



User-Centred Energy Systems

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Hard-to-
Reach Energy
Users

HTR Task Phase 2: Achieving a just energy transition

Users Academy Webinar, 22 May, 2024

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User-Centred
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SEA Sustainable
Energy Advice





UsersTCP

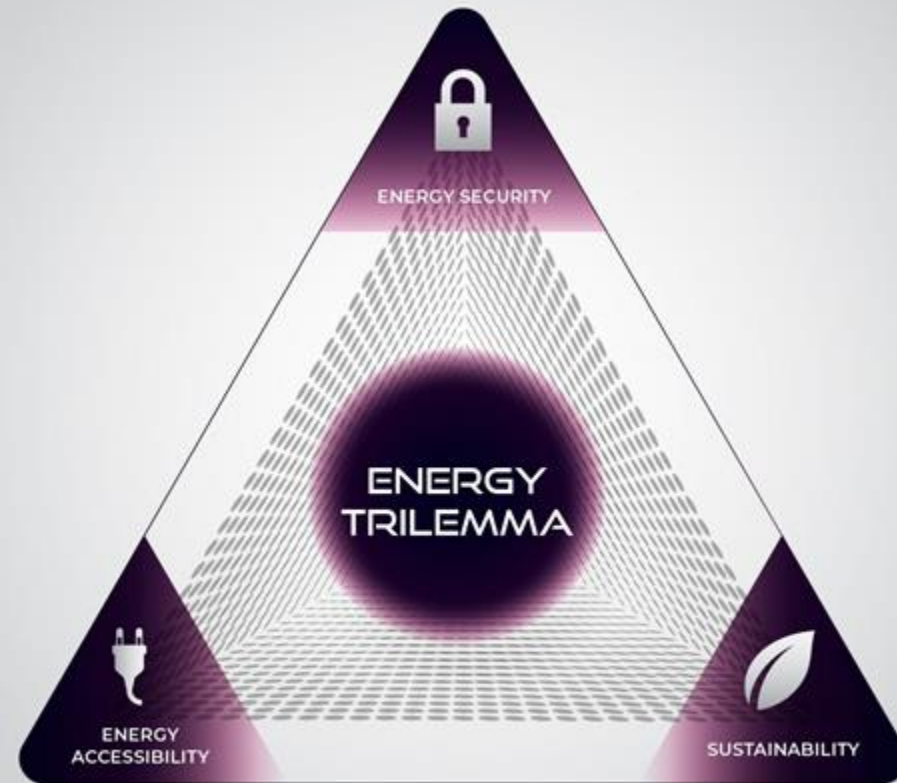
UsersTCP and the International Energy Agency (IEA)

- 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.



Talk Outline

- Background to HTR Task
- Energy Equity & Justice
- Lessons from Phase 1
- Phase 2 - Hidden Energy Users
- Examples from Field Research



Why equity? Evolution of this research over 12+ years

IEADSM Task 24: Phase I 2012-15

First global research collaboration on behaviour change & DSM. Phase I (8 countries) created a theoretical helicopter overview of behavioural models & theories of change. We realised there was **no behaviour change silver bullet**.

⇒ **Collective Impact Approach & behavioural socio-ecology**

Task 24: Phase II 2015-18

Phase II of Task 24 (6 countries) focused on the **human aspect** of the energy sector, the energy users but also the “Behaviour Changers” who tried to engage them via awareness and/or behaviour change campaigns.

⇒ **Multi-stakeholder collaboration plus end user engagement**

Users TCP HTR Task 2019-23

The HTR Task (5 countries) was created *“to identify, define & prioritise HTR audiences; and design, measure & share effective strategies to engage those audiences to achieve energy, demand response and climate targets while meeting **access, equity & energy service needs.**”*

⇒ **There are many sub-types of HTR audiences & big research gaps**

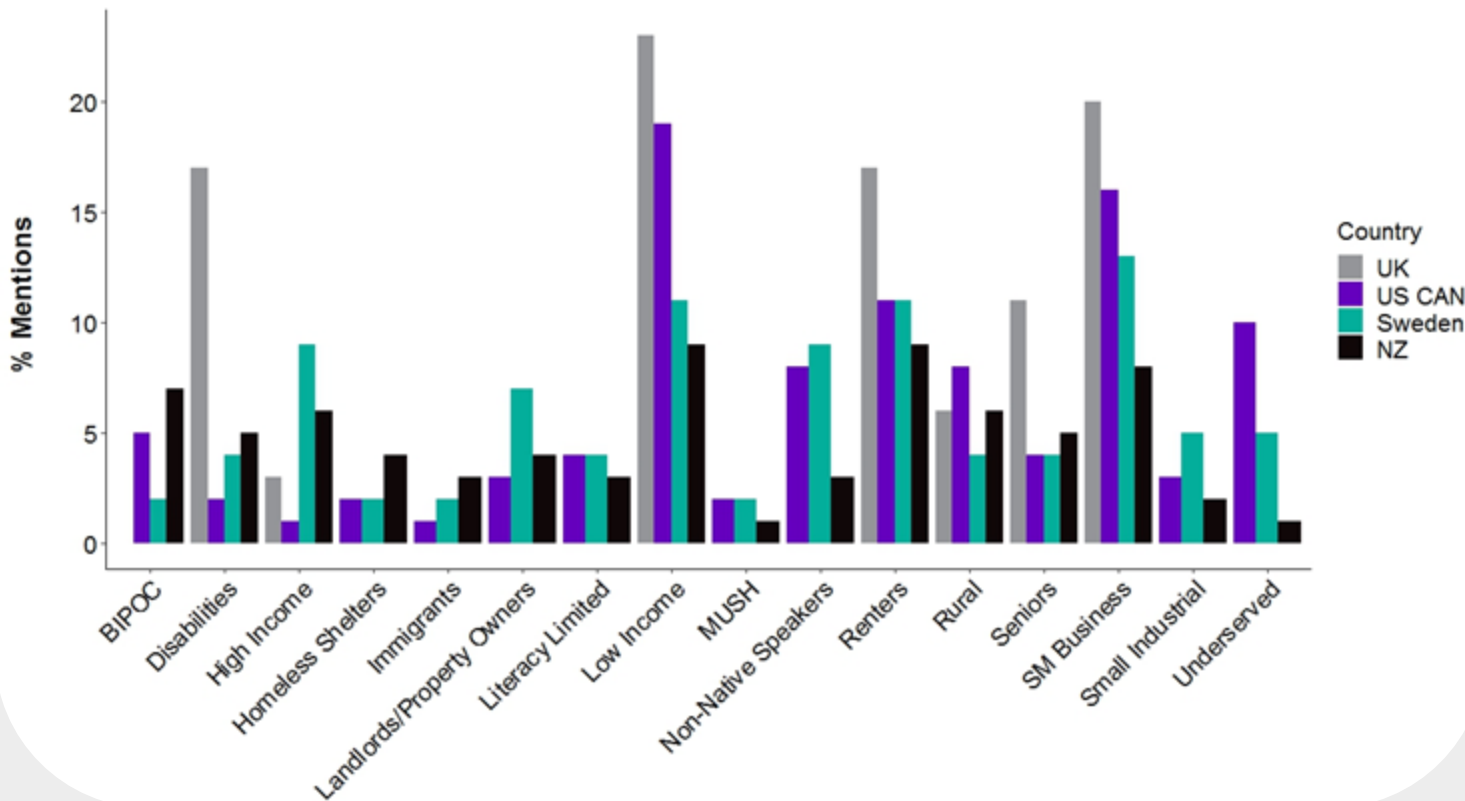
HTR Task: Phase II 2023-26

We want to help our collaborators achieve a **just energy transition** by focussing on hidden energy users, including those living in **“hidden hardship”** (small & micro businesses and vulnerable households).

⇒ **You need trusted frontline & community gatekeepers to find them**

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 & demand response interventions that are intended to serve our mutual needs.”*

What is (Energy) Justice?

Equality



The assumption is that **everyone benefits from the same supports**. This is equal treatment.

Equity



Everyone gets the supports they need (this is the concept of "affirmative action"), thus producing equity.

Justice

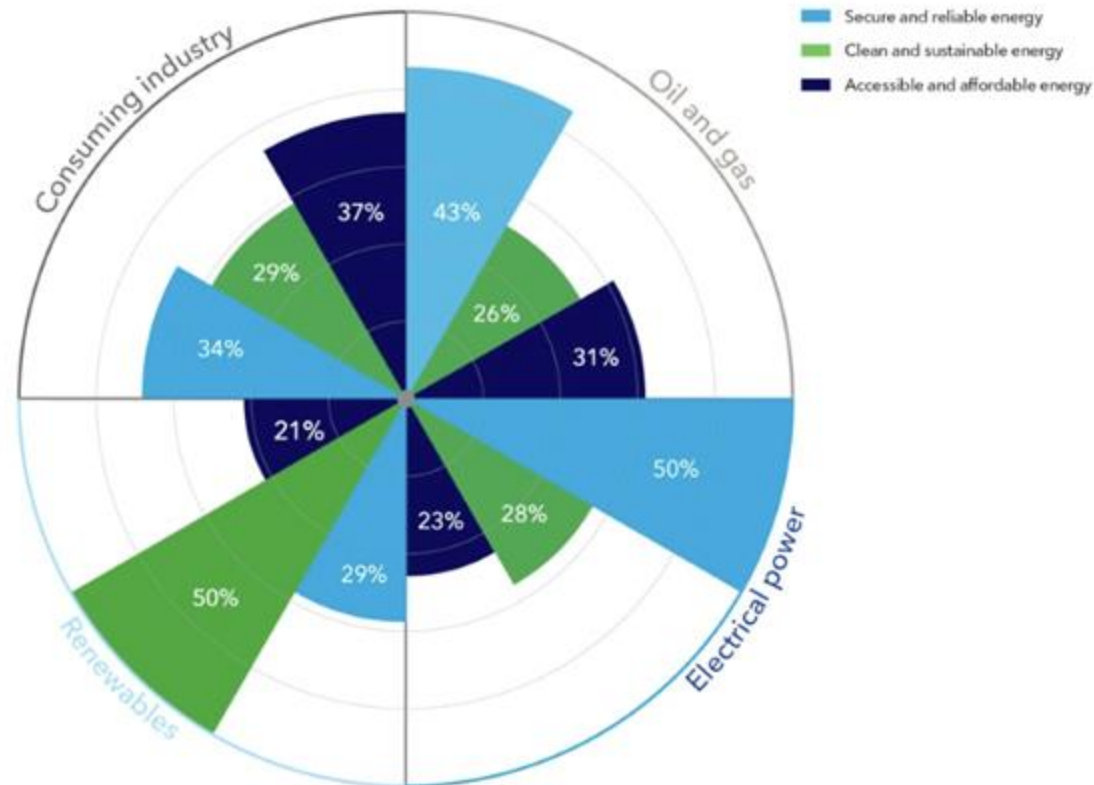


All 3 can see the game without supports or accommodations because **the cause(s) of the inequity was addressed**. The systemic barrier has been removed.

