



Household Energy End-use Project 2

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Introduction

The Household Energy End-use Project #2

- A national study of **how**, **where**, **when** and **why** people use energy in the home

Last undertaken in New Zealand in 1995-2005 (HEEP1)

- 25 year update!

Led by BRANZ

- funded by the **Building Research Levy**
- Co-funding from **MBIE** and **NZGBC**



Recruitment approaches

‘Population’ study:

Via Stats NZ Household Economic Survey 2021/22 & 2023/24
Collaboration with Stats NZ
HES carried a BRANZ ‘energy research consent’ question
Pool of 2,747 respondents to date *across Aotearoa New Zealand*

‘High Performance’ study

Code compliant: via BRANZ new home-owners’ satisfaction survey 2019-2022
BRANZ ‘research recontact consent’ question
Beyond code (high performance): via NZGBC Homestar 7+, Superhome network, Passive House NZ network
Pool of 193 respondents to date *for Canterbury Region*

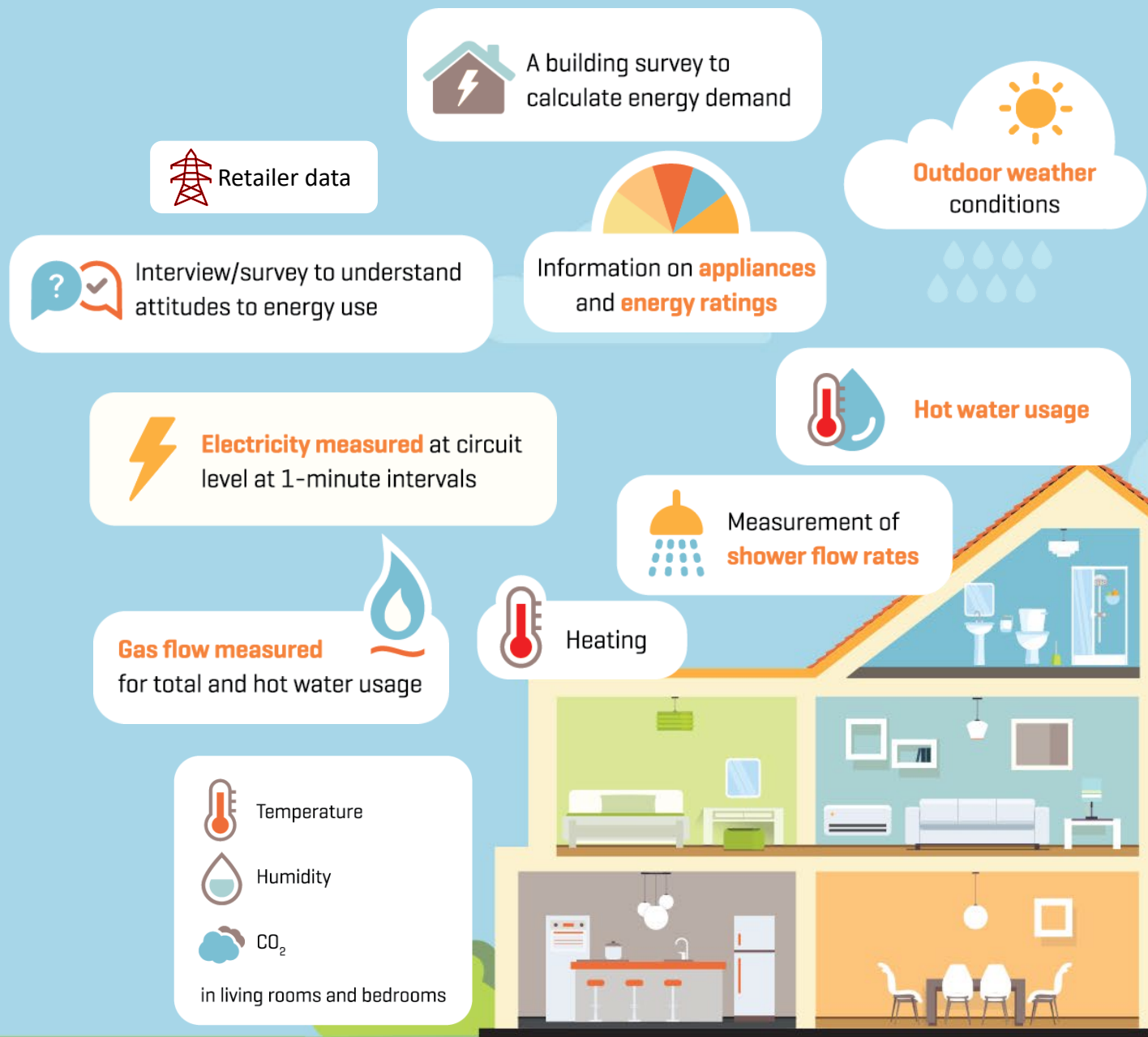
BRANZ follow-up
(~max 5 phone
calls/contacts)



HEEP2 data collection

Combinations of surveys, monitoring and administrative data:

