Energy wellbeing in social housing

November 2022

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Kāinga Ora
Homes and Communities

Contents

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Homes and Communities

185,670

People live in Kāinga Ora homes

We own or manage nearly

70,000

Properties

Property portfolio worth

$46b

over 8,100

New homes built in the past five years

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Ambition verses current state

The Kāinga Ora – Homes and Communities Act

Kāinga Ora has a mandate to enable our customers to live well in their homes

Our operating principles state that we need to provide good quality warm, dry and healthy rental homes for our customers

Healthy homes initiative evaluation

Kāinga Ora homes make up between 3-4% of the New Zealand housing stock

The HHI evaluation found that nearly half of all buildings related hospital admissions came from Kāinga Ora homes

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Healthy homes delivery programme

- **43,775** homes have been confirmed as meeting the Healthy Homes Standards
- Approximately **68%** of the portfolio
- **10,600** homes have further work in progress
- Deadline recently extended to July 2024

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Retrofit programme

- Insulation (ceiling, underfloor and wall), double-glazing,
- Modernising - new kitchen + bathrooms
- Over **1000** completed to date
- **800** homes targeted this year

Innovative build programme

Build programme - 3000 homes per year

Minimum standards above building code 6 HomeStar v4.1

Pilot projects to test new construction materials and methods

- Bader Ventura – Certified PassiveHouse standard
- Woodward Road – 7 HomeStar v4.1
- My Kiwi House – two standalone five bedroom homes built to 8 HomeStar v4.1 standard

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Renewable energy programme

- 78 individual systems in Porirua, Lower Hutt, Napier and Nelson
- Solshare system on 15 unit apartment building in Whangarei
- Another 24 in Auckland, Nelson and Gisborne coming soon
- Plus another 41 projects (representing 579 homes) in the pipeline

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Winter Energy Study

Piloting an intervention to cap electricity costs during the winter for 1000 customers.

The pilot will be run over three years. Sensors were installed in a sub-group of 100 households prior to winter 2022.

Comparison of temperature and energy use in 2023 will provide evidence of the success of the intervention.

Data on health outcomes will be used to estimate the cost savings to the health service that result from the intervention.

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Internal environment monitoring (IEM)

The IEM programme was set up in 2021 as part of the sustainability function to provide post occupancy evaluation of our homes.

We measure how are homes are performing for our customers and provide insights to decision makers.

Measure outcomes to inform continuous improvement

Battery Powered Environment Sensors

Wireless HotDrop sensors

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Winter 2022 insights

The following slides display plots showing how each room measured performs against health related metrics:

- Temperature - % hours below 18°C – based on world health organisation recommendations
- Relative humidity - % hours above 75% - mould grows in damp conditions where RH is above 75%
- CO_2 - % of hours where CO2 concentrations are above 1000ppm – negative health outcomes start at concentrations above 1000ppm.

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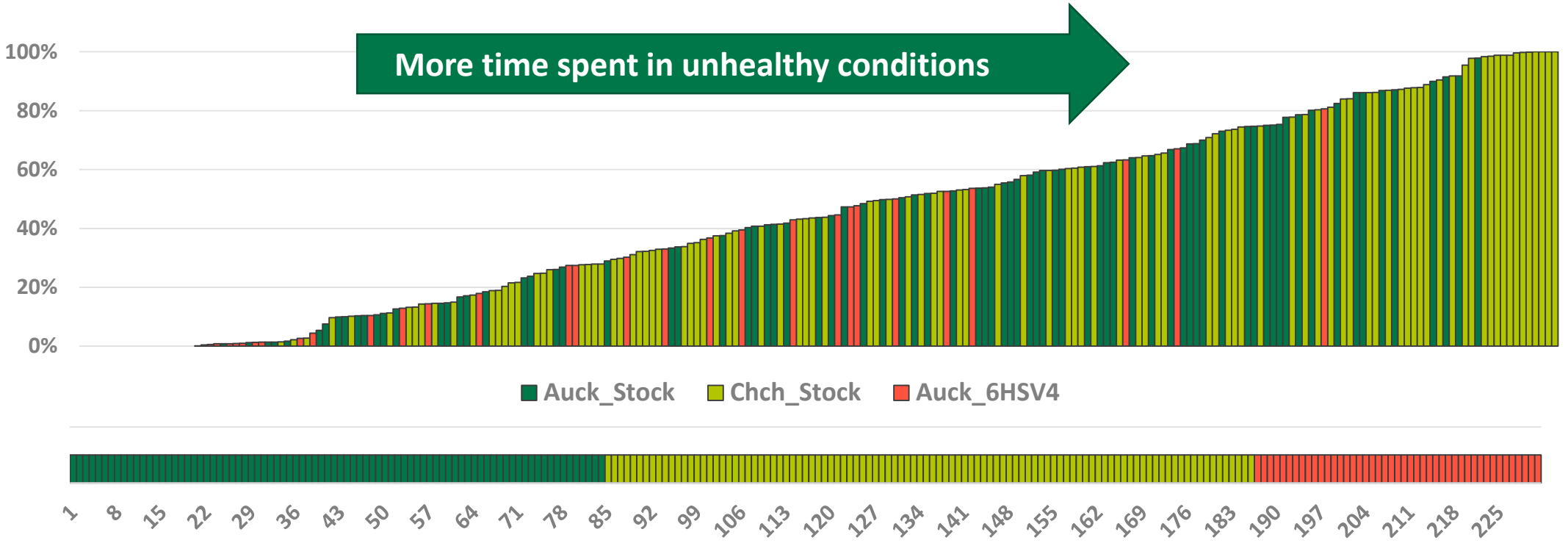
Temperature - Percentage of hours below 18°C during August 2022



