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Hard-to-reach energy users in the residential and commercial sectors

BEHAVE Conference, April 23, 2021

Dr. Sea Rotmann (NZ)
Task Leader HTR Task and CEO of
SEA – Sustainable Energy Advice Ltd

UsersTCP and the International Energy Agency (IEA)

- The **International Energy Agency (IEA)** is an intergovernmental organisation that works to shape a secure and sustainable future for all, through a focus on all fuels and all technologies, and analysis and policy advice to governments and industry around the world.
- To facilitate global cooperation on energy technology, the IEA created the **Technology Collaboration Programme (TCP)**. Today, the **UsersTCP** is one of 38 TCPs each focused on a different topic. Together, they connect thousands of experts across government, academia and industry in 55 countries dedicated to advancing energy technology research and application.
- The UsersTCP is **functionally and legally autonomous** from the IEA. Views and findings of the UsersTCP do not necessarily reflect those of the IEA.

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Objectives for this Session

- EDUCATE: Who are the HTR energy users and what do we know already?
- EXPLORE: How complex are these audiences and their barriers?
- ENGAGE: What do you know that we don't?
- ENVISAGE: Where do we go from here to help those hardest-to-reach?

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Agenda for this Session

- PRESENTATION: Introduction to the HTR Task and HTR Characterisation (based on Abstract 427)

- 3 QUESTIONS & AUDIENCE FEEDBACK: Three difficult issues we have encountered during our research so far:
  1. Terminology and definitions (Dr. Danielle Butler, NEA, UK)
  2. Barriers for HTR audiences (Dr. Kimberley O'Sullivan, Otago University, NZ)
  3. Transaction costs for HTR energy users (Prof. Luis Mundaca, Lund University, Sweden)

- DISCUSSION: Starting with another audience question:

  ⇒ “How will our approaches to HTR energy users change in a post-COVID-19 world?”




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Some housekeeping

- RECORDING the session
- ATTENDEES please add your affiliation
- Q&A please ask questions in the chat function (target them at speaker/s)
- DOWNLOAD latest Zoom 5.6.0.
- WEB BROWSER please keep one open and go to www.menti.com CODE: 1350429

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Hard-to-Reach Energy Users Task

This international research collaboration focuses on a very distinctive and important audience segment - the hard-to-reach (HTR) energy users in the residential and non-residential sectors. It will determine who, and how many they are, where they are, and how to better motivate and engage them in energy efficiency and demand-side interventions geared at changing their energy-using behaviours.

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Our definition of HTR energy users

“In this Task, a hard-to-reach energy user is an energy user from the residential or commercial sectors who uses any type of energy or fuel, and who is typically either hard-to-reach physically, underserved, or hard to engage or motivate in behaviour change, energy efficiency and demand response interventions that are intended to serve our mutual needs.”