The Energy Trilemma

“In terms of policy formulation, society has become too influenced by economists and this applies in particular to the energy sector.”
[Heffron et al \(2018\)](#)

The past year has put the spotlight on energy security, but the transition demands that we push clean and sustainable energy forward as fast as possible without harming security or affordability

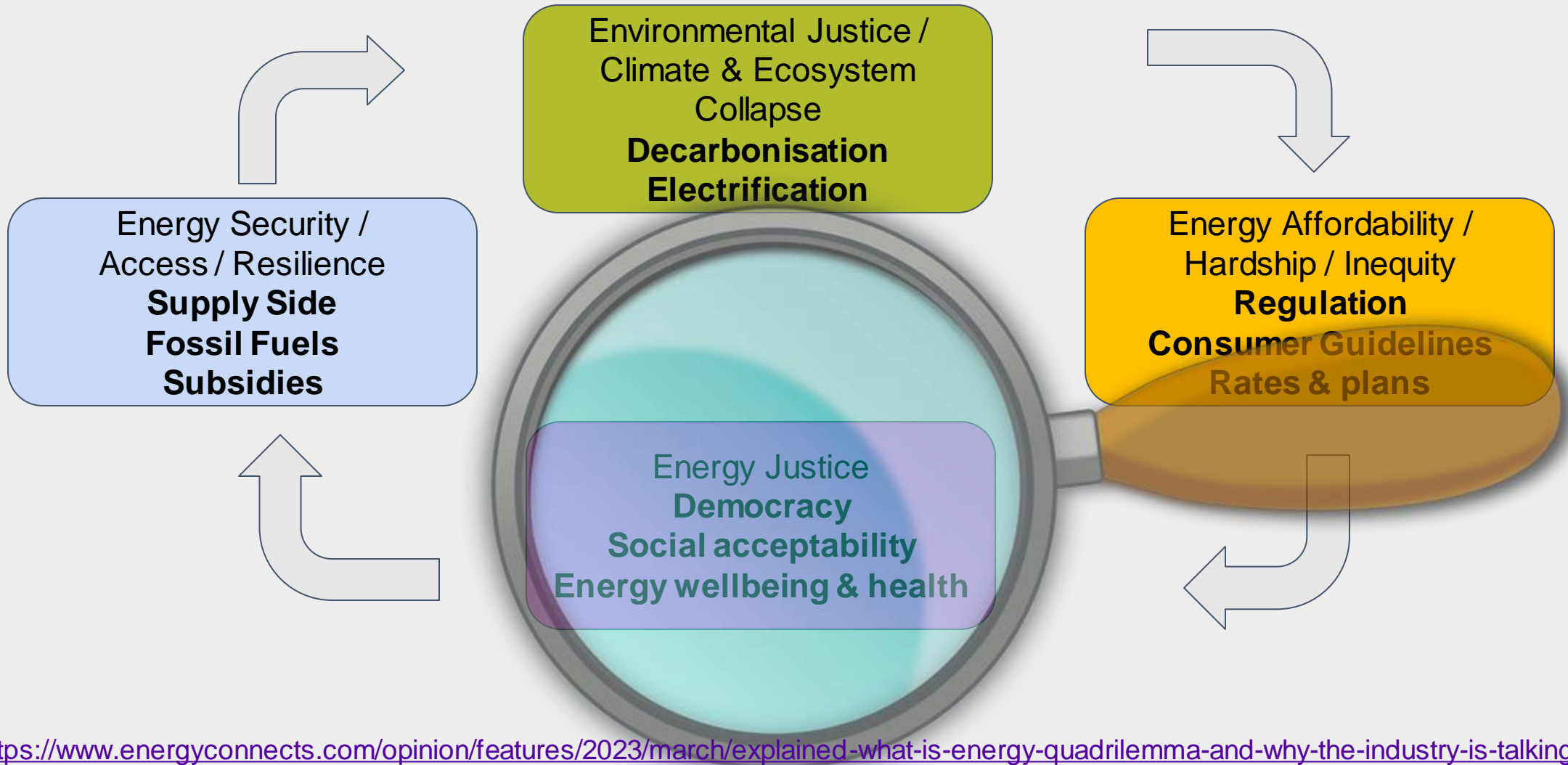


Q: Which aspects of the energy trilemma should the energy industry prioritize in the year ahead?

Source: World Energy Council



Or is it a Quadrilemma*?





Global Trends on Energy Equity

*“Putting people, and **inclusivity**, at the centre of all clean energy transitions not only improves people’s lives, but is also key to successful implementation of energy & climate policies.”*

IEA people-centred clean energy transitions



*“A shift away from fossil fuel energy should happen in a **just**, orderly & **equitable** manner.”*

Global Stocktake COP28

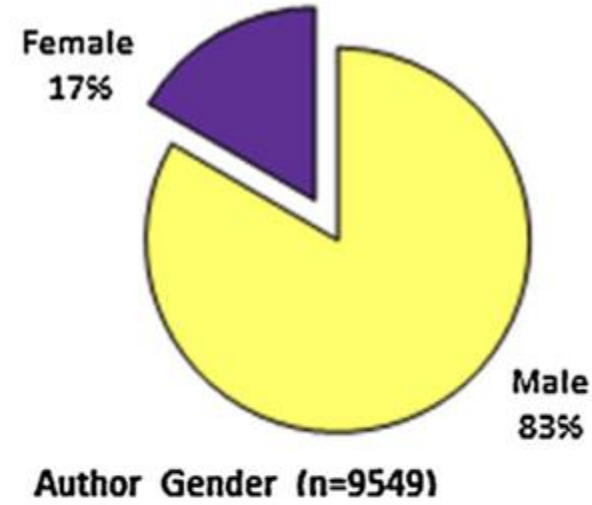
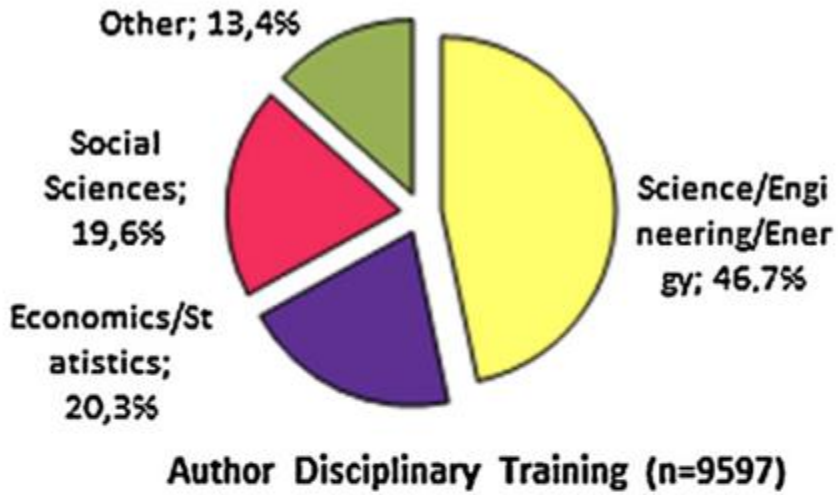


*“To meet the goal of the **Justice40** Initiative, the Administration is transforming 100s of Federal programs across the government to ensure that **disadvantaged communities** receive the benefits of new and existing investments in these categories.”* U.S. White House



