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Business Networking Event

ENTERPRISE NORTH CANTERBURY AND MAINPOWER

Housekeeping & Introductions

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RAVENSWOOD CENTRAL

Blackwell's
DEPARTMENT STORE KAIAPOI
TRUSTED SINCE 1871
Celebrating 150 Years

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NZ's Butcher

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HARRIS FARMS
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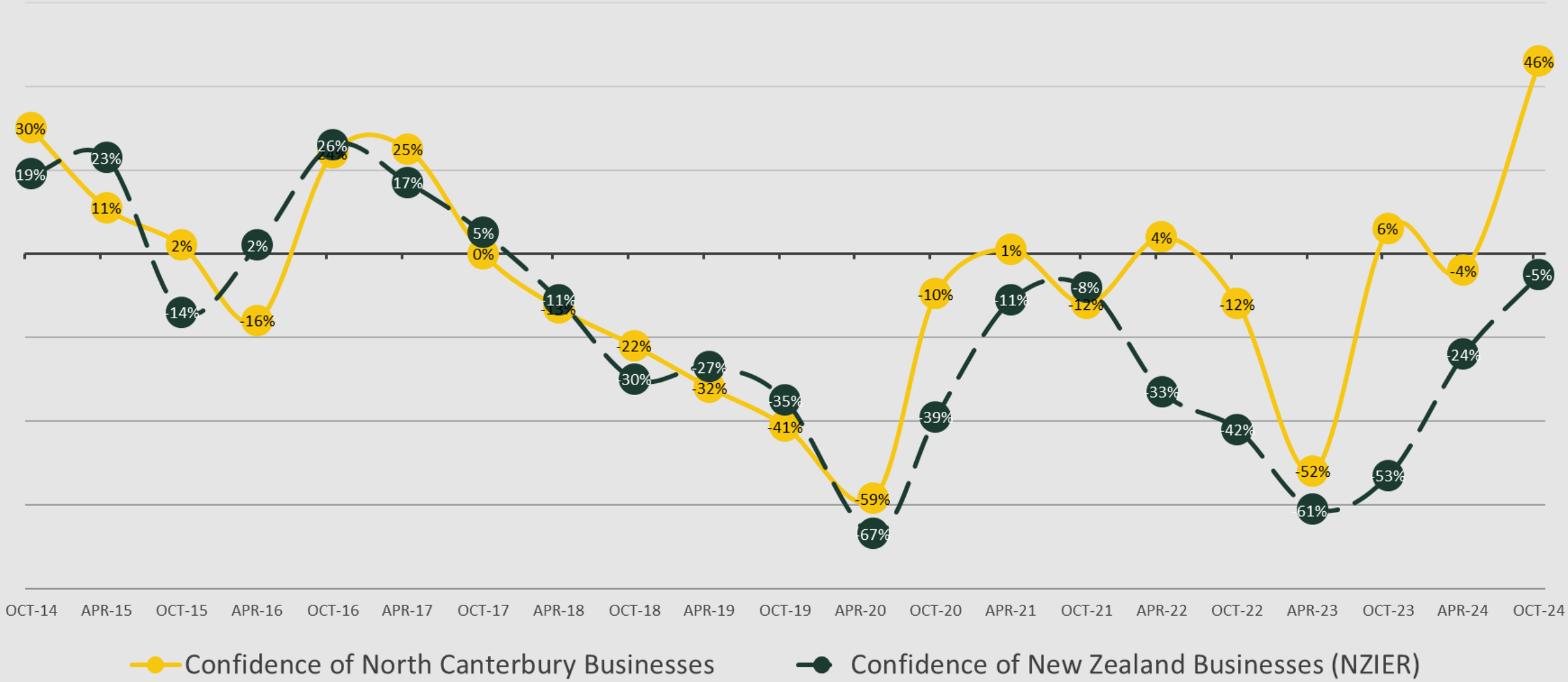
Business Opinion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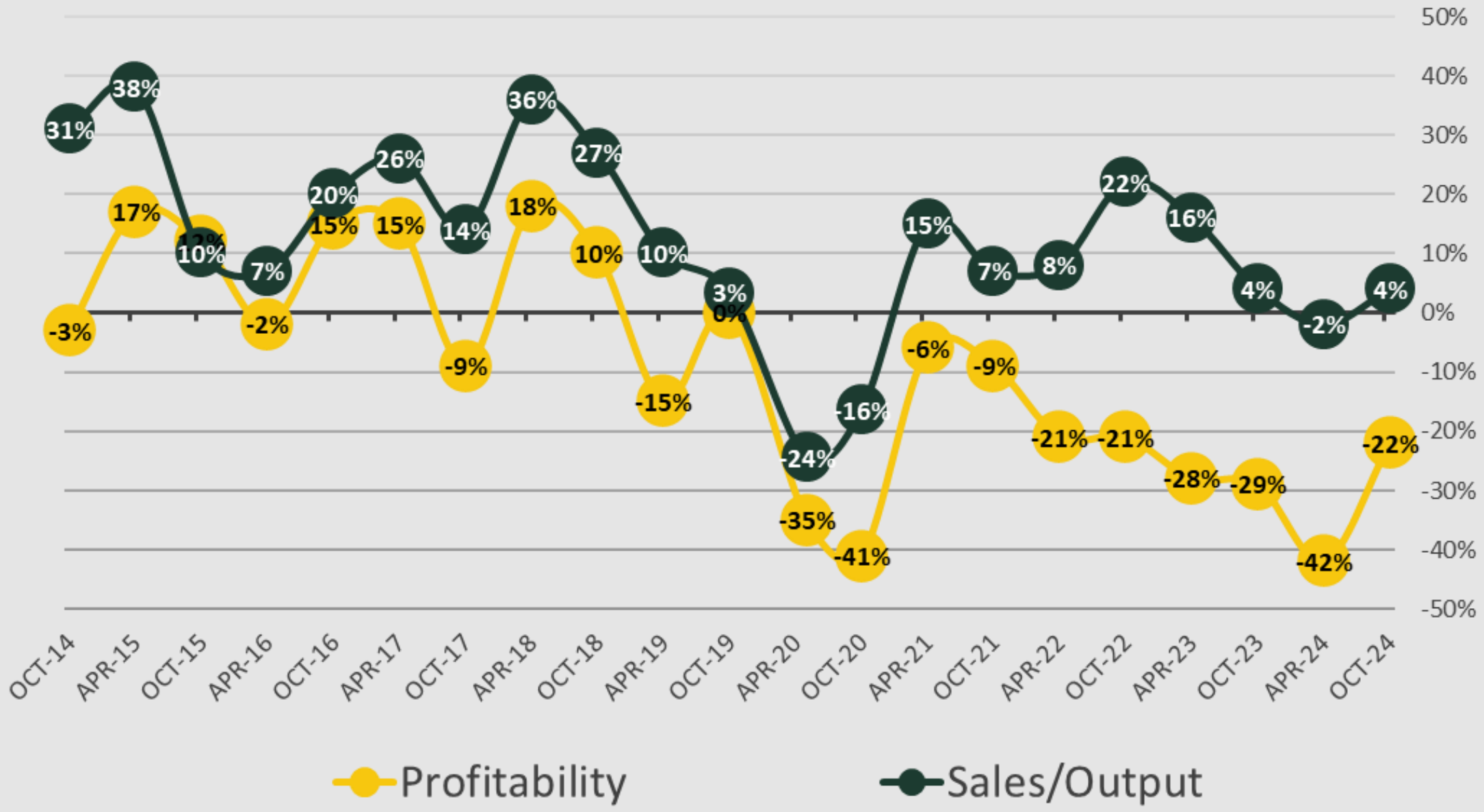
Confidence of North Canterbury Businesses
Confidence of New Zealand Businesses (NZIER)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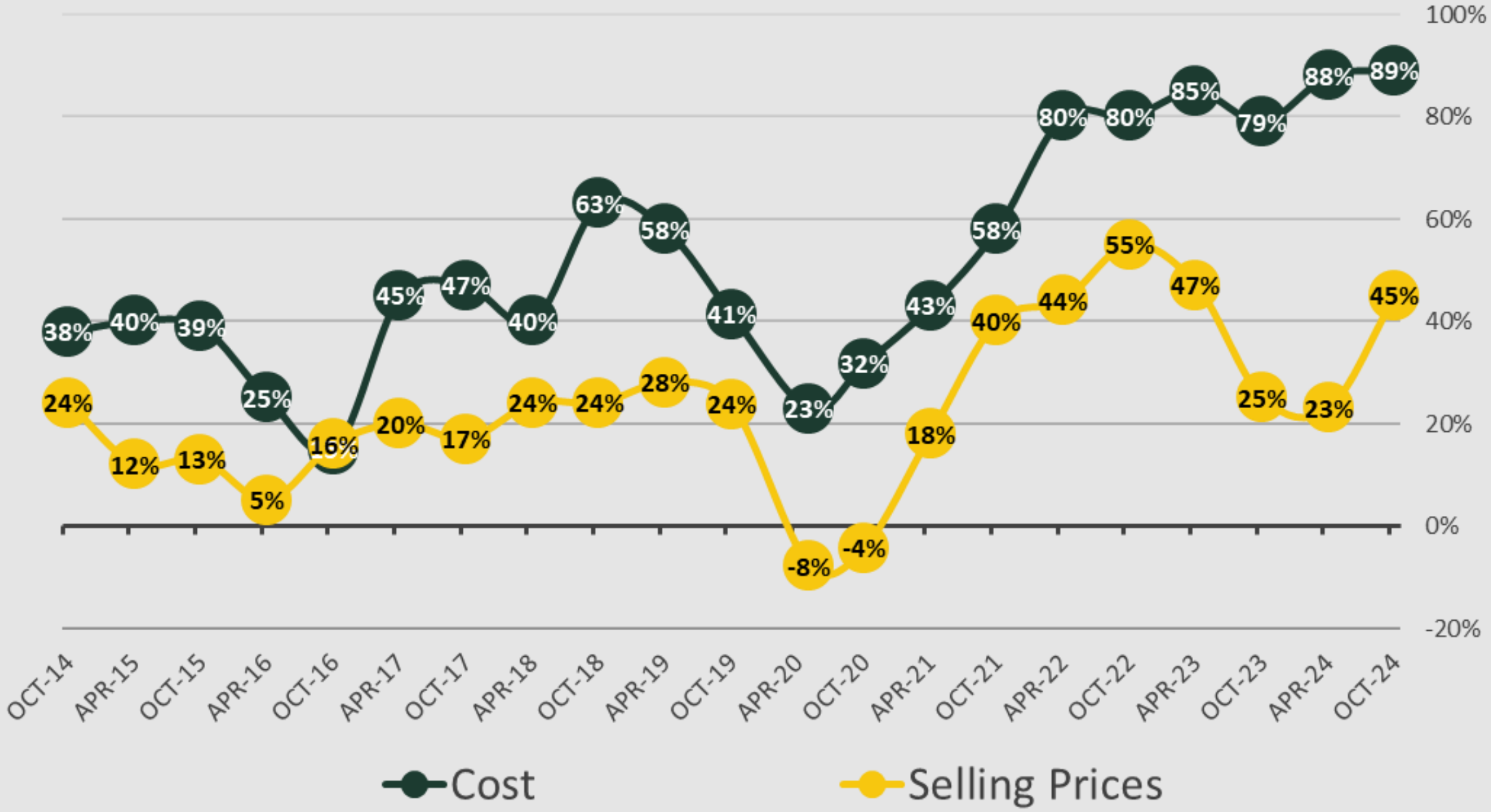
Profitability
Sales/Output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Cost
Selling Prices

