



Holistic Retirement Planning and Financing Green Home Retrofits

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Introduction

In today's world we face a multitude of challenges, including the rising cost of living, the need for stronger retirement savings, the need for more optimal provision of retirement benefits, and of course the urgent need to decarbonise our economy. In this article we introduce the case for alternative thinking that could provide some help in addressing these pressing concerns. We consider a variety of questions from two main perspectives.

From the perspective of a retiree:

Financial needs in retirement can be managed in two ways: by providing income or by reducing outgoings. Our industry is very much focused on the former. However, as energy costs comprise an increasing proportion of pensioners' spending, is it worth considering reducing those bills as a complementary strategy? Lower regular expenses could help make pension benefits go further. For example, many people already aim to pay off their mortgage prior to retirement in order to reduce their housing expenses.

For homeowners reaching retirement who are still reliant on fossil fuel heating or living in low energy-rated homes, low-carbon retrofitting ("or a green home upgrade") now becomes imperative during

their expected retirement planning horizon, given the UK's Net Zero 2050 deadline. When should such retrofitting occur, and should it be factored explicitly into retirement financial plans? Any such plan would need to consider the projected initial expense of funding retrofits alongside the possible long-term benefits of reduced recurring spending needs through lower energy bills in the future.

From the perspective of society:

The challenge of retrofitting the UK's housing stock for Net Zero¹ is enormous. The National Infrastructure Commission estimates that the cost of switching from gas boilers to heat pumps could range from £140 to £250 billion². Currently, roof insulation and heat pump installation are supported by UK government subsidies. Could individuals tap into their personal pension savings to help contribute towards the remaining financing required for this monumental task?

Property owners are responsible for decision-making on residential property retrofits, with individuals aged 55+ accounting for 55% of UK property ownership³. A green home retrofit installation can be a decision made considering both financial and non-financial factors. This has similarities to decision-making for retirement financial planning. Therefore, does it make sense for green home retrofit providers to access this market via leveraging existing retirement planning channels?

Considerations for an individual retiree

There are a variety of products that could assist homeowners in generating their own green electricity (rather than relying on the wholesale market), as well as more efficiently heating their home in a manner consistent with Net Zero. These include rooftop solar, direct ownership of grid-delivered electricity, air-source heat pumps and improved insulation, amongst other measures.

Both buying an annuity or income drawdown pension and investing in a green home retrofit involve exchanging an up-front lump sum for a regular stream of financial benefits. The stream of benefits from a financial product is a regular cash payment, and in the case of a green home retrofit a cost saving on energy bills. There can also be non-financial reasons for purchasing both types of product.

In each case there are similar risks and factors to consider. For example, in comparing an annuity with rooftop solar:

- **Irreversibility of the decision** – there is currently no way to sell a traditional annuity back to an insurer once it has been purchased. Once solar panels are installed on a roof, it is unlikely that you will be able to recoup your investment by reselling them, although the value may be partially recognised in the house price in the event of a sale.

¹ Net Zero in relation to the UK, means that the UK's total greenhouse gas (GHG) emissions would be equal to or less than the emissions the UK removed from the environment. This can be achieved by a combination of emission reduction and emission removal. More information is provided [here](https://www.ons.gov.uk/economy/environmentalaccounts/articles/netzeroandthedifferentofficialmeasuresoftheuksgreenhousegasemissions/2019-07-24):
(<https://www.ons.gov.uk/economy/environmentalaccounts/articles/netzeroandthedifferentofficialmeasuresoftheuksgreenhousegasemissions/2019-07-24>)

² [Cost analysis of future heat infrastructure - NIC](https://nic.org.uk/studies-reports/national-infrastructure-assessment/national-infrastructure-assessment-1/cost-analysis-of-future-heat-infrastructure/) (<https://nic.org.uk/studies-reports/national-infrastructure-assessment/national-infrastructure-assessment-1/cost-analysis-of-future-heat-infrastructure/>)

³ [England: homeowners by age 2022 | Statista](https://www.statista.com/statistics/321065/uk-england-home-owners-age-groups/) (www.statista.com/statistics/321065/uk-england-home-owners-age-groups/)