	Auck_Stock		ChCh_Stock		Auck_6HSv4	
	Average temp (°C)	% hours below 18°C	Average temp (°C)	% hours below 18°C	Average temp (°C)	% hours below 18°C
All	18.3	45	17.6	54	20.1	18
Living rooms	18.7	40	18.7	44	20.1	18
Bedrooms	18.0	49	16.5	65	20.0	20

Questions

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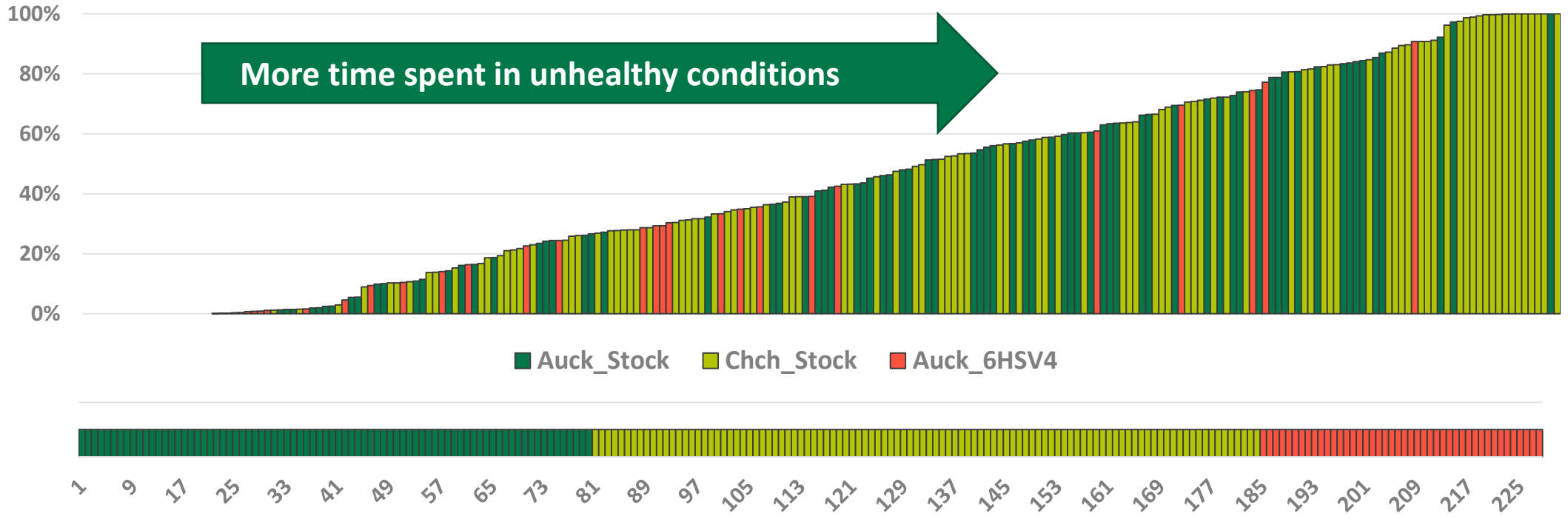
Temperature - Percentage of hours below 18°C during August 2022 – occupied hours only



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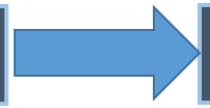
Living rooms	18.7	40	18.7	44	20.3	18
Bedrooms	18.0	50	16.5	65	20.2	18

What's next – developing our capacity for health outcomes research

Initiative	Aim	Intervention
Healthy Homes Programme	Comply with mandatory minimum standards for rental homes	Upgrade homes – floor and ceiling insulation, heating, extract ventilation, draught stopping, moisture ingress (fix leaks), education on the benefits of heating and ventilation
Right at home	Improve the health of customers	Fast tracked healthy homes upgrades after referral from health, whole of house heating, education
Retrofit Programme	Extend the life of old housing and reduce maintenance spend	Deep retrofit – floor, wall and ceiling insulation, heating, double glazing, new kitchens and bathrooms, new roof, modernise layout
6 HomeStar v 4.1 build standard	Build warm dry homes for our customers	Build new homes to thermal performance standards that exceed the building code
Winter energy study	Reduce energy hardship	Subsidise energy costs by providing a capped energy project



Outcome	Evaluation	Goal
Increased indoor temperatures	Tracking customer health and wellbeing outcomes through the IDI – hospitalisations, prescriptions, days off school, benefits and income Survey customers about outcomes – improved thermal comfort, behaviour change Interview customers about outcomes – reduced anxiety around high energy bills Tracking maintenance spend – reduced maintenance costs Monitoring indoor temperature and relative humidity levels – improved building performance Cost of interventions – cost benefit analysis	Informed evidence based decision making Enable comparison between initiatives Calculate value when customers receive interventions from multiple initiatives
Improved thermal comfort		
Reduced energy hardship		
Behaviour change		
Lower carbon emissions		
Reduced maintenance spend		
Improved the health and wellbeing of customers		
Energy cost certainty and reduced anxiety		

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