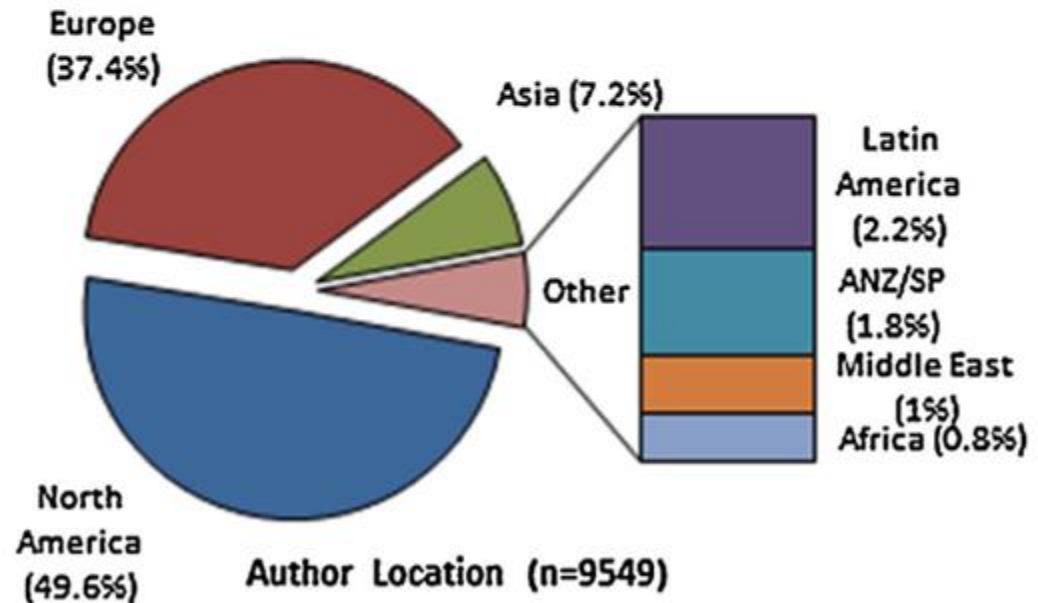
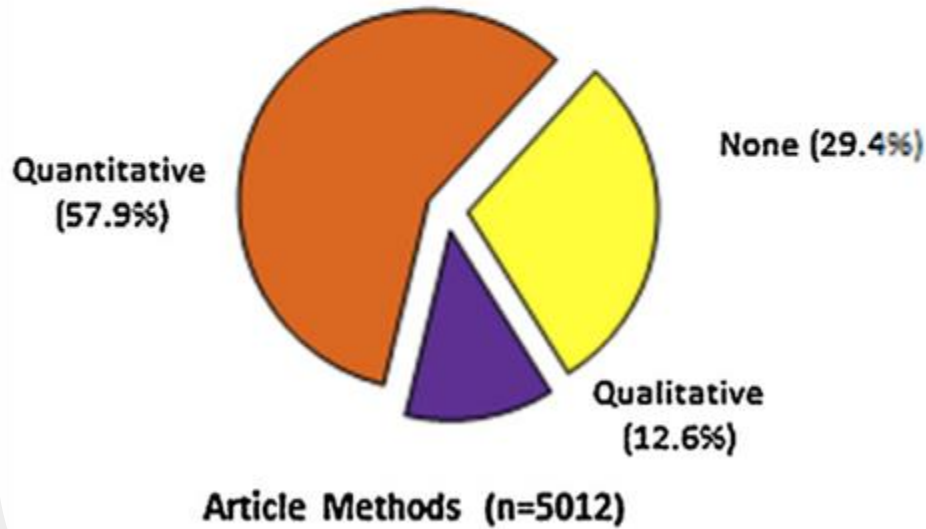
*“The **Equity in Energy** initiative is designed to expand the **inclusion** and participation of individuals in **underserved communities**, such as minorities, women, veterans, and formerly incarcerated persons, in all the programs of the Department of Energy and in the private energy sector.”* DoE





, 2020)

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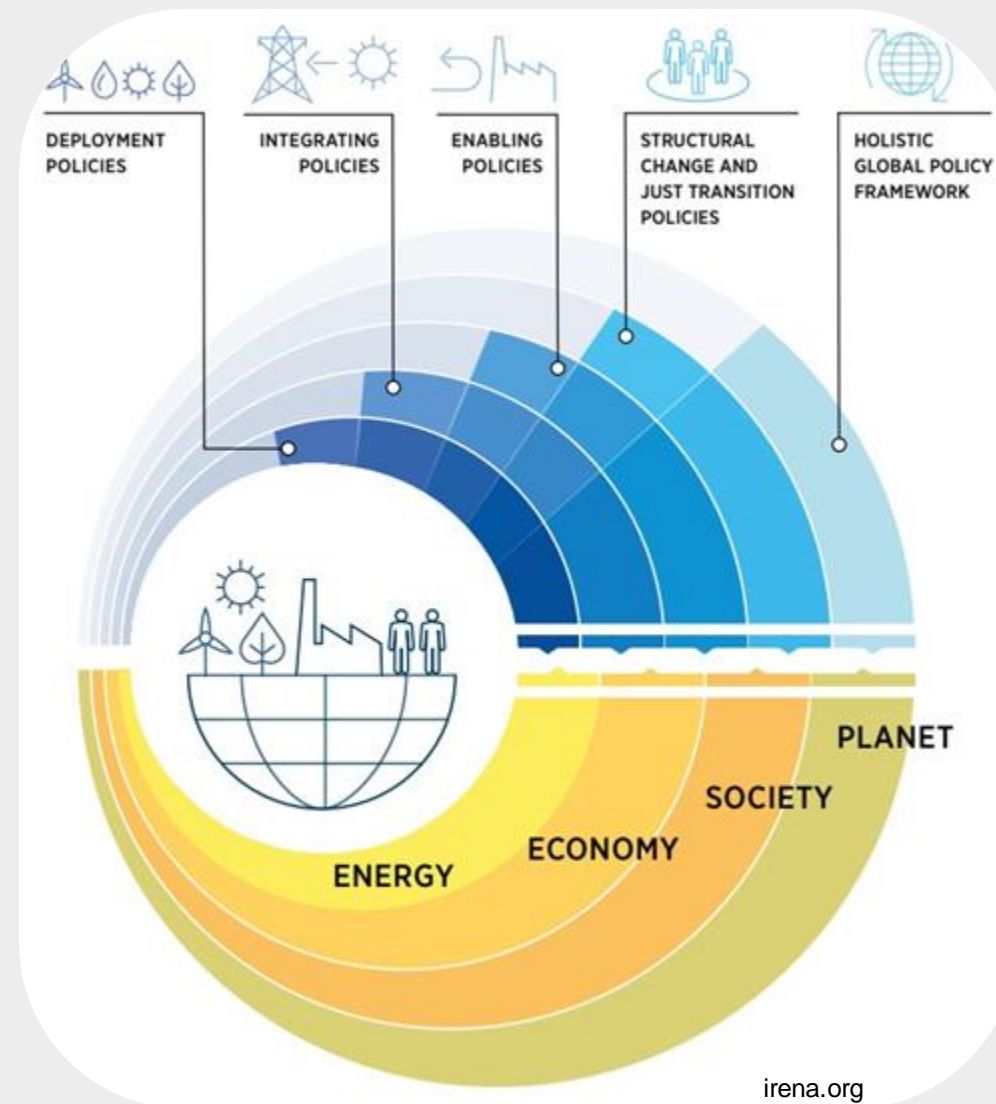
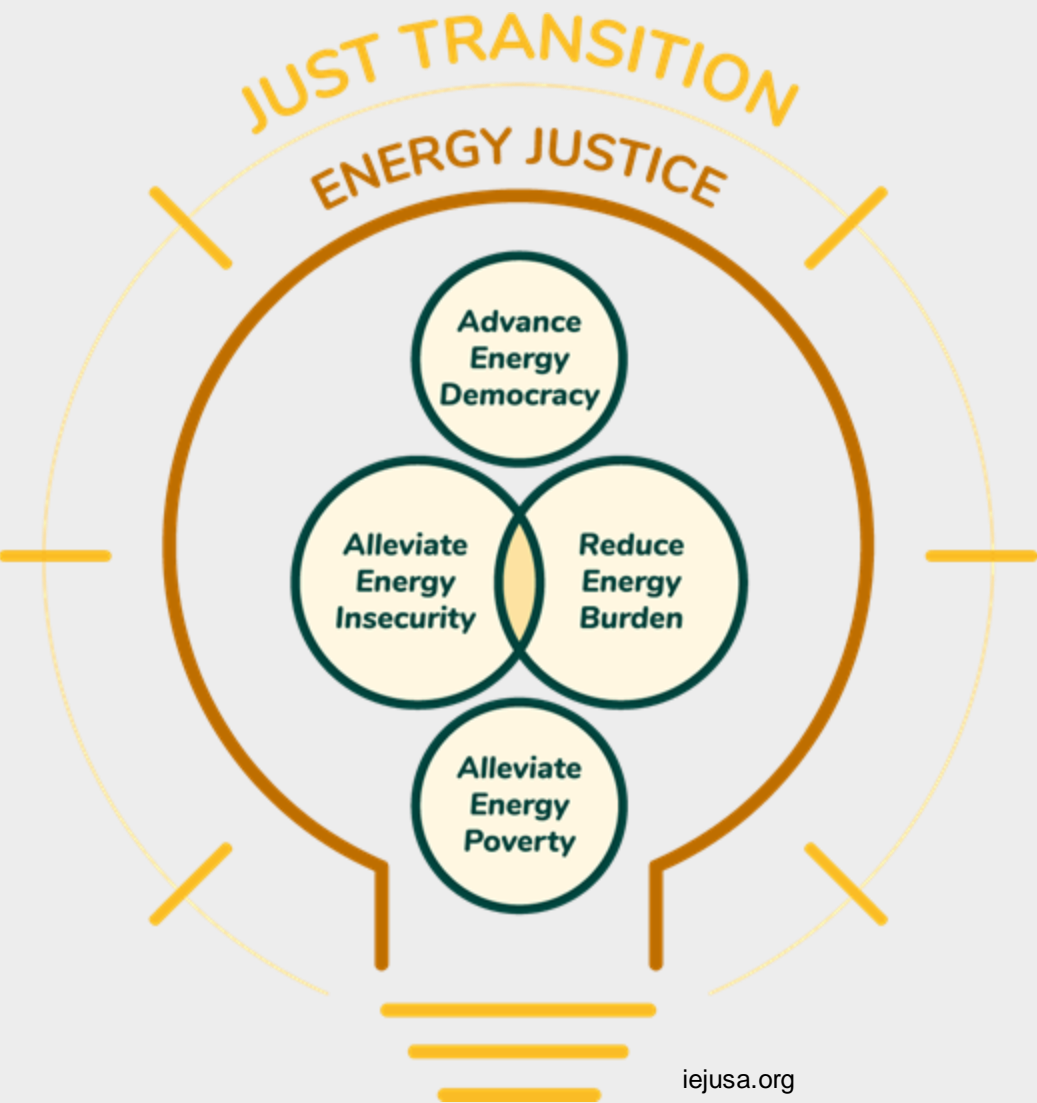


*E.g.

