



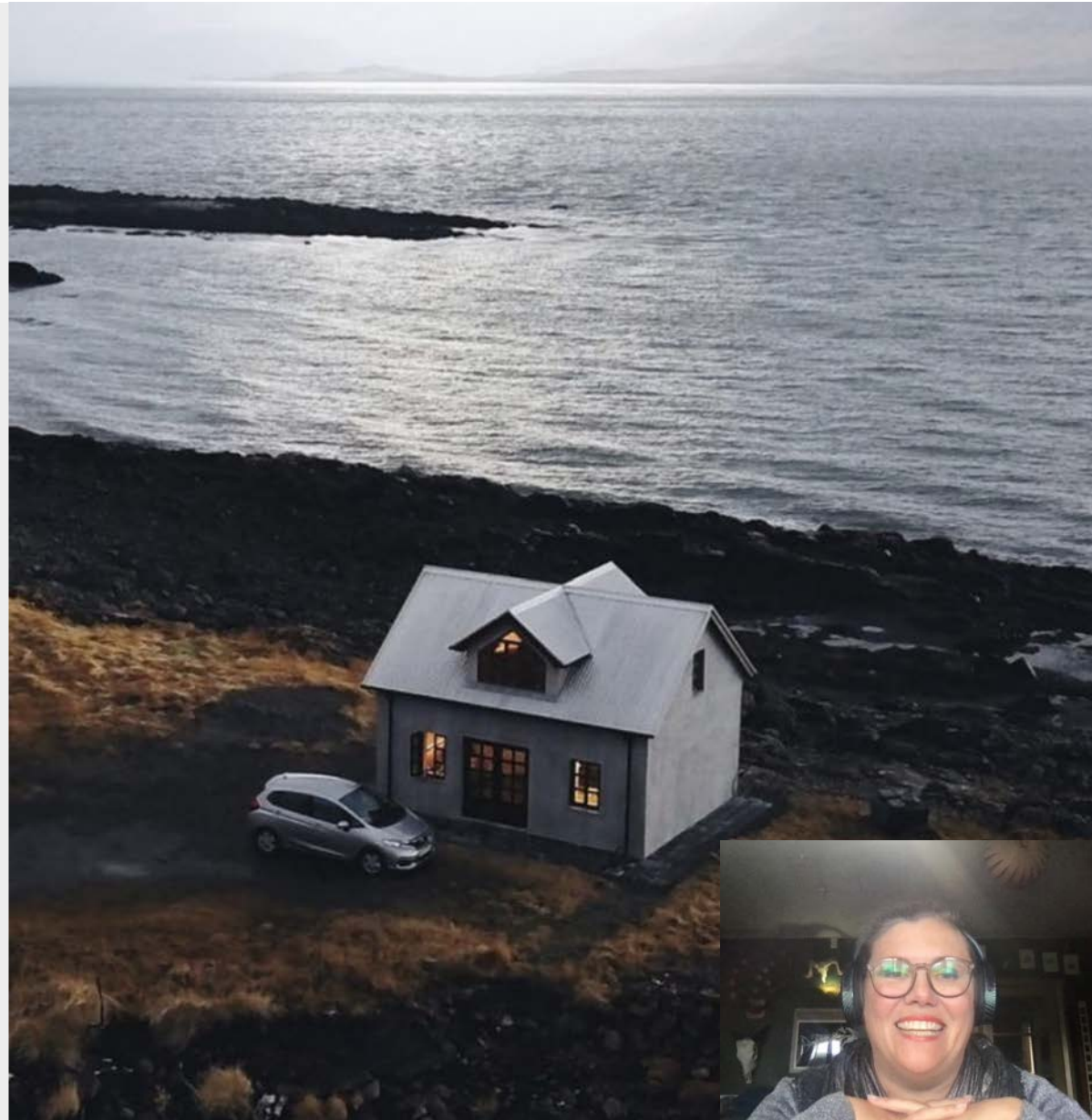
Hard-to-  
Reach Energy  
Users

# Piloting *Home Energy Assessment Toolkits* (HEAT kits) to Empower Hard-to-Reach Energy Users

eceee Summer Study 2022

Dr. Sea Rotmann

Task Leader HTR Task (Aotearoa NZ)





# This research sits under the following umbrellas

## 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.

## TCPs

To facilitate global cooperation on energy technology, the IEA created the *Technology Collaboration Programme* (TCP).

There are currently 38 TCPs each focused on a different topic connecting thousands of experts across government, industry and academia.

## Users TCP

The *User-Centred Energy Systems* mission is to provide evidence from socio-technical research to inform policy making for energy transitions. The Users TCP is **functionally and legally autonomous** from the IEA. Views and findings do not necessarily reflect those of the IEA.

