

**Briefing to the Minister for the Environment,
Hon Penny Simmonds**



Dear Minister

Congratulations on your appointment as Minister for the Environment. With the impacts of climate change and environmental degradation becoming more and more prevalent, we believe this Ministry has an especially significant role to play.

Please see below our briefing, highlighting the current state of container glass recovery and recycling. This includes the challenges, solutions and ways in which Government can collaborate with the Glass Packaging Forum to achieve the best possible environmental outcomes for glass packaging in Aotearoa New Zealand.

We request a meeting with you at your earliest convenience to discuss this further.

Prepared by

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Dominic Salmon

Glass Packaging Forum Scheme Manager

EXECUTIVE SUMMARY

About the Glass Packaging Forum (GPF)

The **GPF** is a not-for-profit member organisation which operates Aotearoa New Zealand's only Government-accredited, voluntary product stewardship scheme for container glass (glass bottles and jars). It was established in 2006 and is now part of The Packaging Forum.

The primary function of the GPF is to ensure as many glass bottles and jars as possible are diverted from landfill to be recycled, reused, or go to alternative uses. This is done by providing funding and support to improve glass recovery infrastructure, facilitate recycling, enable reuse, or advance research of alternative uses for waste glass. This is supported by consumer awareness activities.

The GPF is funded through its membership which pay a voluntary levy related directly to the volume of glass each member sells into the New Zealand marketplace.

We are eager to work with you and your staff on:

- Tackling challenges to improve container glass recovery and recycling rates, including contamination from co-mingled collections, data gaps, supply chain and logistics challenges
- Moving glass recycling from voluntary stewardship to an industry-funded, regulated model
- Facilitating all councils to offer best practice glass-separate kerbside collection services to increase recycling rates and reduce carbon emissions.

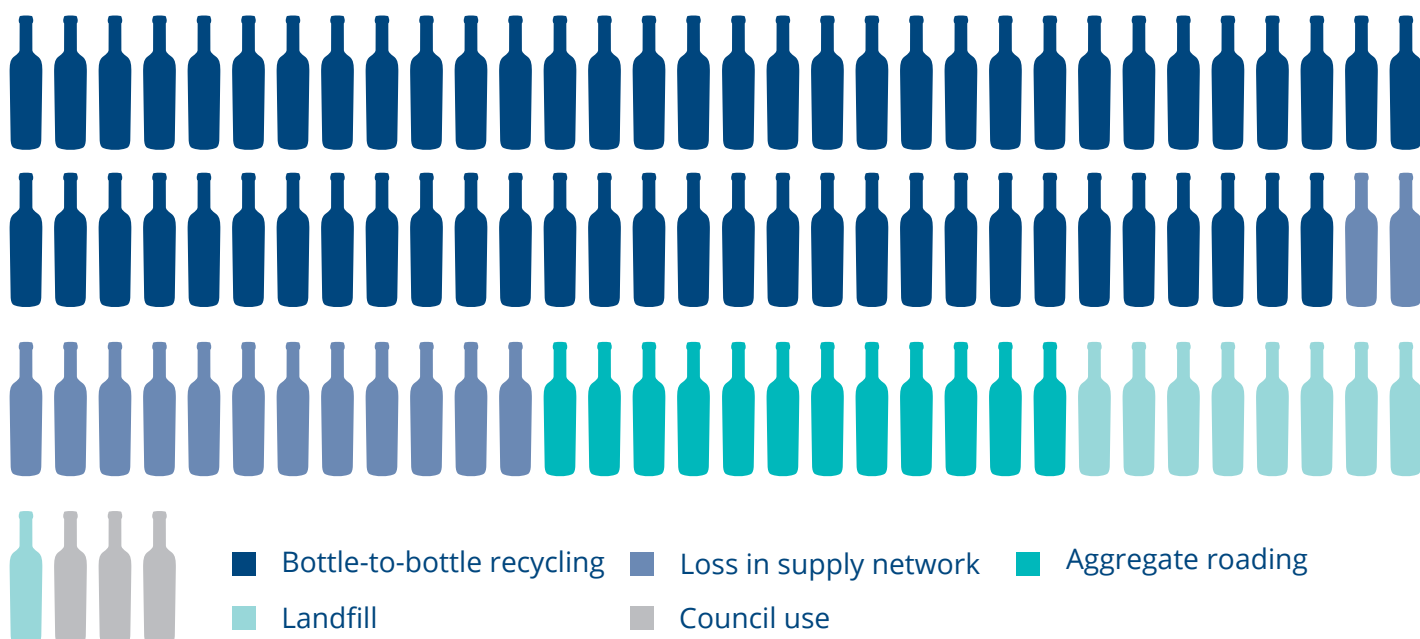
Glass recovery and recycling in New Zealand