Fig. 2. Disciplinary, gender, methodological, and geographic trends in energy studies research, 1999–2013.

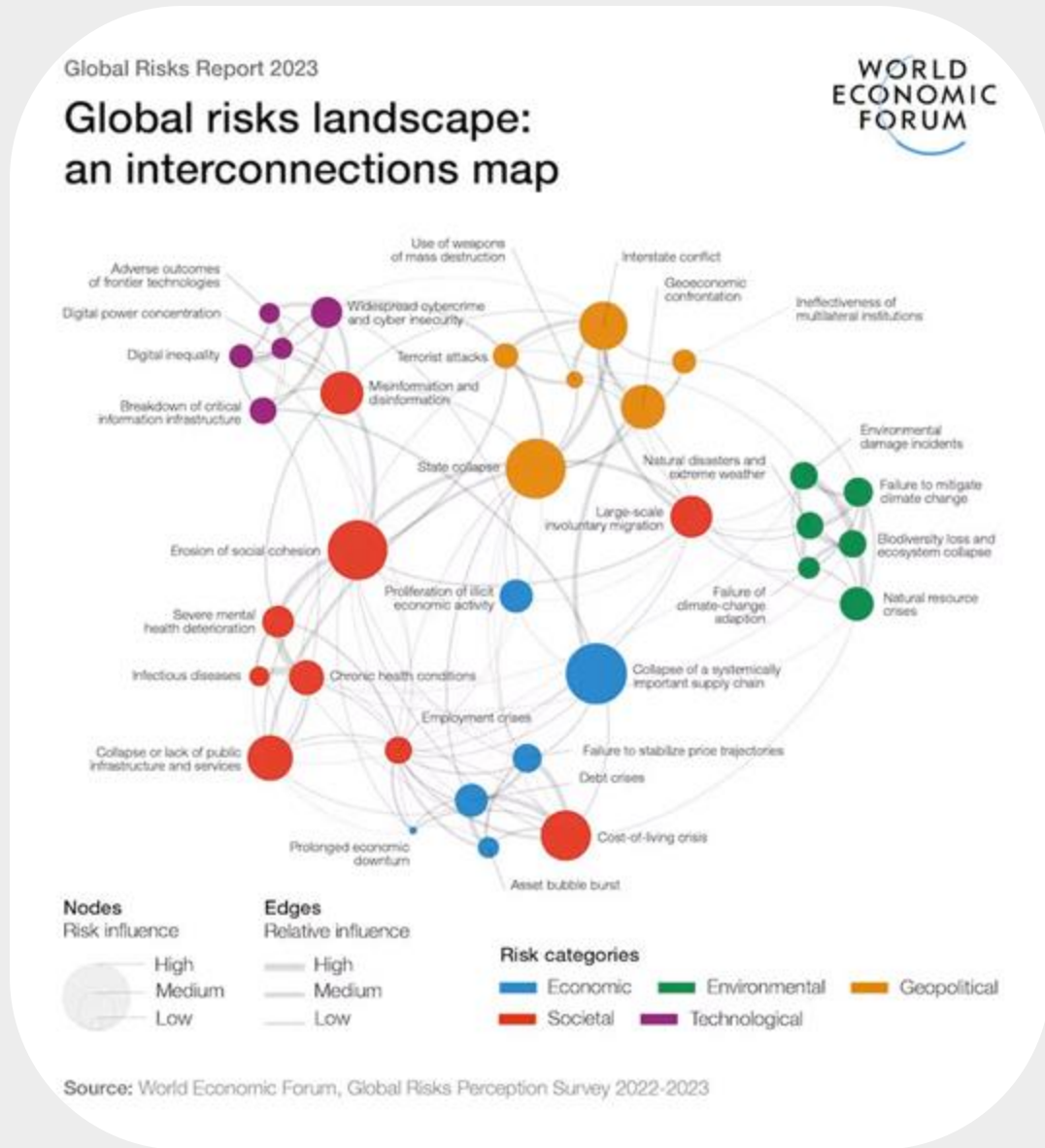


Is a “just” energy transition possible?





The global perma/polycrisis that's unfolding



Polycrisis = the simultaneous occurrence of several catastrophic events

Permacrisis = an extended period of instability and insecurity, especially one resulting from a series of catastrophic events



Energy injustice is everywhere

Sweden has:

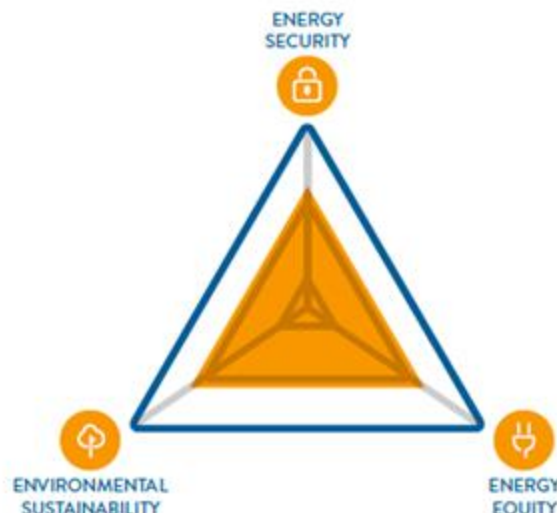
- High dependency on energy imports & highly-affected by Ukraine war
- Lower to middle-income groups most affected
- Had to give emergency support to energy producers, but also consumers
- Marginalization during transition to smart grids
- Renewables vs Indigenous sovereignty
- Bad outcomes for the environment

Aotearoa New Zealand has:

- Built the fewest new homes in the world in the last 30 years
- The most expensive rents & homes relative to incomes in the world
- The highest proportion of stressed renters in the world
- Renters are 4-6x more likely to experience energy hardship
- >110,000 households could not afford to keep their home adequately warm
- Households with Māori & Pasifika are more likely to experience energy hardship

TOP 10 OVERALL RESULTS

1. Switzerland
2. Sweden
3. Denmark
4. United Kingdom
5. Finland
6. France
7. Austria
8. Luxembourg
9. Germany
10. New Zealand





Energy injustice is everywhere



Three international presentations from our hui in Wellington in March 2023:

1. The dire situation in the UK
2. Fuel poverty interventions to deal with the crisis in Portugal
3. The impact of temperature extremes & COVID-19 on remote Indigenous populations in Australia



Lessons from Phase 1

- **Terminology matters** - When you go beyond simple income-related definitions, we're not reaching the majority of energy users. Are they really HTR or are we not trying hard enough?
⇒ Broaden your definitions & eligibility criteria as well as audience (sub)segmentation
- **Embrace complexity** - Different audiences = different barriers, motivations, needs, strategies & solutions
⇒ Spend more resources deeply understanding sub-segments of priority audiences
- **Look at the hidden segments** - Why are they hidden? Are we not "seeing" them or do they want to remain hidden on purpose, and if so, why?
⇒ Understand their lived experience and complex range of issues they're dealing with & co-design
- **For whom aren't they hidden?** Which community, frontline & service providers and navigators are known and trusted by them?
⇒ Create trusted relationships with those community navigators without further burdening them?
- **"Decolonise" your thinking and approaches** - Do you really know how marginalised communities want to be engaged with?
⇒ Understand which subgroups need what cultural approaches, messengers & strategies

What is / isn't decolonisation?

- Decolonising means **undoing the effects of colonialism** (the practice or policy of control by one people or power over other people or areas)
 - *It does not just apply to (former) colonies or colonisers*
 - *It does not necessarily or exclusively apply to independence movements*
- It is rather about the **decolonisation of knowledge** (i.e. the hegemony of Eurocentric knowledge systems)
- When you address **energy injustice**, you have to account for **Indigeneity, race, gender and other intersecting inequities**

