

The Household Energy End-use Project 2

The Household Energy End-use Project 2 (HEEP2) is a national study of energy use and living conditions in New Zealand homes. The study builds on the original HEEP project, which was undertaken from 1995 to 2005.

HEEP 2 will provide essential, up-to-date data to inform policies and initiatives that will help New Zealanders live in healthier homes and use energy more effectively and efficiently. Healthier homes mean enhanced wellbeing for New Zealanders, while efficient energy use should lower household running costs and reduce home carbon footprints.

HEEP2 is funded by the Building Research Levy, with co-funding from Ministry of Business, Innovation and Employment Hikina Whakatutuki (MBIE) and New Zealand Green Building Council (NZGBC).

Household samples and data collection

HEEP2 has a total sample of over 750 households spread across all regions of Aotearoa New Zealand. These homes, which were recruited through the Stats NZ Tatauranga Aotearoa's NZ Household Economic Survey, are taking part at different levels: light, medium and full (see diagram).

The HEEP2 Data Catalogue, available at branz.co.nz/heep2, provides more information about the data collected and sample structure.

HEEP2 data collection

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|--------|--------|--|
| Medium | Light | <ul style="list-style-type: none"> Initial short household survey Consent to access energy usage data from retailer |
| | Medium | <ul style="list-style-type: none"> In-home interview with a household member about energy using behaviours (habits & practices) and attitudes Detailed Building and Appliance Survey |
| Full | Full | <ul style="list-style-type: none"> In-home monitoring for 12 months: <ul style="list-style-type: none"> Indoor conditions (temperature, relative humidity, CO₂, light, atmospheric pressure) in living areas and bedroom, at 15 minute intervals Outdoor conditions (temperature and relative humidity, 30 minute intervals) Heater use (temperature sensors) Electricity use at 1 minute intervals on up to 14 circuits Granular gas usage (pulse counter + meter) How water draw off (thermocouples at inlet and outlet) Exit survey to record if anything significant has changed with the dwelling or household over the monitoring period |

Interview/survey to understand attitudes to energy use

Hot water usage

Outdoor weather conditions

Gas flow measured for total and hot water usage

Measurement of shower flow rates

Information on appliances and energy ratings

Electricity measured at circuit level at 1-minute intervals

Temperature

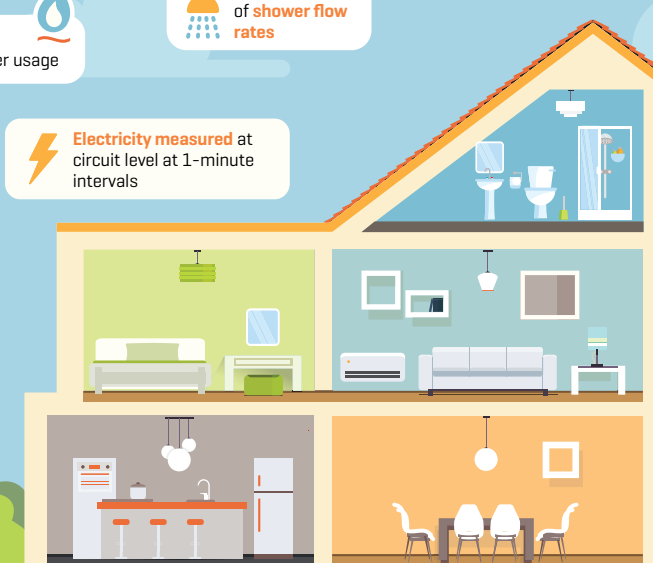
Humidity

CO₂

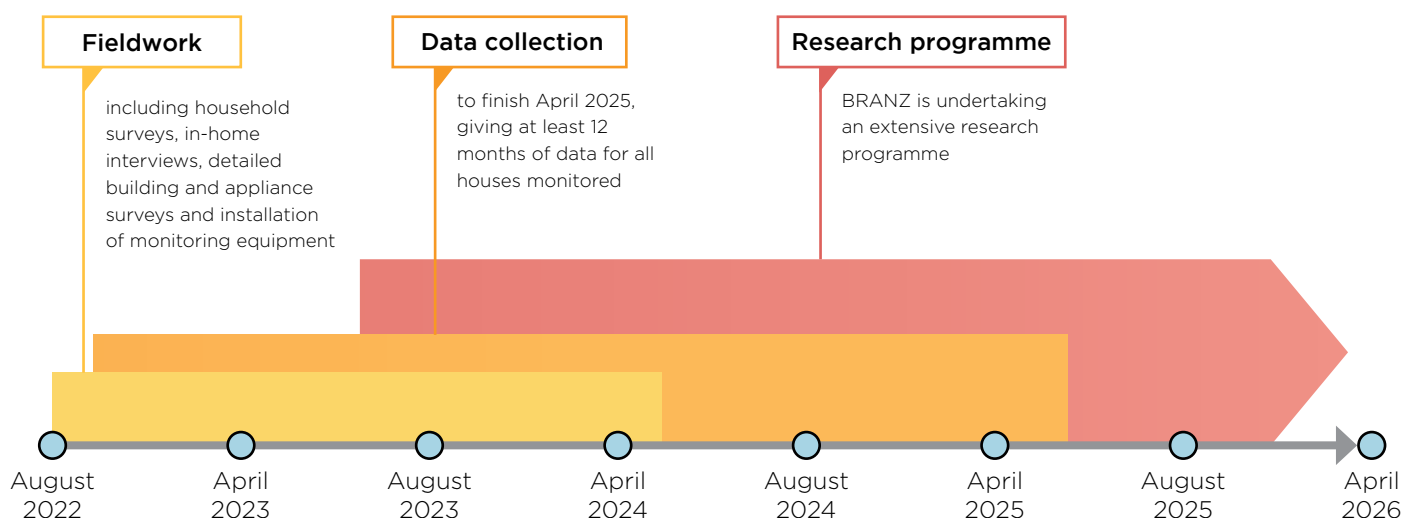
in living rooms and bedrooms

Heating

A building survey to calculate energy demand



Project timeline



Related study of high-performance homes in Canterbury

In addition to the national HEEP2 sample, households have been recruited in Canterbury to take part in a parallel study, focusing on new builds (code-minimum) and higher performance dwellings, with around 20 in each group. These households are taking part at the Full level.

Research programme

BRANZ is undertaking ongoing analysis to exploit the opportunities provided by HEEP2 data. This includes:

- analysis of energy end-uses and indoor conditions across New Zealand houses and by sub-population groups and dwelling types (where sample size allows)
- comparing energy use and outcomes (e.g. indoor temperatures, indicators of occupant wellbeing) for recent built-to-code and high-performance dwellings and the wider dwelling stock.

This will provide an updated and improved understanding of household energy use and the performance of our housing. In turn, this builds the scientific evidence to inform initiatives and policies to improve housing outcomes and energy wellbeing for New Zealanders.

It could also help drive the development of innovative solutions to improve energy efficiency and reduce greenhouse gas emissions associated with our housing stock.

The long-term goal is for HEEP2 data to be available via Stats NZ Integrated Data Infrastructure.

Acknowledgments

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Contributors: Stats NZ, MBIE, NZGBCd

More information



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