As part of its annual accreditation report, the GPF conducts a mass balance calculation to determine how much glass enters the New Zealand market, how much is recovered, and what the outcomes are.

Container glass is an excellent example of the circular economy in action in New Zealand. Glass is infinitely

recyclable, and Visy Glass has an onshore recycling facility in Auckland, so no recycled glass is sent offshore.

In 2021-2022 we reported a 68% recovery rate of which 62.4% was recycled into new glass containers.



EXECUTIVE SUMMARY

Challenges

The 2022-2023 mass balance calculation is currently being prepared, but we expect recovery and recycling rates to be lower than the previous reporting period. This is influenced by:

- A significant increase in glass to market, particularly non-alcohol glass (e.g. sauces, jams, pickles etc) while reported recovery volumes remain static
- Auckland recycling infrastructure upgrade resulting in 10 weeks of recycling collections going to landfill
- Softening of demand from end markets

We also do not foresee significant increases in recovery and recycling going forward under the current voluntary stewardship model, due to a number of challenges outlined below.

Contamination and loss from co-mingled systems

Despite 80% of councils using the recognised best practice method of glass-separate collections, the most populated council areas, Auckland and Christchurch do not. As a result, a little under half of all New Zealanders with access to kerbside recycling continue to be serviced with a co-mingled (everything in one recycling bin) system.

The result is higher levels of contamination and loss in sorting and processing than when glass is collected separately and sorted into its three base colours, which is essential for recycling.

Gaps in data

While the GPF uses the best available data – independently confirmed in a report by Grant Thornton – the voluntary nature of glass stewardship means there are significant gaps. Those in the glass supply chain are not required to supply data, while a lack of regulation means there is no minimum standard for data quality.

Assumptions must be made at several points in the supply chain where there are data gaps. Reliable baseline data would show us exactly where in the system changes and investment were needed.

Supply chain and logistics challenges

Supply chain issues have become exacerbated by a tight labour market and increasingly limited freight availability, both of which lead to increased collection and freight costs and place pressure on collectors, local bodies, and material recovery facilities (MRFs).

This is particularly notable in the South Island, where distances are great and populations sparse. This is one of the reasons Christchurch City Council currently sends glass from kerbside collections for use in roading, which saves 5kg of CO₂e per tonne over virgin materials compared to 499kg of CO₂e per tonne saved by recycling.

Solutions

Hub and spoke model

We support a hub and spoke model to reduce logistics challenges and achieve efficiencies. This has proved hugely successful around the country, with glass being aggregated at central hubs to make transport more cost-effective and less carbon intensive.

The GPF has funded projects which help facilitate the creation of these hubs by upgrading or building new storage infrastructure, improving handling systems, or expanding glass collection options.

We also commissioned Grant Thornton to design a model where they created a digital twin and mapped every household in the country as it relates to glass collection. This allowed them to test, based on actual geographic information, reported costs, accepted engineering and GHG emission factors for the current glass collection and recycling systems. This can inform an optimal hub and spoke model.

Please see page 6 below for examples of hub and spoke in the South Island.