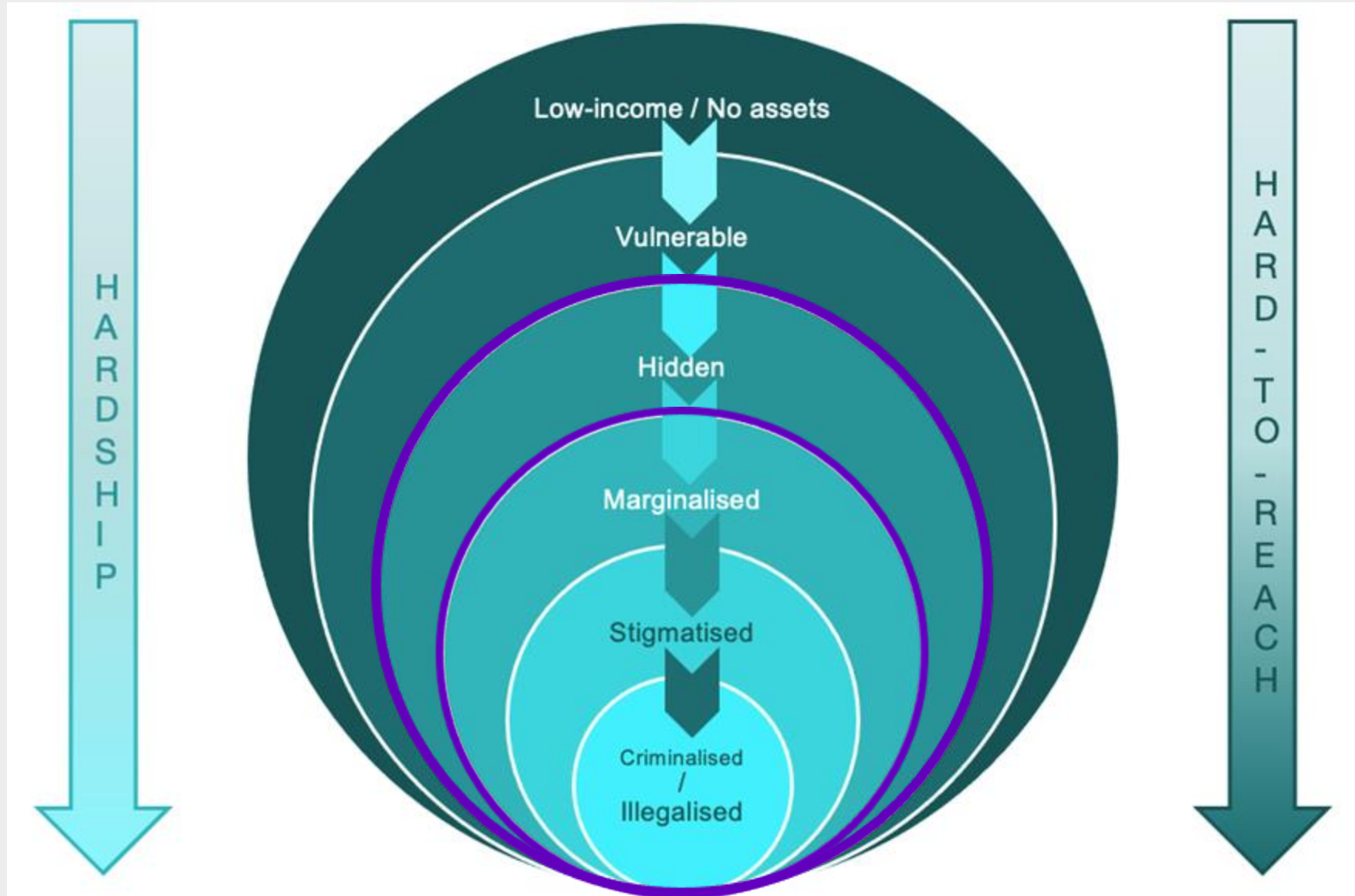


Indigenous energy justice, on the other hand, *“moves beyond recognition, distributive, and procedural justice practices and includes processes of **restorative justice** necessary for its realisation. Restorative justice embodies Indigenous natural laws, relationality, and kinship to bring together human and more-than human relations in healing for planetary well-being through reconciliation.”* (Mang-Benza & Baxter, 2021)

Research Questions

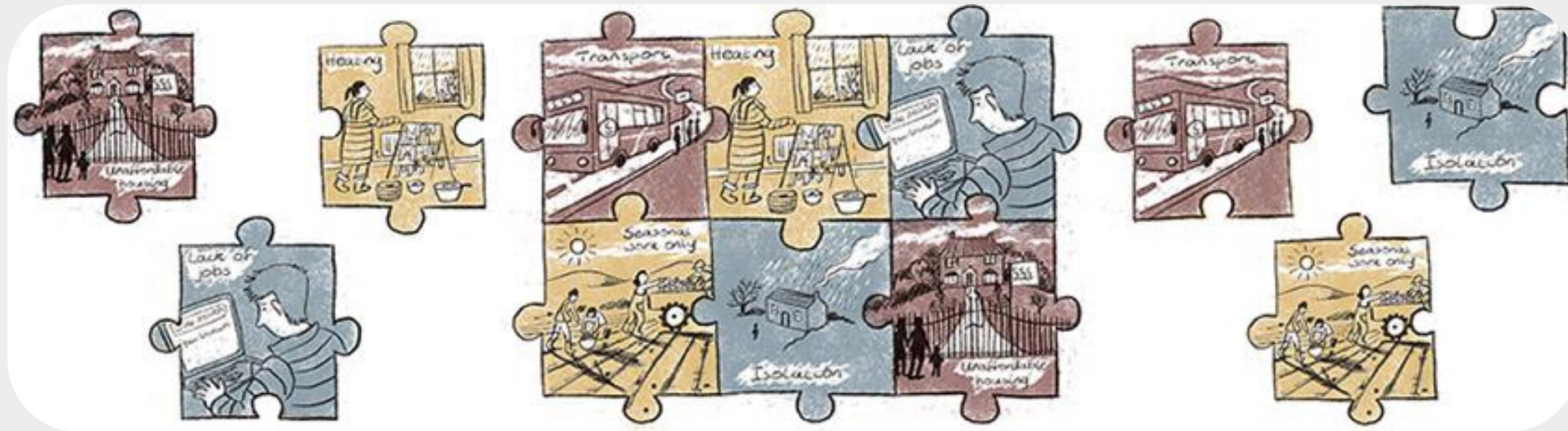
1. What steps are currently being taken towards a **just energy transition**? Who are the main actors? Which interventions have worked and which haven't?
1. What have been some **unintended consequences** of well-intentioned efforts to more equitably engage priority audiences? What lessons can be learned to avoid this scenario in the future?
1. Who are **HTR energy users** who choose to remain / are purposefully **hidden** from / by 'experts' designing energy transition interventions, and/or are living in **hidden hardship**?
1. Who are the navigators and intermediaries who have **trusted relationships** with those energy users and how can we improve our methodologies and approaches to engagement with them?
1. What are the **cultural / country differences & similarities** when identifying and engaging hidden energy users in the field? What are general recommendations for taking these differences and similarities into account when addressing energy injustice and furthering a just energy transition?

Who should we focus on first?



Why are they hidden?

1. Because they have been **de-prioritised** or are simply not on anyone's radar?
2. Because they **do not want to be a burden** on society?
3. Because they are technologically, geographically or socially **isolated**?
4. Because they haven't acknowledged becoming the **working poor**?
5. Because only the **customer** - i.e., the bill payer, not the consumer is known?
6. Because they choose to remain **hidden on purpose**?
7. Any **other** reason/s?





Example: Hidden Hardship Research for Industry

- Literature review
- 3 workshops with predominantly community navigators (n=130)
- Survey of community organisations (n=38)
- Interviews with frontline customer care staff (n=16)
- Empathy interviews with energy users living in hidden hardship (n=16)





RESULTS



We identified 4 major themes from community feedback & data:

- 1. TRUST** - the single most important theme, we need to keep building it
- 2. Community voice** - we need to listen first, and elevate your voice
- 3. Stay in your lane** - use industry power to empower community mana
- 4. Mana-enhancing practices** - relationships & cultural competency, empathy

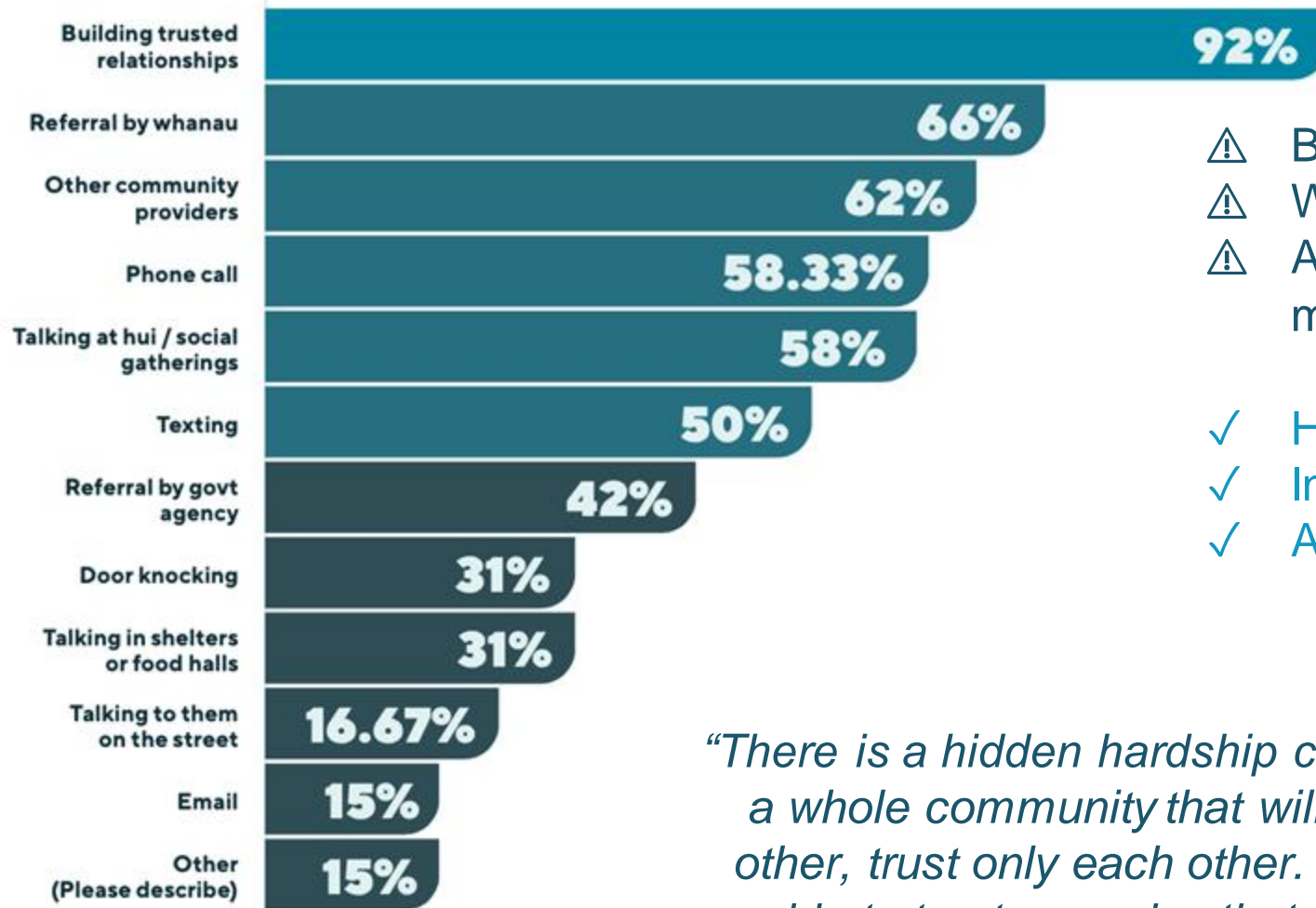
 +  +  +  = **a just energy system?**





What engagement strategy works best for you to reach them?

