increase incentive and provide private financing routes, the government should secure interest from private investment partners to finance pilot schemes for the following:
 - a. The 'UK Energy Transition Tax Credit' model (available within full dissertation).
 - b. The 'UK Demand Aggregation Financing' model (available within full dissertation).

- g. By reducing annual energy bills by a guaranteed 50%, approximately 86% of owner occupiers would be incentivised to spend the amount that they could afford on retrofit.
- h. To reduce retrofit costs, the government should consider further subsidies to energy efficiency measures. These include (but are not limited to): insulation (including windows and doors), smart meters, heat pumps, solar PV, battery storage, ventilation.
- i. To increase incentive and provide private financing routes, the government should consider endorsing a low interest loan scheme (capped at between 1.7%-2.4%).
- j. To drive systemic change throughout the UK, the government should consider fiscal policy changes. 77% of owner occupiers and 71% of private landlords think that energy efficiency related variations to fiscal policy are a good idea.
- k. Stamp Duty Land Tax and Council Tax are considered to be the most suitable taxations, for energy efficiency variations.
- l. To increase confidence in retrofit, the BSI should consider introducing a minimum energy performance requirement, for PAS 2035 certification.
- m. Where feasible and financially viable, TM59 overheating analysis should be undertaken prior to the installation of retrofit measures. This will reduce the risk of overheating and will highlight the need for mechanical ventilation measures – maximising quality.
- n. The government, in coordination with the BSI and organisations such as the Retrofit Academy, should investigate the potential for ‘Comfort Guarantees’. These would encourage higher levels of private investment in retrofit.
- o. When considering the minimum spend per property for deep retrofit, funders should allow for an electric heating system and sufficient insulation to ensure that the property does not become more expensive to heat after the electrification has taken place. This is typically achieved at a total heating demand of between 50-90kWh/m².
- p. Where possible, the government should endorse the installation of smart meters and energy monitoring systems. This will ensure that a higher level of post-completion performance data is available.

6. References

BEIS, 2020. *ECUK 2020: Consumption data tables*, London: Department for Business, Energy & Industrial Strategy .

Kingsfund, 2022. *Key facts and figures about the NHS*. [Online] Available at: [https://www.kingsfund.org.uk/audio-video/key-facts-figures-hs#:~:text=In%202019%2F20%2C%20the%20total,NHS%20England%20and%20NHS%20Improvement.\[Accessed 26 August 2022\].](https://www.kingsfund.org.uk/audio-video/key-facts-figures-hs#:~:text=In%202019%2F20%2C%20the%20total,NHS%20England%20and%20NHS%20Improvement.[Accessed 26 August 2022].)

LETI, 2021. *Climate Emergency Retrofit Guide*, London: London Energy Transformation Initiative.