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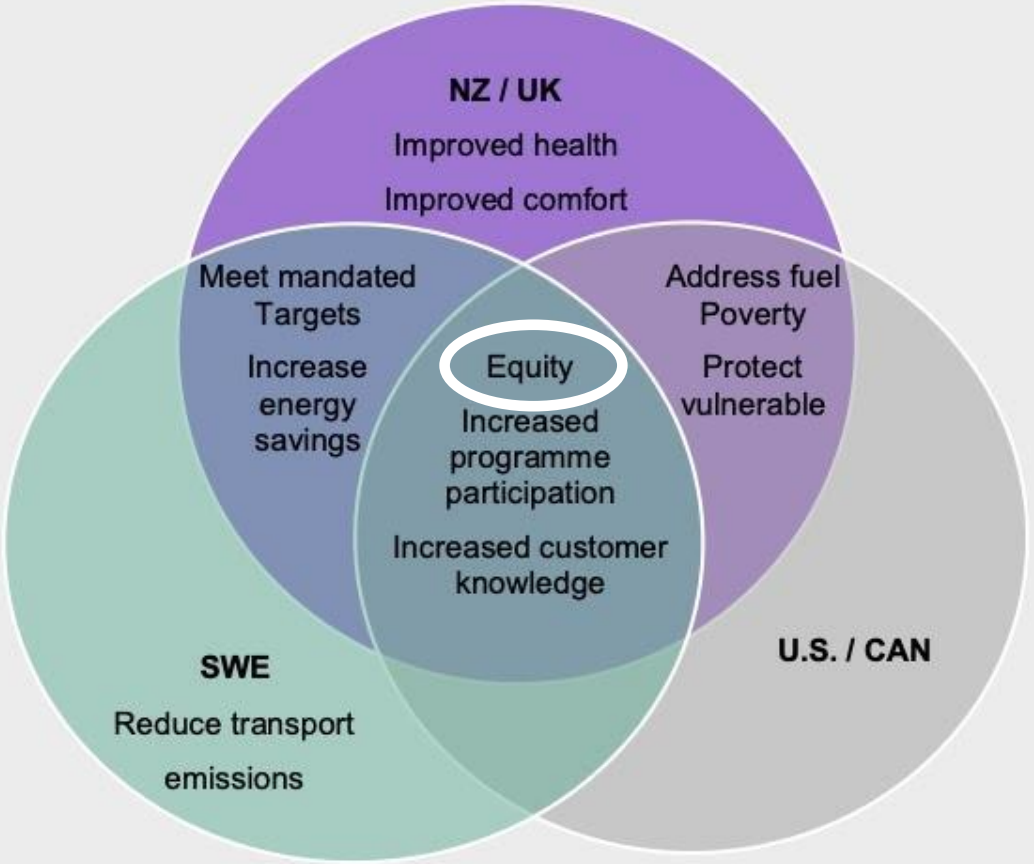
Our shared goal

"Our shared goal is to identify, define, and prioritise HTR audiences; and design, measure and share effective strategies to engage those audiences to achieve energy, demand response and climate targets while meeting access, equity, and energy service needs."