## HTR Task

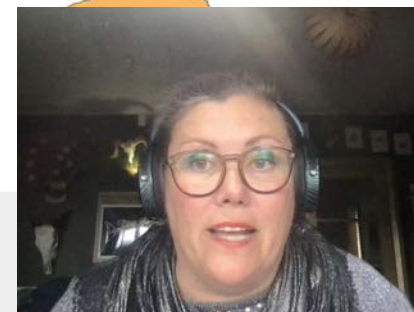
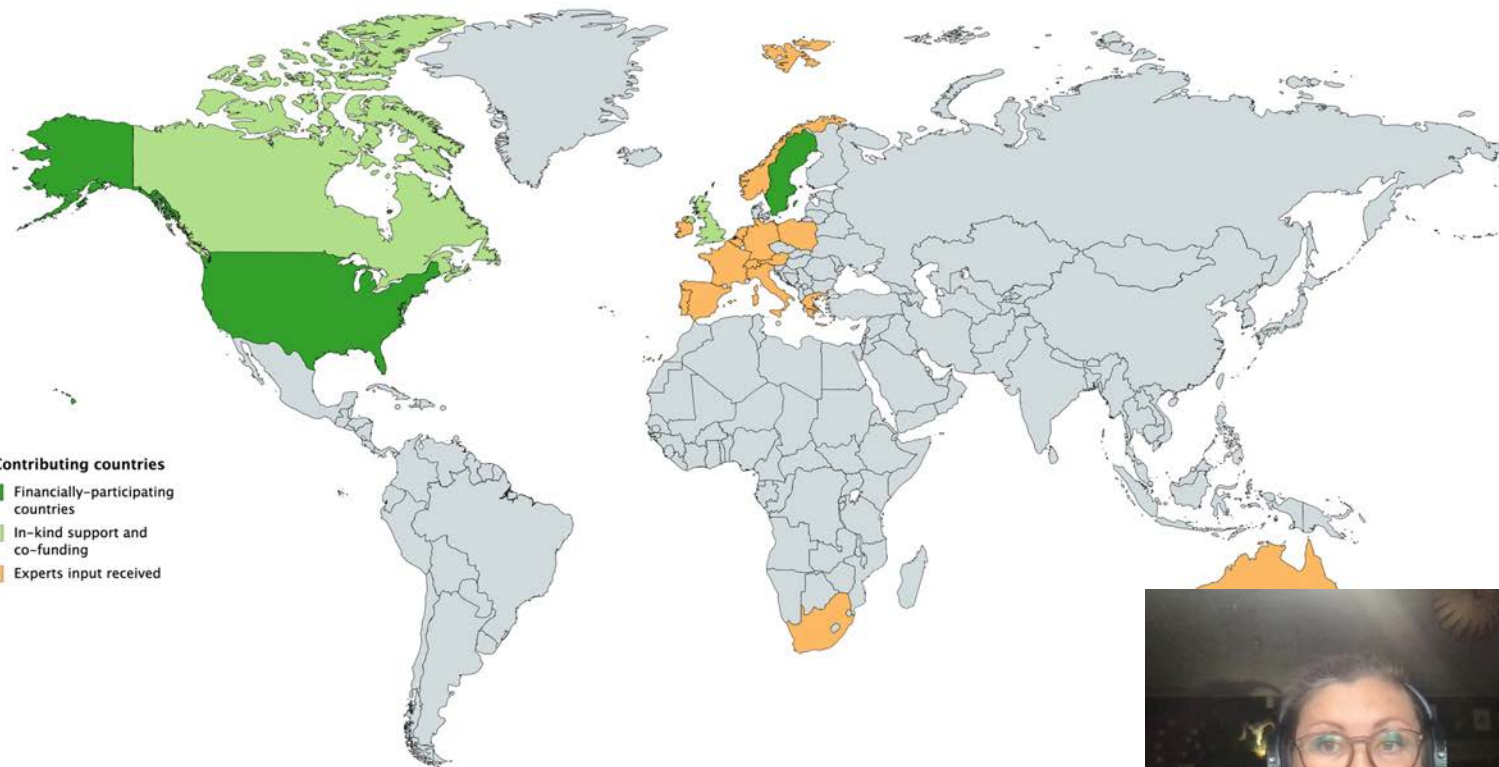
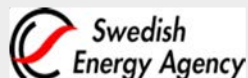
The HTR Task was created “to identify, define, and prioritise HTR audiences; and design, measure and share effective strategies to engage those audiences to achieve energy, demand response and climate targets while access, equity and service needs