TRUST



- ⚠ Building (broken) trust takes time
- ⚠ We gotta be comfortable to be uncomfortable
- ⚠ Alleviating human suffering should be as / more important as selling energy
- ✓ Having familiar faces in the community helps
- ✓ Industry to help during emergencies
- ✓ Appreciate & respect community input

“There is a hidden hardship community. It’s like a whole community that will look after each other, trust only each other. They need to be able to trust a service that can help them.”





COMMUNITY VOICE



- ⚠️ Community resources are overstretched
- ⚠️ Consultation isn't co-design
- ⚠️ Lack of accessibility and an equal voice
- ✓ This & MBIE's hardship mahi are a good start
- ✓ SEEC, Māori & Public Housing Renewable Fund
- ✓ The community knows what's right for whānau

“Shift to being people-focused. This isn't about products or services, it's about people and relationships. Need to hear the story, there is always a story.”

“I hope this goes to the next level where corporates partner with the community to creating thriving communities of wellbeing across Aotearoa.”

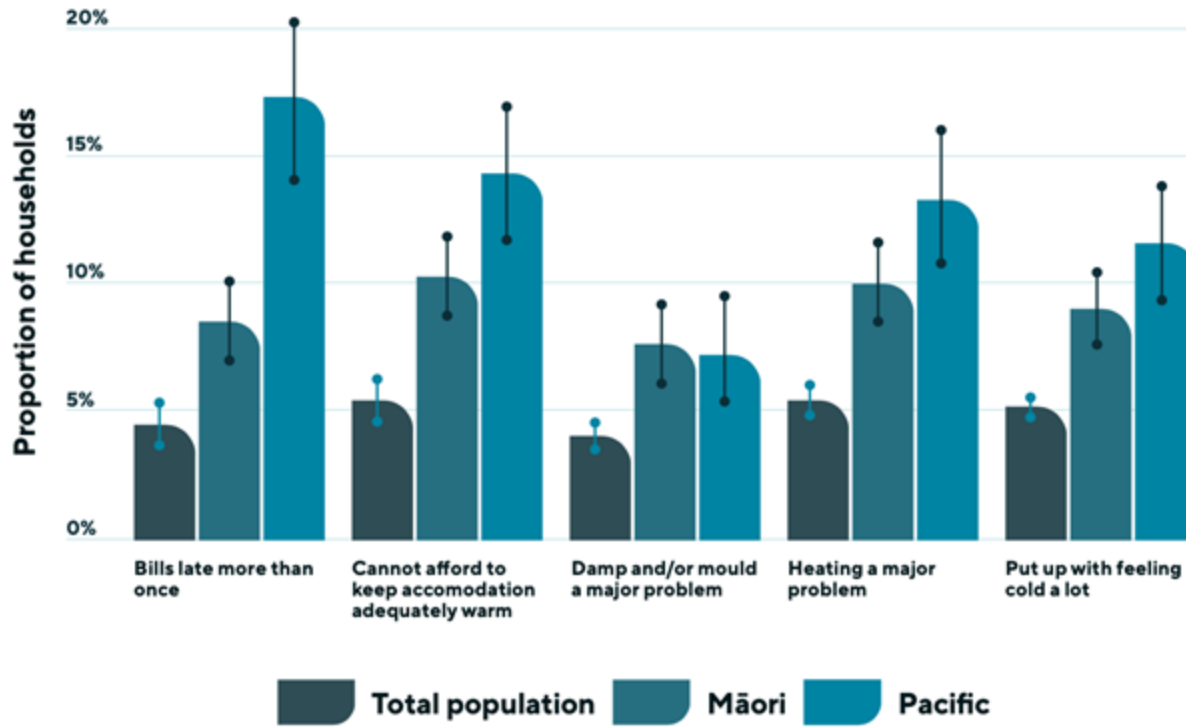




STAY IN YOUR LANE



Energy hardship measures by selected ethnicities,
HES year ended June 2022¹



¹<https://www.mbie.govt.nz/assets/asures-of-energy-hardship-june-year-2022-report.pdf>

- ⚠️ A lot of suffering is invisible to industry
- ⚠️ But industry has data community doesn't have
- ⚠️ Value of community vs corporate expertise
- ✓ Get out of the way - and help when needed
- ✓ Support community to do what they do best
- ✓ Check our privilege and biases

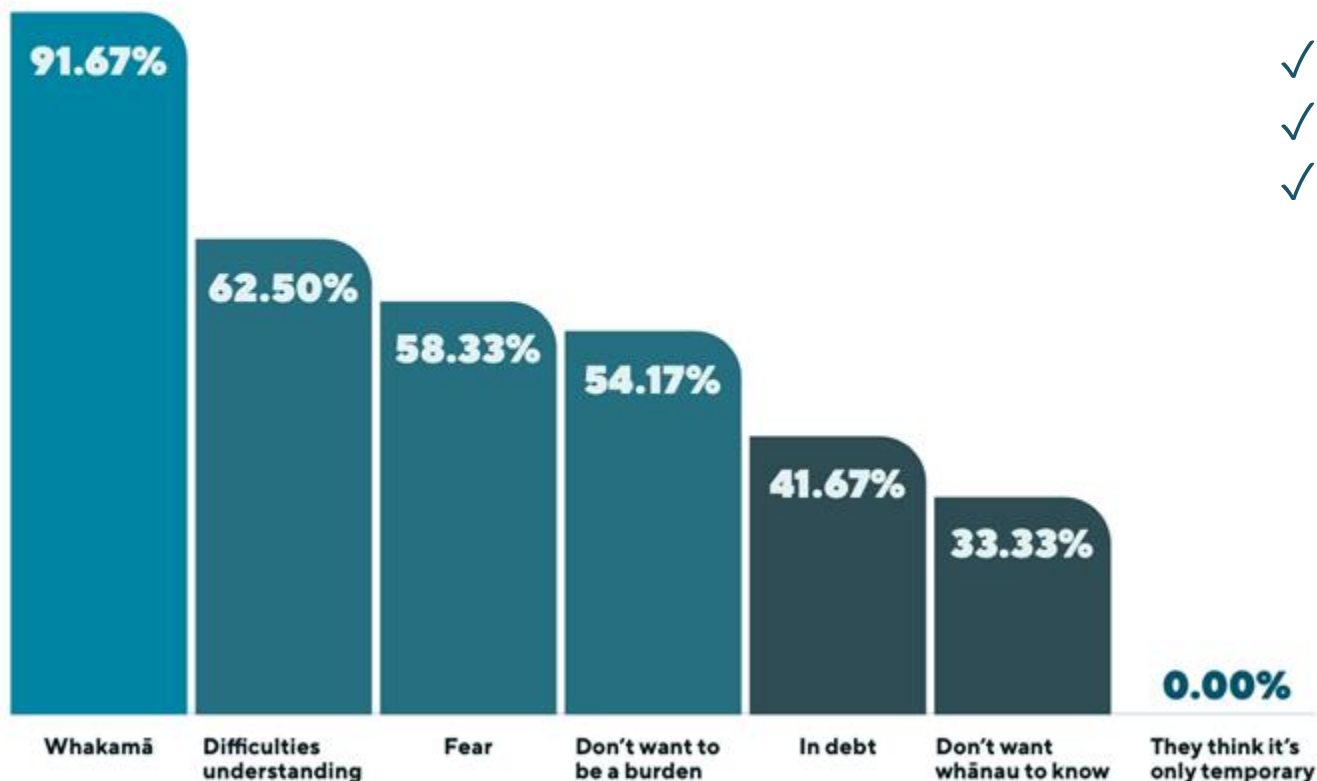
“I don't think it's the place for the energy companies to do the engagement with whānau who are hard-to-reach. Partner with us, empower us to empower our people. We can't just hand over a relationship after building all that trust - it is too high-risk for us to damage that relationship, so allow us to do the people work, you do the power work, and together we can shift people from struggling to thriving.”



MANA-ENHANCING PRACTICES



What do you think are the main reasons they want to remain hidden from authorities?



- ⚠️ Structural, systemic, generational injustice
- ⚠️ Lack of choice / power
- ⚠️ Low energy literacy, negative emotions, jargon

- ✓ Prepay can provide choice & self-empowerment
- ✓ Specialised customer care teams
- ✓ Consumer care guidelines, Apps, pilots

“We need to be able to help our people how they need to be helped. Life skills, education, support and confidence, key relationships to build trust and belief that there is hope... they need a hand up, not a handout. And that is why we're here which was the people with the power partnering with the people with the trust.”