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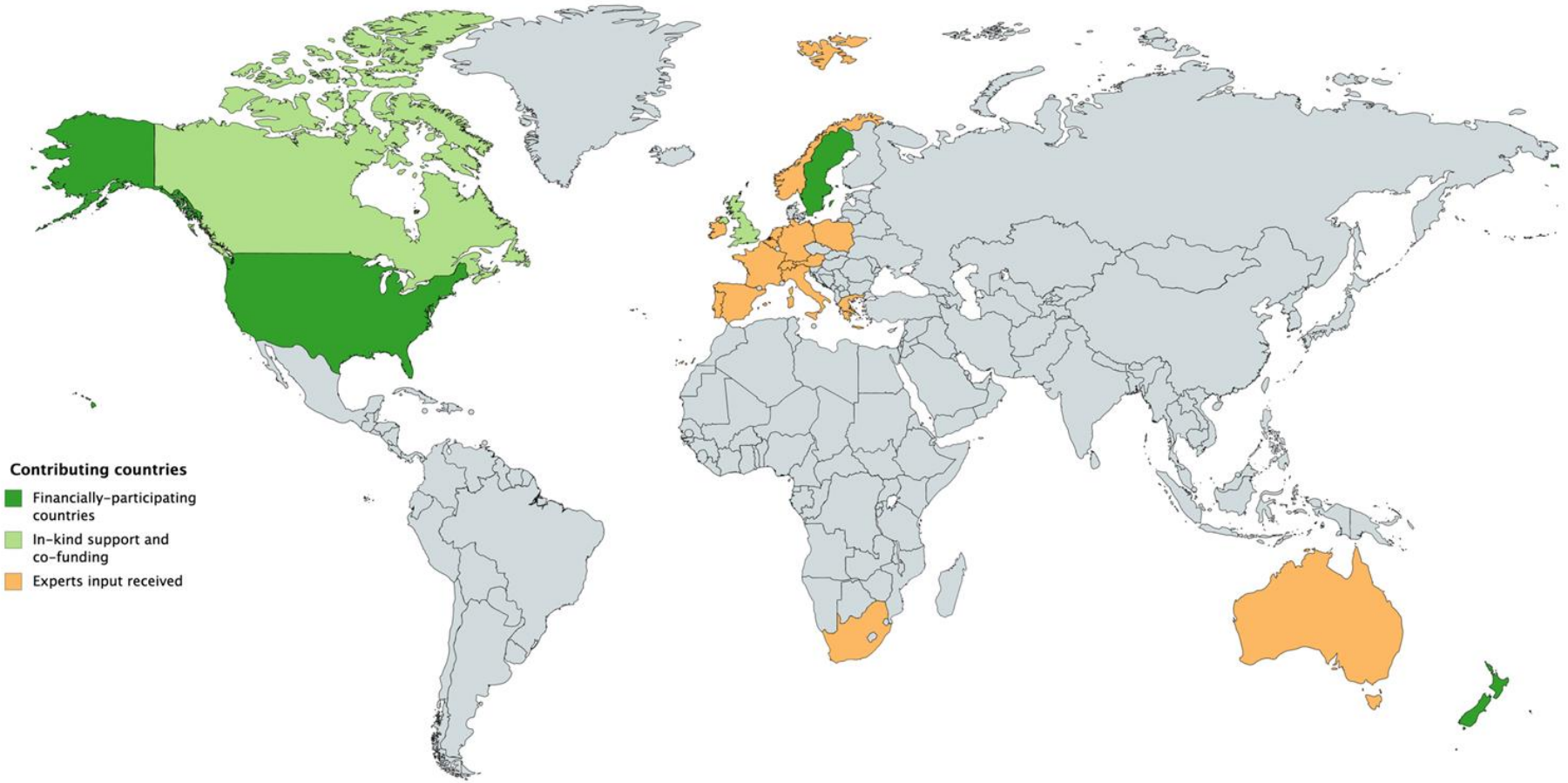
Our Participants and Collaborators



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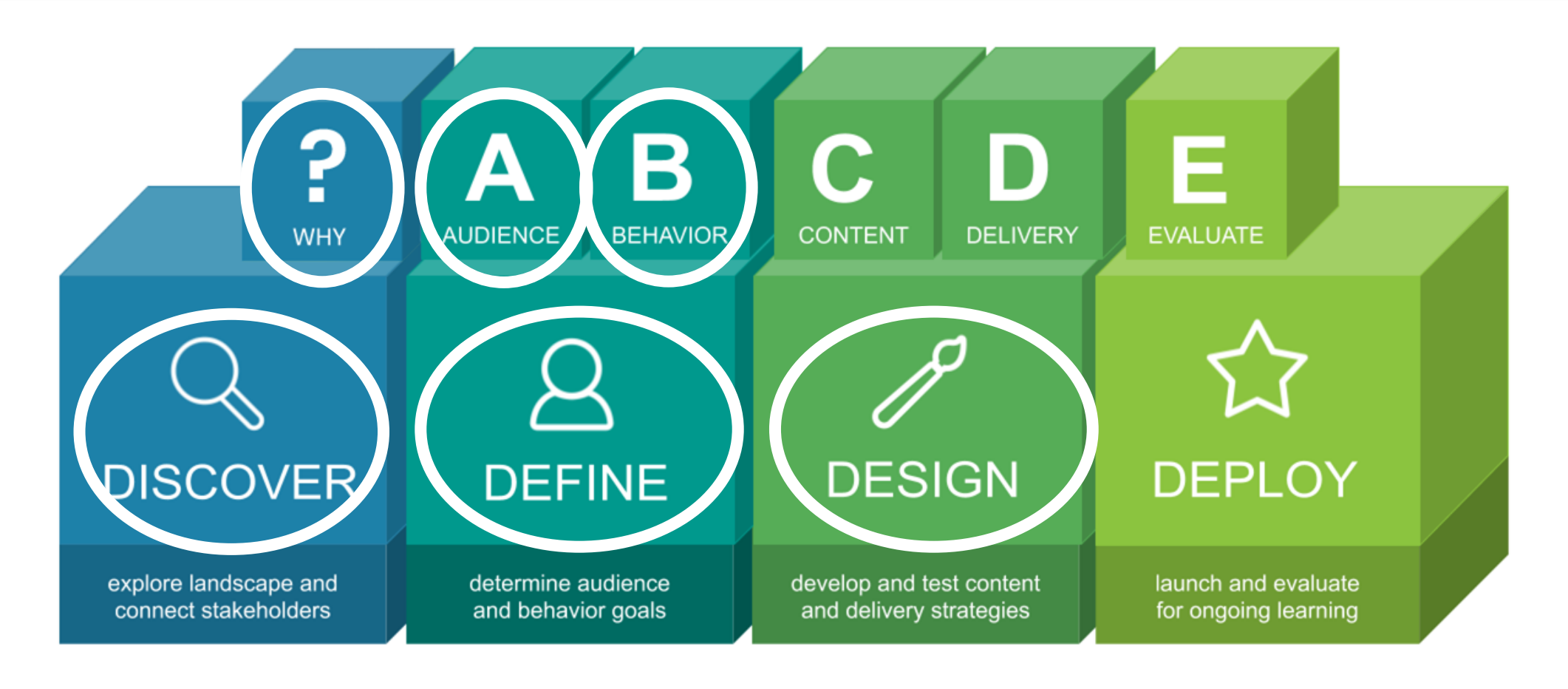
HTR Annex Research Process
"ABCDE Building Blocks of Behaviour Change"



