

**Scotland's Housing and Net Zero**  
*Progress and challenges*

Janette Webb  
University of Edinburgh

**Scottish Parliament Futures Forum**  
**Scotland's Housing and Net Zero**  
**22 April 2024**

@UKERCHQ



# Challenges in pace and scale to decarbonising Scotland's housing

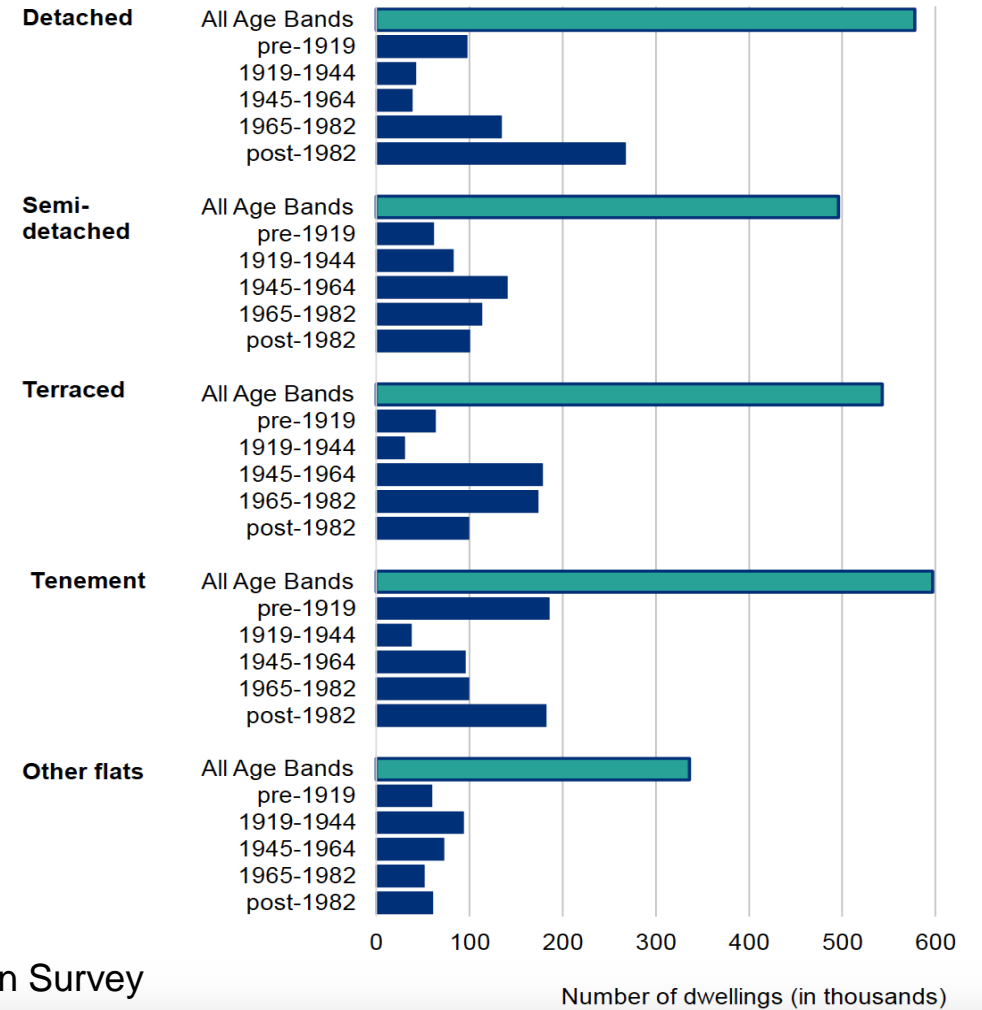
- Most houses already built
  - not built to meet contemporary efficiency standards
  - perhaps damp/state of disrepair
- 2045 net zero requires over 100,000 house retrofits pa
  - Current rate circa 5000 pa



# High proportion of 'hard to treat'

- Pre-1919
- Solid wall
- High proportion of tenements and flats  
40% of stock
- Buildings with multiple uses and ownership
  - Private, rental, business