Example: Hidden Hardship Research for Government

- Support for Energy Education in Communities (SEEC) Fund
- Home Energy Assessment Toolkits (HEAT Kits)
- Co-designed with community navigators & technical advisors
- Intervention package for 45 households living in hidden hardship
- Qualitative & quantitative data collection and deep evaluation



Infrared Thermometer

Description
This measures the temperatures of different surfaces in your house. It will help you identify:

- Cold spots in your house - areas of poor insulation or air leaks (floor, walls, ceilings, windows, doors, etc)
- Cold / hot spots around fridge and freezer - air leaks from a broken seal, and if there is enough ventilation at the back of your fridge & freezer
- Any hot spots around your hot water cylinder - is it well insulated?

Self-Assess your Home

Cold spots - walls
Take several measurements of your internal wall temperature. The results should be about the same, or within a couple of degrees. If a measurement is very different, it means that the insulation is not there, not enough, or it is damaged.

In the same room, take a measurement on the inside of an external wall (green star in the image below), and another measurement of an internal wall (red star). This will help you to understand how well your walls are insulated (the closer the two measurements are, the better).

How to use it
To measure surface temperature with the infrared thermometer follow these steps:

1. Press the trigger to turn on the infrared thermometer.
2. Aim at the surface you want to check. You should not be more than 700 millimeters away from the surface.
3. Press & hold the trigger until temperature stays the same.
4. Read the temperature.
5. Record the reading in the relevant activity sheet.

Day 5 - Hot water cylinder
Day 6 - Fridge/freezer seals & appliance
Day 7 - Walls, floors and ceilings

Note

- Do not adjust the settings.
- To read the temperature, only press the trigger.
- Make sure to do the measurements when there is a big temperature difference between the outside & inside like on a cold day.

Warning:

- The thermometer cannot be used to measure a person's temperature.
- Do not point the thermometer at a person as serious eye damage may occur!

Page 8

Day 1

Today's activity (less than 5 min)

1. Record the temperature & moisture from your thermometers / hygrometers.

Room	Temperature (°C)	Moisture (%)
Living Room	°C	%
Bedroom 1	°C	%
Bedroom 2	°C	%

Check page 7 of the manual to find out how to use the thermometer / hygrometer.

2. Use the digital water thermometer to measure how hot the water is coming out of your taps.

Room	Temperature (°C)
Kitchen tap	°C
Bathroom tap	°C
Shower / bathtub tap	°C
Laundry / other tap	°C

Check page 12 of the manual to find out how to use the water thermometer.

3. Record how many showers your household had yesterday.

What?	Mo	Tue	Wed	Thu	Fri	Sat	Sun	Total
How Many?	✓	✓	✓	✓	0	4		

Check page 13 of the manual to find out how to use the water thermometer.

Sione's Story
Here's Sione's family record as an example. He's ticked the number of showers / baths each person had and added them up:

What?	Mo	Tue	Wed	Thu	Fri	Sat	Sun	Total
How Many?	✓	✓	✓	✓	0	4		

Sione's family has 4 showers each day, his sister likes to wash her hair in the morning (she takes ages in there) & go to bed clean. Everyone else has one shower (except that little brother!).

Shorter and fewer showers or sharing a bath would save electricity used to heat the hot water and save the family money.

Check page 13 of the manual to find out how to use the water thermometer.

3. Record how many showers your household had yesterday.

What?	Mo	Tue	Wed	Thu	Fri	Sat	Sun	Total
How Many?								

Your record (we don't need names!)

Day 4

Bonus activities

Answer this quiz question:

If I use timers or turn off some appliances at the wall, I can save money to heat my house.

True
 False

Play this game:
Hunt the Energy Namu!

Some energy namu (like sandflies) give off a telltale sign that they are power suckers, like a little light that stays blinking or on, or they may feel warm to the touch...

How can you know if you've got Energy Namu in your whare?

- Wait until it's dark outside
- Grab a flashlight & turn off all the lights
- Turn off everything in the house the way you would normally at night

How to catch an Energy Namu?

- Sneak through each room and investigate each item plugged into a power board or wall outlet
- Look for lights, listen for humming, and touch possible power-sucking appliances to see if they are warm
- Write down each Namu found on your Namu hunter's notes sheet and make a mark for each Namu you see (for example, make two marks if you have two lighted alarm clocks in your house)

How to swat Energy Namu?

- Turn appliances all the way off when you're done with them. Sometimes, that means unplugging them (especially smaller appliances like toasters & mobile phone chargers)
- You can also use a power strip for all your computer equipment, for example, and plug all other appliances like your printer or game box into it. When you are done using the computer, turn off the power strip to turn everything all the way off
- You can also use the appliance timer to set some big Energy Namu like the heater or dehumidifier to turn off & on at certain times



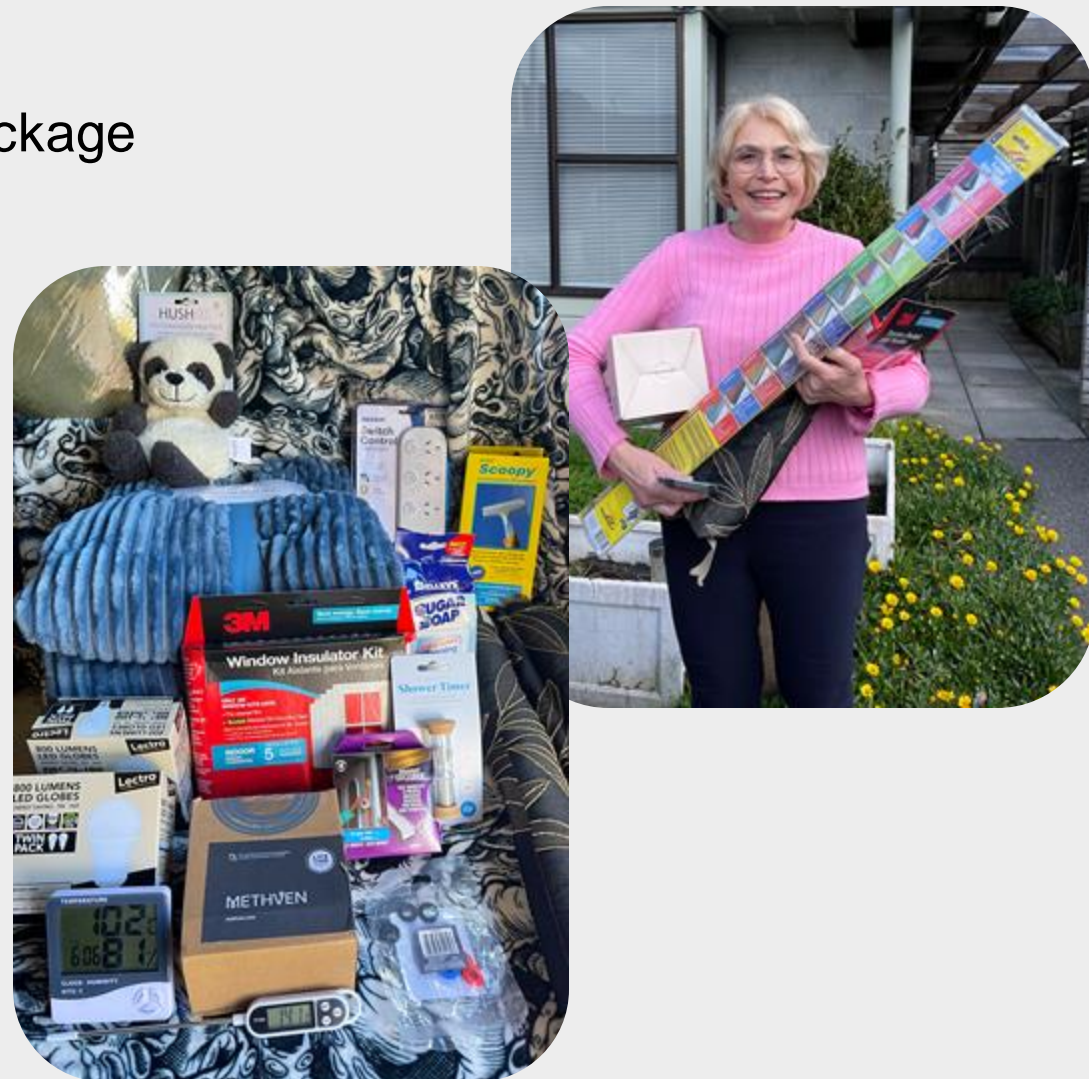


Evaluate success



- **100%** completion rate
- **100%** participants received \$500 tailored prize package
- **92%** said they'd recommend the kit
- **85%** reported significant improvements
- **90%** said their bills were lower
- **70%** said by >\$50 per month!*
- **85%** are still thinking about energy efficiency
- **65%** said other household members are too
- Average bedroom temperatures rose **2.3C**
- Average humidity in bedrooms dropped **3%**
- **We got a second phase funded in 2024**

* And that was in summer!

