27 October 2020

The New Zealand Container Return Scheme Design

Ministry for the Environment Funded Project

NZ CRS Final Design

Appendices

New Zealand Container Return Scheme
Final Design

Appendices

Appendix A

Eligible (including material type and container size) and ineligible containers reported from a range of international container return schemes

Appendix A **Eligible (including material type and container size) and ineligible containers reported from a range of international container return schemes**

Table 33: Eligible (including material type and container size) and ineligible containers reported from a range of international container return schemes

Country	Regulation	Eligible Containers			Ineligible Containers
		Eligible materials	Eligible beverages	Container size	
Australia (New South Wales)	• Waste Avoidance and Resource Recovery Amendment (Container Deposit Scheme) Act • Waste Avoidance and Resource Recovery (Container Deposit Scheme) Regulation	• PET • HDPE • Aluminium • Steel • Liquid paperboard • Glass (excluding pure spirits and alcoholic and non-alcoholic wine)	• Cans, such as soft drinks • Bottles, such as beer bottles • Cartons, such as milk cartons • Juice boxes and poppers	Between 150mL to 3L	• Damaged, crushed or broken containers • Containers without a barcode • All containers less than 150mL • All containers greater than 3L • All concentrated or diluted fruit or vegetable juices • All concentrated or undiluted cordials or syrups • All pure fruit or vegetable juices greater than 1L • All health tonics • All plain milk, including alternatives and plant based plain milks • All flavoured milk greater than 1L • All wines and spirits in glass • All wines and water in casks greater than 1L • All wines in sachets greater than 250mL • Containers purchased outside of Australia • Non-beverage containers such as shampoo and detergent bottles
Australia (South Australia)	• Environment Protection Act 1993, Part 8, Division 2: Beverage Containers	• PET • HDPE • Aluminium • Steel • Liquid paperboard • Glass (excluding	• Wine in plastic, plastic sachets or foil sachets only • Yakult	Up to 250mL (PET)	• All containers less than 150mL (excluding 65mL Yakult) • All containers greater than 3L • All concentrated or diluted fruit or vegetable juices • All concentrated or undiluted cordials or
			• Fruit or vegetable juice (at least 90% fruit or	Up to 1L (HDPE)	

Country	Regulation	Eligible Containers			Ineligible Containers
		Eligible materials	Eligible beverages	Container size	
	• Commonly known as Container Deposit Legislation (CDL)	pure spirits and alcoholic and non-alcoholic wine)	vegetable) • Flavoured milk, including animal milks, soy or plant-based • Casks of water, including plain, carbonated or mineral • Straight wine in cardboard casks, plastic casks or foil casks only (no glass) • Wine based alcoholic beverages, such as fruit-flavoured wine in cardboard casks, plastic casks and foil casks only • Water, including plain, carbonated or mineral, in cardboard, plastic or foil casks only		syrups • All pure fruit or vegetable juices greater than 1L • All health tonics • All plain milk, including alternatives and plant based plain milks • All flavoured milk greater than 1L • All wines and spirits in glass • All wines and water in casks greater than 1L • All wines in sachets greater than 250mL • Containers purchased outside of Australia • Non-beverage containers such as shampoo and detergent bottles
			• Carbonated soft drinks • Non-carbonated soft drinks such as energy drinks, fruit drinks, ready to drink cordials, sports drinks and vitamin drinks • Water, including plain, carbonated or mineral (in all materials excluding cardboard, plastic or foil which are only eligible up to 1L) • Wine based alcoholic beverages, such as	Up to 3L (aluminium)	

Country	Regulation	Eligible Containers			Ineligible Containers
		Eligible materials	Eligible beverages	Container size	
			• fruit-flavoured wine (in all materials excluding cardboard, plastic or foil casks which are only eligible up to 1L) • Alcoholic beverages derived from fruit other than grape such as cider, plum wine, sake etc • Wine in aluminium containers • Beer, ale, stout • Pure spirits, such as gin, rum, brandy, vodka and whisky (excluding in glass) • Spirit based flavoured alcoholic beverages		
Australia (Queensland)	Waste Reduction and Recycling Amendment Bill 2017[1]	• PET • HDPE • Aluminium • Steel • Liquid paperboard • Glass (excluding pure spirits and alcoholic and non-alcoholic wine)	• Fermented grape beverages (wine) in plastic, plastic sachets or foil sachets only	Between 150mL to 250ml (PET)	• All containers less than 150mL • All containers greater than 3L • All concentrated or diluted fruit or vegetable juices • All concentrated or undiluted cordials or syrups • All pure fruit or vegetable juices greater than 1L • All health tonics • All plain milk, including alternatives and plant based plain milks • All flavoured milk greater than 1L • All wines and spirits in glass • All wines and water in casks greater than 1L • All wines in sachets greater than 250mL
			• Fruit or vegetable juice • Flavoured milk, including animal milks, soy or plant-based • Casks of water, including plain, carbonated or mineral • Straight wine in aluminium cans, cardboard casks, plastic casks or foil casks only (no glass)	Between 150mL to 1L (HDPE)	

Country	Regulation	Eligible Containers			Ineligible Containers
		Eligible materials	Eligible beverages	Container size	
			• Wine based alcoholic beverages, such as fruit-flavoured wine in cardboard casks, plastic casks, foil casks and aluminium cans only • Water, including plain, carbonated or mineral, in cardboard, plastic or foil casks only		• Containers purchased outside of Australia • Non-beverage containers such as shampoo and detergent bottles
			• Carbonated soft drinks • Non-carbonated soft drinks such as energy drinks, fruit drinks, ready to drink cordials, sports drinks and vitamin drinks • Water, including plain, carbonated or mineral (in all materials excluding cardboard, plastic or foil which are only eligible up to 1 L) • Alcoholic beverages derived from fruit other than grape such as cider, plum wine, sake etc • Wine based alcoholic beverages, such as fruit-flavoured wine (in all materials excluding cardboard, plastic or foil casks which are only eligible up to 1 L • Beer, ale, stout	Between 150mL to 3L (aluminium)	

Country	Regulation	Eligible Containers			Ineligible Containers
		Eligible materials	Eligible beverages	Container size	
			• Pure spirits, such as gin, rum, brandy, vodka and whisky (excluding in glass) • Spirit based flavoured alcoholic beverages		
Australia (Australian Capital Territory)	Waste Management and Resource Recovery Amendment Bill 2016	• PET • HDPE • Aluminium • Steel • Liquid paperboard • Glass (excluding pure spirits and alcoholic and non-alcoholic wine)	• Soft drinks cans • Beer and soft drink bottles • Milk and juice cartons	Between 150ml to 3L	• All containers less than 150mL • All containers greater than 3L • All concentrated or diluted fruit or vegetable juices • All concentrated or undiluted cordials or syrups • All pure fruit or vegetable juices greater than 1L • All health tonics • All plain milk, including alternatives and plant based plain milks • All flavoured milk greater than 1L • All wines and spirits in glass • All wines and water in casks greater than 1L • All wines in sachets greater than 250mL • Containers purchased outside of Australia • Non-beverage containers such as shampoo and detergent bottles
Australia (Northern Territory)	Environment Protection (Beverage Containers and Plastic Bags) Act 2011	• PET • HDPE • Aluminium • Steel • Liquid paperboard • Glass (excluding pure spirits and alcoholic and	• Wine in plastic, plastic sachets or foil sachets only	Up to 250ml (PET)	• Crushed or broken containers • All containers greater than 3L • All concentrated or diluted fruit or vegetable juices • All concentrated or undiluted cordials or syrups • All pure fruit or vegetable juices greater than 1L
			• Fruit or vegetable juice (at least 90% fruit or vegetable) • Flavoured milk, including	Up to 1L (HDPE)	

Country	Regulation	Eligible Containers			Ineligible Containers
		Eligible materials	Eligible beverages	Container size	
		non-alcoholic wine)	animal milks, soy or plant-based • Casks of water, including plain, carbonated or mineral • Straight wine in cardboard casks, plastic casks or foil casks only (no glass) • Wine based alcoholic beverages, such as fruit-flavoured wine in cardboard casks, plastic casks and foil casks only • Water, including plain, carbonated or mineral, in cardboard, plastic or foil casks only		• All health tonics • All plain milk, including alternatives and plant based plain milks • All flavoured milk greater than 1L • All wines and spirits in glass • All wines and water in casks greater than 1L • All wines in sachets greater than 250mL • Containers purchased outside of Australia • Non-beverage containers such as shampoo and detergent bottles
			• Carbonated soft drinks • Non-carbonated soft drinks such as energy drinks, fruit drinks, ready to drink cordials, sports drinks and vitamin drinks • Water, including plain, carbonated or mineral (in all materials excluding cardboard, plastic or foil which are only eligible up to 1 L) • Wine based alcoholic beverages, such as fruit-flavoured wine (in all materials excluding	Up to 3L (aluminium)	