Hard-to-Reach Energy Users

# Our Participants & Partners



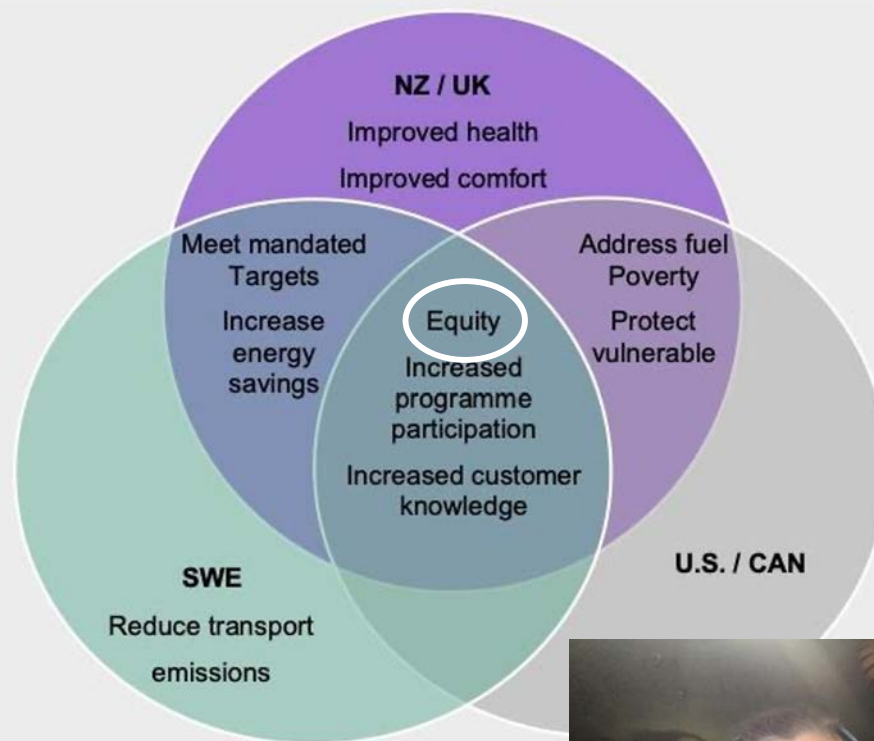


Hard-to-Reach Energy Users

# 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 assesses 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**.

