

Users TCP seminar 22<sup>nd</sup> September 2021

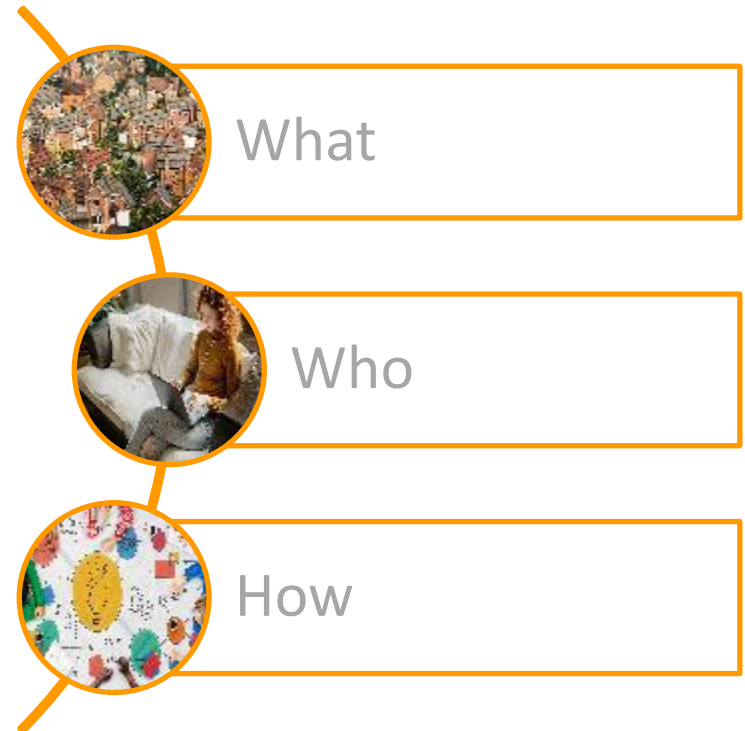


**Hard to Decarbonise & Hard to Reach** | Developing solutions that work for people & planet

Dr Rokia Raslan (UCL) & Professor Aimee Ambrose (CRESR, The FPRN)

# What we'll cover

- **Overview** (RR)
- **What** is an HTD home? (RR)
- **Who** lives in them (& why we need to tackle them)? (AA)
  - Links between HTD & HTR
  - Life in HTD homes
  - Barriers to change
- **How** can we address HTD homes? (RR)
  - Knowledge gaps/challenges
  - Our aim
  - Key actions
  - What can happen
- **Summary:** key points (AA)



# Overview

- Europe is embarking on an ambitious green economic recovery, which will see substantial investment in the energy efficient renovation of its buildings to support the Net Zero transition of the sector.
- Historical disconnect between such efforts and ‘challenging’ buildings
- Net Zero transition entwined with issues of social and energy equity: disconnect is no longer an option

**Our most challenging buildings need to be part of this transition to ensure that no one gets left behind**



# What is an HTD Home?

- Homes can be considered to be 'hard to decarbonise' if they are 'hard to treat' &/or do not have *cost-effective* options for low carbon heating



# Who Lives in Them (& Why We Need to Tackle Them)?

## Lowest income, most vulnerable households disproportionately occupy the HTD stock

- ~3.5M households (UK) in FP (LILEE) (+ 600,000 due to Covid)
- LILEE misses out energy pricing
- Of those, ~60% live in E-G rated properties.
- E-G rated = HTD or owners can't /won't improve them (another aspect of HTD).
- ~38% live in the PRS where worst EE is concentrated & where occupants have no influence
- ~18% live in pre-1919 dwellings & over 50% in pre-1944.
- In 2019 (pre-covid), 8,500 excess winter deaths attributed to cold homes - up 20% (NEA, 2019)





## Who Lives in Them?

- Living in an HTD home makes fuel poverty more likely & as the least desirable stock, the fuel poor are more likely to end up in them.
- But there are other types of HTD occupant- i.e. historic properties, rural properties (LEE but not LI).
- These are important from a carbon point of view but may not be the priority.