Country	Regulation	Eligible Containers			Ineligible Containers
		Eligible materials	Eligible beverages	Container size	
			cardboard, plastic or foil casks which are only eligible up to 1 L) • Alcoholic beverages derived from fruit other than grape such as cider, plum wine, sake etc • Wine in aluminium containers • Beer, ale, stout • Pure spirits, such as gin, rum, brandy, vodka and whisky (excluding in glass) • Spirit based flavoured alcoholic beverages		
Australia (Western Australia)	Waste Avoidance and Resource Recovery (Container Deposit Scheme) Regulations 2019	Most aluminium, glass, plastic, steel and liquid paperboard beverage containers	Most aluminium, glass, plastic, steel and liquid paperboard beverage containers	150mL to 3L	• Beverage containers less than 150mL and greater than 3L: - Any plain milk containers - Any glass containers which have contained wine or pure spirits • Containers 1L or more which have contained flavoured milk, pure fruit or vegetable juice, cask wine or cask water • Concentrated/undiluted cordial or syrup containers • Sachets above 250mL which have contained wine • Registered health tonics
United States of America (New York)	New York State Returnable Container Law	• Glass • Metal (aluminium) • Steel • Plastic	• Carbonated soft drinks • Soda water • Mineral water, carbonated and non-carbonated	Up to 1 gallon or 3.78L	• Milk products • Wine and liquors • Hard ciders • Non-carbonated tea • Non-carbonated sports drinks

Country	Regulation	Eligible Containers			Ineligible Containers
		Eligible materials	Eligible beverages	Container size	
			• Carbonated energy drinks • Juice less than 100% juice, containing sugar or water • Carbonated juice • Carbonated tea • Beer and other malt beverages • Wine products • Water that doesn't contain sugar, such as flavoured or nutritionally enhanced water		• Non-carbonated juice (100% fruit and vegetable juice) • Non-carbonated energy drinks • Drink boxes or pouches • Waters containing sugar
United States of America (California)	California Beverage Container Recycling and Litter Reduction Act (AB 2020)	• Glass • Bi-metal • Aluminium • Plastic - PET, HDPE, PVC, LDPE, PP, PS	• Beer and malt beverages • Wine coolers and distilled spirit coolers • Carbonated fruit drinks, water and soft drinks • Non-carbonated fruit drinks, water, soft drinks and sports drinks • Coffee and tea beverages • 100 % fruit smaller than 46 ounces • Vegetable juice 16 ounces and less	Up to 24 ounces 24 ounces and greater	• Milk • Medical food • Infant formula • Wine • Spirits • 100% fruit juice 46 ounces or more • 100% vegetable juice greater than 16 ounces • Food and non-beverage containers • Beverages sold in containers that are not aluminium, glass, plastic, or bimetal.
United States of America (Connecticut)	Beverage Container Deposit and Redemption Law	• Glass • Metal - aluminium • Plastic, excluding HDPE	• Beer and malt beverages • Carbonated soft drinks • Bottled water, including mineral, soda, flavoured and nutritionally enhanced water	Up to 3L	• Other non-carbonated beverages • Juice • HDPE containers

Country	Regulation	Eligible Containers			Ineligible Containers
		Eligible materials	Eligible beverages	Container size	
United States of America (Hawaii)	Solid Waste Management; Deposit Beverage Container Law (Act 176)	• Glass • Bi-metal • Aluminium • Plastic - PET and HDPE	• All non-alcoholic beverages, including energy drinks and dietary supplements • Beer and malt beverages • Mixed spirits • Mixed wine	Up to 68 ounces or 2L	• Dairy products
United States of America (Iowa)	Beverage Container Deposit Law	• Glass • Metal - predominantly aluminium • Plastic - predominantly PET	• Beer • Carbonated soft drinks • Mineral water • Wine coolers • Wine • Liquor	No data available	• Fruit and vegetable juices • Dairy products
United States of America (Massachusetts)	Beverage Container Recovery Law	• Glass • Metal - aluminium • Plastic	• Beer and malt beverages • Carbonated soft drinks • Mineral water	No data available	• Biodegradable containers • Wine • Dairy products • Natural fruit juices • Non-carbonated alcoholic beverages, other than beer and malt • Containers holding more than two gallons of liquid
United States of America (Maine)	Maine Returnable Beverage Container Law	• Glass • Metal (aluminium/ tinplate) • Plastic	• All beverages excluding those listed in next column	Up to 4L	• Dairy products including milk • Unprocessed cider • Blueberry juice produced in Maine • Aseptic
United States of America (Michigan)	Michigan Beverage Container Act	• Glass • Metal (aluminium/ tinplate) • Plastic • Paper	• Beer and ale • Carbonated soft drinks • Carbonated and mineral water • Canned cocktails • Wine coolers • Malt drinks • Kombucha	Up to 1 gallon or 3.78L	• Milk • Juice • Water • Tea • Sports drinks • Foil pouches

Country	Regulation	Eligible Containers			Ineligible Containers
		Eligible materials	Eligible beverages	Container size	
United States of America (Oregon)	The Beverage Container Act	• Glass • Metal (aluminium/ tinplate) • Plastic	• Coffee and tea • Energy and sports drinks • Fruit and vegetable juice • Juice smoothies • Coconut water • Non-alcoholic wine • Hard cider • Marijuana beverages • Protein shakes (excluding those that are meal replacements) • Kombucha • Cocktail mixers • Kefir • Drinkable yogurt and any milk-based beverage that is primarily milk, or plant-based milk, but includes other ingredients such as fruit • Mineral water • Flavoured water • Soda water • Beer and other malt beverages • Carbonated soft drinks • Kombucha	• Between 4 ounces and up to 1.5L (glass, metal (aluminium/ tinplate) • Up to 3L (plastic)	• Distilled liquor • Wine • Dairy, plant-based milks and milk substitutes • Infant formula • Meal replacement drinks • Alcoholic kombucha made with cane sugar • Concentrates • Cartons • Foil pouches • Drink boxes • Metal containers that require a tool to be opened
United States of America (Vermont)		• Glass • Metal – (aluminium/ tinplate) • Plastic • Paper	• Beer and malt • Carbonated soft drinks • Mixed wine drinks • Wine coolers • Liquor and spirits	• Greater than 50mL for alcoholic beverages • No size restrictions on non-alcoholic beverages	• Biodegradable containers • Wine • Hard cider • Water • Dairy products • Natural fruit juices • Sports drinks

Country	Regulation	Eligible Containers			Ineligible Containers
		Eligible materials	Eligible beverages	Container size	
					• Non-carbonated alcoholic beverages, other than beer and malt
Canada (British Columbia)	Beverage Container Stewardship Program (Litter Act)	• Glass • Aluminium • Drink box • Gable top • Bi-metal • Pouch • Plastic (polystyrene cup with foil lid) • Plastic (caps on, label on) • Bag-in-a-box (water) • Liquor plastic (caps on, labels on) • Liquor glass (caps on, labels on) • Bag-in-a-box (alcohol – leave bag in box)	• All ready-to-drink beverages	• Glass (0-1L, over 1L) • Aluminium (0-1L) • Drink box (0-500mL, 501-1L) • Gable top (0-1L, over 1L) • Bi-metal (0-1L, over 1L) • Pouch (0-1L) • Plastic (polystyrene cup with foil lid) (0-454mL) • Plastic (caps on, label on) (0-1L, over 1L) • Bag-in-a-box (water) (over 1L) • Liquor plastic (caps on, labels on) ((0-1L, over 1L) • Liquor glass (caps on, labels on) (0-1L, over 1L) • Bag-in-a-box (alcohol - leave bag in box) (over 1L)	• Milk, including alternatives and plant-based milks • Infant formulas • Meal replacement drinks • Dietary supplements
Canada (Alberta)	Beverage Container Recycling Regulation	• Glass • Metal – (aluminium/ tinplate) • Plastic - PET, HDPE, PVC, PS • Gable top	• All alcoholic beverages • All non-alcoholic beverages including milk	No data available	No data available

Country	Regulation	Eligible Containers			Ineligible Containers
		Eligible materials	Eligible beverages	Container size	
		• Tetra Pak • Bag-in-box • Drink pouch			
Canada (New Brunswick)	Beverage Containers Act	• Glass • Metal – (aluminium/ tinplate) • Bi-metal • Plastic • Gable top • Tetra Pak	• All ready-to-drink beverages	Under 5L	• Milk, including alternatives and plant-based milks • Unpasteurised cider
Canada (Newfoundland and Labrador)	• The Newfoundland and Labrador Used Beverage Container Recycling Program • Known as Greenback Trash to Cash Program	• Glass • Gable top • Tetra Pak • Plastic • Metal – (aluminium/ tinplate) • Bi-metal • Drink pouches	• All ready-to-drink beverages • Milk products with the word "beverage" on the label only	Under 5L	• Milk, including alternatives and plant-based milks • Fountain cups • Infant formula • Refillable bottles, including domestic beer bottles • Concentrated liquids • Medicinal/nutritional supplements
Canada (Northwest Territories)	Beverage Container Program (BCP)	• Glass • Tetra Pak • Plastic • Metal (aluminium/ tinplate) • Bi-metal	• All ready-to-drink beverages, including milk	Under 5L	• Milk products less than 30mL • Powder milk • Infant formula • Containers that are sold empty • Open containers filled with a drink when sold
Canada (Nova Scotia)	Solid Waste – Resource Management Regulations Mandate	• Glass • Tetra Pak • Plastic • Metal (aluminium/ tinplate) • Bi-metal • Gable top	• Juice • Health, energy and diet drinks • Soft drinks • Water • Alcohol including imported beer	Under 5L	• Milk, including alternatives and plant-based milks • Soy beverages • Rice beverages • Meal replacement beverages • Formulated liquid diets • Foods for low energy diets