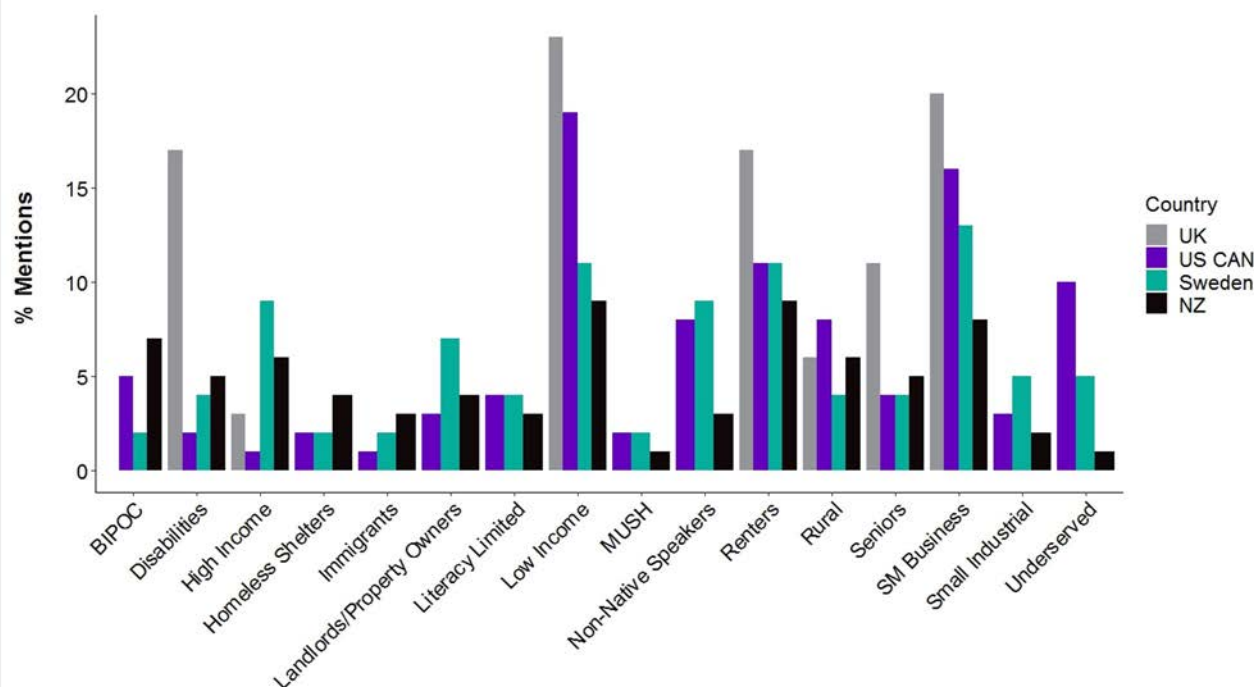




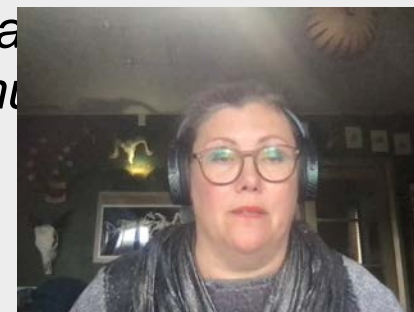
Hard-to-Reach Energy Users

## Our definition of HTR energy users

Percent Mentions of HTR Audience Characteristics by Country\*



*“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 serve our mission.”*

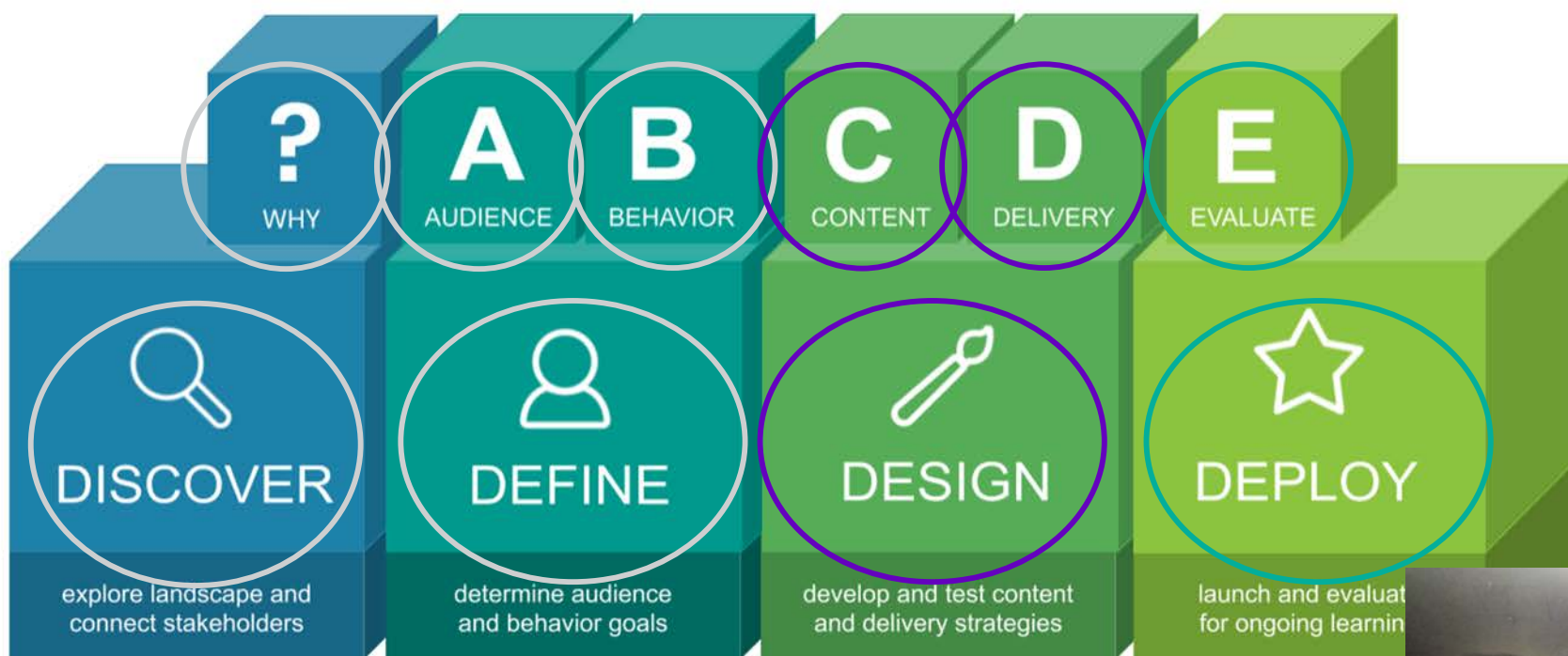




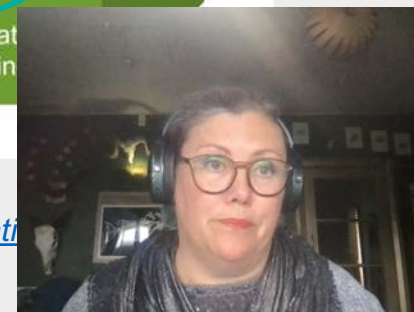
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## HTR Task Research Process “ABCDE Building Blocks of Behaviour Change”