# Links Between HTD & HTR

- Users TCP Annex (HTR energy users):
- HTR goes beyond hard to communicate with
- We're all HTR in some way
- Encompasses being underserved- all those in FP can be seen as this
- All those in HTD could be HTR because they may not be able to see how they fit with what's on offer
- A lack of diversity amongst programme designers is at the root HTD occupants are not the 'low hanging fruit' (IPCC, 2015)

*"In this Annex, a hard-to-reach energy user is any energy user from the residential & non-residential sectors, who uses any type of energy or fuel, & who is typically either hard-to-reach **physically, underserved, or hard-to-engage or -motivate** in behaviour change, energy efficiency & demand response interventions that are intended to serve our mutual needs."* (Ashby et al, 2020)

**Does not always mean low income:** It can equally mean high income. Or even policy makers!

## Life in HTD homes...

*"The main things that I miss are being in work - it was always warm in there".*

*"I've stopped warming the food- it does help my electric go further & I'm still getting fed"*

*"a pound on a mug of tea was much cheaper than a couple of hours in the flat".*

*"he does complain that the house is cold. So I have to keep him distracted"*

*"I ended up in the park where there was more room but had to dodge joggers. I was warm but scared."*

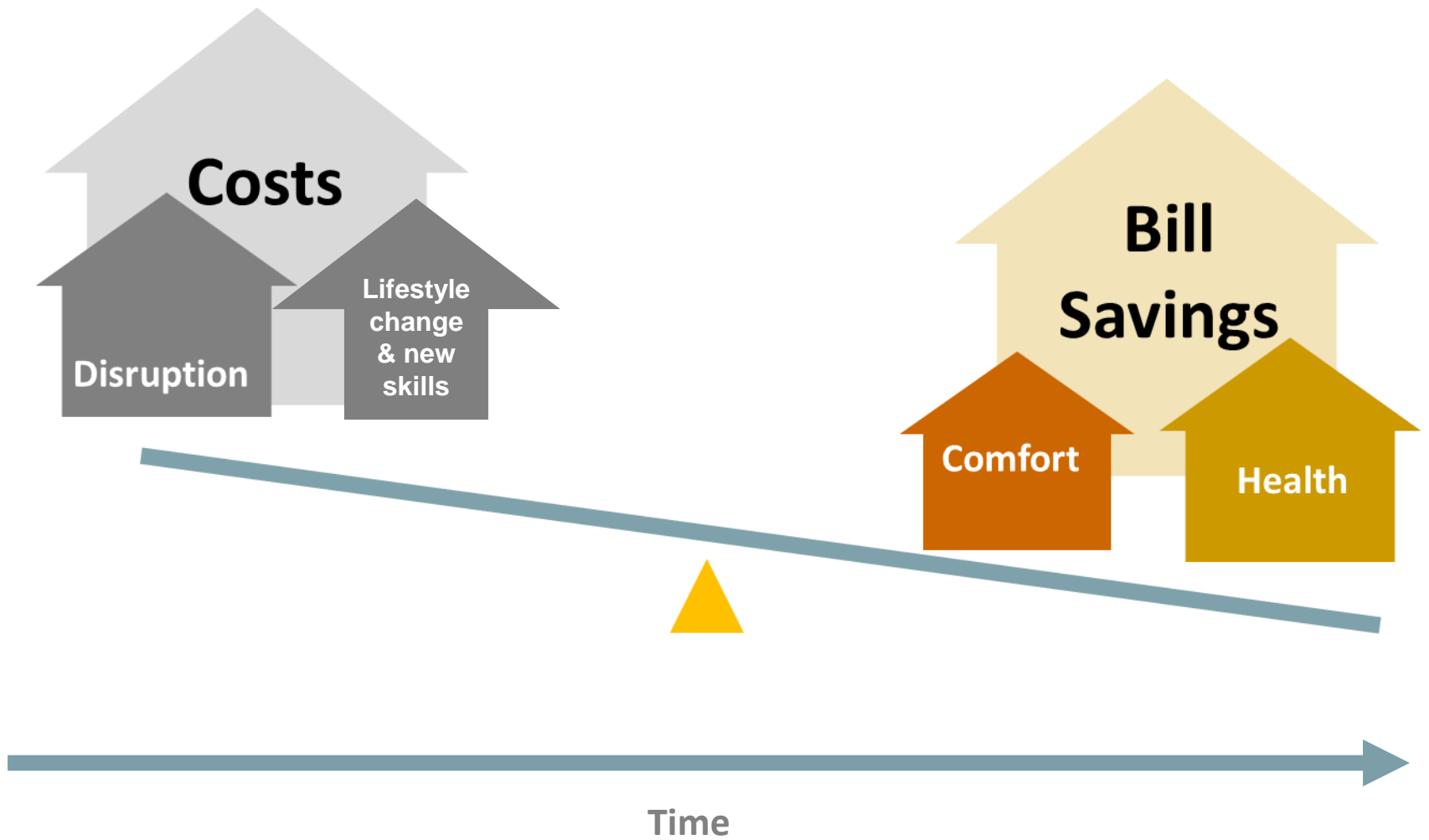


## But Change Doesn't Come Easily...

- Precarious lives & established coping strategies
- Cold homes & high energy costs have huge consequences but are rarely seen as a priority by any household
- It is more common to find ways to work around a cold home & unaffordability than to address the root causes
- Many don't know what their options are
- In the PRS, high demand means tenants can't complain & don't know the law.
- In owner occupation, high upfront costs are prohibitive.