Country	Regulation	Eligible Containers			Ineligible Containers
		Eligible materials	Eligible beverages	Container size	
			• Mini sip bags • Brown, green and clear refillable domestic bottles		• Thickened juices • Infant formula • Concentrates • Wine making kits
Canada (Ontario)	Bag It Back, or Ontario Deposit Return Program	• Glass • Tetra Pak • Bag-in-box • Gable top • Plastic • Metal (aluminium, tinplate) • Bi-metal	• All alcoholic beverages • Milk and milk supplements (excluding less than 30mL and baby formula)	Greater than 100mL	• Non-alcoholic beverages, excluding milk and milk supplements • Containers purchased at duty-free
Canada (Prince Edward Island)	Beverage Container Act	• Glass • Tetra Pak • Bag-in-box • Gable top • Drink pouches • Plastic • Metal (aluminium/ tinplate) • Bi-metal	• All ready-to-drink beverages	Up to 5L	• Milk, including alternatives and plant-based milks • Nutritional supplements
Canada (Quebec)	Agreement Relating to the Consignment, Recovery & Recycling of Non-Refillable (Soft Drink/Beer) Containers	• Glass • Plastic • Metal (aluminium/ tinplate) • Bi-metal	• All non-refillable beer • All non-refillable carbonated soft drinks, including beverages that contain water with essence of flavour	• No data available prior to 2022 • (As of 2022) between 100 ml and 2 L	• Energy drinks • Water • Juice • Wine • Spirits • Milk
Canada (Saskatchewan)	Beverage Container Collection and Recycling Program	• Glass • Plastic • Metal (aluminium/ tinplate) • Bi-metal • Gable top	• All ready-to-drink beverages	• Aluminium/tin cans (0- >1L) • Plastic bottles/jugs (0- >1L) • Clear and coloured glass (0- >1L)	• Frozen juice concentrates • Baby juices • Foil pouches • Meal replacements • Dietary supplements • Bag-in-a-box containers (wine, water)

Country	Regulation	Eligible Containers			Ineligible Containers
		Eligible materials	Eligible beverages	Container size	
		• Tetra Pak		• Cartons and juice boxes (0- >1L) • Refillable beer bottles (341mL)	• Fillable water jugs or industrial milk bladders (larger than 5L) • Products labelled as fortified liquid diet
Canada (Manitoba)	Waste Reduction and Prevention Act (WRAP) Packaging and Paper Stewardship Regulation	• Glass • Plastic • Metal (aluminium/ tinplate) • Bi-metal • Gable top • Tetra Pak • All beer containers	• Beer	No data available	• Non-alcoholic beverages • Wine • Spirits • Milk
Canada (Yukon)	Beverage Container Regulation	• Glass • Plastic • Metal (aluminium/ tinplate) • Bi-metal • Gable top • Tetra Pak	• All ready-to-drink beverages • Milk and milk substitutes	• Milk and milk substitutes (≥30mL) • Beverage containers – small (less than 750mL and ≥ 30mL) • Beverage containers – large (≥750mL)	• Canned coconut milk • Canned condensed or evaporated milk • Canned whipped cream • Powdered drink crystals • Juice concentrates • Liquid meal replacement • Infant formula
Sweden	SFS 2005:220 Ordinance on the Return System for Plastic Bottles and Metal Cans	• Plastic - predominantly PET bottles • • Metal - aluminium and tinplate cans	• All ready-to-drink beverages including: - beer - soft drinks - cider - bottled water • Juice can be voluntarily signed up to the scheme by juice producers	No data available	• Dairy products • Fruit and vegetable juice. (Juice can be voluntarily signed up to the scheme by juice producers) • Berry drinks
Germany	Ordinance on the Avoidance of Packaging Waste2	• Plastic - Predominantly PET • Metal - aluminium • Glass	• Beer and mixed beer beverages including: - Mixtures of beer with cola or lemonade - Alcohol-free beer	Between 100mL and 3L	• Drinks with over 50% milk content • Fruit and vegetable juice • Dietetic products for babies • Containers less than 0.1L or greater than 3L • 'Ecologically advantageous packaging',

Country	Regulation	Eligible Containers			Ineligible Containers
		Eligible materials	Eligible beverages	Container size	
			- Beer with syrup (like Berlin whites with a dash) - Beer with another alcoholic beverage (for example beer with vodka) - Flavoured beer (for example, beer with a tequila flavour) • Water including: - Sparkling and sparkling mineral water - Spring water - Healing water - Water with additives, e.g. aroma, caffeine, oxygen - All other drinkable water • Soft drinks, including: - Cola - Lemonade - Certain fruit juice drinks - Sports drinks - Energy drinks - Ice-tea or coffee drinks that are intended to be consumed when cold - Bitter drinks and		including: - Beverage carton packs (block packs, gable packs, cylinder packs) - Drink polyethylene tubular bag packaging - Foil stand-up pouches, reusable packaging • Reusable packaging

Country	Regulation	Eligible Containers			Ineligible Containers
		Eligible materials	Eligible beverages	Container size	
			other carbonated or non-carbonated drinks - Dietetic drinks with the exception of those that are only available for infants or toddlers • Mixed spirits		
Lithuania	Packaging and Packaging Waste Management Act	• Plastic - PET only • Metal – Aluminium and Ferrous cans • Glass	• Beer and beer cocktails • Cider and other fermented beverages • Mixed alcohol • Non-alcoholic beverages • All types of water • Juice and nectars • Fruit wines and wine based cocktails if sold in plastic and metal packaging	Between 100mL and 3L	• Milk • Wine • Spirits • Any fruit wine based beverage in glass • Containers less than 100mL or greater than 3L
Denmark	• Statutory Order on Packaging for Beer and Soft Drinks #124 • Amended by Statutory Order #540	• Plastic- predominantly PET • Metal (aluminium) • Glass	• Beer (alcohol content > 0.5 % by volume) • Carbonated soft drinks (alcohol content of 0 - 0.5%) • Energy drinks • Mineral water • Iced tea • Ready-to-drink beverages, including lemonade, alcopops and cider products • Alcoholic mixers • Fermented products,	Up to 20 L	• Fruit squash • Juice • Cocoa • Wine • Spirits • Milk

Country	Regulation	Eligible Containers			Ineligible Containers
		Eligible materials	Eligible beverages	Container size	
			such as wine, mixed with other beverages such as soft drinks • Cider • Chocolate or juice (alcohol content 0.5 - 10%)		
Austria		• Refillable PET bottles	• Beverages in refillable PET bottles	No data available	• Non-refillable plastic containers • All containers except refillable PET
Croatia	Ordinance on Packaging and Packaging Waste	• Glass • Plastic - predominantly PET • Aluminium • Ferrous materials • Tin	• Juices • Mineral water and other waters • Beer • Wine • Hard liquor • Milk drinks less than 0.2 L	• Greater than 200 mL for milk • Unclear for others	• Milk Products
Estonia	Packaging Act	• Plastic (mainly PET) • Metal (aluminium, steel) • Glass	• Soft drinks • Water • Beer • Cider • Juice and juice concentrates • Nectars • Low-ethanol alcoholic beverages, up to 6% volume	Between 0.1 mL and 3 L	• Strong alcoholic beverages such as vodka, wine, etc • Glass jars • Tetra Pak
Finland	Excise tax on one-way beer and soft-drink containers	• Plastic (Mainly PET) • Metal (aluminium) • Glass	• Soft drinks • Water • Beer • Cider • Long drinks • Sports drinks • Juice	No data available	• Milk

Country	Regulation	Eligible Containers			Ineligible Containers
		Eligible materials	Eligible beverages	Container size	
			• Liquor, spirits and wine sold by Alko		
Iceland	• Law for a recycling system (Deposit system) • Law 52/1989 • Regulation 368/2000	• Plastic - predominantly PET • Metal (aluminium, steel) • Glass	• All ready-to-drink beverages • Wine • Liquor	No data available	• Milk and milk products • Juice extract • Refillable containers
The Netherlands	• Verpakkingsverordening Productschap Dranken 2003 • Scheme is voluntary.	• Plastic bottles - Predominantly PET (water and soft drinks only) • Glass bottles (beer only)	• Soft drinks in refillable plastic bottles • Water in refillable plastic bottles • Beer in refillable glass bottles	Greater than 0.5L	• Medical drinks • Wine • Spirits • Moderately alcoholic beverages • Cartons that consist of at least 80% paper or paperboard • Drink containers with a capacity of less than 100mL • Beverage packaging where the producer or importer has demonstrated that less than 500,000 units of consumer packaging are made available annually
Norway	The Product Control Act	• Single-use plastic - Predominantly PET and HDPE • Single-use metal (aluminium/ tinplate)	• Beer • Carbonated beverages • Wine • Liquor • Non-carbonated beverages • Fruit and vegetable juices • Concentrates • Milk products	No data available	• Milk, milk products, cocoa and chocolate beverages and powders
Israel	Israel Beverage Container Deposit Law	• PET • Aluminium • Metal • Glass	• All beverages • Refillable containers	Between 100mL and 1.5L	• Dairy products • Paper and cardboard containers • Plastic pouches