Figure 1.1: Number of occupied Scottish dwellings by age band and type, 2022



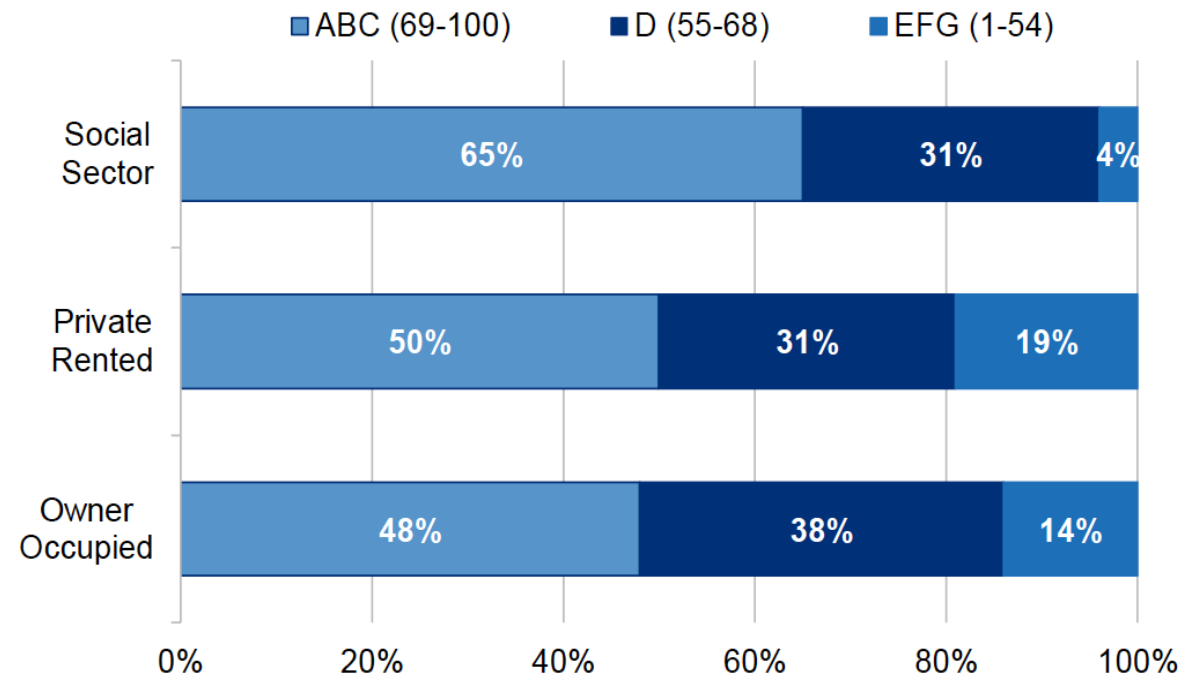
Source: SG Scottish House Condition Survey

# Majority privately owned

- 61% owner occupied + 4% vacant or second homes
- 13% Private Rental
- Lower energy efficiency standards than social housing
- Rising fuel poverty and wealth inequality
- Wealthier owners not necessarily prioritising retrofit
- Retrofit 'one owner at a time' very slow
  - And lacks scale economies for cost reductions
  - No 'ready made' guaranteed solutions

Housing in the social sector tends to be more energy efficient than the owner occupied or private rented sector.