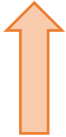
- Initial short household **survey**
 - Consent to access energy **usage data** from retailer
- In-home **interview** with a household member about energy using behaviours (habits & practices) and attitudes
- Detailed **Building and Appliance Survey**
- For 12 months:
 - **Indoor conditions** (temperature, relative humidity, CO₂, light, atmospheric pressure) in living area and bedrooms, at 15 minute intervals
 - **Outdoor conditions** (temperature and relative humidity, 30-minute intervals)
 - **Electricity use** at 1-minute intervals on up to 14 circuits
 - Granular **gas** usage (pulse counter + meter)
 - **Hot water** draw off (thermocouples at inlet and outlet)
- **Exit** survey



HEEP2 data collection sample structure

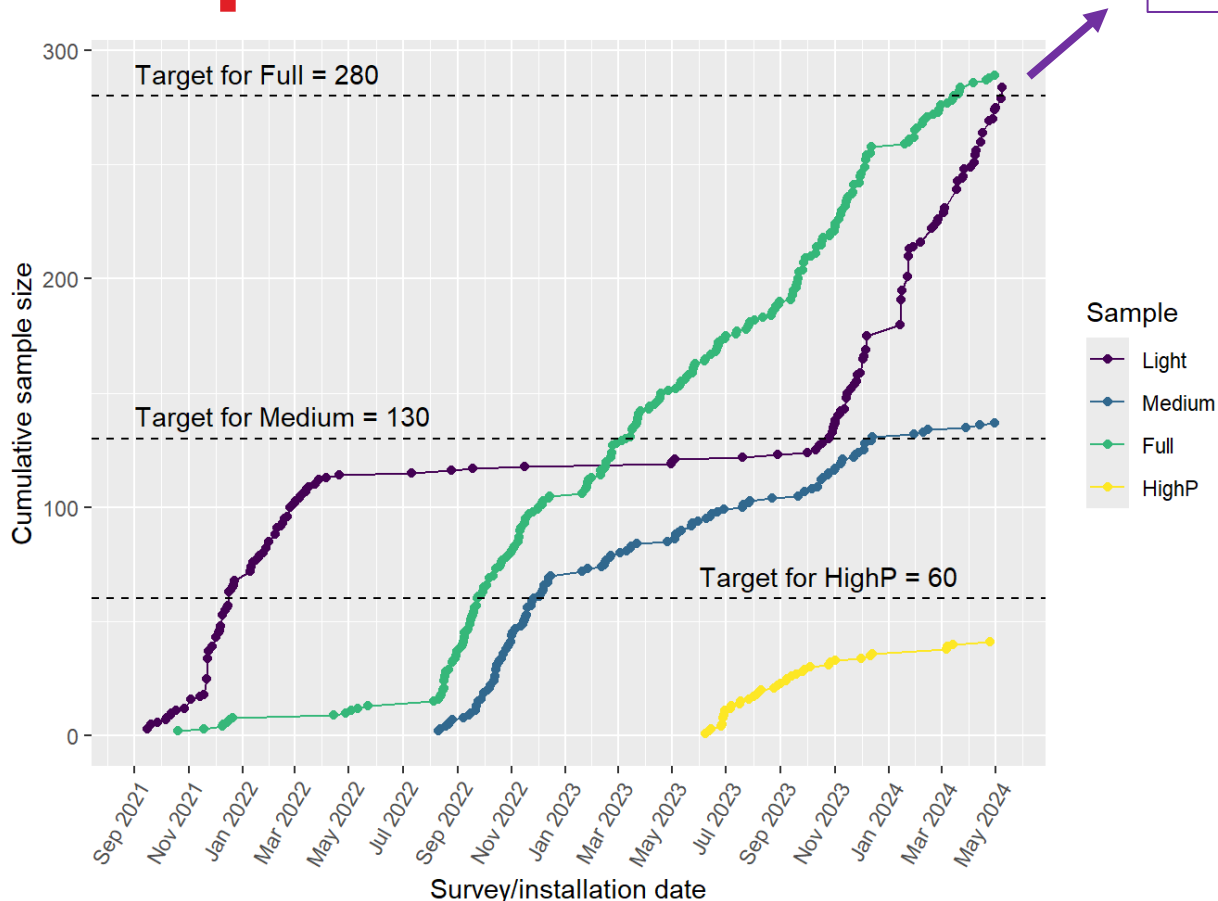
			Data collection							
Sample name	Target N	Funded by	(1) Initial short household survey	(2) Retailer gas & electricity data consent	(3) Face-to-face household interview	(4) Building and appliance survey	(5) Indoor & outdoor conditions monitoring	(6) Electricity circuit-level monitoring	(7a) Gas use (7b) HW monitoring	(8) Exit survey
Pop: Light	~300*	BRANZ	✓	✓						
Pop: Medium	130	MBIE ERM	✓	✓	✓	✓				
Pop: Full	280	BRANZ	✓	✓	✓	✓	✓	✓	✓	✓
High Performance (HighP)	60	MBIE BSP + NZGBC	✓	✓	✓	✓	✓	✓	✓	✓
			~770	~770	~470	~470	~340	~340	~340	~340

*No specific target.



Samples to date

~330?