Karlin et al (2021). *The Building Blocks of Behaviour Change.* See Change Institute

seechange INSTITUTE

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Deliverables Year 1

- Meeting minutes 1st international workshop hosted by US
- Webinar on HTR Annex for Users Academy
- HTR Characterisation (Ashby et al, 2020a)
- ACEEE Summer Study paper on interview and survey results (Ashby et al, 2020b)
- ACEEE Summer Study paper on BEST course field research pilot (Rotmann & Karlin, 2020)
- Literature Review (Rotmann et al, forthcoming) 250+ pages
- Literature Review Summary (Ashby et al, 2021)
- 4 BEHAVE conference extended abstracts and presentations, this special session
- eceee Summer Study paper on COVID-19 impacts on HTR energy users
- BECC conference special panel on HTR Annex international findings
- 4 SCI client reports from field research pilots in Canada

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HTR Characterisation
Abstract #427

BEHAVE Conference, April 23, 2021

Dr. Sea Rotmann (NZ)

Kira Ashby (US)

Prof. Luis Mundaca (Sweden)

Prof. Aimee Ambrose (UK)

Hard-to-Reach Characterisation Purpose

- Develop framework for defining and identifying HTR audiences
- Identify goals of better engaging HTR
- Provide an overview of HTR audiences, definitions, and barriers
- Take stock of how frequently various HTR audiences and barriers are mentioned by practitioners / researchers
- Assess (preliminarily) metrics for cross-country transferability of learnings

Ashby et al (2020a). HTR Characterisation. HTR Task: Wellington. https://userstcp.org/wp-content/uploads/2020/10/HTR-Characterisation-FINAL.pdf

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Development of HTR Characterisation

Case Studies

Survey Data

(N=130)

US Workshop 1 Input

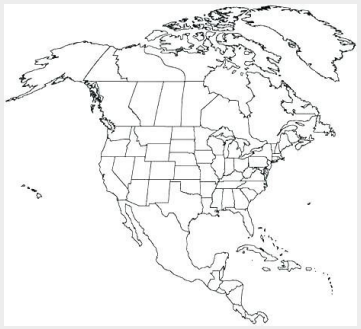
(N=15)

Stakeholder Interviews

(N=50)