Figure 2.9: Percentage of dwellings by EPC band and tenure in 2022



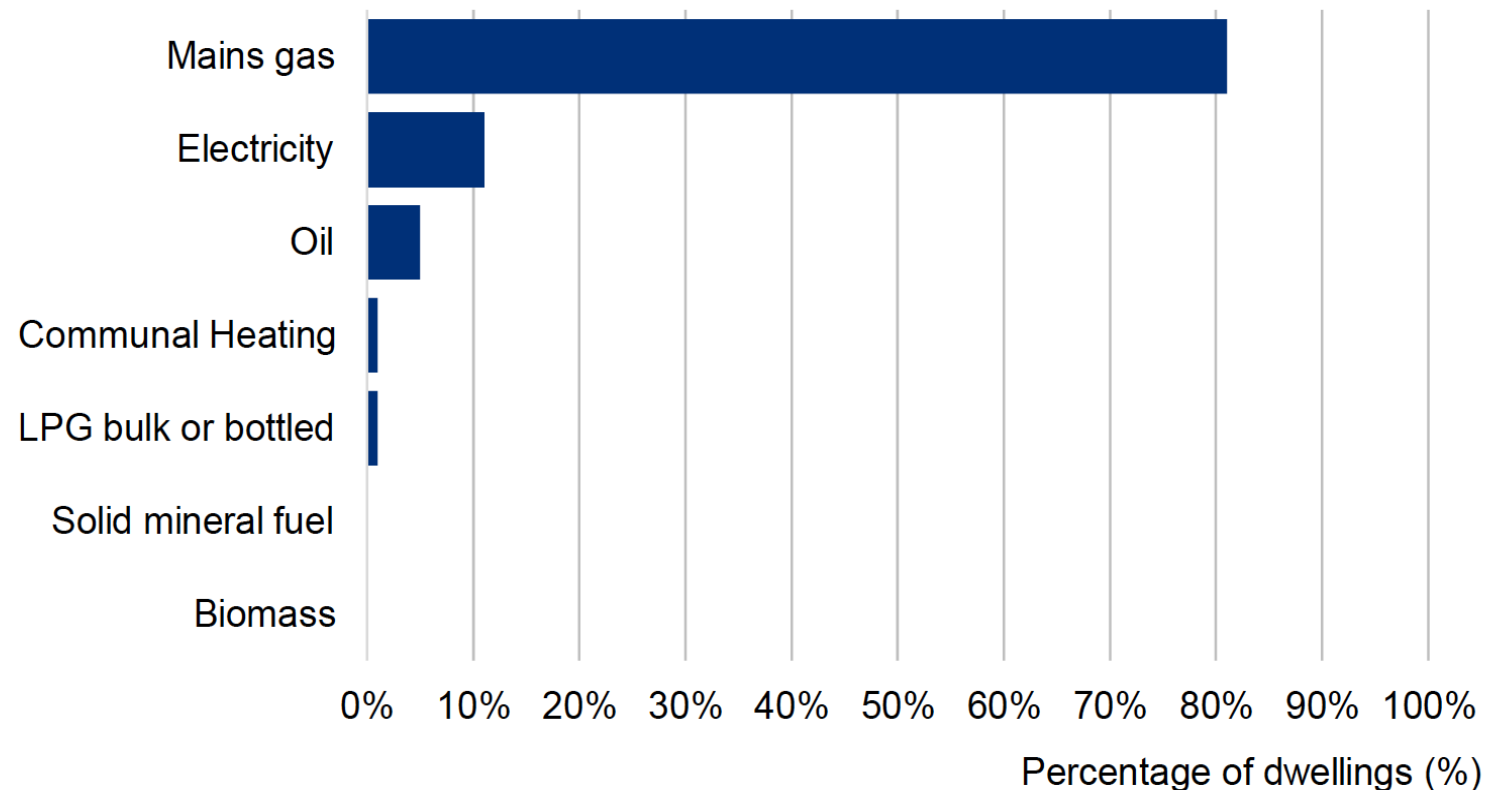
Source: SG Scottish House Condition Survey

# Established Methane Gas Grid

- Well organised industry
- High safety standards
- High levels of satisfaction with gas central heating
- Energy price crisis increasing interest in energy efficiency
- Gas markets, licensing and regulation reserved to Westminster

**Mains gas is the most common heating fuel in Scotland.**

**Figure 1.7: Primary heating fuel, 2022**



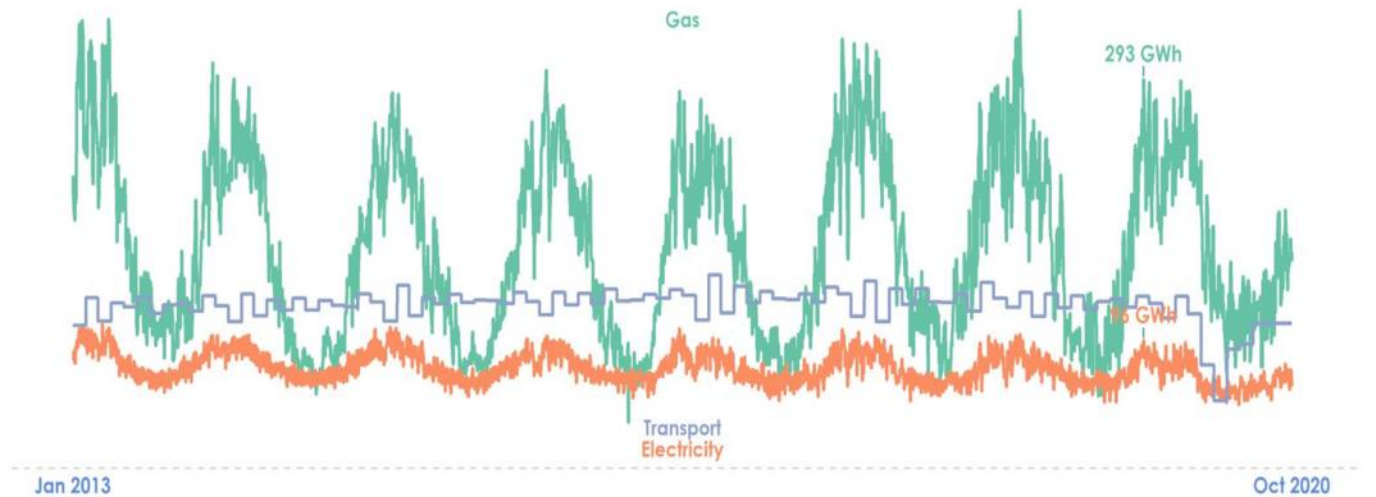
Source: Scottish House Condition Survey 2022