Damien Wiffen

Chief Assets and Operations Officer - MainPower

mainpower

MAINPOWER NZ LTD
ENTERPRISE NORTH CANTERBURY NETWORKING

NOVEMBER 2024

CHANGING ENERGY SECTOR

The energy sector is changing from a one-way energy process, to a complex environment where customers have choice. This requires us to continue to review our strategy to ensure it is fit for purpose.

The MPowered Future strategy better reflects where we are as a company, and where we are heading.

We're looking to shape our future network and prepare for a changing energy environment.

We're focused on better understanding our three regions, what our customers and communities need, how it will change over the coming 30 years and how our network can support this.

GETTING FUTURE READY 2025 – 2027

OUR VISION

Creating a smarter future to deliver local value.

STRATEGY

An engaged community	Customer-focused organisation	Decarbonising our place	Create a sustainable future

GOALS

Enhance MainPower's leadership role in our community.	**Anticipate customer needs.**	**Network Readiness and resilience to climate change.**	**Maximise shareholder value.**
Drive value through stakeholder engagement.	**Evolve our customer centric culture.**	**Energising our community and lead renewable energy in North Canterbury.**	**Strengthen and grow organisational capability.**

OUR VALUES

Make it **BETTER**	Make it **HAPPEN**	Work **TOGETHER**	Do what's **RIGHT**

OUR COMMITMENT TO A SUSTAINABLE FUTURE

Manaaki whenua, manaaki tangata, haere whakemua

If we take care of the earth and take care of the people, we will take care of our future.

In 1987 United Nations Brundtland Commission defined sustainability as “meeting our own needs without compromising the ability of future generations to meet their needs”.

MainPower has aligned our sustainability efforts with this philosophy and is committed to a genuine approach to creating a sustainable future on three critical priorities – People, Planet and Prosperity.

AN ENGAGED COMMUNITY

GOAL

Enhance MainPower's leadership role in our community.

- Be a respected leader in our community.
- Be the first point of contact for energy expertise.

GOAL

Drive value through stakeholder engagement.

- Understand our community in order to identify opportunities.
- Collaboration leads to influence.

CUSTOMER-FOCUSED ORGANISATION

GOAL

Anticipate customer needs.

- Understand what the customer needs of the future will be.
- Be prepared for, and respond to, the changing expectations of our customers.

GOAL

Evolve our customer centric culture.

- Continuously improve MainPower services and the customer experience.
- Make business decisions with the customer in mind.

DECARBONISING OUR PLACE

GOAL

Network readiness and resilience to Climate Change.

- **Delivering the AMP is critical.**
- **Explore new solutions to decarbonise and build resilience to climate change.**

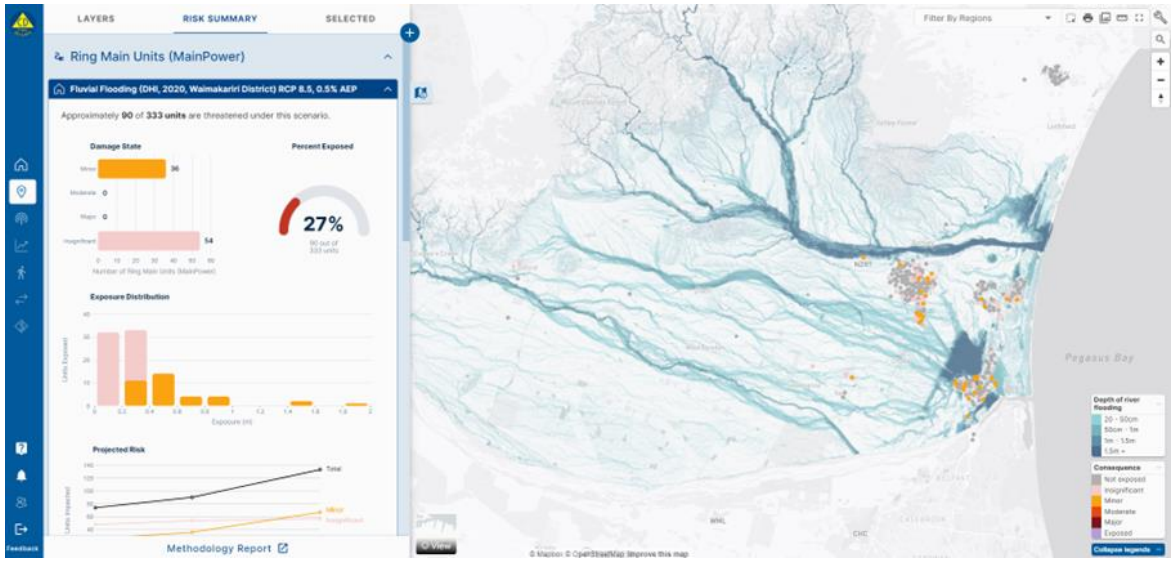
GOAL

Energising our community and lead renewable energy in North Canterbury.