EXECUTIVE SUMMARY

Glass-separate collection in Auckland and Christchurch

This was a missed opportunity in the standardisation of kerbside regulation by the previous government. Reducing contamination and loss in processing for the large volume of glass in Auckland, close to the glass manufacturing facility, could be a game changer for New Zealand's recovery rate. This also reduces carbon emissions from recycling.

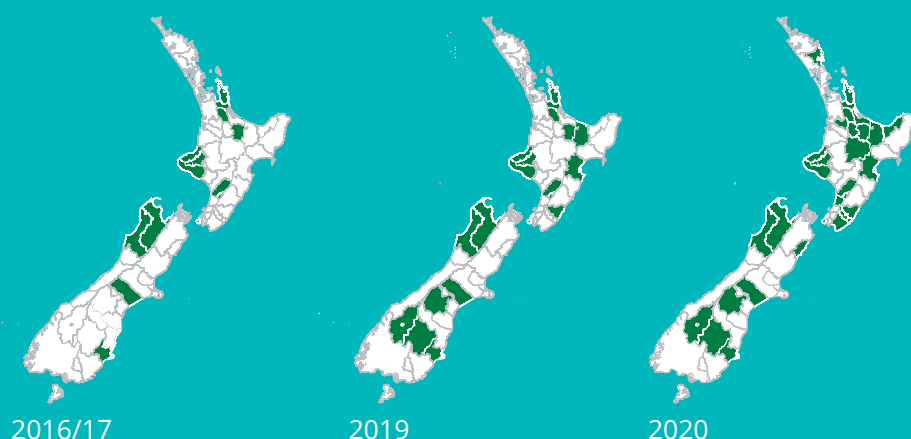
The standardisation of kerbside collections regulation failed to stipulate glass-separate collections, despite 54% of respondents to the consultation being in favour, and only 10% being in favour of the status quo. We are concerned councils with existing glass-separate collections may revert

to co-mingled methodology to achieve the requirements for standardised kerbside collections.

Our experience is that glass-separate collections lead to an immediate increase in volumes recovered, as was seen in Napier (+21%), Tauranga (+36%) and Whangārei (+21%).

Glass from Christchurch kerbside collections (approximately 25,000 tonnes) currently goes to roading. Collecting it separately and removing the logistical and commercial barriers to recycling would similarly shift the dial on recovery, recycling, and the circular economy.

Glass-separate collection areas



Examples of impact on tonnage recovered

The following councils represent substantial populations and provide detailed reporting

NAPIER +21% YOY

Growth in year implemented (four months into 2020 reporting year).
(Population 66,300)

TAURANGA +36% YOY

Growth in year implemented (three months into 2019 reporting year).
(Population 150,000)

WHANGAREI +21% YOY

For the first six months of glass separate collection.
(Population 98,300)

Extended producer responsibility (EPR)

While container glass in New Zealand has an enviable recovery and recycling rate when compared with other recyclables, the GPF is of the firm opinion there can only be incremental improvements without moving from a voluntary to regulated stewardship model.

In 2022 we commissioned Grant Thornton to design an industry-funded (EPR) approach for container glass in New Zealand. This model leverages and enhances the existing kerbside recycling system to achieve a 90% recovery rate and 87% recycling rate within five years.

A regulated model is one of the ways, but not the only way, to address data issues by requiring reporting at key points in the supply chain.

It would also level the playing field, as all industry members would need to participate. This would remove the negative impacts of free-riders and provide a greater funding base to tackle supply chain challenges.

Circular solutions support carbon reduction

One of the key findings of the Grant Thornton report was that an EPR approach would have a significant, positive impact on the carbon footprint of glass. It showed emissions would be more than halved as this approach incentivises both a higher quality and quantity of glass available for recycling, tackles supply chain issues, and incentivises reuse.

Many of our members have their own targets regarding recycled content and carbon reduction to reach and therefore are eager to work collaboratively to achieve these.