- **“Regret risk”** – once an annuity is purchased, there is the risk that interest rates rise significantly and you lose out to a better deal that could have arisen from having deferred the timing of your purchase. Similarly, purchasing any technology now means possibly missing out on a superior and lower cost product in the future, due to ongoing improvements in technology.
- **Income stream type** – with an annuity you have some flexibility over the type of income stream you receive, typically with a choice between fixed and inflation-linked. For solar panels, the income stream primarily relates to the energy bill discounts from generating your own power instead. To the extent that energy prices are volatile, this could be quite an attractive benefit in helping to manage personal finances.
- **Income stream certainty** – an annuity brings the ultimate in terms of cashflow certainty as it consists of guaranteed regular payments for the retiree’s remaining years. For solar panels, the amount of savings ultimately depends on the relationship of energy usage to periods of sunshine. Income could be a possibility through selling excess energy back to the grid. There is also seasonality to consider, with most of the benefit being received in summer months when there is likely less aggregate national demand, and so savings over grid-based energy prices may potentially be lower. There is also degradation of solar panel performance over time to consider too.
- **Sustainability considerations** – lifecycle emissions analysis typically shows solar panels to be beneficial overall from a carbon reduction perspective (even when allowing for manufacture, installation, maintenance and disposal). However, there are questions around the environmental impacts of end-of-life disposal, given potential hazardous materials in some products⁴. Many highlight a need for more circularity within the industry given resource constraints. Using a respected supplier would lower risks relating to human rights records of some solar panel manufacturers. The sustainability considerations of annuities may not be as obvious. A key part is the investments backing the annuities, which increasingly are being invested to support the Net Zero transition in the UK.
- **Psychological factors** – products are not purchased on financial grounds alone. Many people may be willing to purchase an annuity for the added feeling of security, when objectively an income drawdown product could be expected to deliver better financial value despite the risks. Similarly, for people concerned about climate change, purchasing solar panels may provide a tangible way to feel they are making a positive contribution to reaching Net Zero, and leaving a positive non-financial legacy to their heirs. An added feeling of security could also be applicable for solar panels too. Being able to self-generate (and potentially store) electricity helps to reduce reliance on electricity purchased in the wholesale energy market, with its associated risk of sharp increases in wholesale energy prices, and its knock-on impact on energy bills.

Considerations for UK society

There is an enormous task ahead for UK households to reduce their net carbon emissions.

⁴ <https://www.ucsusa.org/resources/environmental-impacts-solar-power>

Thinking firstly about energy generation, there is an opportunity for households to contribute to the rapid need for accelerating the pace of renewable energy installation. This could either be done through on-site generation using technology such as rooftop solar, or through innovative methods to finance directly-owned shares in new grid-delivered renewable energy installations. On the former, the UK's Net Zero plan includes a target for 70GW of rooftop solar capacity by 2035 (for both commercial and residential buildings)⁵. In 2022, solar installations have been on the increase, particularly given the sharp rise in grid-based energy bills. Installed capacity has now reached 14GW⁶. However, current rates of installation will need to double to meet the 2035 government target.

Thinking secondly about heating, 85%⁷ of UK housing stock is reliant on gas to heat their home. Air-source heat pumps are considered one of the most energy efficient low-carbon alternatives to act as a replacement. But in 2022, only 72,000⁸ heat pumps were installed in the UK. This is far below the UK's 600,000 annual installation target for 2028. The expected net cost of converting every UK household to use a heat pump is estimated to be in the region of £140 billion to £250 billion⁹. Government subsidies are currently aiming to kick-start the market and provide partial financing for conversions to a heat pump, and associated upgrades to radiators and insulation. A large part of this will need to be funded by the public.

The UK government heat pump subsidy launched in 2022, and recently increased from £5,000 to £7,500, has helped lead to a 40% increase in annual sales. This increase is on a low base, and installations are still not increasing at a rate needed to meet the 2028 target.

In both cases, improved and broader ranging market access could be another catalyst to help accelerate demand. For insurers and pension funds with wide distribution networks, this could be another practical angle to consider, in their efforts to support the implementation of Net Zero. However, alongside this it is also critical to address the challenge of rapidly scaling up supply, to cater for any acceleration in demand. For example, this includes training a sufficient number of qualified heat pump engineers, securing adequate manufacturing capacity, and addressing potential supply chain bottlenecks.

To make up for the shortfall after government subsidies, the cost of green home upgrade measures could potentially be financed by the public from one of the following key sources of funds:

- **Employment income** – expanding market access could be achieved by offering green home upgrade options as an employee benefit. These could be structured through innovative financing approaches, such as providing “heating as a service”. The cost burden could potentially be reduced through the tax efficiency of a salary sacrifice scheme.