Country	Regulation	Eligible Containers			Ineligible Containers
		Eligible materials	Eligible beverages	Container size	
Federated States of Micronesia (Kosrae)	• The Kosrae Recycling Program • State Law 5 - 15, Title 9, Chapter 22. Title 10, Section 205(1)(d)	• Plastic • Aluminium • Glass	No data available	No data available	No data available
Kiribati	The Special Fund (Waste Materials Recovery) Act 2004	• PET bottles • Aluminium cans	• Beer • Soft drink • Water	No data available	• Milk
Palau		• Glass • PET • HDPE • Metal	• Beer • Ale • Drinks produced by fermenting malt • Mixed spirits • Mixed wine • Tea • Coffee drinks, regardless of dairy content • Soda • Non-carbonated water	Up to 32 ounces or 0.946L	• Syrup • Drinks in concentrated form • Drinks typically as a minor flavouring ingredient • Drinks ingested for medicinal purposes • Nutritional supplements • Frozen drinks at point of sale • Drink powders • Milk and other dairy-derived products, excluding coffee drinks
Barbados	The Returnable Containers Act	• Glass • Metal • Plastic	• Soft drinks • Carbonated and mineral water • Beer • Malt beverages	Up to 1 gallon or 3.78L	No data available
India (Maharashtra)		• PET bottles • Pouches (milk only)	• Milk in pouches • All beverages in single-use PET bottles	200mL and greater	No data available

Country	Regulation	Eligible Containers			Ineligible Containers
		Eligible materials	Eligible beverages	Container size	
South Korea	• Act on the Promotion of Saving and Recycling of Resources • Deposit Refund System	• Refillable glass	• All fermented and distilled liquor, including soju, sake and beer • Soft drinks	All sizes	No data available
Switzerland		• If their recycling rates fall below 75% by weight: • Non-refillable glass • PET • Aluminium	• If their recycling rates fall below 75% by weight: • All beverages in single-use containers • Soft drinks • Beer • Mineral water	No data available	No data available

Appendix A References:

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www.calrecycle.ca.gov/BevContainer/Bevdistman/Labeling/
www.calrecycle.ca.gov/BevContainer/Consumers/CashingIn/
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www.bottlebill.org/index.php/current-and-proposed-laws/usa/connecticut
www.ct.gov/deep/cwp/view.asp?a=2714&q=324834&depNav_GID=1645
www.bottlebill.org/index.php/current-and-proposed-laws/usa/additional-links
www.bottlebill.org/index.php/current-and-proposed-laws/usa/hawaii
www.bottlebill.org/index.php/current-and-proposed-laws/USA/compare-all-provinces
www.bottlebill.org/index.php/current-and-proposed-laws/USA/Iowa
www.bottlebill.org/index.php/current-and-proposed-laws/canada/compare-all-provinces
www.bottlebill.org/index.php/current-and-proposed-laws/usa/maine
www.bottlebill.org/index.php/current-and-proposed-laws/usa/michigan
www.oregon.gov/olcc/docs/news/news_releases/2019/nr_122019_BottleBill_Updates_2019_alc.pdf
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www.bottlebill.org/index.php/current-and-proposed-laws/usa/vermont
www.bottlebill.org/index.php/current-and-proposed-laws/canada/compare-all-provinces
www.return-it.ca/beverage/products/
www.bottlebill.org/index.php/current-and-proposed-laws/canada/british-columbia
www.return-it.ca/ar2018/pdf/AnnualReport.pdf
www.bottlebill.org/index.php/current-and-proposed-laws/canada/alberta
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www.bottlebill.org/index.php/current-and-proposed-laws/canada/northwest-territories
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www.bottlebill.org/index.php/current-and-proposed-laws/canada/nova-scotia
www.bottlebill.org/index.php/current-and-proposed-laws/canada/prince-edward-island
www.bottlebill.org/index.php/current-and-proposed-laws/canada/quebec
www.bottlebill.org/index.php/current-and-proposed-laws/canada/saskatchewan
www.bottlebill.org/index.php/current-and-proposed-laws/canada/manitoba
www.bottlebill.org/index.php/current-and-proposed-laws/canada/yukon-territory
www.bottlebill.org/index.php/current-and-proposed-laws/worldwide/sweden
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www.bottlebill.org/index.php/current-and-proposed-laws/worldwide/austria
www.bottlebill.org/index.php/current-and-proposed-laws/worldwide/croatia
www.bottlebill.org/index.php/current-and-proposed-laws/worldwide/estonia
www.bottlebill.org/index.php/current-and-proposed-laws/worldwide/finland
www.bottlebill.org/index.php/current-and-proposed-laws/worldwide/iceland
www.bottlebill.org/index.php/current-and-proposed-laws/worldwide/norway
www.bottlebill.org/index.php/current-and-proposed-laws/worldwide/israel
www.bottlebill.org/index.php/current-and-proposed-laws/worldwide/federated-states-of-micronesia
www.bottlebill.org/index.php/current-and-proposed-laws/worldwide/kiribati
www.bottlebill.org/index.php/current-and-proposed-laws/worldwide/barbados
www.bottlebill.org/index.php/current-and-proposed-laws/worldwide/southkorea
www.bottlebill.org/index.php/current-and-proposed-laws/worldwide/switzerland

Appendix B

Conditions of acceptance for eligible containers recorded across several international container return schemes

Appendix B **Conditions of acceptance for eligible containers recorded across several international container return schemes**

Table 34: Conditions of acceptance for eligible containers recorded across several international container return schemes

Scheme and Location	Name of Regulation	Conditions of Acceptance
New South Wales, Australia *NSW Container Deposit Scheme* *Return and Earn*	The Waste Avoidance and Resource Recovery (Container Deposit Scheme) Regulation 2017 under the *Waste Avoidance and Resource Recovery Act 2001*	Containers must comply with the below: • Be of the eligible container type, size and material • Be labelled with the clearly legible words "10c refund at collection depots/points in participating State/Territory of purchase" • Be marked with a barcode unique to that class of containers. Detailed requirements for the barcodes are listed in Section 22A of the Waste Avoidance and Resource Recovery (Container Deposit Scheme) Regulation 2017. • The opening mechanism must not be one that can result in the separation of parts of the container, such as a ring-pull system. • Must not be damaged, crushed or broken. • Must be empty and have the original label and barcode attached. • Be purchased in Australia.
South Australia, Australia *Container Deposit Legislation*	Environment Protection (Beverage Container) Regulations 2008 under *the Environment Protection Act 1993*	Containers must comply with the below: • Be of the eligible container type, size and material. • Be labelled with the clearly legible words of the three options below: - "10c refund at collection depots/points in participating State/Territory of purchase" - "10c refund at SA/NT collection depots in State/Territory of purchase" - "10c refund at collection depots when sold in SA" • Where cans have been crushed, the refund label must still be clearly visible. • Must not be contaminated with substances that make the container a health risk or unsuitable for recycling. • Must be empty. • Be purchased in Australia. It is not a legal requirement to remove the lids of containers, however it is preferred and recommended in many depots.
Queensland, Australia *Containers for Change*	Waste Reduction and Recycling (Container Refund Scheme) Amendment Regulation 2018 Under the *Waste Reduction and Recycling Act 2011*	Containers must comply with the below: • Be of the eligible container type, size and material. • Be labelled with the clearly legible words "10c refund at collection depots/points in participating State/Territory of purchase" • Must not be crushed to the point where it can't be recognised. • Where cans have been crushed, the refund label must still be clearly visible. • At return points where Reverse Vending Machines (RVMs) are used, containers must not be crushed or damaged and barcodes must be clearly visible. • Must not be contaminated with substances that make the container a health risk or unsuitable for recycling. • Must be empty. • Be purchased in Australia. It is not a legal requirement to remove the lids of containers, however it is preferred and recommended in many depots.

Scheme and Location	Name of Regulation	Conditions of Acceptance
Australian Capital Territory, Australia *ACT Container Deposit Scheme*	Waste Management and Resource Recovery (Container Deposit Scheme) Amendment Regulation 2018 (No 1) Under the *Waste Management and Resource Recovery Act 2016.*	Containers must comply with the below: • Be of the eligible container type, size and material. • Be labelled with the clearly legible words "10c refund at collection depots/points in participating State/Territory of purchase" • Must not be contaminated with substances that make the container a health risk or unsuitable for recycling. • Must not be crushed to the point where it can't be recognised. • Must not be crushed to the point where the refund label is not clearly visible. • At return points where RVMs are used, containers must not be crushed or damaged and barcodes must be clearly visible. • Must be empty. • Be purchased in Australia. It is not a legal requirement to remove the lids of containers, however it is preferred and recommended in many depots.
Northern Territory, Australia *Cash for Containers Scheme*	Environment Protection (Beverage Containers and Plastic Bags) Regulations 2011 Under the *Environment Protection (Beverage Containers and Plastic Bags) Act 2011.*	Containers must comply with the below: • Be of the eligible container type, size and material. • Be labelled with the clearly legible words of the three options below: - "10c refund at collection depots/points in participating State/Territory of purchase" - "10c refund at SA/NT collection depots in State/Territory of purchase" - "10c refund at collection depots when sold in Northern Territory" • Must be empty. • Must not be broken or crushed. • Be purchased in Australia. It is not a legal requirement to remove the lids of containers, however it is preferred and recommended in many depots.
Western Australia, Australia *Containers for Change*	Waste Avoidance and Resource Recovery (Container Deposit Scheme) Regulations 2019 Under the *Waste Avoidance and Resource Recovery Act 2007*	Containers must comply with the below: • Be of the eligible container type, size and material. • The material of the container must be one that can be recycled or reused • Be labelled with the clearly legible words "10c refund at collection depots/points in participating State/Territory of purchase". It is recommended that the numeral '10' be a minimum of 3 mm in height with a minimum 3 mm 'free space' boundary around the refund mark. • Be marked with a barcode unique to that class of containers. Detailed requirements for the barcodes are listed in Section 3H of the Waste Avoidance and Resource Recovery (Container Deposit Scheme) Regulations 2019. • The position of the refund mark must not disrupt the container from being able to be recycled. • Must not be contaminated with substances that make the container a health risk or unsuitable for recycling. • Must not be crushed to the point where it can't be recognised. • Must not be crushed to the point where the refund label is not clearly visible. • At return points where RVMs are used, containers must not be crushed or damaged and barcodes must be clearly visible.

