



Creating homes and neighbourhoods  
that work well into the future  
and don't cost the Earth

# What is a High Standard of Sustainability for New Zealand Homes?

Presentation to Beacon Stakeholder Symposium

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# What is the High Standard of Sustainability?



1. Benchmarks against which Beacon can measure its progress to goal
2. Realistic targets against which homeowners are able to measure their home
3. Measures which reflect the key sustainability issues within the home

# Beacon's High Standard of Sustainability



- Setting benchmarks at the house level for new and retrofitted homes:
  - Energy
  - Water
  - Indoor Environment Quality (IEQ)
  - Waste
  - Materials
- Benchmarks based on theoretical calculations verified by real life research data (eg BRANZ HEEP Project, NOW Homes<sup>®</sup>) where this exists
- Benchmarks have been set within a context of *affordability* and *future flexibility*

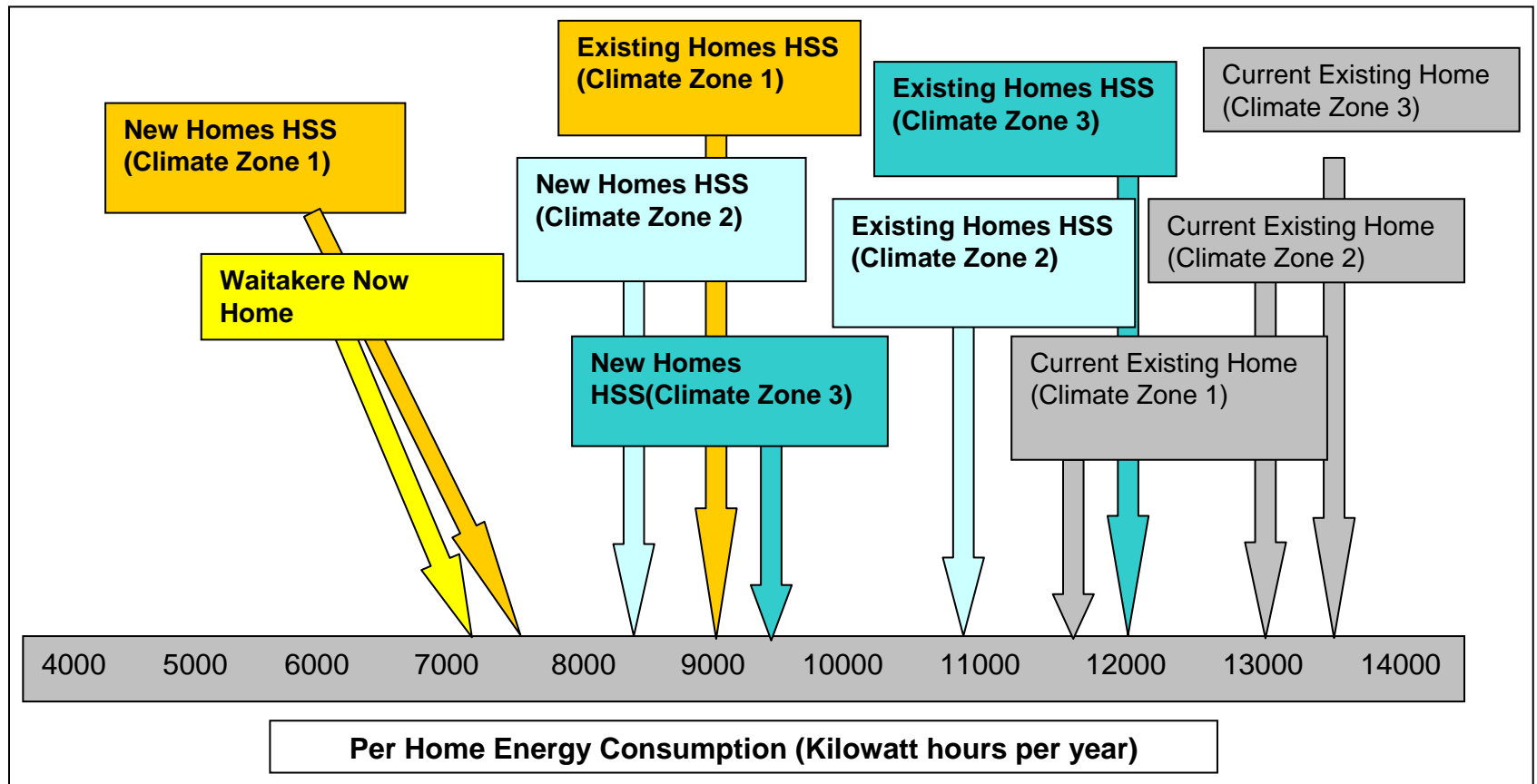
# High Standard of Sustainability Benchmark - Energy