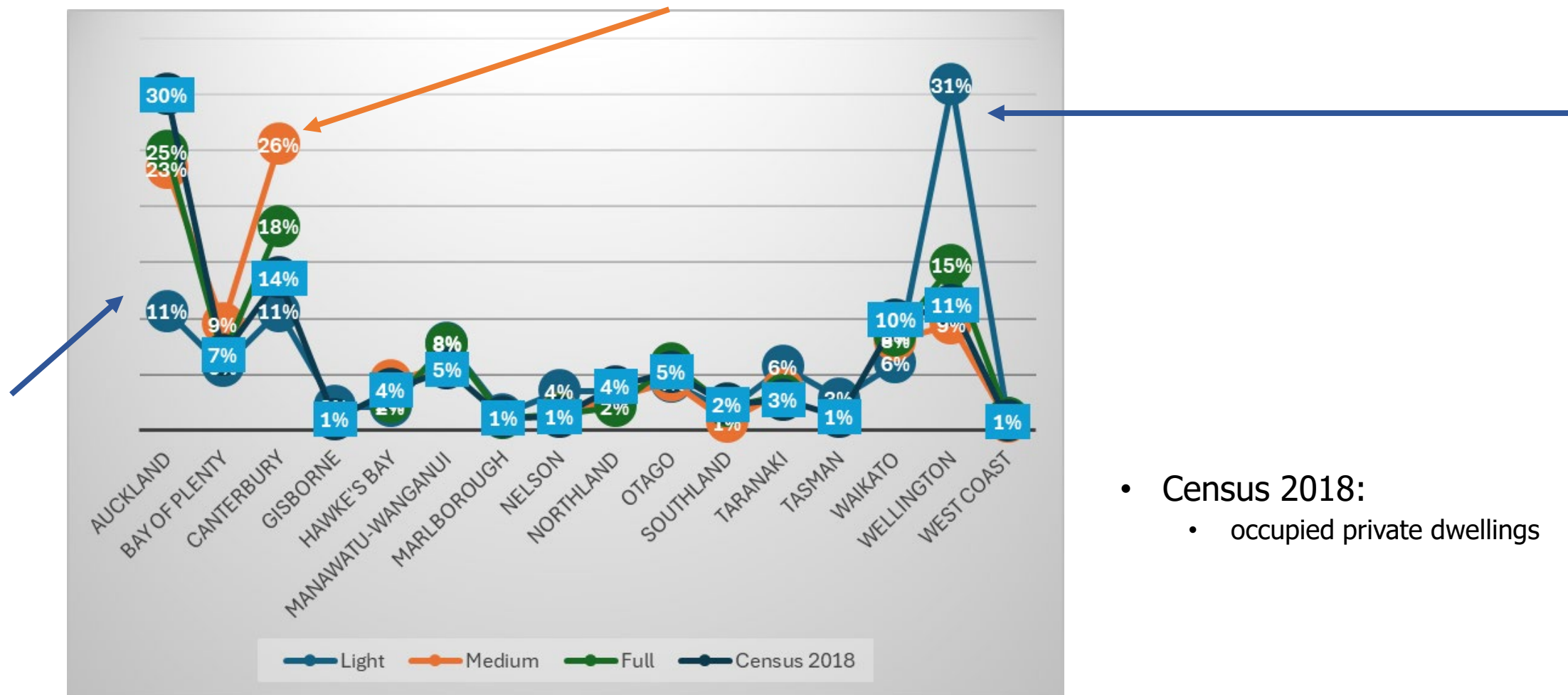


- ~ 450 unreachable
- ~ 800 declined initial survey
- ~ 420 ineligible
- ~ 205 Light yet to complete
- ~ 30 opt-outs

Data collection underway or complete	
Light	282
Medium	137
Full	285
HighP	41
745	

Survey (Light) or installation/fieldwork date (Medium/Light/HighP)

Regional distributions vs Census 2018



- Census 2018:
 - occupied private dwellings

What do we know so far?

- Reasonable regional distribution
- Reasonable distribution across NZ Dep ($\sim 20\%$ in each quintile)
- Initial brief survey (all samples):
 - Under-representing rentals
 - Reasonable distribution across dwelling types
 - Slightly 'older' dwellings
- Home occupier survey (Medium/Full/High P)
 - Slightly 'older' respondents
 - 92% think their home is a healthy place to live (Agree/strongly agree))
 - 82% would like their home to be warmer
 - 79% think making choices about energy efficiency is complex
 - 54% always reduce or do not heat unoccupied rooms
 - 29% **always** put more clothes on before turning up heating



*How they kept warm in winter –
'other'*

HEEP2: what's it all for?

2024 – 2026 and beyond!

Clean, analysable dataset – by mid 2025

- Extensive checking and cleaning
- Documentation

Analysis – from now onwards

- Energy end-uses & habits; housing conditions/building fabric
- *Indicators of energy hardship/wellbeing*
- Verify and update home energy models
- Comparisons: wider dwelling stock/code compliant/high performance
- ...

Potential input to:

- Home energy performance ratings
- ...

Input
welcome!



Thank you

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<https://www.branz.co.nz/environment-zero-carbon-research/heep2/>