Scheme and Location	Name of Regulation	Conditions of Acceptance
		• Must be purchased after the appointed day as per Section 47E of the Waste Avoidance and Resource Recovery Act 2007 • Must be empty. • Be purchased in Australia. It is not a legal requirement to remove the lids of containers, however it is preferred and recommended in many depots.
New York, United States of America (USA) *Bottle Bill*	*New York State Returnable Container Act*	Containers must comply with the below: • Be purchased in the state of New York. • Be sealed. • Be clearly and permanently labelled with the New York State deposit information, in accordance with the below: - Located at the top of metal containers - The product label must be at the front, back body or on the neck. • The opening mechanism must not be one that can result in the separation of parts of the container, such as a ring-pull system, unless the detachable part can decompose by biodegradation or photodegradation. Plastic loop holders/ retainers must also be biodegradable or photodegradable and consist of at least 90 % post-consumer recycled HDPE. The plastic loop holders must show the resin identification code and have an opening diameter only up to 1 3/4" (4.445 cm) • The label must be 1/8 inches (3.175 mm) in height • The label must clearly show “NY” or “New York” and the refund amount of 5c. For example, the label can show “NY 5 cents” or “NY 5¢”). New York may be listed next to other states in the USA that operate container return schemes. • The refund amount cannot be only on the bottom of the container or on any removal parts, such as lids and foil cover. • The label cannot be rubberstamped onto the containers. • If beverages are not manufactured in the USA, alternating labelling may be accepted. The New York State Department of Environmental Conservation will assess such a situation.
California, USA *California's Beverage Container Recycling Program*	*California Beverage Container Recycling and Litter Reduction Act (AB 2020)*	Containers must comply with the below: • Be of the eligible container type, size and material. • Be purchased in the state of California. • Be labelled with the clearly legible words of the options below: - "California Redemption Value" - "CA Redemption Value" - "California Cash Refund" - "CA CRV" - "CA Cash Refund” • A sample of each container of every different container type must be sent to CalRecycle (the governing agency) to verify compliance. • Labeling of the containers, for each different material type, must be undertaken in accordance with the size, location and visibility requirements. The requirements can be found on CalRecycle’s website at: https://www2.calrecycle.ca.gov/Publications/Details/1573 • Must be empty and without contaminants. • Must not be broken or damaged, however it can be crushed depending on the preferences of the recycling centre. • By count, containers can be redeemed for up to 50 containers at once for each material i.e., 50 glass containers, 50 aluminium containers and 50 plastic. For container materials over 50 counts, it is the discretion of the recyclers if they want to pay per count or weight. • By weight, the maximum that can be redeemed by one person in a day is 100 pounds (45.4 kg) of aluminium and plastic each, and 1,000 pounds (453.6 kg)

Scheme and Location	Name of Regulation	Conditions of Acceptance
		for glass. It is not a legal requirement to seal the bottles, however it is recommended that caps are kept on the bottles. Individual recycling centers may prefer that the lids are off.
Lithuania *Deposit Return System*	*Packaging and Packaging Waste Management Act*	Containers must comply with the below: • Be of the eligible container type, size and material. • Must be empty. • Be marked with a barcode that identifies the manufacturer or importer. Requirements for the barcode are outlined in a procedure established by Užstato sistemos asministratoriuis (The scheme operator). The requirements can be found online at https://grazintiverta.lt/wp-content/uploads/2016/01/Instrukciju_vadovas_gamintojams_2015_09_30.pdf • Be labelled with a clearly visible mark that shows that the container is included in the scheme. Requirements for the mark are outlined in a procedure established by the minister for the environment. The requirements can be found online at https://grazintiverta.lt/wp-content/uploads/2016/01/Vienkartiniu_pakuociu_zenklinimo_isakymas_15.07.01.docx • Must not be crushed or damaged to the point where the Reverse Vending Machines cannot identify the container, where the deposit system label cannot be seen or where the barcode is damaged.
Germany *The Deutsche Pfandsystem GMBH (DPG)-System*	Ordinance on the Avoidance and Recovery of Packaging Wastes (Packaging Ordinance - "VerpackV")	Containers must comply with the below: • Be of the eligible container type, size and material. • Be marked with a barcode that identifies the product and the manufacturer or importer. The barcode must have a unique (Global Location Number) GLN code to identify the manufacturer or importer and a unique (Global Trade Item Number) GTIN code to identify the product. The barcode is printed on the label by one of the approved DPG label printers. For cans, one of the approved drinks manufacturers prints the barcode straight on the packaging of the cans. Items that already have a barcode can be provided with a DPG cover label to be pasted over the existing barcode. Technical instructions are available in the contractual documents. • Be labelled clearly and securely with a mark showing that the container is part of the scheme. The DPG label must be printed on the packaging with a special safety ink 'the DPG Ink', which can only be used by selected label printers and drinks manufacturers. The label is produced by one of the approved DPG label printers. For cans, one of the approved drinks manufacturers prints the DPG label straight on the packaging of the cans. Technical instructions are available in the contractual documents. • Must not be crushed or damaged to the point where the Reverse Vending Machines cannot identify the container, where the DPG label cannot be seen or where the barcode is damaged. • Must be saved by the first distributor in the DPG system database so that containers can be identified when returned.
Sweden *Regulation on Producer Responsibility for Packaging*	Ordinance on the Return System for Plastic Bottles and Metal Cans	Containers must comply with the below: • Be clearly labelled with the refund amount "Pant 1 kr" or "Pant 2 kr". The label must be approved by the Board of Agriculture. Requirements for the label, including size and location can be found online at: https://pantamera.nu/wp-content/uploads/2019/06/Teknisk-specifikation-och-m%C3%A4rkningsmanual-2019-06-26.pdf. • Be clearly marked with a unique EAN barcode that identifies the product and the manufacturer. Requirements for the barcode, including size and location can be found online at: https://pantamera.nu/wp-content/uploads/2019/06/Teknisk-specifikation-och-m%C3%A4rkningsmanual-2019-06-26.pdf

Scheme and Location	Name of Regulation	Conditions of Acceptance
		• Be designed in accordance with the requirements for material, shape and size available online at: https://pantamera.nu/wp-content/uploads/2019/06/Teknisk-specifikation-och-m%C3%A4rkningsmanual-2019-06-26.pdf • Must not be crushed or damaged to the point where the deposit label or the barcode cannot be clearly read. • Must not be crushed or flattened • Must be returned within 2 years of purchase.
Denmark *Deposit and return system*	Statutory Order on Packaging for Beer and Soft Drinks #124, amended by Statutory Order #540 Under the *Environmental Protect Act*	Containers must comply with the below: • All domestic beer and soft drinks must be sold in refillable bottles • Be visibly labelled with the Danish deposit mark and barcode. Refillable bottles with no deposit mark can still be refunded if the receipt of purchase shows that a deposit was paid. The receipt is valid for up to three years. - The Danish deposit label must be requested to be legally used from Dansk Retursystem, the scheme operator. - The Danish deposit label must be printed or stuck on directly to the bottle or can. • Must not be crushed or damaged and the original shape of the container must remain the same so that the machines are able to identify the container. Some manual counters located in stores accept damaged bottles, however the barcode and deposit mark should still be visible. • Must be purchased from Denmark. Refunds will not be provided however these containers can still be dropped off to be recycled through the scheme. • Large containers up to 20L can be refunded at stores where they were purchased. It is not a legal requirement to seal the bottles, however it is recommended that lids are kept on the bottles.
Nova Scotia, Canada *The Beverage Container Deposit-Refund Program*	Solid Waste – Resource Management Regulations Mandate Under Section 102 the *Environment Act*	Containers must comply with the below: • Must be purchased in Nova Scotia • Must be clearly labelled with the words “RETURN FOR REFUND” or words with the same intention
British Columbia, Canada	Beverage Container Stewardship Program Under the *Litter Act*	Containers must comply with the below: • All ready-to-drink containers, excluding those of ineligible beverages, must be sold in recyclable or refillable containers • By count, containers can be redeemed for up to 24 containers per person per day at retailers where the containers can be purchased. • Must be cleaned and uncontaminated. • Must be purchased from British Columbia. • Can be flattened, however label should still be clearly readable. • Cans should not be crushed. • Be clearly labelled with the label identifying the container as part of the scheme.
Quebec, Canada	Agreement Relating to the Consignment	Containers must comply with the below: • Be visibly labelled with the following: - The amount of deposit for the container; - The word “Québec”; and

Scheme and Location	Name of Regulation	Conditions of Acceptance
The deposit/refund system	, Recovery & Recycling of Non-Refillable (Soft Drink/Beer) Containers Under Law V-5.001 - *Act respecting the sale and distribution of beer and soft drinks in non-returnable containers*	- The words “consignée” and “refund” or “deposit”. • The label must be stamped or dyed on the container, and not on any part of it such as a cap which may be removed. Requirements for the design and location of the label are found online at https://www.bge-quebec.com/wp-content/uploads/2017/06/schedule-d-identification-of-containers.pdf