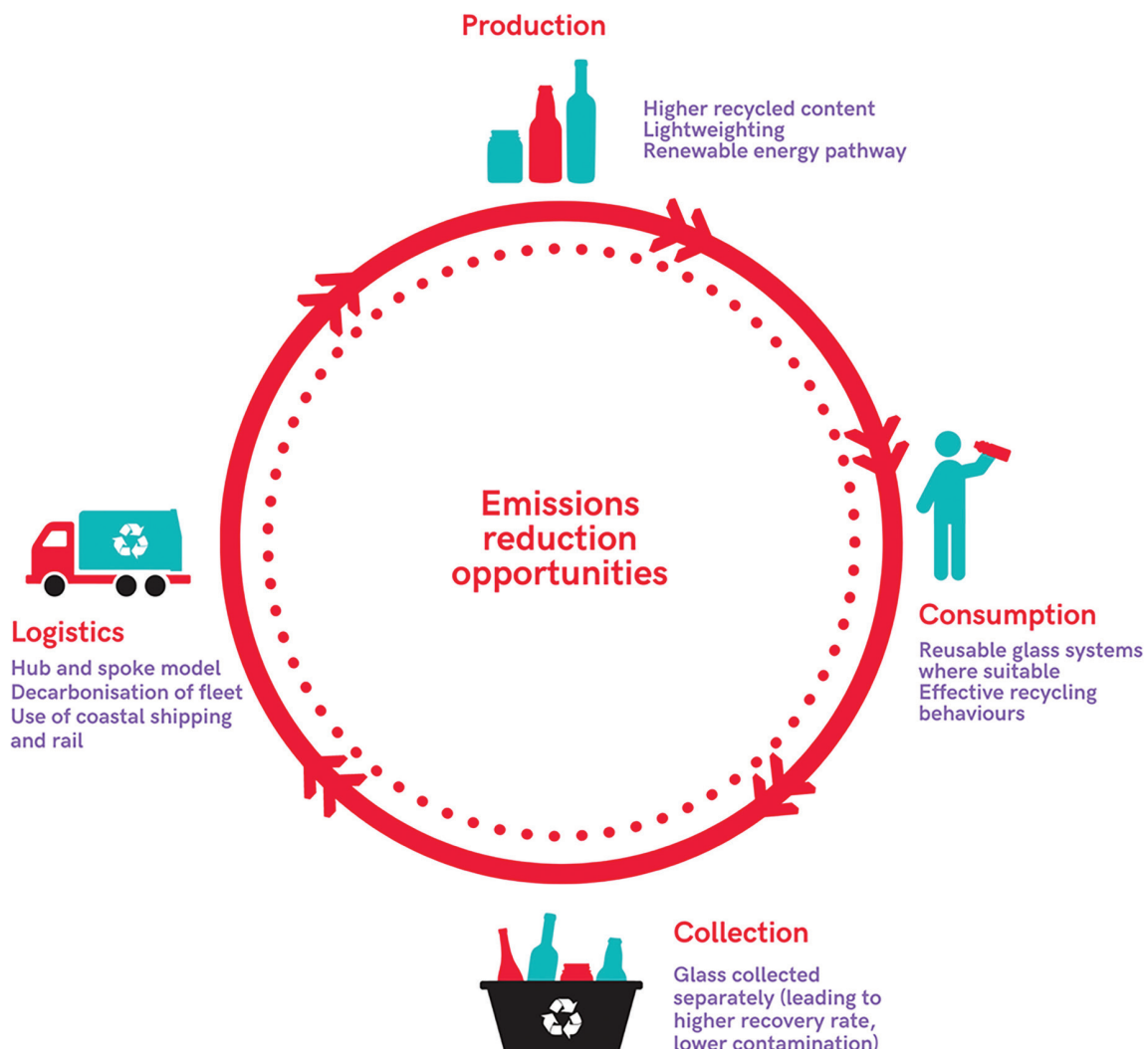
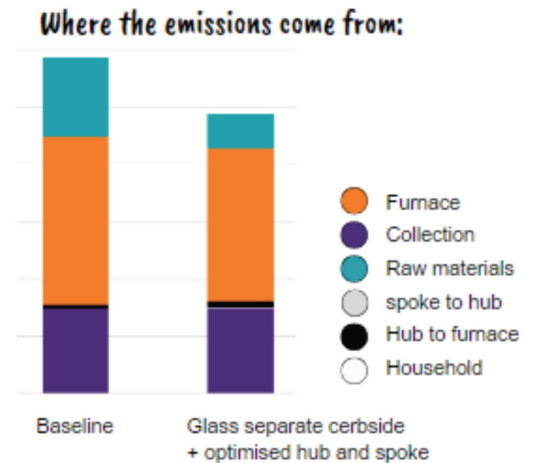
Using a clean (uncontaminated) stream of recycled glass to produce new glass containers allows the furnace to run at a lower temperature, reducing emissions. Every tonne of recycled glass saves 499kg of CO₂e over the use of virgin material.