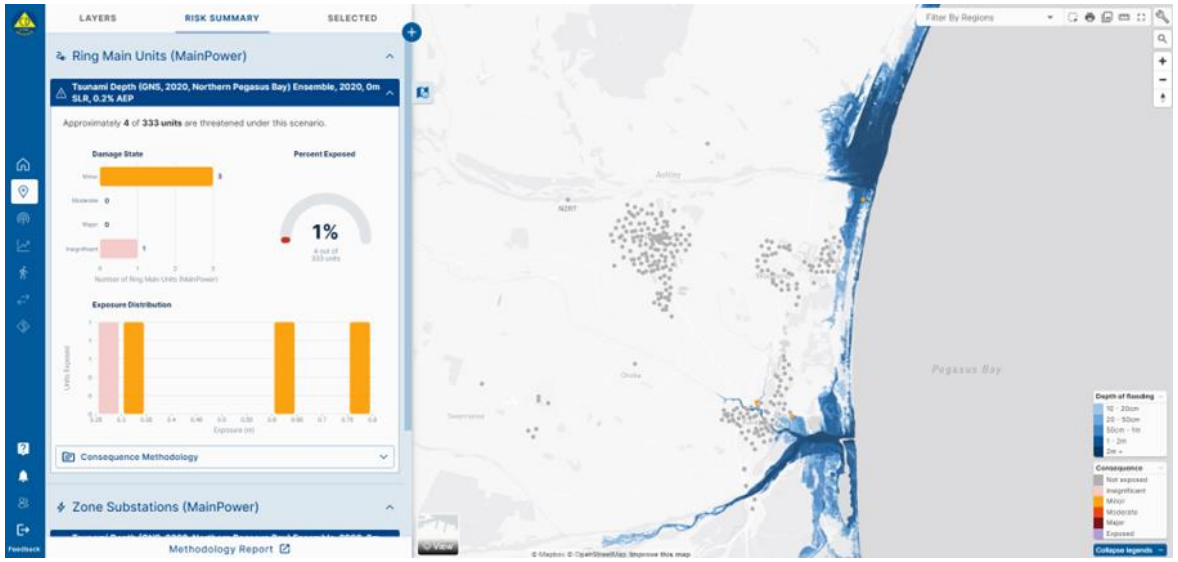
- **Enable our community to transition from fossil fuels.**
- **Investigate and utilise new technology e.g. renewable generation (e.g. solar, windfarms) drones, AI, EVs etc.**

MITIGATION OF CLIMATE CHANGE

Flood modelling

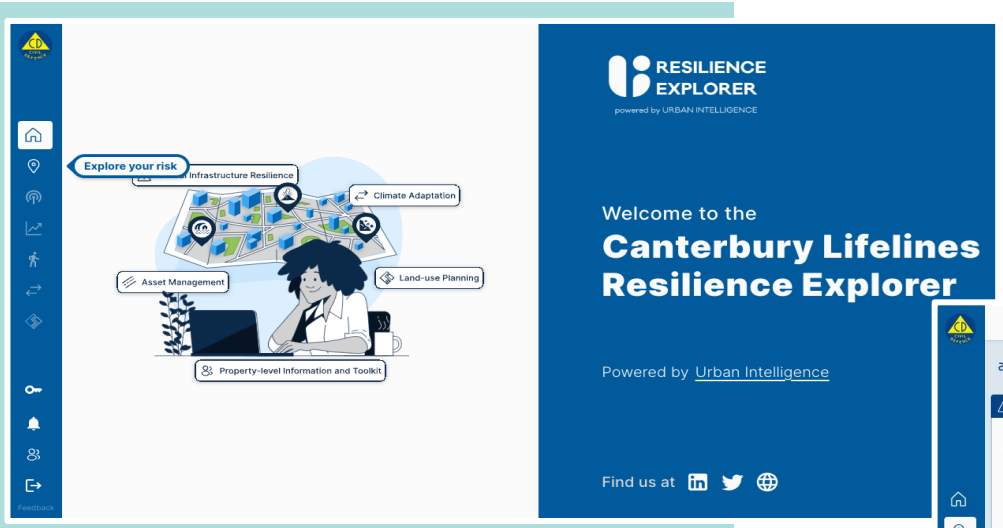


Tsunami modelling



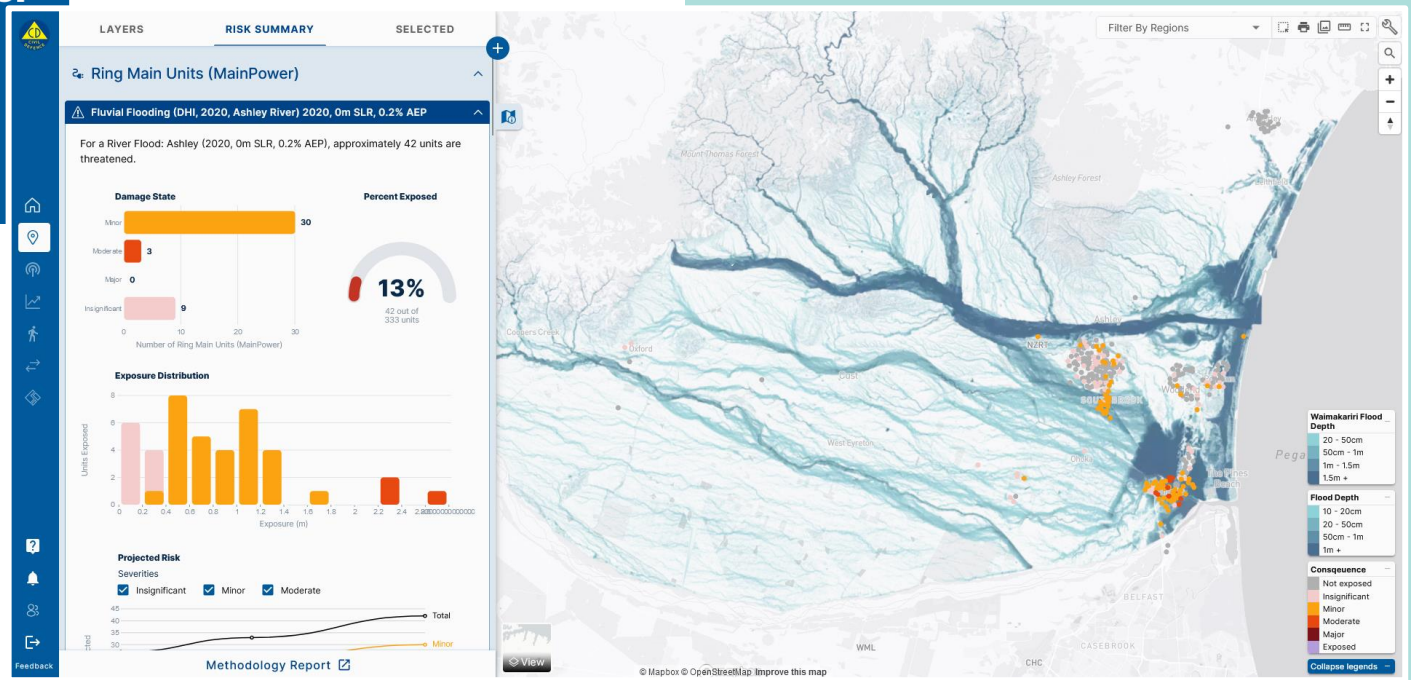
- We expect to see an increase in significant weather events, both in event frequency and the overall intensity.
- This all means our assets will need to operate in tougher conditions and as such, in some areas will need to be build stronger.