Appendix C

Handling fees reported from 41 global container return schemes (as at April 2020)

Appendix C **Handling fees reported from 41 global container return schemes**

Table 35: Handling fees reported from 41 global container return schemes (as at April 2020)[1071]

Jurisdiction	Handling Fee (per container)	Notes
Croatia	• RVM accepted containers: 0.12 HRK (€0.016, USD$0.017) • Manually accepted containers: 0.10 HRK (€0.013, USD$0.014)	25% VAT included.
Denmark	• Manually accepted containers or RVM accepted containers without compaction: - Metal: 0.060 DKK (€0.008, USD$0.009) - Plastic < 1L: 0.067 DKK (€0.009, USD$0.0097) - Plastic > 1L: 0.10 DKK (€0.014, USD$0.015) - Glass: 0.14 DKK (€0.019, USD$0.0214) • RVM accepted containers with compaction: - Metal: 0.0149 DKK (€0.0019, USD$0.0020) - Plastic <1L: 0.014 DKK (€0.0019, USD$0.0026) - Plastic > 1L: 0.024 DKK (€0.0032, USD$0.0035) - Glass: 0.071 DKK (€0.0095 USD$0.0103)	None
Estonia	• Manually accepted containers or RVM accepted containers without compaction: - Plastic, metal: €0.0115 (USD$0.013) - Glass: €0.013 (USD$0.014)	Does not include VAT.
Finland	• Manually accepted containers or RVM accepted containers without compaction: - Metal, plastic, glass: €0.027 (USD$0.029) • RVM accepted containers with compaction: - Metal, plastic, glass: €0.03 (USD$0.033)	None
Germany	• None	No handling fee, but retailer owns the material.
Iceland	• 3 ISK (€0.02, USD$0.021)	None

[1071] https://www.reloopplatform.org/wp-content/uploads/2020/04/Fact-Sheet-Handling-Fees-6April2020.pdf

Jurisdiction	Handling Fee (per container)	Notes
Lithuania	• Manually accepted containers or RVM accepted containers without compaction: - PET: €0.0193 (USD$0.021) - Metal: €0.0144 (USD$0.016) - Glass: €0.0328 (USD$0.036) RVM accepted containers with compaction: - PET: €0.0159 (USD$0.017) - Metal: €0.0138 (USD$0.015) - Glass: €0.0199 (USD$0.022)	None
Netherlands	• None	None
Norway	• Manually accepted containers or RVM accepted containers without compaction: - Metal: 0.05 NOK (€0.0042, USD$0.0045) - Plastic: 0.10 NOK (€0.0083, USD$0.0090) • RVM accepted containers with compaction: - Metal: 0.20 NOK (€0.017, USD$0.018) - Plastic: 0.25 NOK (€0.021, USD$0.022)	None
Sweden	• Manually accepted containers: - Metal: None - Plastic: 0.2 SEK (€0.018, USD$0.020) • RVM accepted containers without compaction: - Metal, Plastic: 0.174 SEK (€0.016, USD$0.017) - Plastic ≤1L: 0.258 SEK (€0.024, USD$0.025) - Plastic >1L: 0.345 SEK (€0.031, USD$0.034) • RVM accepted containers with compaction: - Metal: 0.19 SEK (€0.017, USD$0.019) - Plastic <1L: 0.316 SEK (€0.029, USD$0.031) - Plastic >1L: 0.503 SEK (€0.046, USD$0.049)	None
California	• USD$0.00833 (€0.0077)	Paid by the state to convenience zone recyclers.
Connecticut	• Beer or malt containers: USD$0.015 (€0.014) • All other containers: USD$0.02	None

Jurisdiction	Handling Fee (per container)	Notes
	(€0.019)	
Hawaii	• USD$0.03 (€0.028) to USD$0.07 (€0.065)	Paid to redemption centres from the Deposit Beverage Container Fund.
Iowa	• USD$0.01 (€0.0093)	Paid by deposit initiator to retailers and redemption centres.
Maine	• Brand-sorted containers: USD$0.045 (€0.042) • Containers that are part of a co-mingling agreement: USD$0.035 (€0.033)	Differential rates incentivise co-mingling agreements.
Massachusetts	• Containers returned to retailers: USD$0.0225 (€0.021) • Containers returned to redemption centres: USD$0.0325 (€0.03)	Retailers receive free pick-up of containers by deposit initiators. Redemption centres must deliver redeemed containers to a central processing facility.
Michigan	• None	While there is no handling fee per se, 25% of unredeemed deposits are available to retailers to cover handling costs.
New York	• USD$0.035 (€0.03)	Paid by the distributor or deposit initiator.
Oregon	• None	None
Vermont	• Brand-sorted containers: USD$0.04 (€0.037) • Containers that are part of a co-mingling agreement: USD$0.035 (€0.033)	None
Alberta	• Refillable beer bottles: CAD$0.0464 (€0.030, USD$0.032) • All other containers: CAD$0.03242 (€0.022, USD$0.022) to CAD$0.2384 (€0.15, USD$0.16)	Regulated by government and payable by a manufacturer or collection system agent to collection depots.
British Columbia	• Refillable beer bottles: Bottle depots independently negotiate handling fees directly with the beer industry. The average rate is about CAD$0.29/dozen (€0.19, USD$0.20) or CAD$0.0242/bottle (€0.016, USD$0.017) • All other containers: CAD$0.027 (€0.017, USD$0.019) to CAD$0.1127 (€0.072, USD$0.078)	Paid by Encorp Pacific (Canada) and Brewers Distributors Ltd. to authorized depots and contracted retailers. Handling fees fluctuate depending on the cost to collect and process each type of container.
Manitoba	• Beer cans: CAD$0.0204 (€0.013, USD$0.014) • Refillable beer bottles: CAD$0.0267 (€0.017, USD$0.018)	None

Jurisdiction	Handling Fee (per container)	Notes
Newfoundland and Labrador	• Refillable beer bottles: CAD$0.05 (€0.017, USD$0.032) • All other containers: CAD$0.0435 (€0.028, USD$0.03)	The handling fee on refillable beer is charged at the back-end from the refund.
New Brunswick	• Refillable beer bottles: CAD$0.0290 (€0.019, USD$0.020) • All other containers: CAD$0.0406 (€0.026, USD$0.028)	None
Northwest Territories	Refillable beer bottles: none All other containers: CAD$0.022 (€0.014, USD$0.015) to CAD$0.045 (€0.029, USD$0.031)	None
Nova Scotia	Refillable beer bottles: CAD$0.0274 (€0.019, USD$0.02) Moosehead brand bottle: CAD$0.0257 (€0.016, USD$0.018) All other containers: CAD$0.0427 (€0.027, USD$0.029)	None
Ontario	Not available	Proprietary
Prince Edward Island	Refillable beer bottles: CAD$0.0281 (€0.018, USD$0.019) All other containers: CAD$0.04211 (€0.028, USD$0.029)	None
Quebec	Refillable beer bottles: CAD$0.005 (€0.003, USD$0.0034) All other containers: CAD$0.02 (€0.013, USD$0.014)	None
Saskatchewan	Refillable beer bottles: CAD$0.026 (€0.017, USD$0.018) All other containers: none	SK does not charge handling fees. SARCAN depots are paid a contracted rate per year, which is generated through the Environmental Handling Charge (EHC). A handling fee on refillable beer is charged at the back-end from the refund. It is 5-cents at SARCAN depots and 2-cents at SLGA stores who also receive an additional subsidy of 2.6-cents per refillable bottle from brewers.
Yukon	Refillable beer bottles: CAD$0.025 (€0.016, USD$0.017) All other containers: CAD$0.025 (€0.016, USD$0.017) to CAD$0.075 (€0.048, USD$0.052)	None
South Australia	Approximately AUD$0.1109 (€0.061, USD$0.066)	Negotiated between producer/super collector.
Northern	Not available	Handling fees are negotiated. Depots

Jurisdiction	Handling Fee (per container)	Notes
Territory		may be compensated for "reasonable costs" related to handling the containers by the deposit Scheme Coordinator to whom they deliver the container.
Australian Capital Territory (ACT)	Estimated at around AUD$0.08 (€0.044, USD$0.047) to $0.09 (€0.049, USD$0.053)	For every container returned through the collection infrastructure, the Network Operator receives a fee to cover the costs for the collection points, the logistics, counting centres and administration, as well as adding a certain margin. The value of this fee has not been made public.
New South Wales	Estimated at around AUD$0.08 (€0.044, USD$0.047) to $0.09 (€0.049, USD$0.053)	For every container returned through the collection infrastructure, the Network Operator receives a fee to cover the costs for the collection points, the logistics, counting centres and administration, as well as adding a certain margin. The value of this fee has not been made public.
Queensland	Approximately AUD$0.06 (€0.033, USD$0.036) to AUD$0.065 (€0.036, USD$0.038)	Paid to collection points The Scheme Coordinator manages and pays separate fees for logistics and processing services (approximately AUD$0.09 (€0.049, USD$0.053), including collection, transport, processing).
Israel	0.05 ILS (€0.013, USD$0.28)	Paid to retailers only.
Kosrae (Federated States of Micronesia)	USD$0.01 (€0.0093)	None
Kiribati	AUD$0.01 (€0.055, USD$0.0059)	Retained by the Koaki Mange operator for operating costs.
Palau	USD$0.025 (€0.023) to redemption centres USD$0.025 (€0.023) to the national government for administrative costs	None