Year 1  
Year 2  
Year 3



Karlin B., Forster H., Sheats J., Chapman D., and S. Rotmann (2021). [The Building Blocks of Behavior Change: A Scientific Approach to Optimizing Impact](#). See Change Institute: Venice Beach. 11pp.





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## Year 1 - Stakeholder Analysis, HTR Characterisation, Definitions, Lit Review



- [Webinar](#) on HTR Task for Users Academy (April 2020)
- [eceee Summer Study](#) expert workshop
- [Survey](#) of 130 HTR experts around the world
- [Interviews](#) of 50 HTR experts in participating countries
- [HTR Characterisation](#) (Ashby et al, 2020a)
- [ACEEE Summer Study](#) paper on interview and survey results (Ashby et al, 2020b)
- [Literature Review](#) (Rotmann et al, 2020)
- [“Cliff Notes”](#) of Lit Review (Ashby et al, 2021)

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

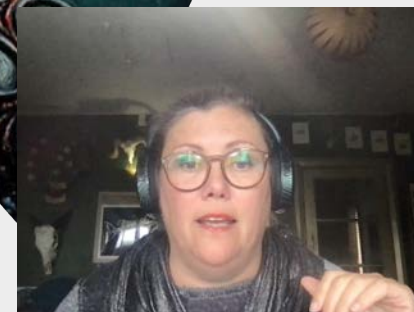
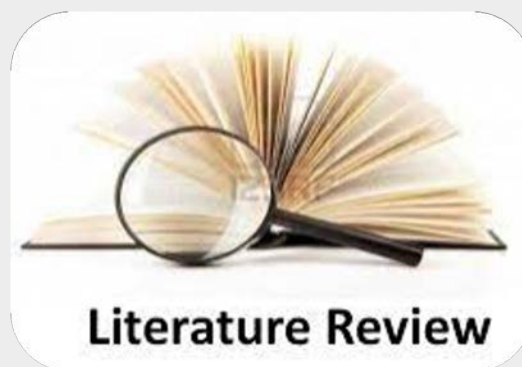
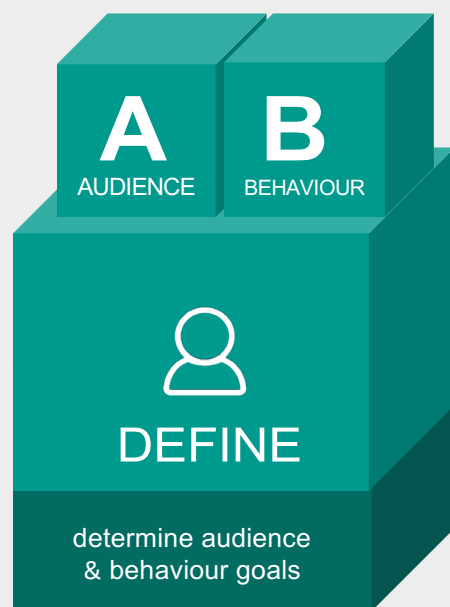




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## “The Beast”

Rotmann, S., Mundaca, L., Castaño-Rosa, R., O’Sullivan, K., Ambrose, A., Marchand, R., Chester, M., Karlin, B., Butler, D. and K. Ashby (2020). [\*Hard-to-Reach Energy Users: A critical review of audience characteristics and target behaviours\*](#). Users TCP HTR Task: 255pp.