Literature Review

(1000+ publications)



HTR Characterisation

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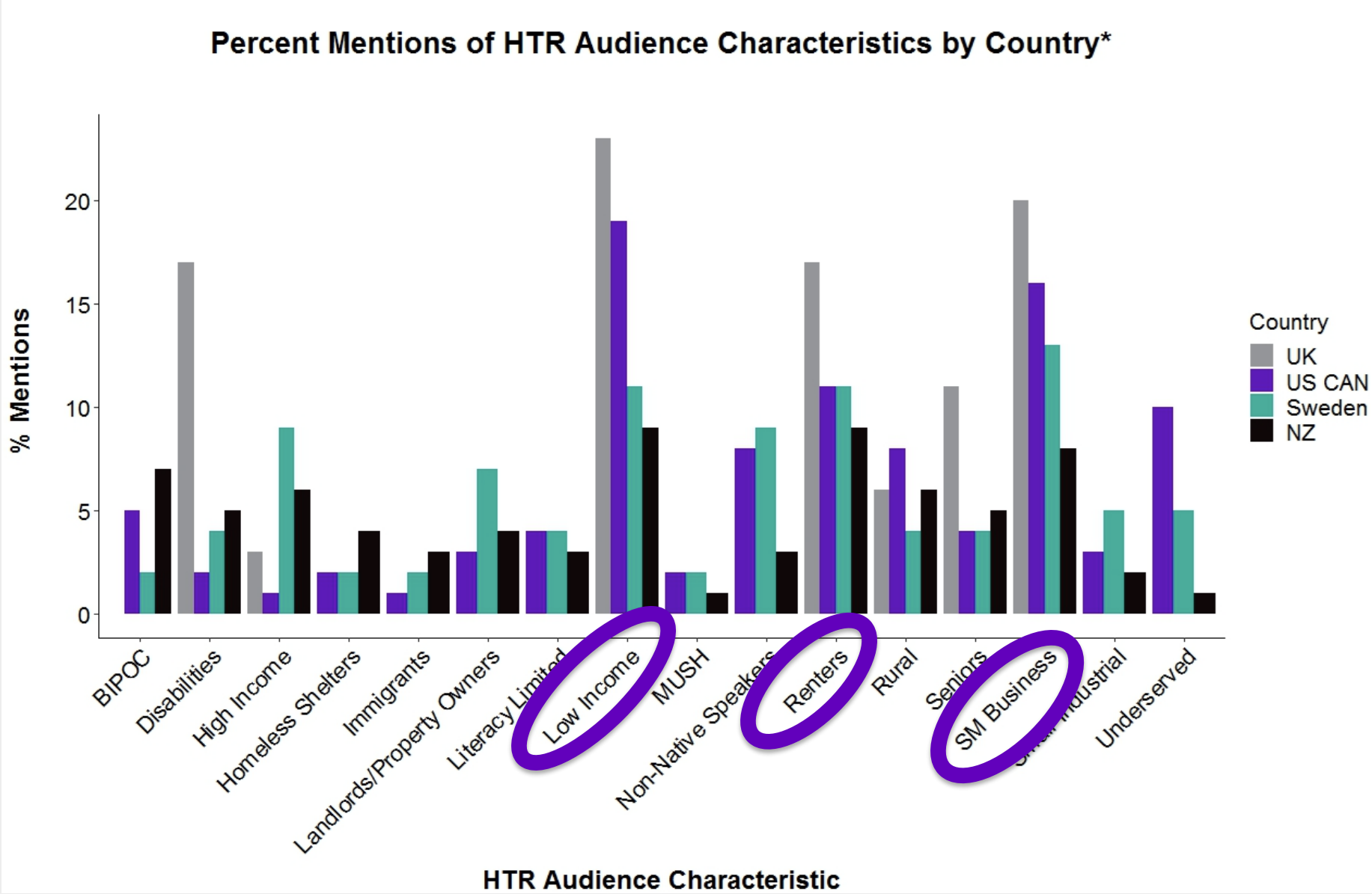
HTR Audiences Common to 3+ Countries