RESILIENCE AND CLIMATE CHANGE



URBAN INTELLIGENCE

NIWA
Taihoro Nukurangi



OUR FUTURE FOCUS

Horizon 1: Building the Foundation	Horizon 2: Building Systems and Capability	Horizon 3: Grow with our Customers
Next 3 Years	**Years 3 to 10**	**10 Years and Beyond**
Gaining a deeper understanding of our network and our customers' energy needs.	Developing new tools, building capability and embedding these across our operations.	Scaling our capability as consumer energy resources and engagement increases.

- **Customer engagement and insights:**
- **North Canterbury energy landscape and global trends**:
- **Network data, visibility and intelligence:**
- **Advanced Distribution Management System (ADMS) and GIS System:**
- **Climate Resilience:**

NETWORK READINESS AND ELECTRIFICATION

Understanding the impacts of new technologies and customer changing energy demands and behaviours.

Electric vehicles (EVs)

Distributed generation (Solar)

Battery storage

Flexibility

Smart metering

Artificial intelligence (AI)

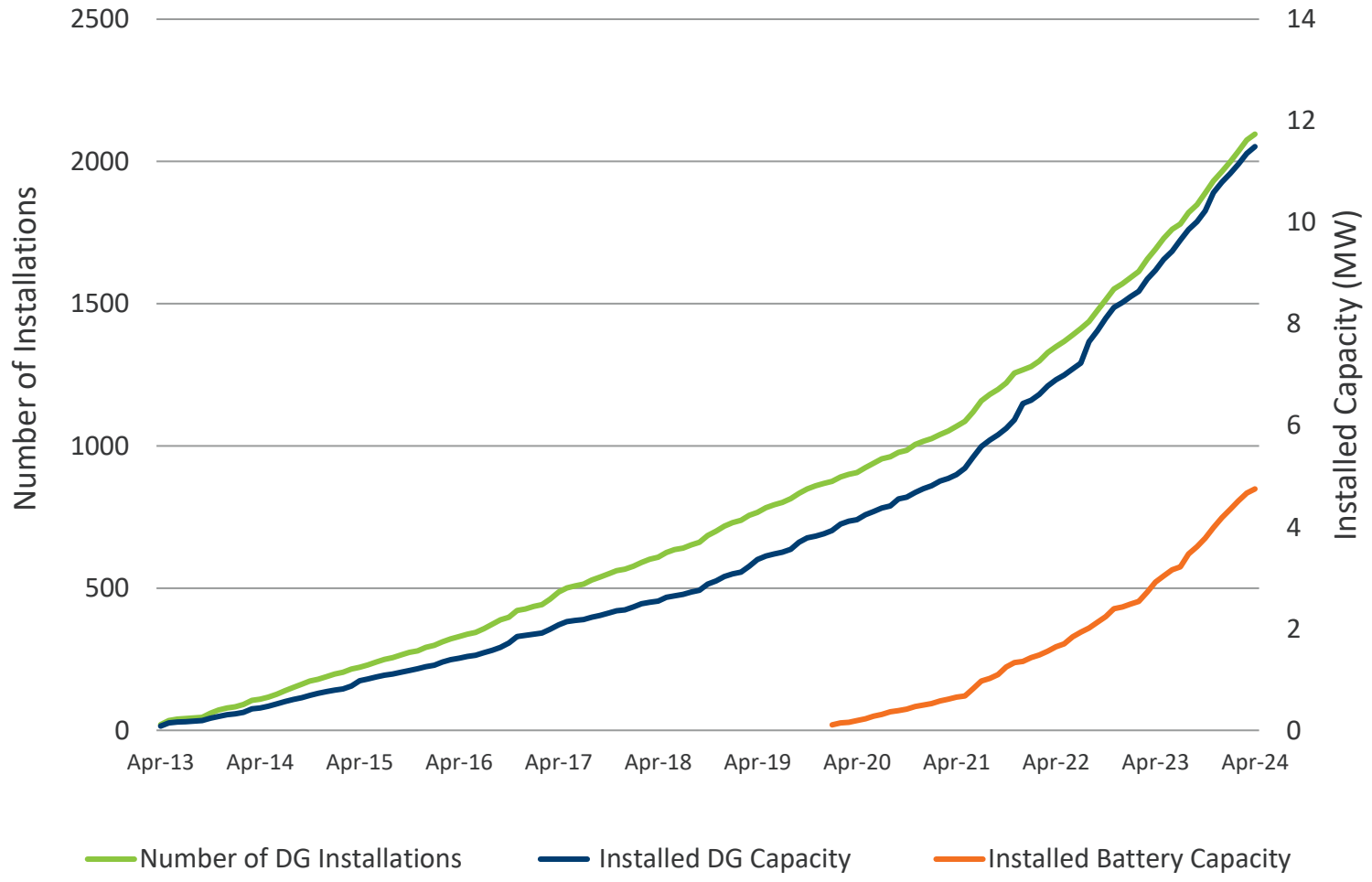
System operations and network support (SONS)