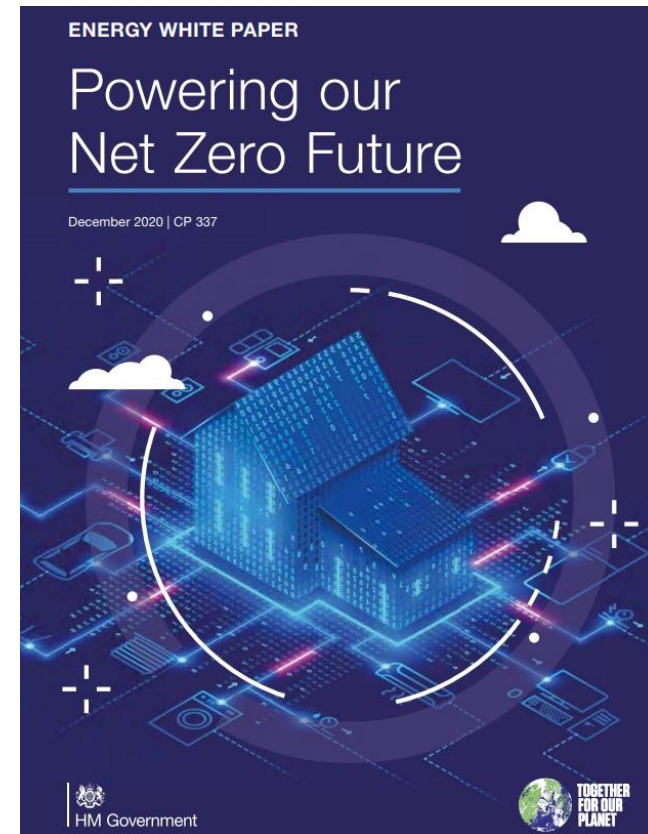
# Addressing HTD homes



# Policy Context

## Strong indications that HTD homes expected to be an area of policy focus in the near-term

- **In the UK:** Identified in the Fifth Carbon Budget as an area where options to reduce emissions were more difficult & recognized as one of the core areas of the 'Further Ambition' option needed to go beyond an 80% reduction target in Net Zero 2050 report.
- EWP aims for a fairer deal for energy consumers, **but** falls short of the long-term solutions needed for those who live in HTD homes, targeting improvement in EPCs as long as it is 'cost effective'
- **In the EU:** To tackle energy poverty in rural areas, plans to launch a Communication on long-term vision for rural areas



# How ?



# What are the Knowledge Gaps/Challenges?

*While addressing the challenge associated with decarbonising HTD homes is gaining increasing importance, very little is known about them.*

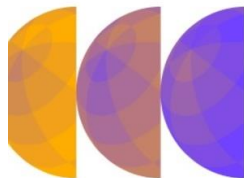


Existing research mostly focuses on housing types with 'standard' characteristics

# What are the Knowledge Gaps/Challenges?

**Analysis on abating direct emissions  
from 'hard-to-decarbonise' homes,  
with a view to informing the UK's  
long term targets**

A study for the  
Committee on Climate Change



Climate  
Change  
Committee

Final Report (Version 3.4)