# Building by building electrification of heating - very high whole system costs

- Investment in generation on standby most of year
  - with CCS?
- Major reinforcement of grids to meet winter peak demands
  - including street level
- Risks paying high price for under-used infrastructure

Energy use in Scotland per day  
Scotland, Jan 2013 - Oct 2020



Source: Sheffield, National Grid, BEIS

Source: Compendium of Scottish Energy Stats 2020

# Households not universally aware of need for change

Estimated 49% identify gas CH as contributing to GHG emissions

- fewer than 20% said they would consider switching to zero emissions system
- fewer than 2% had done so

ESC (2020) *Understanding Net Zero: A Consumer Perspective* <https://es.catapult.org.uk/reports/net-zero-a-consumer-perspective/>

Iron gas mains replacement programme down our streets

- Why expect mains gas connection to end?

In this context... few perceived 'individual' benefits of switching to low carbon heating

Concern over disruption, additional effort, cost

# Heating is a social thing... meanings of home

Expectations of indoor warmth increasing

Household heating practices are socially co-ordinated

- Taking care of family and friends
- Changes over life course
- Warmth of a room influences how much time people want to spend there
- Associated emotional security

Strategy for change needs to be led by awareness of how people 'get warm' or keep warm and how they manage heating bills

- Resourceful ways in which people exercise control and maintain self-respect
- Go somewhere else; wear outdoor clothes; focus on a warm space...



# Major, rapid changes in household heating systems can happen

After conversion from coal gas to methane gas

- 1970 25% of householders had gas CH
- By 2006 - 90% of those with access to gas had CH, despite cost and disruption
- Macro-economic policy/public investment, planned and managed

It can happen again

- Where public engagement is systematically developed, continuous and coordinated
- With cross-sector 'coalitions of the willing' and prominent public leadership across scales

# Retrofitting Homes has Multiple Benefits

## Energy SECURITY by USING LESS

- We could use 50% less energy and have better lives
- <https://www.creds.ac.uk/publications/the-missed-opportunity-ignoring-the-evidence-on-energy-demand-reduction/>