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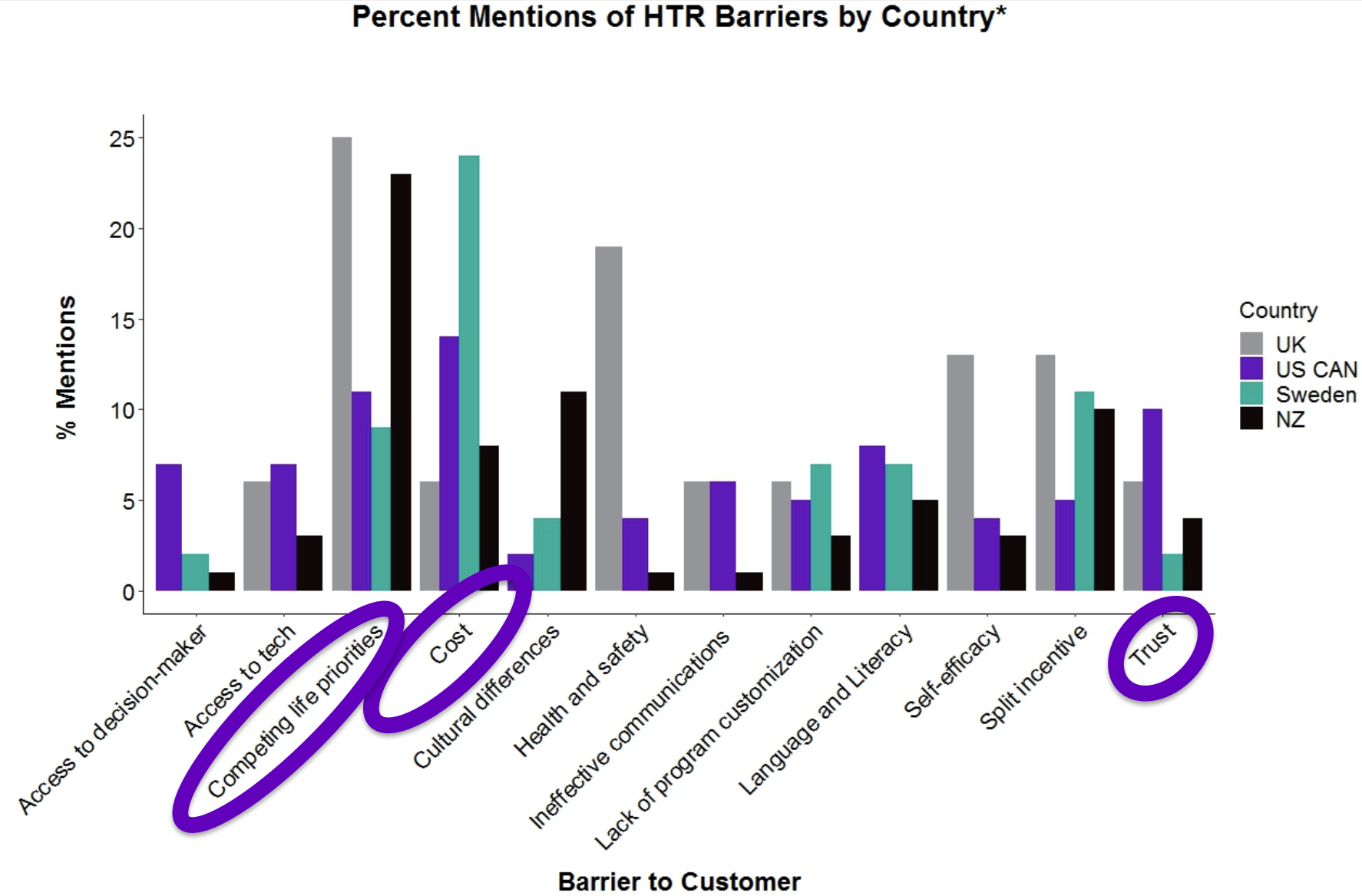
Diverse HTR Audiences, Common Barriers*