July 2019

**elementenergy**

UCL IEDE

**elementenergy**

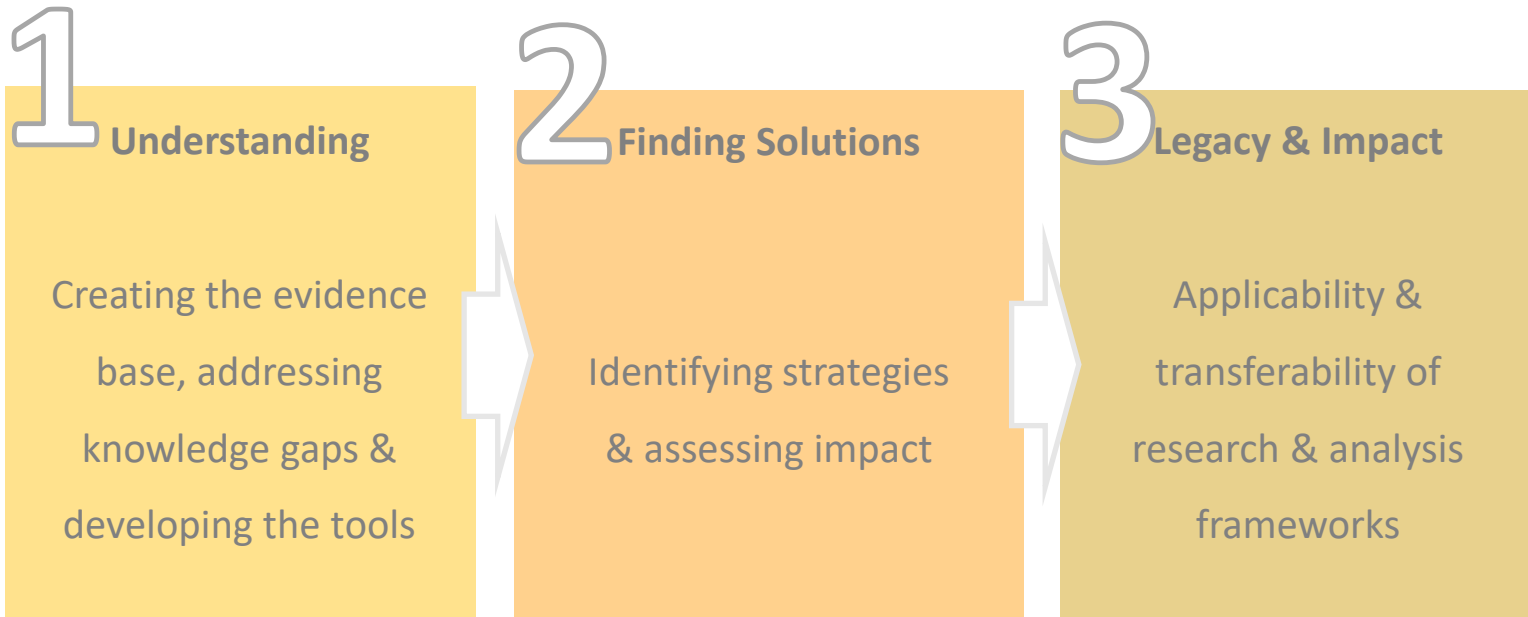


## Our Aim

- To meet the **critical need** for a robust HTD evidence base, through the implementation of an ambitious programme of interdisciplinary research to better understand the HTD sector & its occupants
- Ultimately, shape appropriate solutions that emphasize decarbonisation as a pathway to energy equity



# Key actions



# Key actions

## Understanding

1. Understanding what exactly makes a home HTD through analysing the building stock
2. Researching the lived-in experiences of occupying HTD properties
3. Developing 'personas' that represent nuanced profiles & provide insights into behavioural variations amongst HTD occupants
4. Developing models that better represent HTD homes & their occupants

## Finding Solutions

5. Formulating tailored strategies for the decarbonisation of HTD homes
6. Linking to systems level model to assess impacts & trade-offs
7. Co-produce regionally-focused HTD decarbonisation scenarios where clusters HTD are located to inform the formulation of local strategy & targets

## Impact

8. Creating an **HTD energy equity network**



# What can happen?

- The majority of energy efficiency will need to be installed in the next decade if homes are to be prepared for low-carbon heat
- Energy efficiency a key component of the green economic recovery to support jobs

A green transition that is also a just transition:

***This needs to be done in a way that supports energy equity  
to ensure that no one gets left behind***

# Summary of key points

- Net Zero transition is entwined with issues of social and energy equity: challenging buildings can no longer be overlooked
- HTD homes are by definition the most challenging segment within this to address
- Concentration of most vulnerable households in poorest quality housing adds impetus and underlines need for a just approach that prioritises need over ability to pay
- HTD homes and fuel poverty intrinsically but not exclusively linked
- Being HTR is not just about income- all HTD occupants can be seen as HTR
- Despite unsatisfactory conditions, change for the better can be a hard sell with benefits 'downstream'
- Strong indications that HTD homes are expected to be an area of policy focus in the near-term, but very little is known about them
- There is a **critical need** for a robust HTD evidence base, through the implementation of an ambitious programme of interdisciplinary research to better understand the HTD & its occupants
- Ultimately, shape appropriate solutions that emphasize decarbonisation as a pathway to energy equity.

Thank you!

[r.raslan@ucl.ac.uk](mailto:r.raslan@ucl.ac.uk)

[a.ambrose@shu.ac.uk](mailto:a.ambrose@shu.ac.uk)





User-Centred  
Energy Systems  
Academy