⁵ [‘Untapped potential’ of commercial buildings could revolutionise UK solar power - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/news/untapped-potential-of-commercial-buildings-could-revolutionise-uk-solar-power) (<https://www.gov.uk/government/news/untapped-potential-of-commercial-buildings-could-revolutionise-uk-solar-power>)

⁶ [UK added 555 MW of new solar in 2022 – pv magazine International \(pv-magazine.com\)](https://www.pv-magazine.com/2023/02/20/uk-added-555-mw-of-new-solar-in-2022/) (<https://www.pv-magazine.com/2023/02/20/uk-added-555-mw-of-new-solar-in-2022/>)

⁷ [reinventing retrofit.pdf \(green-alliance.org.uk\)](https://green-alliance.org.uk/wp-content/uploads/2021/11/reinventing_retrofit.pdf) (page 10) (https://green-alliance.org.uk/wp-content/uploads/2021/11/reinventing_retrofit.pdf)

⁸ [Heat pumps - POST \(parliament.uk\)](https://post.parliament.uk/research-briefings/post-pn-0699/) (<https://post.parliament.uk/research-briefings/post-pn-0699/>)

⁹ [Cost analysis of future heat infrastructure - NIC](https://nic.org.uk/studies-reports/national-infrastructure-assessment/national-infrastructure-assessment-1/cost-analysis-of-future-heat-infrastructure/) (<https://nic.org.uk/studies-reports/national-infrastructure-assessment/national-infrastructure-assessment-1/cost-analysis-of-future-heat-infrastructure/>)

- **Mortgage debt** – renewing or taking out a mortgage is an existing financial decision-making process that could be leveraged, by offering a green home upgrade as an easily accessible “add-on”. Such upgrades could help improve the value of a house, to support the additional debt. A reduction in energy bills could help mean the additional debt burden remains affordable. There are already many existing examples of green mortgage products in the UK, that aim to help incentivise actions that improve home energy ratings.
- **Retirement savings** – accessing a pension pot is also an existing financial decision-making process that could be leveraged. Pension pots provide capital for up-front expenditure, particularly through utilisation of a 25% tax-free cash lump sum. Green home upgrade measures, in many cases, can help to reduce regular expenses and reduce exposure to the risk of further spikes in wholesale energy prices. They could therefore potentially enhance financial wellbeing in retirement, by helping to improve affordability, as well as resilience in affordability, of achieving desired lifestyle goals. Given that the majority of UK homeowners are over the age of 55, targeting those planning for retirement could effectively extend distribution coverage to a sizable proportion of households.

In the spirit of FCA Consumer Duty, from a purely financial perspective, such measures could provide an optimal financial outcome for a significant proportion of retirees. Furthermore, the UK’s Net Zero target now sits within a retiree’s planning horizon today, and so replacing a gas boiler with a green alternative is an expenditure that arguably does need to be considered. In doing so, it could be important to balance the certainty of current government subsidies and market costs, against the uncertainty of future subsidies or potential product and installation cost reductions as markets scale.

Actuaries are very much involved in the retirement savings industry. Given the points made above, arguably there could be potential opportunities for actuaries to help encourage such broadening of market access through quantifying and communicating the potential financial benefits. This could include helping to make a retirement planning process more “holistic”, to incorporate the consideration of regular expense management, alongside the conversion of savings into either income or expense reduction measures. A key question is how do we set up the industry to deliver these potentially optimal outcomes, given the regulatory framework and structure under which it is managed?

Such decision-making involves a number of complex factors that requires the expertise of product specialists. Is there an opportunity for insurers or pension funds to help bridge the gap between retirement planning and investment advisers, and specialist green home product providers? Where advice is not affordable or feasible, as well as pointing to PensionWise, should we also be pointing towards the Energy Savings Trust and other equivalents too? What is the best balance between impartial retirement planning or financial coaching, and product-specific investment or spending advice? We’d be curious to hear any views on these questions.

Conclusion

As the carbon budget for keeping global warming within 1.5C rapidly depletes, the need to make rapid progress with decarbonising the economy becomes ever more pressing. In the UK, this translates into a need to rapidly achieve the targets set out by the UK Government Net Zero 2050 plan¹⁰.

¹⁰ [Net Zero Strategy: Build Back Greener - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/consultations/net-zero-strategy)

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More broadly, the implications of depleting carbon budgets mean we're increasingly going to be reliant on helping to identify and implement positive tipping points. These could be driven by regulatory change to enforce a shift in balance in consumer choices, but they could also come from private sector measures to influence consumer behaviour. Potentially there is more that could be done to leverage existing financial decision points to accelerate flows – such as at-retirement planning – that could act both in the best long-term interest of consumers, and present new commercial opportunities too. Hopefully such ideas can inspire further out-the-box thinking on what insurers and pension funds could be doing differently to accelerate action.