Drones used for fault finding, there is one at every depot

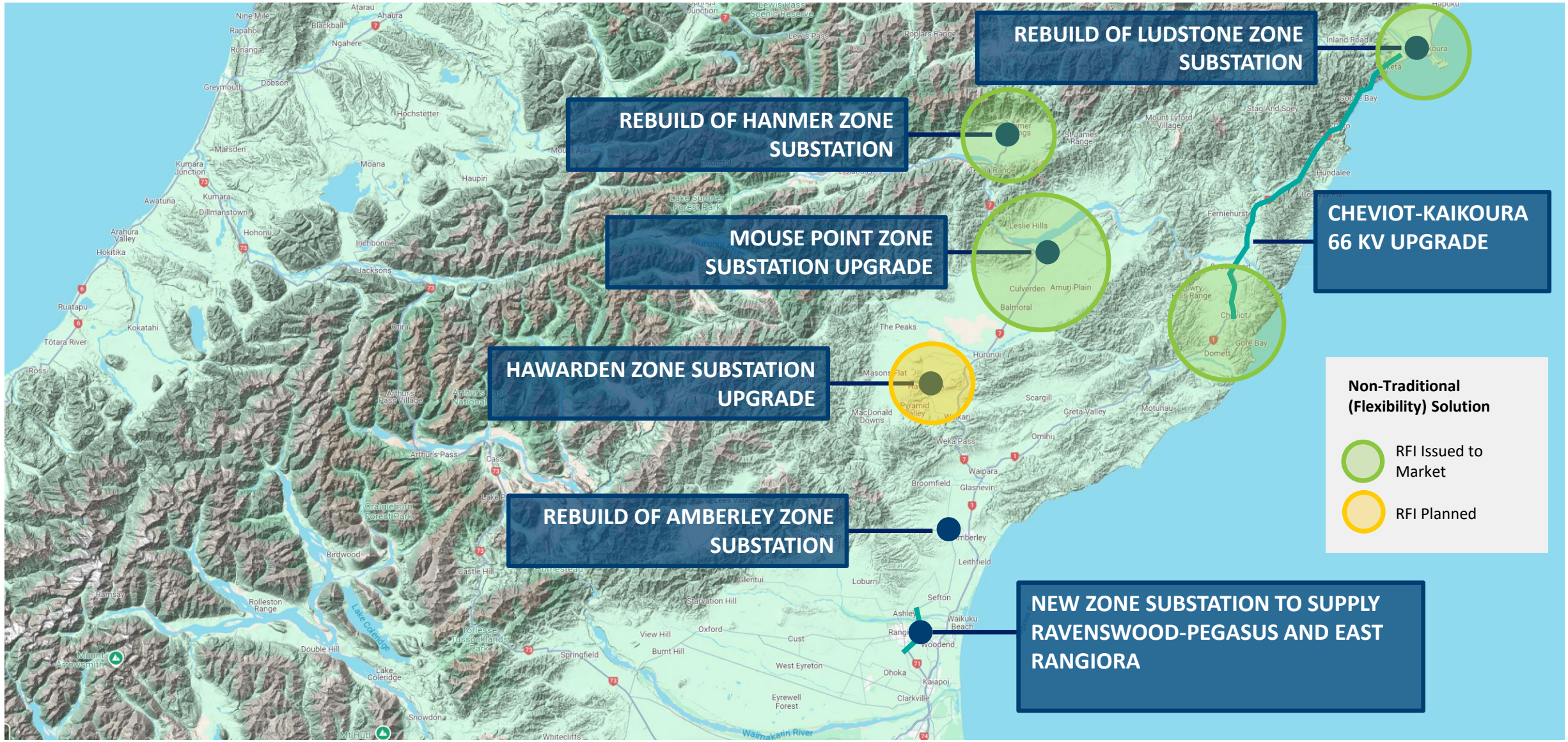
DECARBONISING OUR PLACE

Impact of solar

- MainPower had a 28% increase on the previous year.
- 54% of these new solar connections also have a battery installed.
- The total installed capacity of batteries installed on the network is 5 MWh.



MAJOR PROJECT INVESTMENT

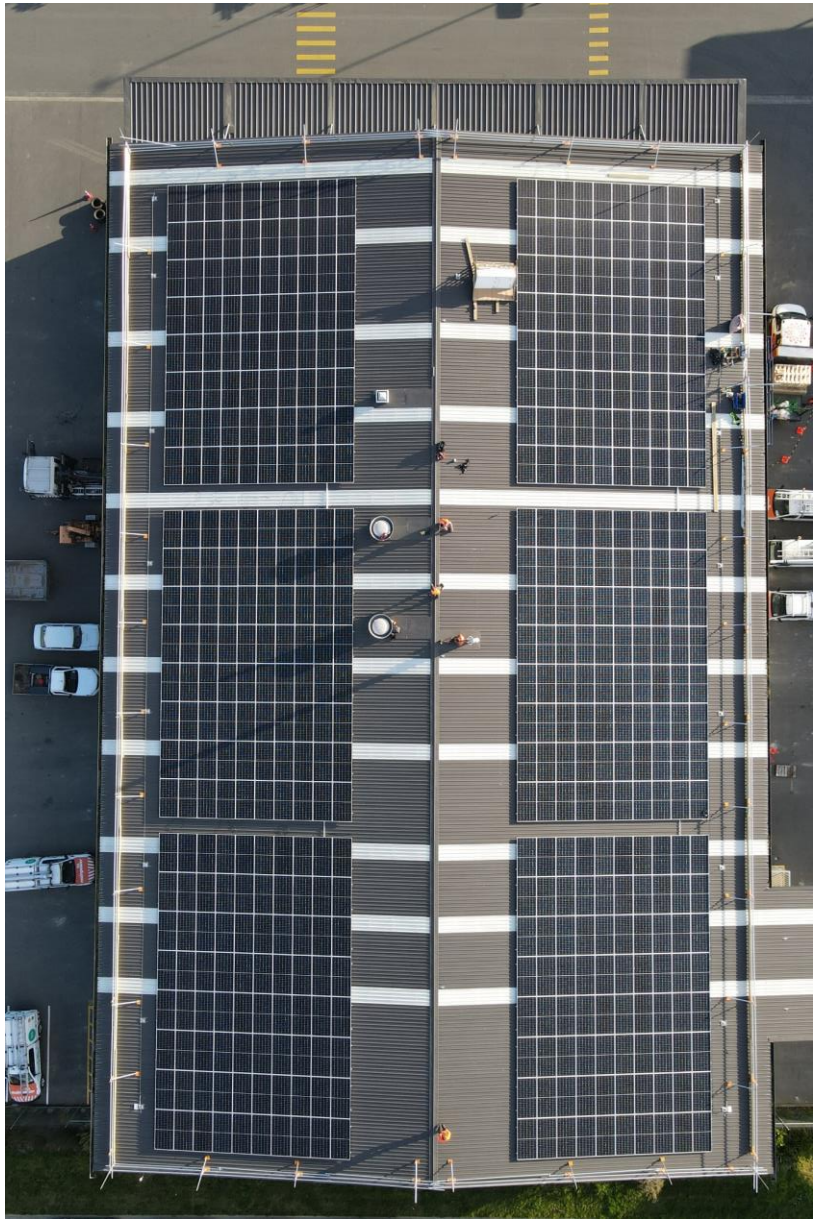


DECARBONISING OUR PLACE

Renewable Energy

Fernside Road Solar

- 300kW Solar system installed at MainPower office.
- In the last 12 months:
  - The system produced an average of 1.1 MWh per day.
  - 61% of the generated energy is consumed at the Fernside depot. The remainder is exported to the grid.
  - This has enabled us to reduce our electricity usage from the Grid by 24.3%.
  - Electricity consumption and production has led to an overall reduction of 18.3 tCO2-e.



DECARBONISING OUR PLACE

Solar opportunities | Thongcaster Road Solar Farm

- Land Use Consent has been granted.
- Environment Canterbury Consent application lodged.
- Will have a maximum output of 7.3MW and supply energy to an average 1250 homes pa.

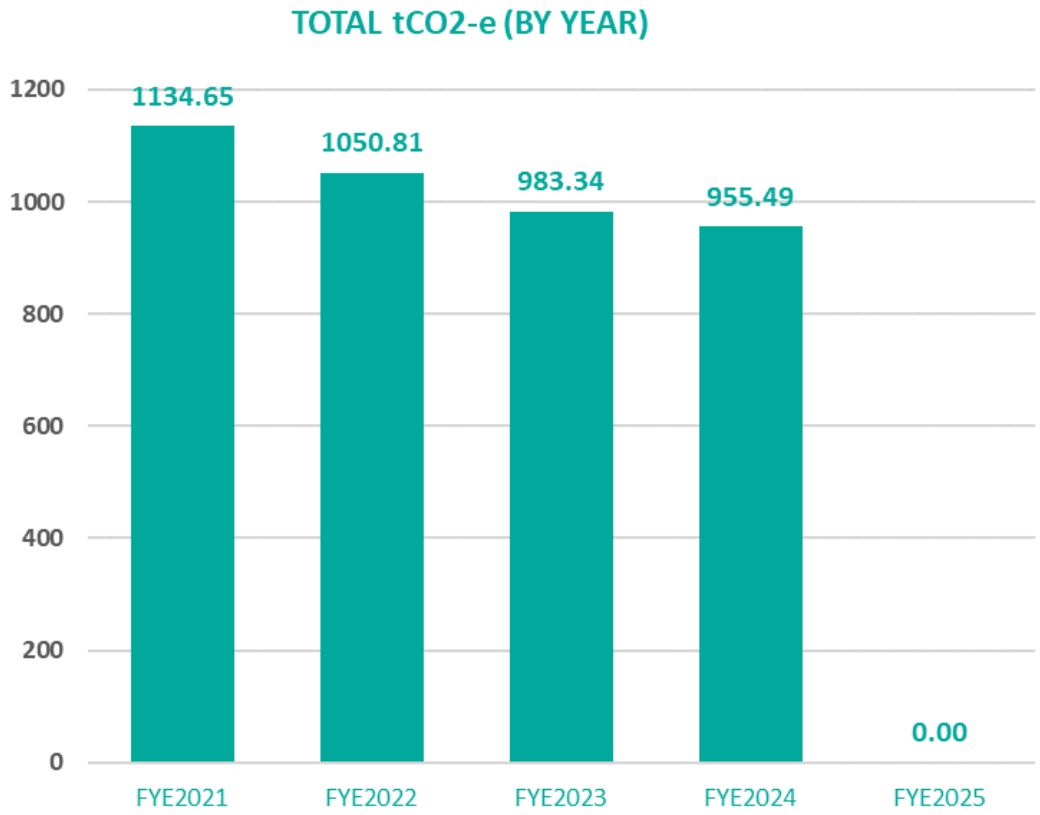
Responding to future energy needs

MAINPOWER'S GREENHOUSE GAS EMISSIONS

- Reduce the number of truck rolls/km travelled for planned work.
- Reduce idle time.
- Review low emission fuel (biodiesel blend).
- Piloting hybrid vehicle solutions.
- Training for our teams on sustainable driving practices.
- Fuel usage reduction = 26.8 tCO2-e
- SF6 increased by 0.29kg = 6.8 tCO2-e

