



Climate Change Group
WATER NEW ZEALAND



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Ministry of Business, Innovation and Employment

By email: buildingforclimatechange@mbie.govt.nz

Tēnā koutou katoa

Feedback on Building for Climate Change programme - Operational Efficiency Assessment technical methodology.

Water New Zealand (Water NZ) welcomes the opportunity to provide comment and perspective on the proposed methodology for assessing the operational efficiency of new buildings in Aotearoa New Zealand.

Water NZ is a national not-for-profit organisation which promotes the sustainable management and development of New Zealand's three waters (drinking water, wastewater, and stormwater). Water NZ is the country's largest water industry body, providing leadership and support in the water sector through advocacy, collaboration, and professional development. Its ~3,000 members are drawn from all areas of the water management industry including regional councils and territorial authorities, consultants, project managers, suppliers, government agencies, academia, and scientists.

This submission was drafted by the Water NZ Climate Change Special Interest Group (SIG). This SIG's mission is to provide leadership across the New Zealand water sector to enable it to act to limit the effects of climate change to a temperature change of 1.5 degrees Celsius. We actively work across all three waters to provide guidance to meet 'zero carbon' goals and adapt to the impacts and risks of a changing climate.

Overview

Overall, Water New Zealand supports the draft methodology for calculating the operational efficiency of a new building, specifically recognizing the carbon emissions from use of water in the operation of buildings. We support the intent for a standardised measurement approach to ensure consistent practices across the sector.

1. Significant investment is required across water services sector to achieve the Building for Climate Change 75 litre/person/day cap.

Residential water efficiency in Aotearoa lacks best practice. Average water use in New Zealand is 229 litres /person /day. This significantly exceeds the (ambitious) 75



litres/person/day cap for 2035 outlined in MBIE's "Transforming operational efficiency framework" in the Building for Climate Change Programme.

Taking action to drive down water usage and reduce losses is a no-regrets option for improving urban water security, while concurrently reducing emissions.

Decisions that impact on residential water use efficiency are heavily influenced at a Buildings Design and Construction stage. Ignoring water use efficiency in new build homes locks us in to unsustainable practices for decades to come.

It should also be noted that risks to potable water supplies from climate change is ranked as New Zealand's most urgent climate risk.

The implementation of the 75 litre/person/day cap included in the operational efficiency framework is being tested by Fletcher Living's LowCo home. Through a collaborative partnership with Watercare, the design team is finding ways to reduce water use and wastewater disposal incorporating systems to capture and store rainwater, as well as recycle greywater.¹

[Recommendation 1](#) - We recommend reflecting water efficiency targets in the technical methodology and specifying how and when that will be progressed.

[Recommendation 2](#) – We recommend recognising the importance of reducing water loss and improving water use efficiency of our urban networks. This would improve drought resilience, environmental outcomes, and service delivery costs for consumers whilst reducing greenhouse gas emissions and achievement of Building for Climate Change Programme. It is important to note that customers are responsible for asset lifecycle costs on their property such as water tanks, pumps, and treatment systems. This increases the risks associated with monitoring and maintenance.

2. Calculating water use emissions.

The current document states that potable water and wastewater calculations are 'to be determined' (page 5).

[Recommendation 3](#) - We recommend using the following guidelines to develop emissions measurements for water and wastewater use.

1. Measuring Emissions: A Guide for Organisations 2023 Detailed Guide provides a methodology for determining emissions from water supply in Section 9.2, that could be adopted into the operational efficiency framework.
2. Taumata Arowais Network Environmental Performance Measure Rules require the reporting of water related energy use which should be used to periodically update the

¹ [Building pilot offers glimpse of low carbon housing \(Fletcher Living\) - SBN \(sustainable.org.nz\).](#)



underlying assumptions in the Measuring Emissions Guide: [Network Environmental Performance Measures | Taumata Arowai](#) Section 9.3 of the Measuring Emissions Guidelines outlines emissions factors for wastewater. While approaches for electricity use draw on best available sources, emissions factors for N₂O are now known to be substantially higher. The Water New Zealand Carbon accounting guidelines for wastewater treatment provides more accurate emissions factors.²

3. These emissions should be combined with up-to-date information on wastewater treatment plants to provide up to date emissions estimates of wastewater.³

Recommendation 4: Water and wastewater emissions are commonly normalised by head of population. However, occupancy (population) is not a clean source of data and water professionals struggle to obtain accurate population information at a household level. We suggest normalising on occupancy based metrics (for example number of bedrooms as a proxy) rather than floor area, as occupancy is a larger driver of water use. We recommend investing in and maintaining a better set of population data across the country.

Recommendation 5: The operational efficiency technical methodology mentions that septic systems should have a different emission factor. We note that there are no emission factors for onsite treatment systems (except septic tanks). Should advanced onsite treatment become more widely used in the built environment in future it will be important to advance our understanding of emissions from onsite wastewater units which can employ significantly more energy and emissions intensive processes. Understanding of emissions from such systems is currently limited. We recommend significant research in this space to advance our built environment information system.

Recommendation 6 – We recommend developing regional emissions factors over time as the information base matures. This reflects key lessons from our industry guide, Navigating to Net Zero⁴. The guide demonstrates there are steps available to the water services sector on its low carbon journey, by mitigating carbon emissions from operations and capital works - including supply chains. It builds on a wealth of international experience for improving energy efficiency, recovering renewable energy and resources and outlines actions appropriate for Aotearoa.

3. Strengthening water efficiency practices through policy.

Water efficiency and reduction of water use emissions from residential buildings needs to be supported by inter-agency policies and standards.

² https://www.waternz.org.nz/Attachment?Action=Download&Attachment_id=4872

³ Wastewater Treatment Plant Inventory : Water New Zealand (waternz.org.nz)

⁴ Navigating to Net zero: Aotearoa's water sector low carbon journey <https://www.waternz.org.nz/climatechange>



Recommendation 7 – We recommend MBIE to support inclusion of water sensitive and water efficient standards into relevant legislation, plans, codes, standards, and schemes⁵ and support consistent universal metering and volumetric charging across New Zealand.

Recommendation 8- We recommend recognising the public value of the nexus of energy, water, and food. The emissions from this nexus can be designed more effectively from a public value perspective for significant emission reduction as well as other benefits.

Recommendation 9- Reducing water use and encouraging recycled water use should be included in the framework. We recommend that the methodology should specify the reason for not including it.

Recommendation 10 – We recommend MBIE to encourage and invest in digital monitoring solutions which will enable on-site efficiencies and a better-informed policy direction.

Summary

Water sector decarbonisation policy, methods, procedures, and intelligent water systems need to be mobilised across the infrastructure, building and construction sectors to encourage decarbonisation and the outcomes of a net zero and circular water economy.

Water New Zealand looks forward to continuing to work with the government to refine and contribute to climate action policy and delivery.

If you have any queries in relation to this submission, please contact Punya.Chandi@hcc.govt.nz

Ngā mihi nui

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⁵ This UK paper identifies mandatory government-led regulation as the single most effective method for reducing per capita demand: <https://www.water.org.uk/wp-content/uploads/2019/12/Water-UK-Research-on-reducing-water-use.pdf>