## Year 2 - Case Study Analyses & Research Process

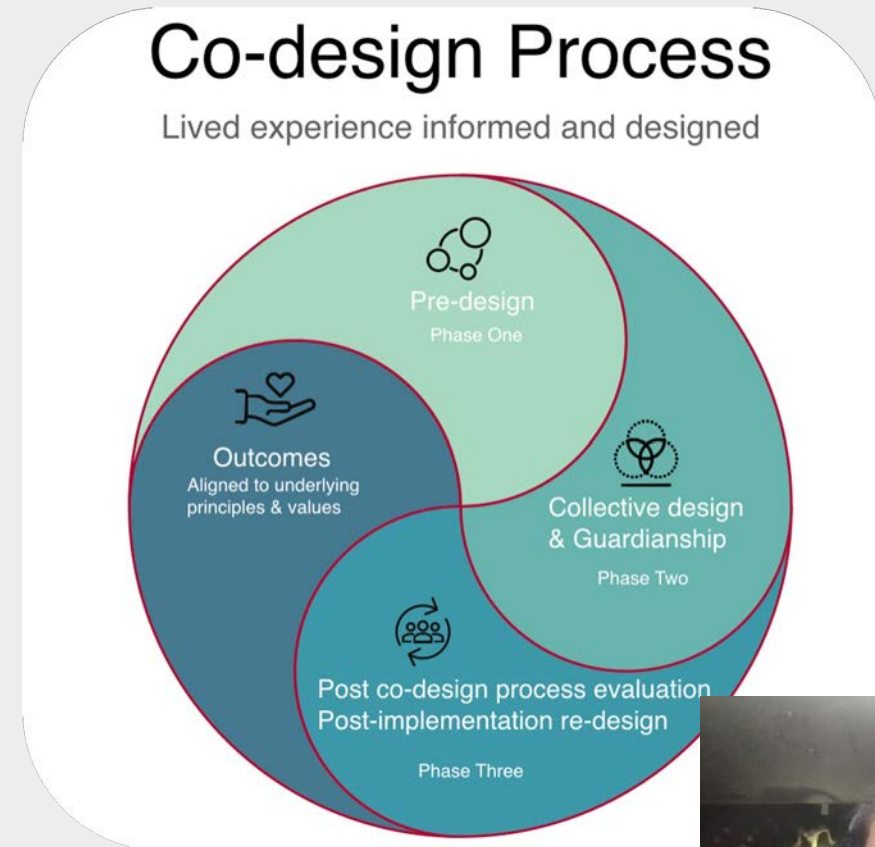


- **Case study analyses:**
  - [Ashby, K. \(2021\). Case Study Analysis – U.S. and Canada.](#)
  - [Butler, D. \(2021\). Case Study Analysis – United Kingdom.](#)
  - [Feenstra, M. \(2021\). Case Study Analysis - The Netherlands](#)
  - [Mundaca, L. \(2021\). Case Study Analysis – Sweden.](#)
  - [Realini, A. & S. Maggiore \(2021\). Case Study Analysis - Italy](#)
  - [Rotmann et al \(2021\). Subtask 2: Case Study Analysis Methodology Template](#)
  - [Rotmann, S. \(2021\). Case Study Analysis - Aotearoa New Zealand](#)
  - [Sequeira, M.M., Gouveia, J.P. and P. Palma \(2021\). Case Study Analysis – Portugal.](#)
- **Building Blocks of Behavior Change** white paper on ST3 research methodology (Karlin et al, 2021)
- **Process Matters:** Assessing the use of behavior change methods in applied behavioural programmes. *Energy Efficiency Case Study Proceedings* (Karlin et al, 2022)



# Common engagement strategies for HTR

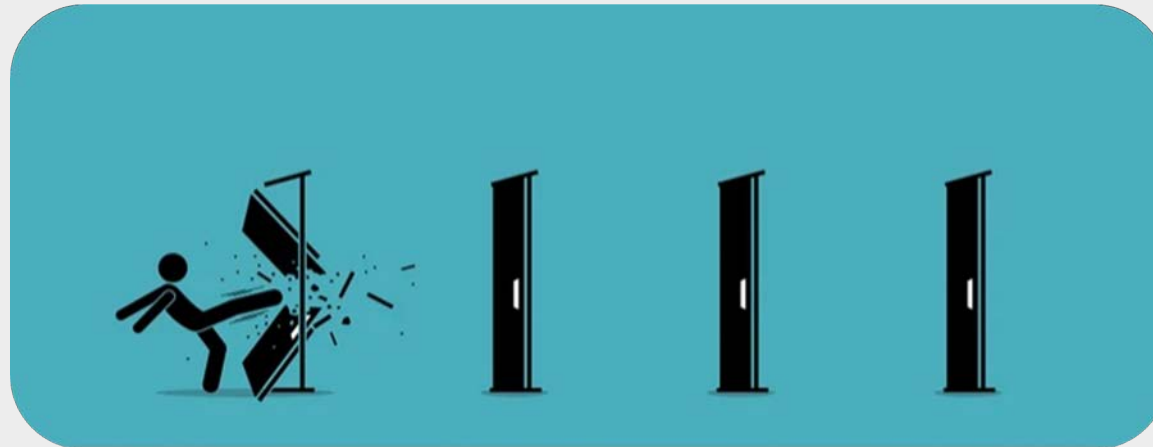
- Use **trusted Middle Actors**
- **CO-DESIGN** interventions & pilots
- **Train MAs** to give energy advice
- **Face-to-face** & tailored **in-home** advice
- **Energy efficiency** isn't the message