New Zealand's sustainability goals

Reduce net emissions of all GHG's other than biogenic methane to zero by 2050

The Climate Change Response (Zero Carbon) Amendment Act 2019

- Every additional tonne of glass recycled in New Zealand saves **499kg of CO₂e** over using virgin materials
- Every tonne of glass used in roading aggregate saves **5kg of CO₂e**



Government's role

The GPF and container glass industry are eager to work alongside Government on solutions to advance the glass circular economy, including the co-design of a stewardship scheme under an EPR approach.

We look forward to engaging with the incoming Minister for the Environment and their staff to achieve better environmental outcomes for container glass.

CASE STUDIES

Christchurch hub and spoke model

Background

The South Island presents a challenge for glass recycling due to the distance from the furnace in Auckland, as well as its often sparsely populated and geographically isolated communities.

The solution

An excellent example of a hub and spoke model in Te Waipounamu is in Christchurch.

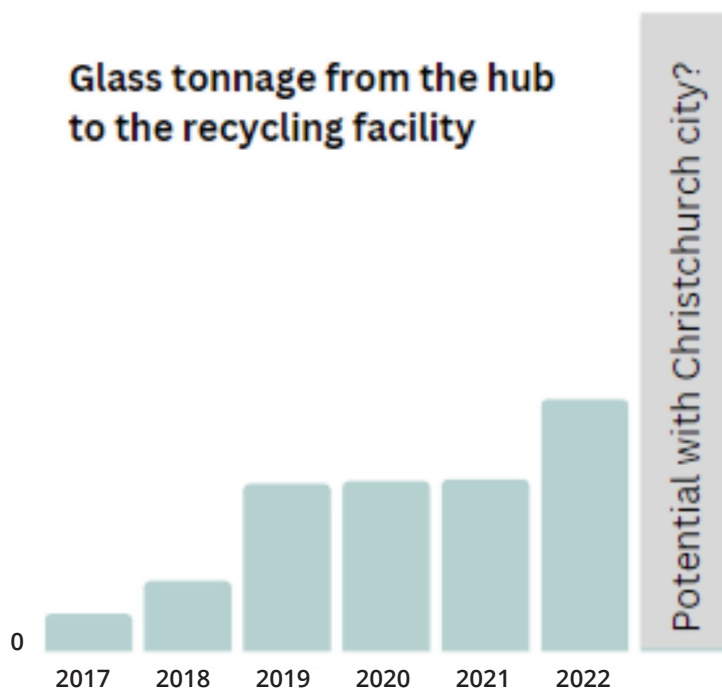
The 5R Solutions facility in Christchurch aggregates and pre-processes glass from a large part of the central South

Island, including towns on the West Coast. In 2017 the GPF helped fund the creation of an innovative bottle breaking and loading system which made glass handling safer and quicker, and made transport more efficient.