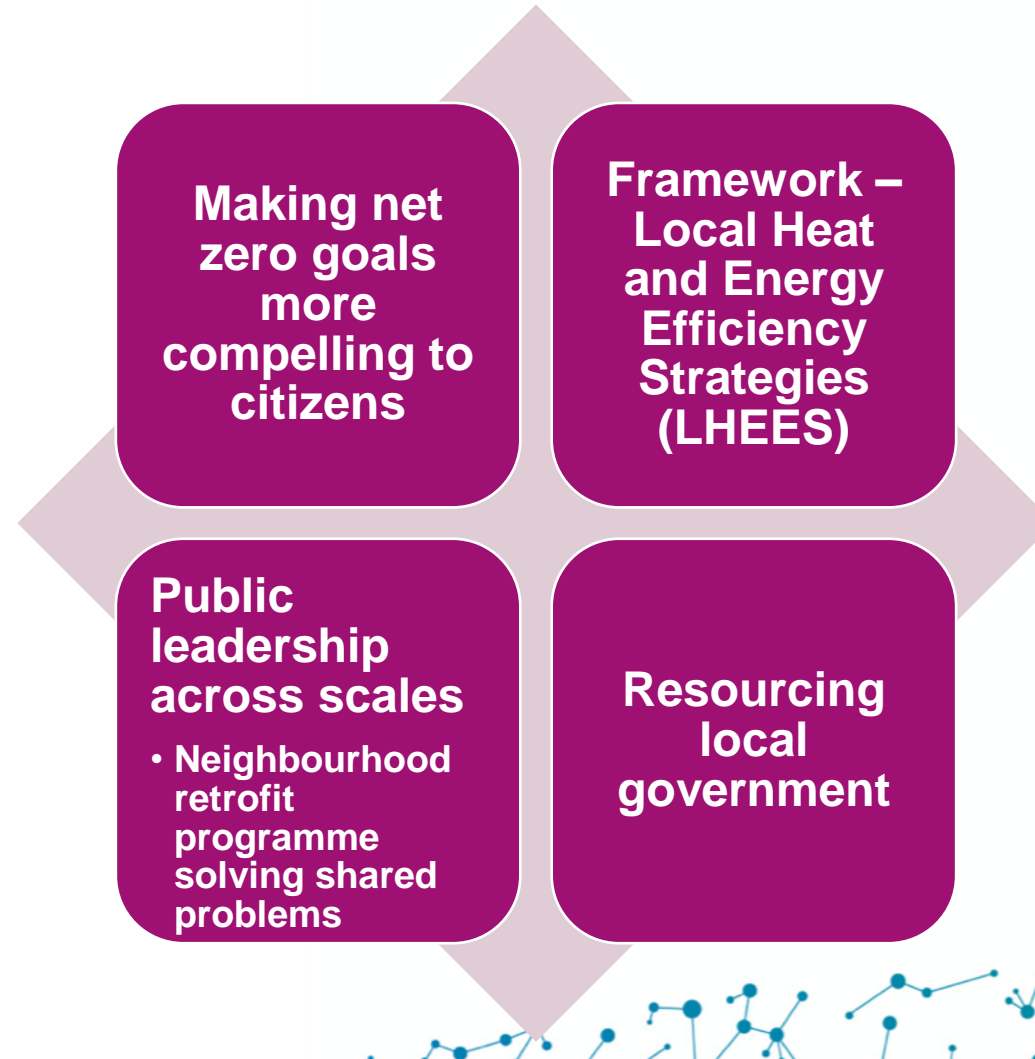
## Better housing - draught free and easier to heat

- More affordable bills/reduces poverty
- Improves mental health/better places to live – social resilience

## Boosts regional economies

- Est 22,500 FTE workforce needed in Scotland by 2028, for improvements to existing building fabric
- Upskilling for high quality work
- Skilled trades in heat and power
- Likely to free up some household income

# Concerted housing retrofit is a way to *engage everyone* in understanding Climate Change causes & consequences



# Public leadership matched with responsible citizenship

- Consumer model
  - Individualised 'choice'
  - Lower income households positioned as 'flawed consumers'
- Societal change needs citizens
  - Shared responsibility for solving problems of society
  - Value of a sense of shared purpose
- Help renew trust in politics and democracy



# The Price?

## DELAY is costly

- OBR estimates a decade of delay on climate policy = double the costs
- and probably more than double the misery

ALSO the price for inaction in health care, welfare and local economies

Scottish Government estimate £33 Bn investment cost of transforming **building stock**

Could be aided by re-directing some spending and tax reform

- Estimated UK spending on home improvements in 2022 - £28 Bn.
- Politico analysis of OECD data concluded Britain currently supports fossil fuel industry through tax breaks and subsidies by circa £10 Bn p/a
- Celtic Academies' Proposed Green Land Value Tax
- <https://rse.org.uk/expert-advice/advice-paper/unlocking-fiscal-autonomy-the-evolution-of-devolved-taxation/>



# Progress

- LHEES
- HEEPS-ABS
- Social housing
- Heat Networks (Scotland) Act 2021
  - Need anchor loads' obligation to connect
  - And ownership models
  - And green heat sources and supply agreements
- Heat in Buildings Bill
  - Regulating owners and PRS
  - Risks of slow progress...?
  - Tricky interactions with reserved powers
- Heat and Energy Efficiency Scotland
  - Public engagement and cross-scale governance







**[www.ukerc.ac.uk](http://www.ukerc.ac.uk)**

**@UKERCHQ**