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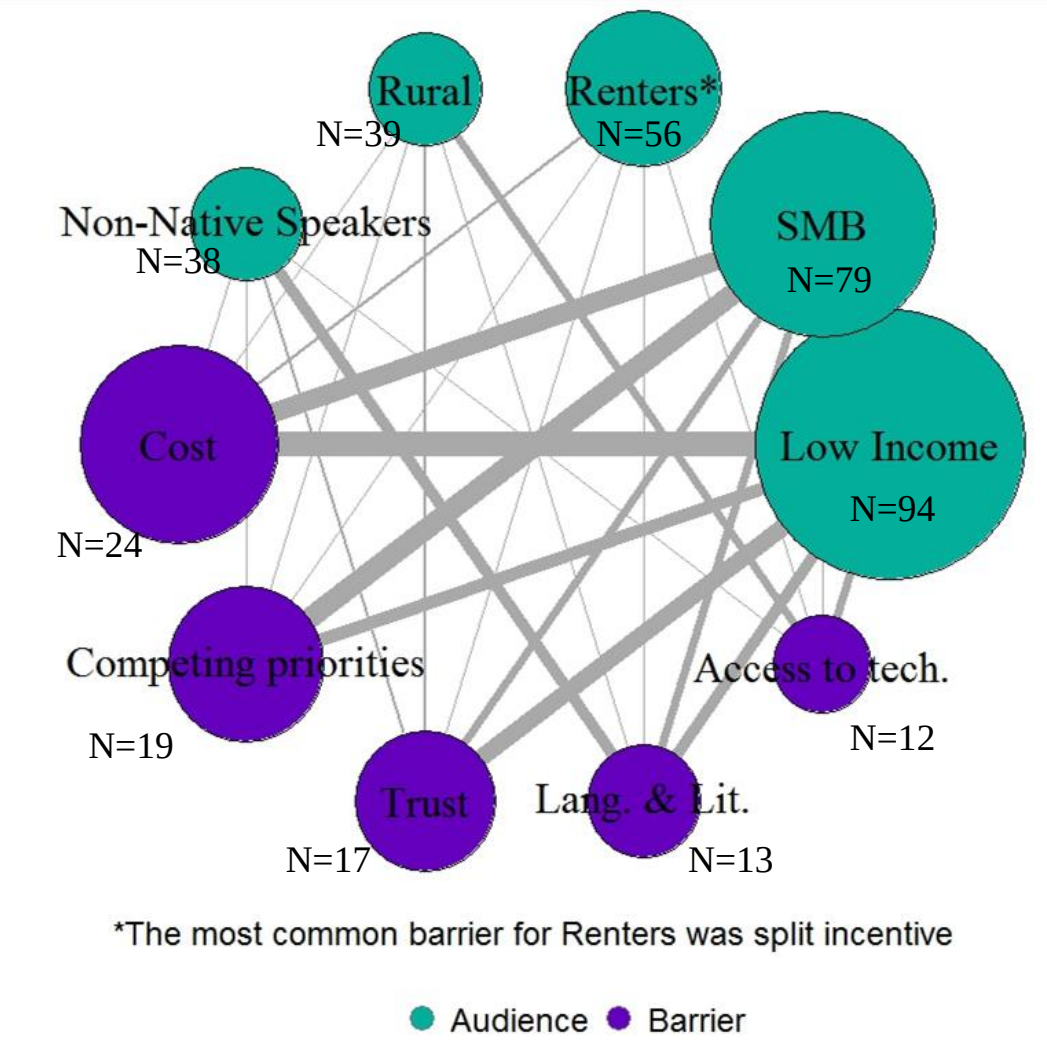
Commonly Mentioned HTR Audiences & Barriers



This network map shows how frequently the top five most commonly-mentioned audiences came up in connection with the top five most commonly-mentioned barriers.

