

14 May 2023

Climate Change Commission

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Tēnā koutou katoa

## **Submission on 2023 Draft advice to inform the strategic direction of the Government's second emissions reduction plan**

Water New Zealand (Water NZ) welcomes the opportunity to provide comment and perspective on the draft advice to inform the strategic direction of the Government's second emissions reduction plan (the advice).

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, suppliers, government agencies, academia and scientists.

Given our members' interests, our submission provides drinking water, stormwater and wastewater service provision (water services) perspective and commentary.

### **Overview**

Overall, Water New Zealand supports the draft advice, and acknowledges its strength is in its cross-sector nature. However, we are disappointed the Commission's advice is silent on the emissions and decarbonisation opportunities for the water services sector.

### **The advice does not recognise the water services sector**

The water services sector is not recognised in the advice, or the 2021 Emissions Reduction Plan (ERP), and water per se is only mentioned in passing.

- The Built Environment chapter considers water in terms of the contribution of energy used for heating water for showers, laundry and dishwashing.
- The Waste chapter focuses on municipal waste diversion and the efficiency of landfill gas capture.

## **Emissions from the water services sector are not insignificant**

Water New Zealand considers the water services sector, including water extraction, treatment, supply, and wastewater collection, treatment and recovery has an important role to play in decarbonisation alongside other industries highlighted in the advice.

### *Operational*

Globally, direct greenhouse gas emissions of methane and nitrous oxide from wastewater are estimated to account for 1.6% of total emissions<sup>1</sup>. This excludes emissions from energy use, for example, associated with pumping - in excess of, 700 TJ/year for water supply and 1,000 TJ/year for wastewater<sup>2</sup>.

### *Embodied or capital emissions*

The construction of water services also involves significant consumption of energy and materials. For example, projections of capital carbon from emissions associated with creation of assets, (materials, manufacturing, transportation, labour and end-of-life) can make up to 70% of all emissions.

In the Aotearoa context, 72 of Watercare's major capital works, planned to start before 2029 are expected to contribute 374,695 t/CO<sub>2</sub>e<sup>3</sup>.

### *Opportunities to reduce emissions*

With appropriate treatment, wastewater sludges can be reused to offset chemical-based fertilisers. This can reduce direct emissions from sludge and the emissions associated with the production of chemical-based fertilisers.

Further opportunities to unlock latent energy contained in our wastewater exist through technologies such as hydrogen fuel, algal farming, and extension of existing biogas facilities. These technologies are at various stages of development internationally and further research, development and associated funding is needed to accelerate uptake in Aotearoa.

Landfills and waste management activities can access the MfE waste levy. The wastewater sector does not have access to the levy. Access would be advantageous to progress research and innovation of reuse of byproducts from water services.

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<sup>1</sup> IPCC, Climate Change 2014 – Mitigation of Climate Change. Working Group III Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. [www.cambridge.org/9781107654815](http://www.cambridge.org/9781107654815)

<sup>2</sup> Water New Zealand, National Performance Review 2019-2020 [www.waternz.org.nz/NationalPerformanceReview](http://www.waternz.org.nz/NationalPerformanceReview)

<sup>3</sup> Managing infrastructure carbon in New Zealand, 2021 H. Edmond, N. Dempsey, C. Thurston, A. Mordridge [https://www.waternz.org.nz/Article?Action=View&Article\\_id=1919](https://www.waternz.org.nz/Article?Action=View&Article_id=1919)

## **Significant investment is required across water services sector, with consequential operational and embodied emissions**

Analysis provided by the Water Industry Commission for Scotland (WICS) has identified that between \$120-\$180b of investment is required over the next 30 years to address the current infrastructure deficit and to lift environmental outcomes. This will result in an increase in greenhouse gas emissions without direct action to understand the opportunities available to reduce emissions. Research has shown that leading asset owners and their supply chains with deliberate carbon management strategies can reduce capital carbon by 40%, whilst concurrently reducing capital costs<sup>3</sup>.

Compared internationally the water services sector in Aotearoa is inefficient.

- Approximately 20% of water supplied to networks is lost before making its way into homes<sup>4</sup>.
- Residential water efficiency also lags best practice. Average water use in New Zealand is 229 litres /person /day<sup>2</sup>. 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.

Reducing water loss and improving water use efficiency of our urban networks can improve drought resilience, whilst reducing greenhouse gas emissions.

Our industry guide, Navigating to Net Zero<sup>5</sup> aims to help the water services sector on its low carbon journey, by outlining steps to mitigate 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.

The water services sector must pursue decarbonisation pathways aimed at reducing the energy footprint of water production, supply, and recovery, using fewer chemicals and materials for processing, and developing water conservation measures that reduce the sectors' overall carbon footprint. Embedding emission reduction and circular economy standards into regulation, planning and asset management will support industry adoption.