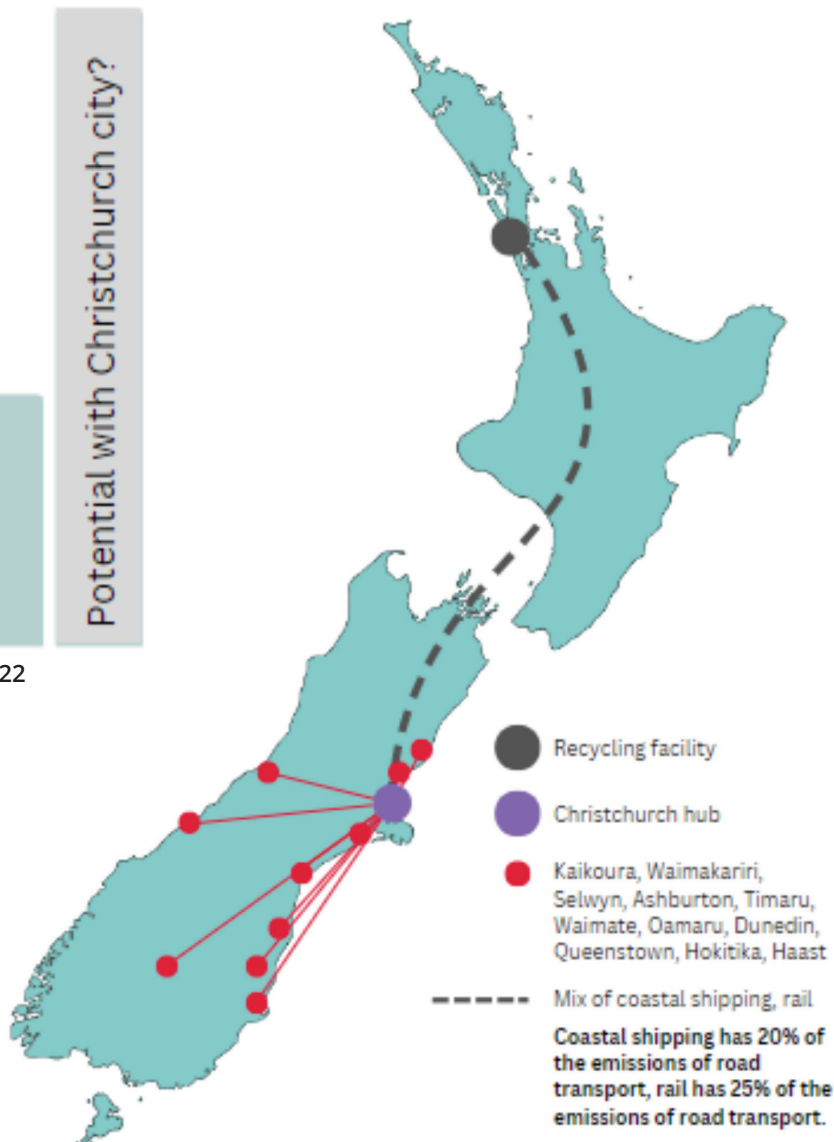
Additionally, 5R uses coastal shipping and rail which create 20% and 25% of the emissions respectively of road freight to get it to the recycling facility (Source: Galardo P. et al 2022 Evaluating the opportunity to engineer transition to a low carbon freight transport system in New Zealand).

Note that glass from Christchurch city is not recycled via 5R solutions.

Glass tonnage from the hub to the recycling facility



Source: Councils, 5R, VISY Glass



CASE STUDIES

Tauranga City Council kerbside recycling

Background

Prior to October 2018, Tauranga City Council did not offer a rates-funded container glass collection service. Residents who wished to recycle their glass had to do so at council transfer stations or via private waste management companies, resulting in glass being lost to landfill.

The solution

The council was awarded a \$165,000 grant from the GPF – around a quarter of the cost – along with central government funding, to roll out a rates-funded glass collection service from 1 October 2018.

The outcome

- Glass tonnage collected for recycling doubled in six months
- 3,313 tonnes of glass recycled in first year of operation
- 4,220 tonnes of glass recycled in 2022-2023 FY
- Quality of glass very high due to separate collection and colour sorting at source