Appendix D

New Zealand Container Return Scheme Managing Agency Requirements

Appendix D **New Zealand Container Return Scheme Managing Agency requirements**

Table 36: New Zealand Container Return Scheme Managing Agency Requirements

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
Section 3 **Scope of Containers**	The container return facility to have the discretion to reject containers based on material identification and in accordance with the requirements of the Managing Agency and NZ CRS legislative instrument, including but not limited to: • Broken containers. • Damaged but intact (e.g., a container that is returned to a container return facility that is so damaged or in such a condition that the scheme label and/or barcode and/or QR code and/or other scheme identification label cannot be verified or recognised). • Label missing but identifiable as an eligible container. • Contaminated with substances that make the container a health risk or unsuitable for recycling. • There are reasonable grounds that the container was not sold in Aotearoa New Zealand. • There are reasonable grounds that the container was part of a bale.	The benefit of this approach is to ensure that container return facilities provide the NZ CRS with the first line of contamination and fraud assessment supporting the collection and verification of material that meets the specific scheme conditions of acceptance.
	Suppliers that intend to sell (export) eligible containers outside of New Zealand will be eligible for a refund of the scheme deposit with the Managing Agency establishing and implementing appropriate mechanisms to accurately and transparently recorded export exemptions for audit and scheme compliance.	The reason why this is good for the NZ CRS is that those beverage containers to be exported from New Zealand will not be purchased and consumed by New Zealand consumers, and will not contribute to New Zealand's recovered material volumes.

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
Section 4		
Container Return Facilities	Sufficient container return facilities will be located across Aotearoa New Zealand at suitable locations to enable customers to redeem their containers in a secure and efficient manner with minimal transaction times and at the same time ensure the return facilities are cost-effective and financially viable. Based on learnings from overseas, feedback from the design process and the outputs from financial modelling it is proposed that the NZ CRS initially establish 415 (i.e., a projected population of 5.213million as at 2023 and a ratio of 12,500 people per container return facility) registered container return facilities across Aotearoa New Zealand noting that each of the 415 registered sites are anticipated to have informal drop-off points located to increase customer convenience and provide additional volumes of containers to improve financial viability. The NZ CRS Managing Agency will be required to monitor the performance of each geographical area such as containers returned as a proportion of what is available in the area and take appropriate action as required. This action would include working with container return facilities, establishing more return sites and increasing awareness. It is further recommended that no later than 9-months before the scheme commences a final review is undertaken by the regulatory authority to confirm if the establishment of 415 container return facilities is still appropriate.	Ensuring sufficient access to collection points throughout Aotearoa New Zealand is important to ensure the NZ CRS provides a service to all New Zealanders regardless of where they reside (e.g., rural, urban, city) whilst also providing consumers a range of locations that they can access and use that compliments their day-to-day activities. At the same time, it is important that the collection point sites are financially viable and cost-effective.
	Container refund options must include cash, electronic funds transfer, supermarket voucher (including, for example, a 2-year expiration date) and donation. The	The reason why this is good for New Zealanders is to provide consumers with a range of options to receive the appropriate container refund amount rather than limiting these options.

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
	scheme Managing Agency will be empowered to have flexibility to expand the range of refund options such as a scheme credit system, loyalty card and gift cards). Alternative refund options must be supported by robust information (e.g., consumer surveys) and in consultation with the scheme Governance Board and the Government department responsible with scheme oversight.	
	The Managing Agency will give effect to ensuring that container return facilities are located strategically to promote customer convenience (e.g., supermarkets, petrol stations, co-located with community recycling facilities) and access points (e.g., transportation routes).	The benefit of this approach is to provide consumers with a convenient service that individuals can easily interact with while supporting, for example, local businesses (e.g., supermarkets, retail stores).
	Container return facilities must provide customers with scheme information, for example, scheme updates, in line with the marketing and communication requirements as determined by the Managing Agency and in bi-lingual and multi-lingual options.	The reason why this is good for the NZ CRS and Aotearoa New Zealand is to apply a consistent style of messaging across all registered scheme container return facilities supporting clear and transparent messaging to consumers. It is acknowledged that container return facilities may from time to time need to update consumers quickly on matters such as technology breakdowns but that in all cases, any change to a service provided by a scheme registered container return facility must be immediately raised with the Managing Agency to then determine whether additional public notification, for example, via the scheme website must be undertaken.
	The Managing Agency is required to give effect to ensuring and establishing consistent marketing of the container return facilities (e.g., marketing toolkit, standards) and scheme awareness.	The benefit of this approach to Aotearoa New Zealand is to ensure all scheme participants have a clear understanding of their role and responsibilities and have access to scheme information tailored to their specific role.
	The Managing Agency will be responsible for the procurement of scheme container return facilities, including the incorporation of social and indigenous procurement elements, (e.g., establishment of	The reason why this approach is good for Aotearoa New Zealand is that the Managing Agency has the ability to manage all registered container return facilities under a consistent contractual arrangement setup which may

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
	employment number targets for manual collection depots).	include, for example, workplace employment targets.
	All container return facilities must be registered with the Managing Agency.	The benefit of this approach is primarily driven by the Managing Agency's ability to track registered scheme containers and scheme participants to minimise scheme fraud and maximise scheme compliance. Additionally, registration of container return facilities will enable the Managing Agency to provide the consumer with a consistent service managed, for example, through consistent branding and scheme messaging.
	The Managing Agency will be responsible for ensuring best practice design guidelines are established for all container return facilities, including health and safety, operating and environmental management principles.	The benefit of this approach for the NZ CRS and New Zealanders is to set the minimum requirements to be met by a container return facility, including construction requirements, scheme branding and messaging, to support the establishment of a scheme that provides a customer focussed experience and maximising scheme efficiencies.
	Collection depots will cater for immediate counting and provision of customer refunds as stipulated by the Managing Agency (including cash, electronic funds transfer, supermarket voucher [including an appropriate expiration date], donation, scheme credit system, loyalty card, gift card) for eligible containers.	The benefit of this approach is that the depot can count and verify scheme eligible material returned by consumers and then refund the appropriate amount immediately with no time delay to the consumer.
	Manual collection depot will have the option to refuse to accept a customer's containers where containers do not meet the container acceptance criteria as specified by the Managing Agency and included in the NZ CRS legislative instrument, including but not limited to: • Unclean or contaminated; • The refund marking is illegible or not visible; • Not labelled according to the NZ CRS scheme (e.g.,	The benefit of this approach is to ensure that returned containers meet the scheme acceptance criteria in order to be eligible for the appropriate refund amount. Additionally, the acceptance criteria is a means for the scheme to monitor and manage fraudulent activities and supporting the collection of clean material for re-processing.

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
	were not sold in New Zealand); or • If a person refuses to complete a declaration when asked to do so by the depot operator.	
	The Managing Agency will give effect to establishing clear processes, guidance for procuring and establishing container return facilities and Material Consolidation Facilities	The reason this is good for the NZ CRS is to acknowledge container return facilities located in regional/remote areas of New Zealand where the cost of transporting unbaled scheme containers may prove to be financially inefficient.
	The Managing Agency will give effect to promoting and encouraging the establishment of Over-the-Counter return locations in areas where other return facilities are not suitable, including but not limited to the following limitations: • Over-the-Counter returns limited to accepting small quantities (e.g., less than 100 eligible containers per customer). • Limit customer refund options to cash only or voucher for use in store. • Over-the-Counter conditions set by the Managing Agency (e.g., store location, minimum sales area, storage capacity, store security).	Incorporating an over-the-counter container return facility option into the NZ CRS will assist in providing consumers with an additional option to return containers to, while, for example, also supporting small communities in rural and/or remote locations to provide a convenient local service to their resident base.
	The Managing Agency will give effect to promoting and encouraging the provision for mobile and/or pop-up return facilities (e.g., events, service provision for Universities, schools, etc) to increase container recovery.	Mobile and/or pop-up facilities will assist in providing localised services to areas where, for example, consumers may not have the ability and/or means to travel to another facility for a direct container count and refund or provide a bespoke collection service to activities that may require this
	The Managing Agency will give effect to promoting and encouraging the unmanned mobile or pop-up facilities to offer the option of electronic funds transfer, or transfer of scheme credits to loyalty schemes or other options as	The benefit of this option is to provide consumers with another option with which to return their eligible containers whilst supporting the Managing Agency to reduce, for example, theft of cash from unmanned facilities whilst

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
	appropriate. No cash to be provided.	still providing a convenient service to the consumer.
	The Managing Agency will give effect to actively promoting the location of reverse vending machines to be connected to areas of customer convenience, for example: • Public transport facilities, bus inter changes, ferry terminals. • Education establishments including universities and schools. • Marae and Resource Recovery Centres. • Parks and nature reserves, barbecue areas. • Retail premises such as supermarkets, shopping malls, wholesale retailers. • Retail parking lots, major multi-storey parking lots. • Standalone (e.g., carparks) and/or inbuilt machines to accept eligible containers. • Acceptance of eligible containers by type (i.e., glass, plastic, aluminium/tin) and refillable containers (i.e., acceptance by individual bottle and/or crates). • Machines to be of various sizes to cater to retail store specifications. • Consideration given to material compression and relationship to scheme fraud prevention measures. • Machines to provide marketing opportunities where sited (e.g., retail location, schools, local council main office).	The benefit of providing RVMs in a range of locations is primarily to provide the consumer with convenient options with which to return their eligible containers for the appropriate refund.
	The Managing Agency will, through contractual arrangements with container return facilities, give effect	The benefit of this approach is primarily driven to maximise consumer convenience whilst minimising the likelihood of litter disposal of those