# Main barriers when engaging HTR

- **Identifying and recruiting**
- Community MAs were also often **hard-to-reach**
- **TRUST** is one of the biggest barriers
- Current approaches (including library HEAT kits) **don't work for the HTR**



# Year 3: Field pilot on HEAT kits

Fridge/Freezer Thermometer



Thermal Leak Detector



Temperature & Humidity Meter



Plug-In Energy Monitor



Radiator Key



Stopwatch

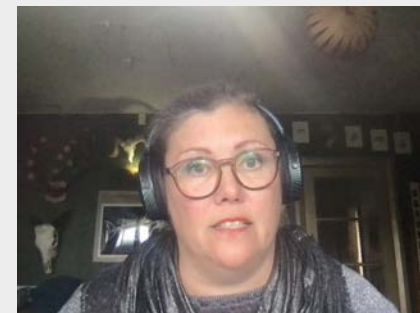


Irish HEAT kit analysis:  
[Rotmann, 2018a](#); [Rotmann & Chapman, 2018](#); [SEAI, 2018](#)

Aotearoa HEAT kit analysis:  
[Rotmann, 2018b](#)

Cross-Country Comparison of HEAT kits:  
Rotmann, 2018 a & [2018 c](#)

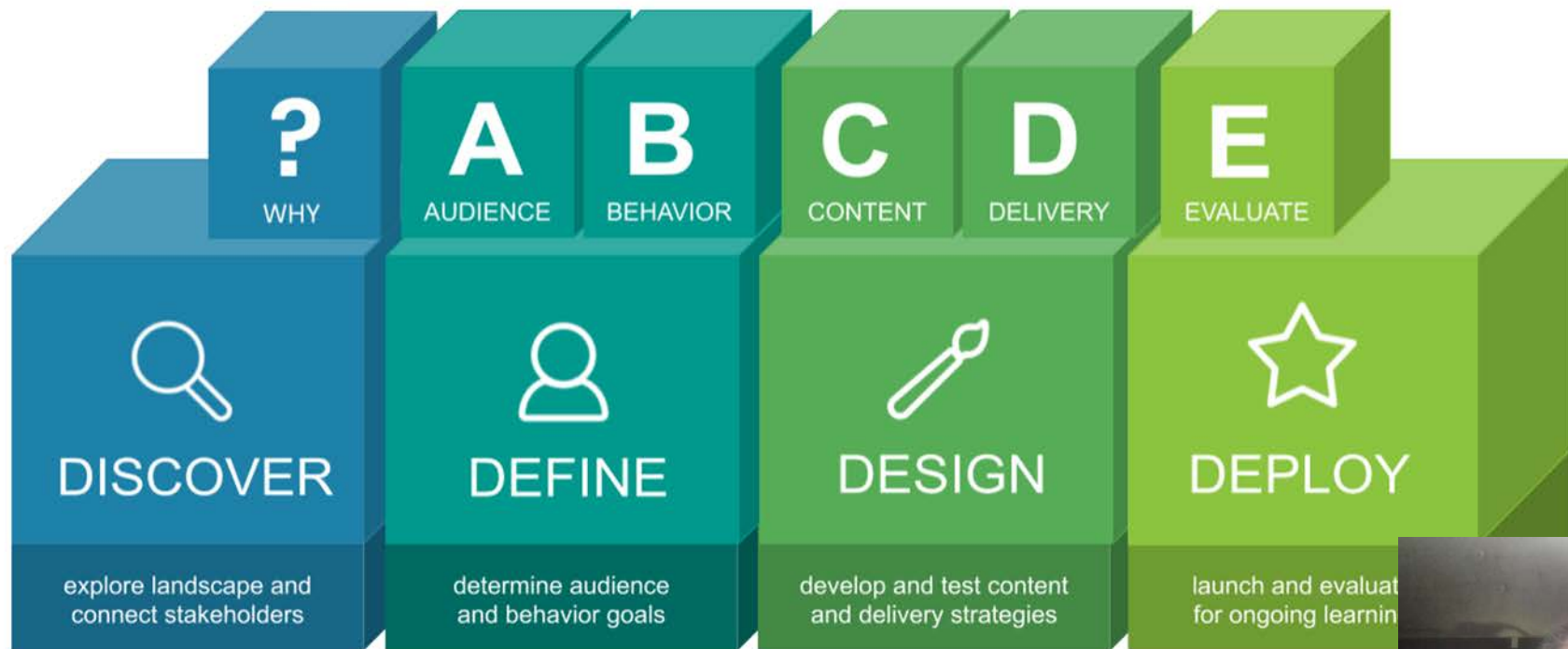
Example of HEAT kit contents in Ireland (Source: Codema.ie)