- Key considerations
  - Higher standard for new vs existing homes (due to ease of getting better site orientation & passive solar design in new homes)
  - Need to consider range of climate zones – different benchmarks by climate zone
  - Standard needs to recognise current poor indoor temperatures in New Zealand and the need for energy efficiency to not be achieved at the cost of healthy indoor environments



# High Standard of Sustainability Benchmark - Energy



# High Standard of Sustainability Benchmark - Energy



The benchmarks set represent:

- a 35% reduction in energy use in new homes;
- a 25% reduction in energy use in existing homes

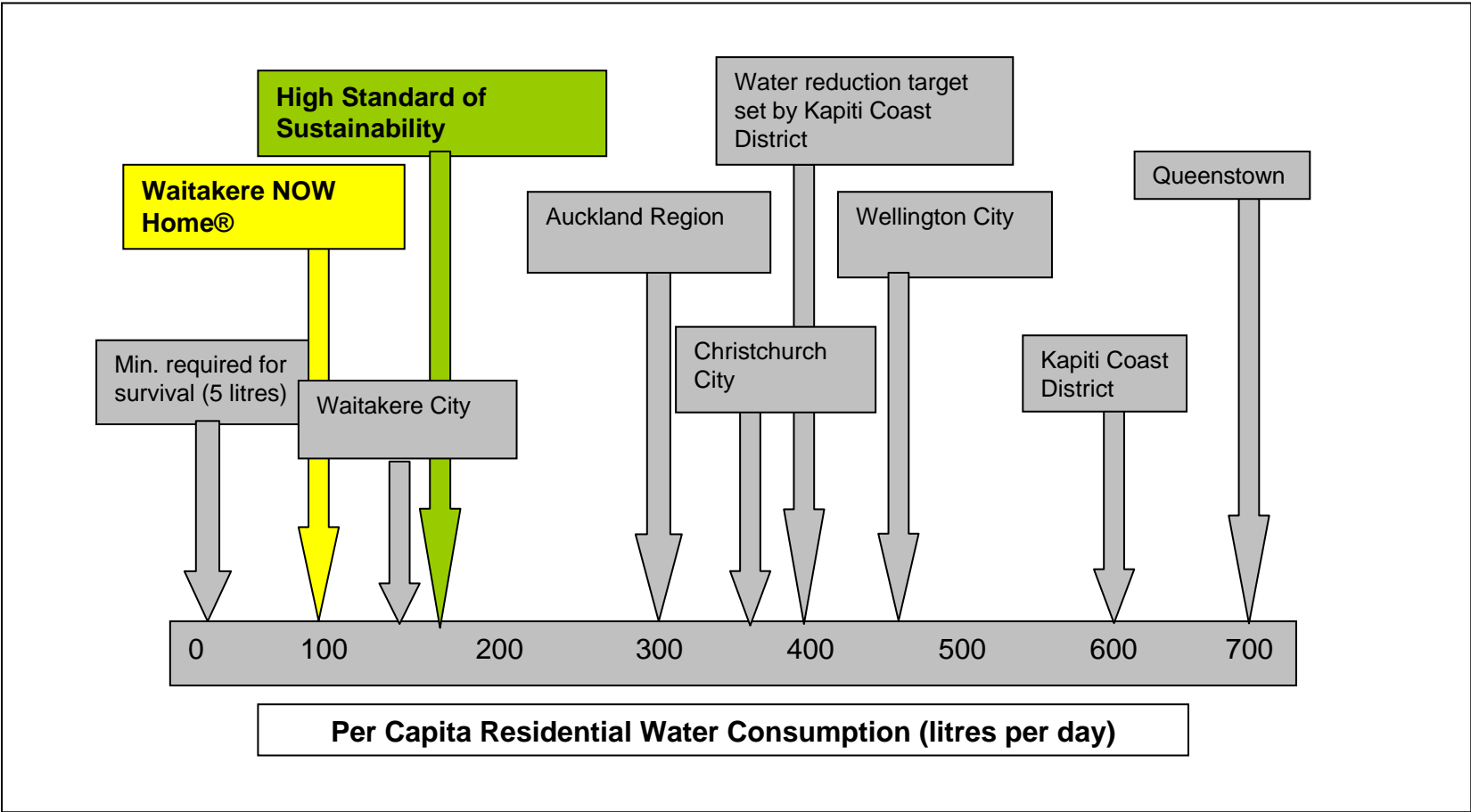


# High Standard of Sustainability Benchmark - Water



- Key considerations
  - Relatively easy to retrofit for water efficiency so should be no need for different benchmarks for new and existing homes
  - Metered households tend to use less water – but most (70%) of households in the country are unmetered

# High Standard of Sustainability Benchmark - Water





# High Standard of Sustainability Benchmark - IEQ



- Key considerations
  - Little New Zealand research in this area, but humidity and cold are known key issues which are relatively easy to measure
  - Checklists may be useful until simple monitoring methods and appropriate benchmarks can be identified

# High Standard of Sustainability Benchmark - IEQ



- Mean Temperature Minimums – 16°C in bedrooms and 18°C in living rooms
- Relative Humidity – between 25 – 70%
- Ventilation rate – 0.4-0.6 air changes per hour
- Checklist:
  - Mechanical venting kitchen, bathroom, drier
  - Environmental Choice certified finishes
  - No unflued gas heaters
  - Opening windows (no air conditioning)



# High Standard of Sustainability Benchmark - Waste



- Key considerations
  - For new homes and renovations construction waste is a key factor
  - For existing homes issue is operation of the home
  - Little house specific (as opposed to construction sector) research in this area