OVERALL

Total Emission reduction of 27.8 tCO2-e 2.8%*



Reduction (from the Base Year FYE 2021)
= 15.8% (or 179.2 tCO2-e)

CREATE A SUSTAINABLE FUTURE

GOAL
Maximise shareholder value.

- **Strengthen MainPower's portfolio.**
- **Make sure there will be a MainPower here in the future.**

GOAL
Strengthen and grow organisational capacity.

- **Have the people, capability and capacity to deliver the future.**
- **We will be investing in you to make sure that you are prepared to respond to the future.**

CREATE A SUSTAINABLE FUTURE

People

- MainPower has had four apprentices graduate in FY24. Another four on track to graduate this FY.
- We have established two new graduate roles in the newly established Future Networks team.
- Advanced Leadership Development Programme – nine MainPower staff, two Marlborough Lines staff and one Hanmer Springs Thermal Pools staff member.
- Scholarships for staff member's children via Bright Sparks scholarship programme.

Sustainability that goes beyond the environment

mainpower

Penny Abell

General Manager – Misco Joinery

- Humble Beginnings
- The Start of our Journey
- Roof Space

miscojoinery
Est 1988

- 535 Solar Panels
- The Return
- The App

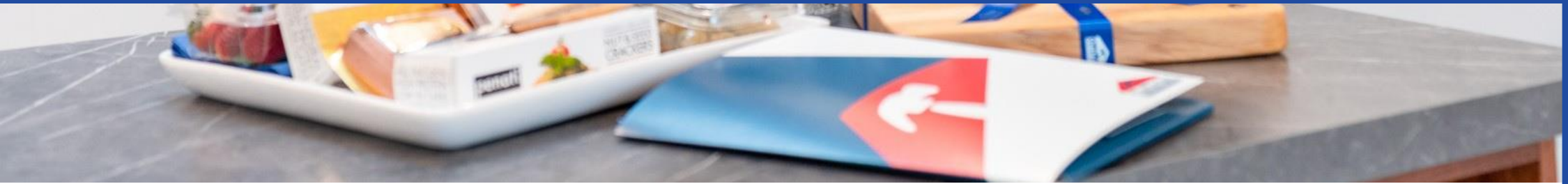
- **Waste Minimisation**
- **Optimisation**
- **The Challenge**

- **Toitū Gold Achieved**
- **Next Step… Diamond?**

Brent Chatterton

Managing Director – Chatterton Homes

The High Performance Home Journey



Chatterton HOMES

Welcome & Introduction

- Our Story into Energy Efficient & Sustainable Homes
- What is a High Performance and Sustainable Home?
- Passive House Principles

Chatterton HOMES

Our Story

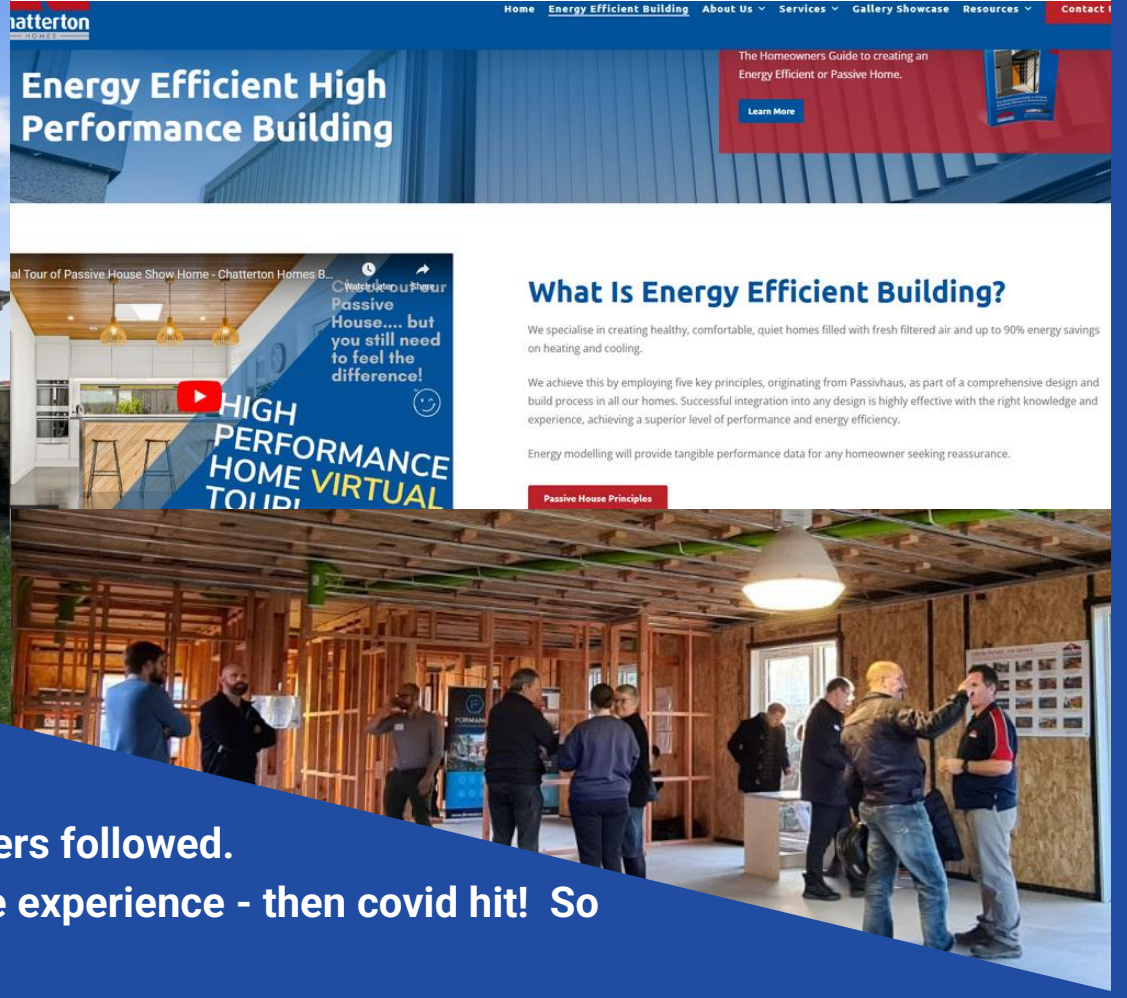
- Established Chatterton Builders in 1998.
- Discovered SIPs inside garage of our English neighbour.
- Began a journey of discovery for us.....

- 2011 became an early adopter of passive house principles and energy efficient building in NZ.
- One of first NZ builders to be accredited to build with SIPs.
- We have now completed over 90 SIPs builds including certified passive homes.
- Offer our SIPs service South Island wide. Consult for other companies. Qualified Air tightness tester and completed the passive house trades person qualification.

Chatterton HOMES

Te Tōpūtanga o te Whare Korou ki Aotearoa PHINZ

SUPERHOME movement



Our Story Cont....