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# HEAT kits: Following our design process



# HEAT kits: Training community providers

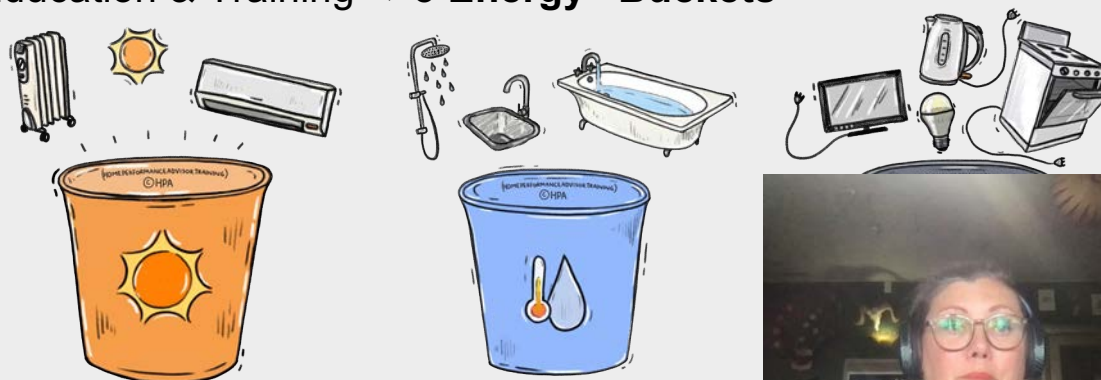


Sustainability Trust Home Energy Performance Advisor at work

1. **Healthy housing** for those in energy hardship was main objective

2. **Behaviours included:**

- Retrofitting insulation
- Energy billing / switching
- Budgeting
- Non-energy related (e.g. new bedding, reduce mould, reduce functional overcrowding)
- Education & Training ⇒ **3 Energy “Buckets”**



[HPA: Making Energy Work for Whānau](#)





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# HEAT kits: Training community providers



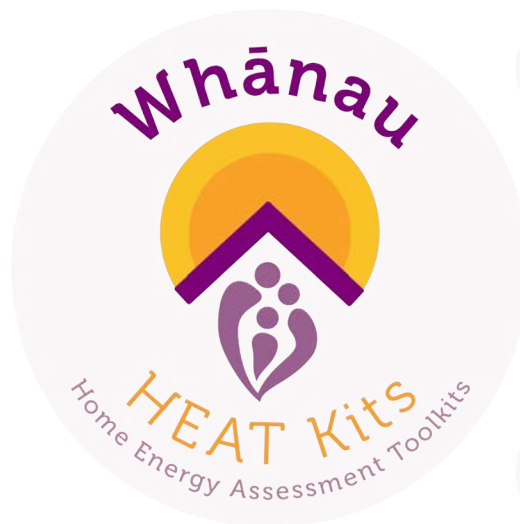
[HPA: Making Energy Work for Whārangi](#)





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# Whānau HEAT kits: Design & Deployment



## Get in touch

Email [drsearotmann@gmail.com](mailto:drsearotmann@gmail.com) or call 0212 469 438



## Get trained

Select some staff to do the HPA training



## Identify whānau in need

Identify 5-15 whānau to participate in the pilot



## Visit their whare

Visit them (with Sea) and drop off the HEAT kit



## Play with the kits for 2 weeks

Whānau do daily 5-min activities, games & quizzes



## Return the kit & get koha & prizes

Sea will pick up the HEAT kit & ask a few questions





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# Top recommendations to policy makers and programme managers

- Build ongoing **trusted relationships** with community Middle Actors
- Use **co-design** principles with multiple stakeholders
- Dedicate the **correct budget** to compensate MAs
- **Empower and train** them
- Clearly **define your target audience** and
- Tailor target **behaviours to *their* needs**
- Use **simple communications** methods
- Use **behavioural science** to inform your messaging but
- Mostly rely on your MA's **practical knowledge of their clients**
- **Pilot - prototype - test** (if you can) before roll-out
- **Evaluate** (process, outcome and impact), and
- **Reiterate** where needed
- Tell **stories** and highlight **non-energy benefits**
- Dedicate **targeted cross-government and -sectoral policies** to removing structural barriers





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# Thank you very much for your attention!

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Please ask any questions or  
email me:

[drsearotmann@gmail.com](mailto:drsearotmann@gmail.com)

Check out our project:

<https://userstcp.org/task/hard-to-reach-energy-users>