  - Checklists may be useful until simple monitoring methods and appropriate benchmarks can be identified

# High Standard of Sustainability Benchmark - Waste



- New Homes and Retrofits:
  - Building construction in accordance with REBRI construction guidelines
  - Construction waste 2.5 tonnes or less (compared to 4 tonnes for average new home)
- New and Existing Homes:
  - Provision for kitchen waste composting or storage of kitchen waste for collection
  - Space for recyclables storage



# High Standard of Sustainability Benchmark - Materials



- Key considerations
  - Little empirical, verifiable information on New Zealand materials currently available
  - Materials are a sunk cost in existing homes
  - In the absence of good information, checklists provide a starting point until empirical research is undertaken



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# High Standard of Sustainability Benchmark – Materials Checklist



## Materials which:

- promote good indoor air quality
- are durable and have low maintenance requirements
- reuse existing or demolished building materials or can readily be reused
- incorporate recycled content or can readily be recycled
- are made from renewable or sustainably managed resources
- have low embodied energy including minimal impacts due to transport
- have low impact on landfill or are biodegradable
- minimal impact on the environment (air, water, land, habitats and wildlife)
- have third-party certification (eg NZ Environmental Choice, Forest Stewardship Council)
- have minimal health risks during construction or retrofitting

# How will this be used?

- Acting as a benchmark for Homesmarts and NOW Homes® to be monitored against
- Will underpin the NOW Home® and NOW Home® Renovation Protocols
- Staircasing of benchmarks envisaged as more information is available (eg Papakowhai Project) & homes become progressively more sustainable (eg water metered areas likely to move up the “staircase” sooner)
- Used for advocacy around minimum standards and for government incentives programmes