- Education became a core part of our business.
- Introduced educational mid build events to Canterbury - others followed.
- Built a passive house show home in 2019 to provide tangible experience - then covid hit! So we moved in!
- Tried again this year - officially opening a show home in Amberley in September.

- In response to demand for affordability and shorter process, we released a high performance plan range this year.

Chatterton HOMES

Te Tōpūtanga o te Whare Korou ki Aotearoa PHINZ

SUPERHOME movement

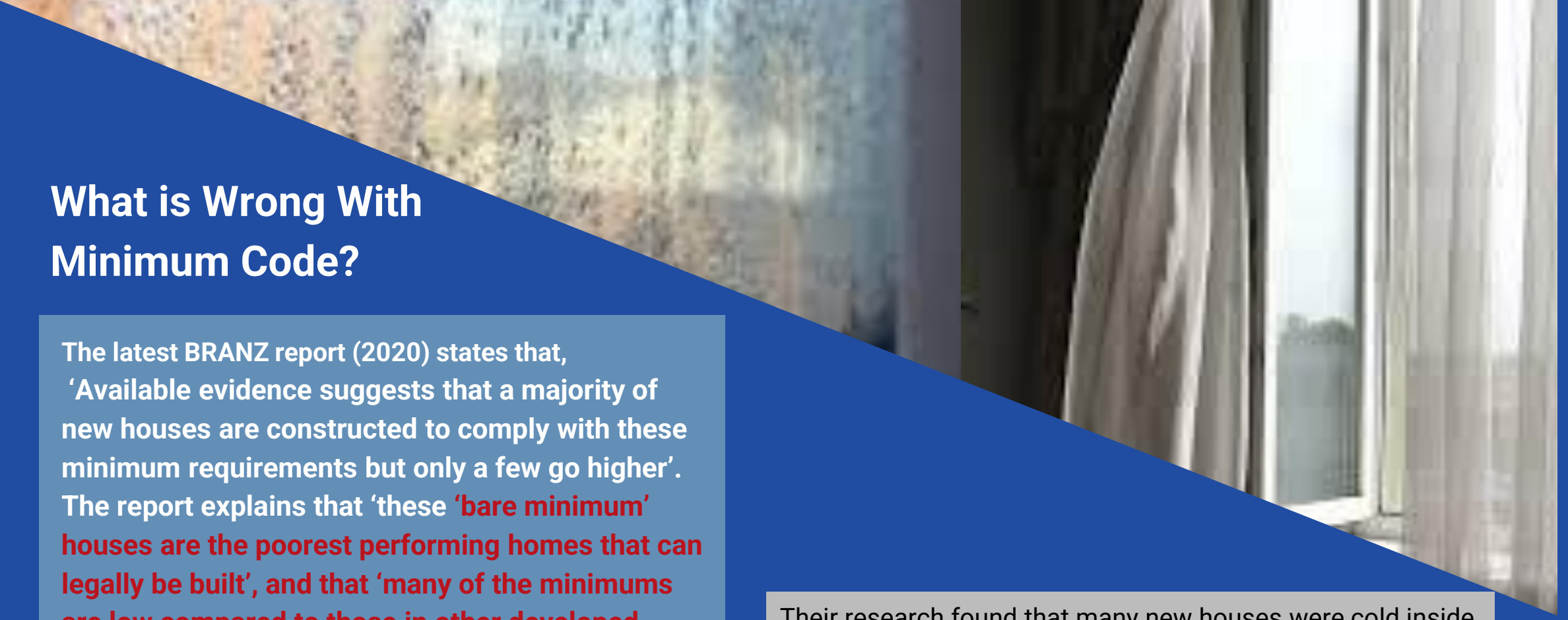
What is a High Performance & Sustainable Home?

Our Definition:

Optimising the comfort and well being of a home and it's occupants whilst significantly reducing energy use and running costs. By default, our method protects the very fabric of the home and helps contribute to a sustainable future.

- **Minimal Space Heating & Cooling (Heat Recovery)**
- **Humidity Managed & No Condensation**
- **Warm Comfortable Interior Year Round**
- **Even Temperatures Throughout the Home Year Round**
- **Continual Supply of Fresh Filtered Air. Most Allergens Removed.**
- **Elimination of Drafts**

Chatterton HOMES



What is Wrong With Minimum Code?

The latest BRANZ report (2020) states that, ‘Available evidence suggests that a majority of new houses are constructed to comply with these minimum requirements but only a few go higher’. The report explains that ‘these **‘bare minimum’ houses are the poorest performing homes that can legally be built’, and that ‘many of the minimums are low compared to those in other developed countries such as Australia, many European states and the UK’.**

Their research found that many new houses were cold inside for the equivalent of several months over a year when not actively heated. Computer modelling of a sample of Christchurch homes consented in 2016 found that the mean indoor temperature dropped below 12oC for 116 days.

The report found that whilst going beyond the code may have higher upfront costs, lower running costs can recoup the additional cost within a reasonable time frame.

Chatterton HOMES

The Growth & Demand for Better Homes:

In 2018, BRANZ highlighted that poor occupant health & wellbeing outcomes are linked to cold, damp and poorly ventilated buildings. In response, MBIE developed a framework document that recognised that some in the sector have reacted, with a conservative growth in 'high performance' buildings that focus on health and comfort, as well as operational efficiency.

MBIE Transforming Operational Efficiency Document states

'..Our vision is by 2035, New Zealand's new buildings are using as little energy and water as possible. They are warmer, drier, and better ventilated, and provide a healthier place for us all to work and live. … People also have more money in their pockets due to lower energy bills. The Building and Construction Sector can confidently and successfully design and construct energy and water-efficient buildings with low operational carbon emissions'….

Chatterton

How do we achieve high performance?

- **We believe the only way to achieve a truly healthy, sustainable & energy efficient home is the application of passive house principles into the design and build.**
  Adapting these principles does not have to mean the expense of Certification.

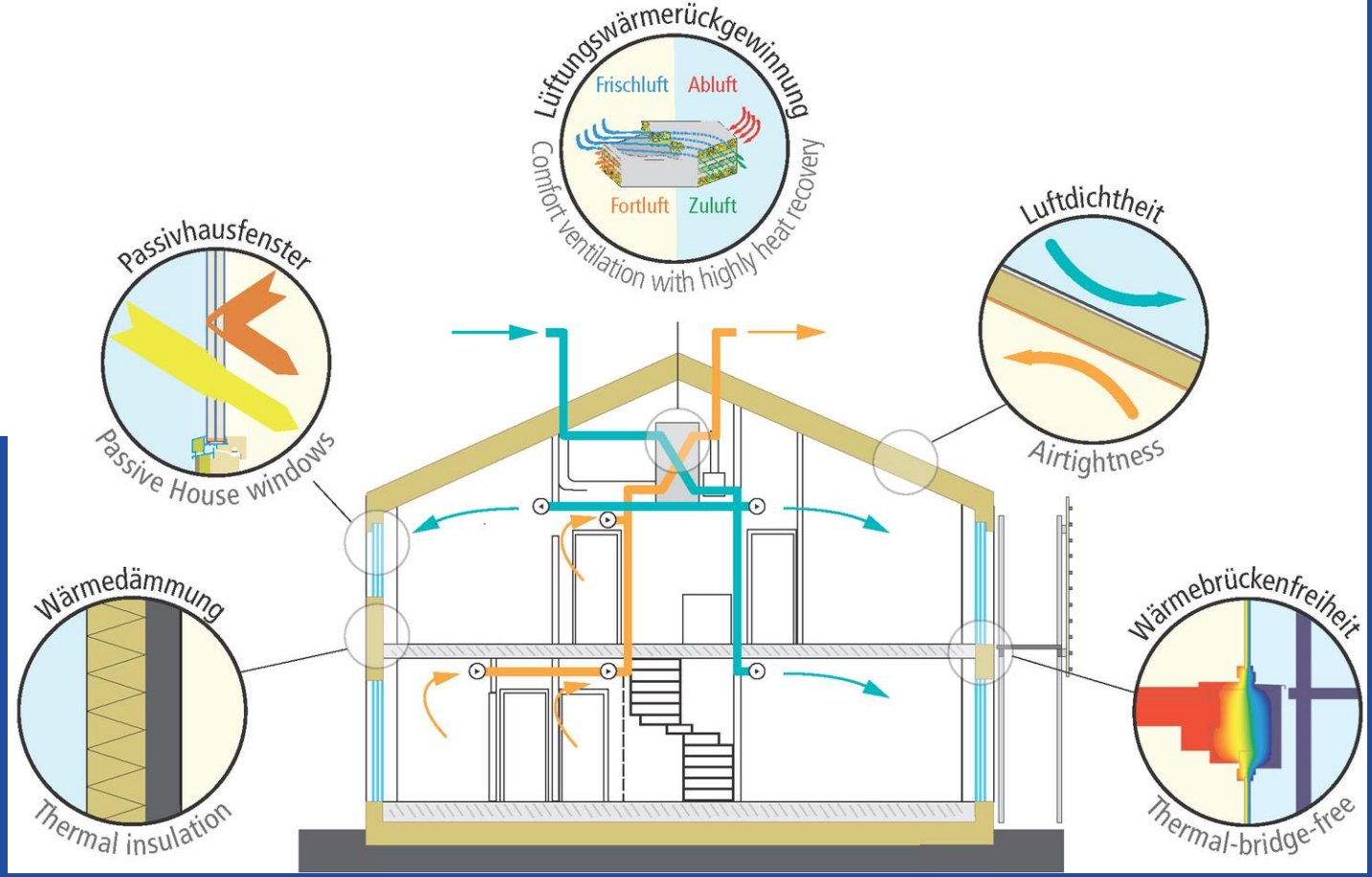
- **Comprehensive design and build process**. All factors considered. Cause and affect. No isolated fixes with negative consequences.