## **Recommendations**

Water New Zealand recommends:

1. The Commission's advice includes specific decarbonisation actions for the water services sector. This could include:

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<sup>4</sup> Water New Zealand National Performance Review 2021-22 [www.waternz.org.nz/NationalPerformanceReview](http://www.waternz.org.nz/NationalPerformanceReview)

<sup>5</sup> Navigating to Net zero: Aotearoa's water sector low carbon journey <https://www.waternz.org.nz/climatechange>

- a. progressive policy direction and funding models, directing reducing water demand;
  - b. sustainable water allocation;
  - c. water conservation and efficiency of use;
  - d. energy efficiency treatment and transport,
  - e. biosolid sludge and gas recovery for reuse, drive innovation, encourage new markets for recycled materials
2. Expanding the Built Environment chapter advice to require;
    - a. the compliance with PAS2080 Carbon Management in Infrastructure, and
    - b. mandatory assessment of emissions offsetting opportunities within new infrastructure projects e.g. revegetation, green infrastructure, renewable energy generation to achieve net zero targets
  3. The advice recommend nationally consistent biosolid sludge reuse guidelines that works across other Government policy frameworks and consenting (not limited to Natural Built Environment Bill, Spatial Planning Bill and forthcoming Waste Minimisation Amendment Bill and the PFAS National Environmental Standard.)
  4. The advice should direct the Ministry for the Environment to adopt the Water New Zealand Carbon accounting guidelines for wastewater treatment: CH<sub>4</sub> and N<sub>2</sub>O<sup>6</sup> in the National Inventory.

## **Sustainable land use and urban planning offer synergies with mitigation**

With population and economic growth, the demand for water will increase at a time when availability and sources are becoming more stressed.

It is also projected that the energy demand by the water services sector will increase as more distant and scarce water resources are allocated for supply and require energy to pump, treat and deliver. Stormwater pumping will potentially become more frequent as low lying, inundation prone settlements try to limit impacts of flooding.

## **Recommendations**

Water New Zealand recommends:

5. The Commission's advice is to require the proposed Natural and Built Environments Bill and Spatial Planning Bill implement an integrated planning system where the appropriateness of future developments and infrastructure provision is informed by sustainable water allocation modelling and climate risk and hazards.

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<sup>6</sup> Carbon accounting guidelines for wastewater treatment: CH<sub>4</sub> and N<sub>2</sub>O  
[https://www.waternz.org.nz/Attachment?Action=Download&Attachment\\_id=4872](https://www.waternz.org.nz/Attachment?Action=Download&Attachment_id=4872)

6. The Commission's advice requires water sensitive and water efficient standards to be incorporated into relevant legislation, plans, codes, standards and schemes<sup>7</sup>. For example, MBIE's Building for Climate Efficiency – efficient adaptive housing designed for 75/litres/person/day.
7. The Commissioner advice supports work to improve water efficiency and use through consistent universal metering and volumetric charging across New Zealand.
8. Reporting, performance measures and targets for water consumption and leakage- as well as for wastewater and stormwater which Taumata Arowai and the Commerce Commission will require the water services sector to report against are used by the Commission as a baseline to monitor performance over time.

## **Climate policy must integrate with wider reform programmes**

While the Government's climate policy programmes and initiatives offer significant benefits, there is little clarity on how these will integrate with the wider reforms (Water Services, Resource Management, Future for Local Government) to holistically enable transition to a low carbon future.

Water services policy needs to keep pace with the requirement of Aotearoa's emissions reduction targets. The Government's second emissions budget (for 2026-2030) has been set, and Department of Internal Affairs National Transition Unit and the future water services entities (WSEs) need direction to ensure appropriate and economically efficient contributions from the water services sector.

Water New Zealand were pleased to see the Parliament's cross-party Finance and Expenditure Committee report back on the Water Services Legislation Bill amended the Climate Response Act Section 5ZW, requiring water services entities to provide information on their understanding of, and their preparation for, the impacts of climate change.

## **Recommendations**

Water New Zealand recommends:

9. The Commission supports expanding the statutory obligations of the WSEs to require the production of, and annual reports against, a Climate Change Management Plan that includes:
  - a. their current and projected whole of life emissions from infrastructure including an emissions reduction plan to get to a set emission reduction target.

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<sup>7</sup> 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>.

- b. Impacts, risk & resilience – aligned with Climate Response Act Section 5ZW, the proposed Climate Adaptation Act and proposed regional spatial plans.
  - c. Climate related financial disclosures –
    - i. Annual Greenhouse Gas Emission reporting by source.
    - ii. Reporting using the Task Force on Climate Related Financial Disclosures framework.
    - iii. Other climate related reporting required under other mechanisms relating to boards.
10. The Commission supports the inclusion of a new clause in the Water Services Legislation Bill, requiring the implications of climate impacts and carbon emissions to be taken into account on proposed infrastructure lifecycle asset management decisions, and require a long-term approach to service delivery be taken in all WSE Asset Management Plans, Infrastructure Strategies, Funding & Pricing Plans.
11. The Commission supports amending the Water Services Economic Efficiency and Consumer Protection Bill requiring the Commerce Commission to explicit consider the impacts of climate change in the long-term asset management planning and assessed alongside a market rate-based decision (short term) for investment decisions.

## Summary

Water sector decarbonisation policy, methods, procedures, and intelligent water systems need to be mobilised across the entire sector 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 Commission to refine and contribute to climate policy and delivery.

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Ngā mihi nui



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