This was done by tallying the instance in which a category of approaches and a specific audience were mentioned concurrently by U.S. and Canadian EE programme administrators.

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Cross-Country Metrics for Transferability

MORE Similar

- Programme goals
- Access to technology
- Population age

Need a closer look

- Policy context
- Prevalence of HTR audiences by country

LESS Similar

- Entity running programmes
- Climatic conditions

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Key Findings Year 1

- Most commonly-mentioned HTR audiences: Low-income households, renters, SMEs
- HTR audiences with great energy-saving potential: High-income, landlords, building operators
- Most interesting to non-energy stakeholders: Disabled, stigmatised, geographically-isolated
- Audience size estimates: >2/3 of energy users (e.g. >60% renters, 99% of all businesses)
- COVID-19 impact: Huge, particularly on most vulnerable households, renters and SMEs
- Biggest research gaps: Commercial sector (outside office buildings), SMEs, multiple benefits, certain demographics (age, gender, race), psychographics and audience needs assessments

⇒ *These audiences are not only hard-to-reach, they are also underserved and under-researched by Behaviour Changers in industry, government and academia. Energy justice, inequity, stigma are key themes that need to be addressed more urgently & on these target audiences*.

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Work Programme Year 2

1. Cross-Country Case Study Comparison - **we are looking for more case studies** / countries!
2. Research Process published - Karlin et al, 2021 “Building Blocks of Behaviour Change”
3. Field Research Pilots funded - **still looking for co-funding**
4. Dissemination
   - BEHAVE (4 extended abstracts), Lit review eBook, Lit review synthesis, eceee Summer Study (1 paper, 1 extended abstract), BECC & BEHAVE panels on HTR Task

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Questions?

https://userstcp.org/annex/hard-to-reach-energy-users/

National Expert Contacts

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Barriers: Key Findings Year 1

- Most commonly mentioned barriers in HTR literature - across all HTR audiences: Competing priorities, financial considerations, (mis)trust, market failures (e.g. split incentives), informational barriers.

⇒ *Much more focus in literature on describing barriers to engagement than actual needs of HTR energy users with HTR audiences or advocates*.

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Barriers: Key Findings Year 1

- ‘Vulnerable’ households: Neoliberalism in EE policy, prepayment as a barrier, stigma, lack of coordinated federal energy poverty strategy, lack of data/understanding, ignoring co-benefits of EE in CBA, poor quality housing, ‘heat or eat’, ‘smart’ tech vs ‘smart’ user, poor intervention design (eg in TOU), structural inequalities and racism

- High income households: perception of disposable income, price mechanisms are inadequate (high inc less sensitive to price inc), weak/no relationship between income and EE/conservation behaviors), negative correlation between income & reducing energy use

- Landlords & tenants: split incentives, principal-agent problem, barriers to investment, financial and informational barriers (landlords & tenants), trust, landlord perception/mistrust, multiple-dwelling buildings, rebound. For ‘behaviour changers’ - market fragmentation, no landlord body, lack of occupant data. Lack of co-benefit evaluations. Transaction costs.

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Barriers: Key Findings Year 1

- Commercial sector: Different reporting practices, lack of access to ‘Behaviour Changers’, EE improvement in existing vs new commercial buildings, tragedy of the commons, human behaviours vs tech solutions, information asymmetry, lack of dedicated energy management/managers, importance/impotence of commercial building operators, administrative barriers (Behaviour Changers), poor evaluation of co-benefits & energy savings potentials, invisible energy policies, individual behaviours or social practices, sector specific barriers (eg office buildings, healthcare, food service, lodging, retail, manufacturing)

- SMEs: face many of the same barriers as commercial sector +/- landlords/tenants, but have more limited resources (time, money, skill/EE literacy, personnel), are more diverse, have a lack of awareness/mistrust of utility programmes, often have remote decision makers, and non-economic factors are also important.