- **Thermal modelling** - energy savings and performance demonstrable.

Chatterton HOMES

What are the Passive House Principles?

- Insulation
- Air Tightness
- Mechanical Heat Recovery Ventilation
- Thermal Bridge Management
- High Performance Windows



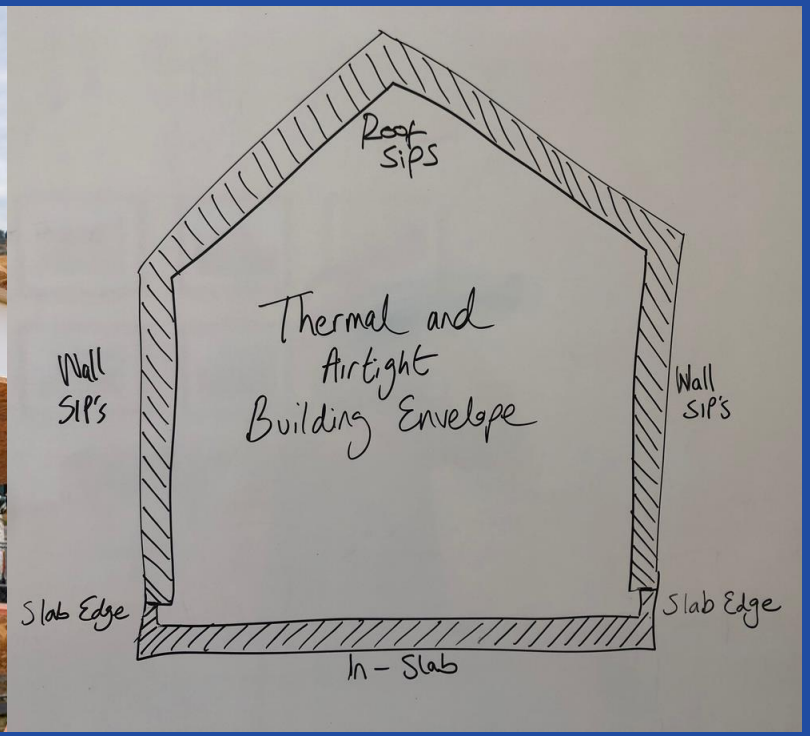
The principles work in unison. Avoiding unwanted consequences and optimising performance for both well being and energy usage.

The problem with isolated fixes is known and unintended consequences - i.e increasing heating need in a non airtight home / air tightness without sufficient ventilation / adding ventilation then requiring more heating.

Chatterton HOMES

What are the Passive House Principles? Cont.....

INSULATION



- Prevents transfer of heat energy across the building envelope. Warm air will always move to cold air if it is able to. Insulation helps prevent that movement.
- Insulation is required as a continuous layer (an envelope) to floor, walls and ceiling.
- Breaks or compromises to this layer are structural elements and window joinery - another key consideration/principle.
- Insulation requirements were increased in 2023.
- Gaps, compression or sagging insulation all affect insulation properties.

Chatterton HOMES

What are the Passive House Principles? Cont.....

AIR TIGHTNESS

- Limits uncontrolled air movement
- No draughts
- Allergens limited as enter with outside air
- Limits Cold air entering and warm air escaping

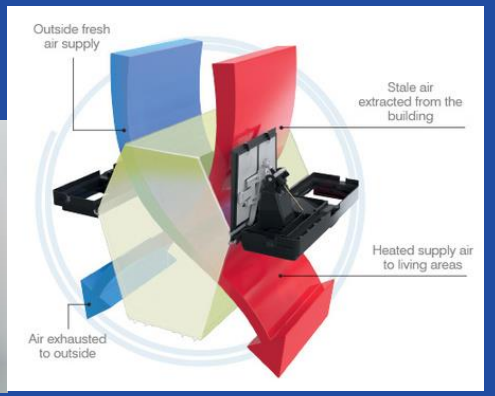
- Most minimum code homes are 5-10 ac/hr. We aim for 0.6 ac/hr (PH standard).
- Good continuous air tightness enables the MHRV to work effectively - controlled air movement
- Good air tightness and a good MHRV = 90-95% efficiency in heat recovery.
- Also, aids sound proofing.
- Air tightness requirements are due to be introduced in 2025.

Chatterton HOMES

What are the Passive House Principles? Cont.....

MECHANICAL HEAT RECOVERY VENTILATION

- Controlled air movement. Incoming air enters MHRV where it is filtered before being heated through a thin metal plate by the stale air being removed. Re-using heat not wasting. No uncontrolled leaks.
- Constant supply of warmed fresh filtered air.
- Humidity managed limiting moisture entering the home and related damp/mould.
- Allergens and outside particles filtered - can remove up to 95% of allergens.
- Extract vents are in bathrooms, kitchens and laundry removing moisture as it is released from cooking, washing etc. Heat is still extracted.
- Maintains a constant comfortable temperature as extract heat warms the incoming air. Heat deficit can often be made from appliances or body heat.
- Where more heat is required in coldest or warmest months a small heat pump can suffice.



Chatterton HOMES

What are the Passive House Principles? Cont.....

THERMAL BRIDGE MANAGEMENT

- Homes are designed to minimise bridges, such as steel penetrating airtight/thermal envelope.
- Simpler building forms.
- Material choices.
- Windows are recessed into the insulation layer.
- Where structural elements such as timber splines are necessary additional insulation can be installed,i.e. batts to service cavities.

What are the Passive House Principles? Cont.....

HIGH PERFORMANCE WINDOWS

- Both framing and glazing needs to be considered.
- Whilst uPVC or timber are preferable in terms of thermal performance, there are increasingly better aluminium options on the market.
- Cost is a factor that is weighed up against performance.
- Thermal modeling can provide a cost benefit analysis.
- Most important thing is that they are recessed.

Chatterton HOMES

Thank You!

.....Questions?

Find out more at:

www.chattertonhomes.co.nz

03 3130103

info@chattertonhomes.co.nz

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