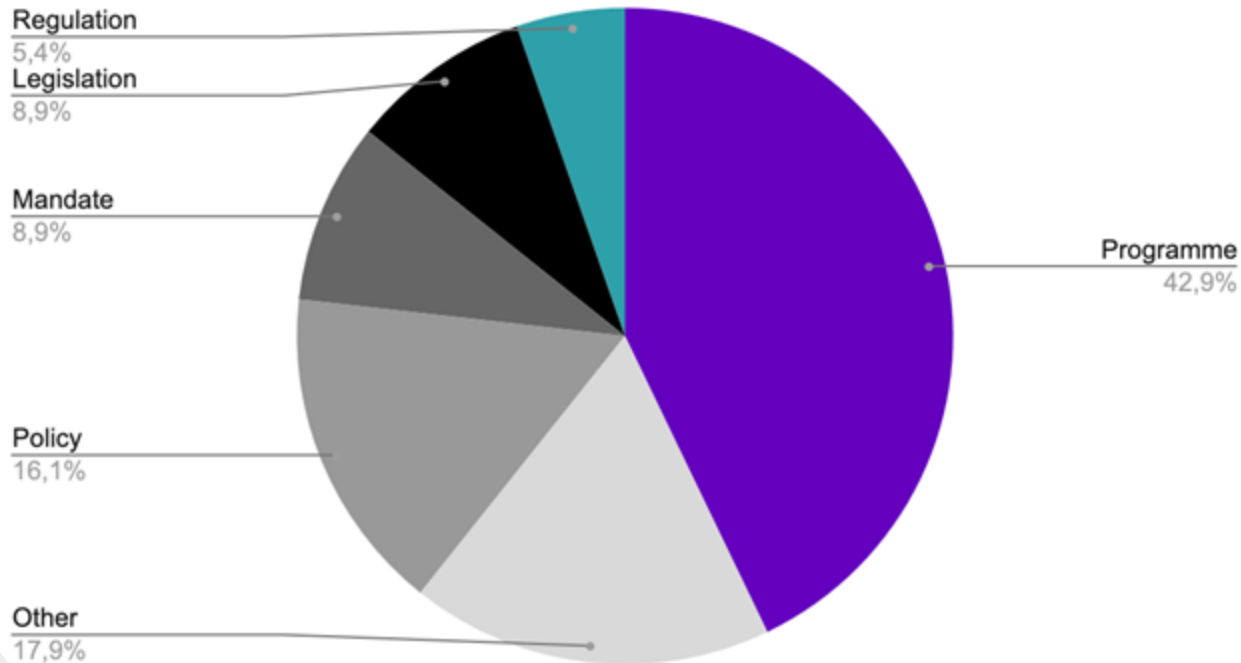




Example: Hidden Hardship Expert Survey

- Survey of energy hardship and equity experts (n = 96)
- Ran from November 2023 - March 2024
- Informs Year 1 of Phase 2 research
- **Next steps:** HTR Task workshop in Boston (June 6, 2024) & report on unintended consequences

What form does your energy equity / justice work take?



What specific topics were you aiming to address?

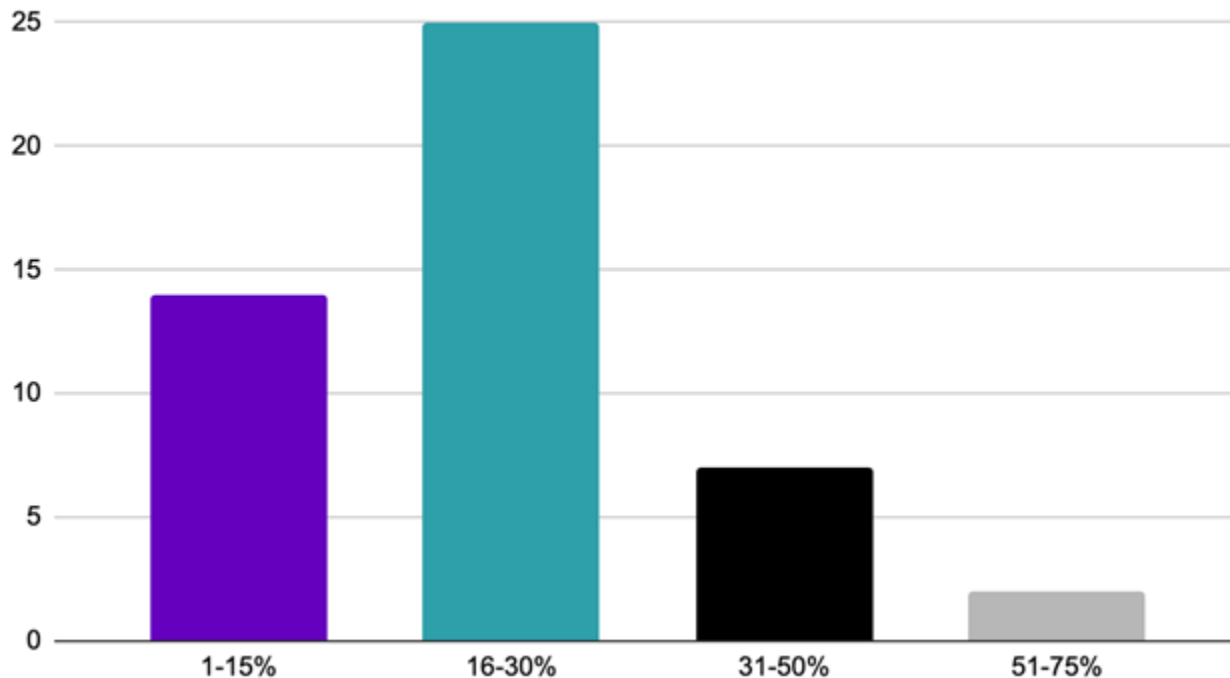
- *Reaching hard-to-reach groups*
- *Flexible energy use*
- *Keeping homes comfortable for vulnerable people*
- *Making energy bills manageable and giving people control*
- *Defining energy poverty*
- *Making buildings more eco-friendly*
- *Tackling energy inequality*
- *Energy solutions for Indigenous communities*
- *Hands-on help*



Example: Hidden Hardship Expert Survey

- Who do you think is most affected by hidden hardship?
 - Low income / energy poor (ranked first by 37%)
 - Homeless (ranked 2nd by 26%)
 - Single parents / pregnant women (ranked 3rd by 12%)
 - Home-based microbusinesses was ranked lowest overall
- NB: 81% of respondents estimated 30% or less
 - But the majority of Swedish respondents chose <15%

What % of energy users do you estimate choose to remain hidden?



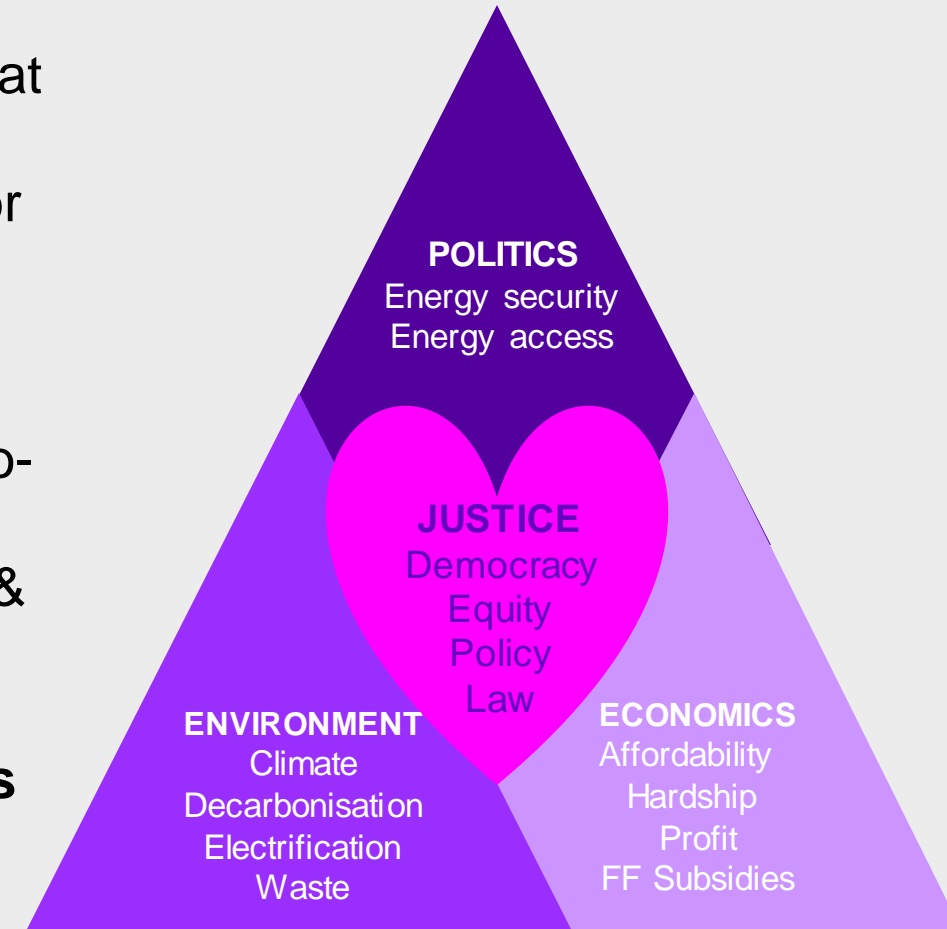
Why did you choose these options (who is most hidden)?

- *Historical injustices against Indigenous communities*
- *Difficulty for children & ill people to speak up for themselves*
- *Public perception may unfairly view certain groups as undeserving*
- *Research often focuses on specific groups*
- *Financial barriers prevent fuel-poor households from accessing energy-saving programmes*
- *Living conditions like mold and overcrowding worsen energy challenges*
- *Marginalised groups face legal barriers to accessing support*
- *Personal experiences shape how we prioritise these issues*
- *Evidence shows certain groups are particularly vulnerable and lack agency*
- *They are rarely included in processes and decisions but are affected by consequences in unpredictable ways*
- *If you're alone, you are more vulnerable*



Some conclusions from research to date

- Recognise and address the **structural reasons** & barriers that cause energy injustice, go beyond band-aid solutions
- Take an **equity lens** to your programs & processes, check for any unintended consequences, or negative impact on marginalised energy users
- Focus on, reach out and **listen** to marginalised communities, build and strengthen **trusted relationships** to co-design & co-deliver tailored solutions with their navigators
- Help improve energy (system) **literacy** among energy users & communities
- Provide **flexible funding** they can distribute to areas of need
- Listen to and learn from **Indigenous and community voices**
- Tell your **stories** of what you are already doing to support vulnerable communities better





Hard-to-
Reach Energy
Users



Please join us in figuring out
how we can achieve a truly
just energy transition!

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