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
	to ensuring that machines accepting both eligible and ineligible containers does not result in potential littering of rejected containers (NOTE: consideration must be given to potential misuse of machine as an alternative means of disposal).	ineligible containers particularly where container return facilities are unmanned (e.g., mobile and/or pop-up facilities).
	The Managing Agency will give effect to promoting and provide for container return facilities focussed on donations only at locations such as bus/train/ferry stations, Council main offices, zoos.	The benefit of this approach is primarily driven to maximise consumer convenience for those consumers who may wish to simply return containers with the appropriate refund to be allocated to a specific charity(ies) as supported by the facility (e.g., a RVM placed at a zoo with refunds to support zoo wildlife initiatives).
	The Managing Agency will, during the implementation phase, give effect to stipulating a maximum container limit for automated depots.	The reason why this is good for the NZ CRS and Aotearoa New Zealand is to provide additional infrastructure to manage large quantities of eligible containers that the container return facilities may otherwise not have the capacity to manage.
	The Managing Agency will be responsible for managing the establishment of collection service contracts (e.g., contracted back-haul arrangements) to deliver the service needed to transport eligible scheme containers from the container return facility to the scheme Material Consolidation Facility.	The establishment of transportation service contracts will ensure that the NZ CRS benefits from a consistent service ensuring that eligible containers are moved efficiently between scheme participants.
	The Managing Agency will be responsible for ensuring the utilisation of appropriate transportation logistics providers and/or back-haul arrangements are cost-effective and efficient and reduce the carbon footprint, including for remote/regional areas.	The benefit of this approach to Aotearoa New Zealand is to support New Zealand's goal to reduce greenhouse gas emissions and progress New Zealand's obligations under the Kyoto Protocol. The added benefit is to utilise existing infrastructure to support scheme activities whilst encouraging scheme employment.
	The Managing Agency to establish appropriate fraud mitigation processes and procedures to manage and track the flow of eligible containers through the scheme (i.e.,	The benefit of this is to ensure the scheme Managing Agency has complete visibility and transparency of the eligible containers moving throughout the

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
	container return facilities, transportation to material processing facilities, transportation to re-processors and/or direct to end-markets).	scheme, as well as tracking scheme finances against eligible container count.
	The Managing Agency may approve baling of scheme material (e.g., plastic, aluminium) on a case by case basis at selected container return facilities where it is demonstrated that these facilities would contribute to improved scheme efficiencies such as transport savings without compromising increased risk of fraud. To achieve this, the Managing Agency will establish a scheme baling and audit process based on robust standards and procedures, including, for example, a contractual 'Baling Services Agreement' between the Managing Agency and the container return facility. This agreement will be supported by robust standards and procedures such as Standard Operating Procedures that the container return facility must contractually abide by. Additionally, the baling process will be standardised across the scheme so that the same baling process (i.e., weight and size of bale) is used at the container return facility and the scheme MCF ensuring consistency of methodology and minimisation of fraud.	The benefit presented by baling at container return facilities is the ability for the Managing Agency to use existing infrastructure whilst contractually managing the expansion of the facility's role and responsibility. Additionally, this approach will support the establishment of regional/remote New Zealand collection facilities to also bale and transport material to end-markets under contract with the Managing Agency, thereby improving scheme efficiencies such as transportation of loose material (i.e., payload efficiencies). Further, the Managing Agency is best placed to establish and manage the 'Baling Services Agreement' and the supporting Standard Operating Procedures in order to track scheme material and minimise fraud.
	The Managing Agency will also approve compaction of scheme material (e.g., plastic, aluminium) at selected container return facilities where it is demonstrated that these facilities would contribute to improved scheme efficiencies such as transport savings without compromising increased risk of fraud. To achieve this, the Managing Agency will determine the optimised compaction ratio that enables the scheme MCF to re-	The benefit of this approach is the ability of regional/remote Aotearoa New Zealand collection facilities to reduce costs associated with transporting materials to the scheme MCF. Further, the Managing Agency is best placed to manage setting compaction ratios in order to track eligible containers and minimise fraud.

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
	count and verify eligible scheme containers.	
	The Managing Agency will give effect to setting of an appropriate handling fee including reviews of the handling fee at intervals to ensure the viability of collection depots and scheme performance.	The reason why this is beneficial for Aotearoa New Zealand is primarily for the Managing Agency to compensate those scheme participants responsible for handling and sorting eligible containers and ensure that their respective activities remain profitable to ensure service continuation.
	All scheme material sold to markets will be owned by the Managing Agency.	The reason why this is good for Aotearoa New Zealand is that the Managing Agency is in the best position to manage this risk and promote the beneficial use of material over the long term. This is beneficial for the New Zealand environment as it will encourage the supply of scheme materials to New Zealand based manufacturers. The Managing Agency may, for example, enter long-term supply arrangement with material re-processors that results in certainty of supply to enable and assist investment in infrastructure.
	Revenue generated by the sale of eligible scheme material to be passed on via the Advanced Material Recycling Fee to beverage producers to reflect the choice of container materials used.	The reason why this is good for Aotearoa New Zealand is that the Managing Agency is in the best position to manage the risk and promote the beneficial use of material over the long term as well as share the benefit of this with both beverage producers and consumers. This is beneficial for the New Zealand environment as it will encourage the reuse of scheme materials with a priority focus on New Zealand based manufacturers.
	The Managing Agency will be responsible, through contractual arrangements, for ensuring container return facilities report key scheme performance data in keeping with scheme reporting requirements.	The benefit of this requirement to Aotearoa New Zealand is to ensure the container return facility provides to the Managing Agency clear and transparent information on the efficiency and performance of the scheme whilst highlighting areas of improvement.
	The Managing Agency is responsible for the integration of a separate financial accounting system and Information and Communications Technology (ICT) platform to manage scheme costs.	The benefit of this approach for a NZ CRS is to enable the Managing Agency to have complete transparency and visibility of containers received, processed, transported and the value of deposits issued to consumers as they relate to the successful functioning and performance of the scheme.
Section 5	Hospitality businesses (e.g., hotels, restaurants, bars,	The benefit of this approach to the NZ CRS and New Zealand is to ensure

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
The Retailer	cafés and take-aways) will be included within the NZ CRS design with the Managing Agency responsible for establishing the specific scheme requirements for those businesses selling eligible scheme containers for both onsite and offsite consumption.	those eligible scheme containers moving through hospitality businesses are recovered and recycled by the NZ CRS. Additionally, the Managing Agency is provided the flexibility to establish scheme specific arrangements, for example, collection of containers that support the ultimate success of the scheme.
	The Managing Agency in consultation with the retail sector will establish a suitable transition period and deadline for compliance to help retailers transition old stock and ensure enough time is available to stock with eligible containers before the end of the transition period. The purpose of a transition period to New Zealand retailers is to ensure retailers are provided enough time to adjust to scheme requirements including the transition from old stock to new stock and to establish new processes where needed. Trans-Tasman arrangement specific to movement of eligible containers including other relevant international arrangements (i.e., import and export considerations) without comprising the outcomes of the NZ CRS (e.g., the NZ deposit amount).	The reason why this is good for New Zealand is to ensure that all relevant legislation and regulations are assessed to ensure all legal components have been addressed and accounted for to support the implementation of the NZ CRS and the ultimate success of the scheme.
	The Managing Agency is to determine the arrangements for leasing and/or purchasing RVMs.	The benefit of this approach is to enable retailers to potentially benefit from any contractual technology supply arrangements as established by the Managing Agency with relevant equipment providers.
	The Managing Agency is to provide marketing material and standards (e.g., marketing toolkit, Te Reo Māori and multi-lingual translations) to ensure consistent communications are established between retailer, scheme and customers.	The reason why this is good for the NZ CRS and New Zealand is to apply a consistent style of messaging across all participating retailers supporting clear and transparent messaging to consumers. Additionally, to ensure all scheme participants have a clear understanding of their role and responsibilities and have access to scheme information tailored to their specific role.

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
	The Managing Agency will determine the specific return-to-retail contractual arrangements, which may include: • Recognising deposit labels and eligible containers. • Inspecting packaging and barcodes to ensure that they are intact. • Refunding the correct deposit amount. • Sorting the collected containers correctly. • Reporting requirements on the empty containers that they collect and refund. • Recording of accounting, drop offs and collections. • Additional costs on retailers. • Site logistic requirements. • Modification requirements to the retailer. • Impacts on health and safety.	The reason why this approach is good for New Zealand is that the Managing Agency has the ability to manage all registered container return facilities (including return-to-retail) under a consistent contractual arrangement setup which may include, for example, site logistical requirements.
Section 6 **The Consumer**	The Managing Agency will be responsible for providing clear and accessible information to ensure consumers have a good understanding of the scheme, its kaupapa - purpose, its benefits to them, and where and how they can return eligible container.	The reason why this is good for the NZ CRS and New Zealand is to provide consumers with clear scheme information to support individuals to make informed decisions and choices whilst providing clarity on which single-use beverage containers are included in the scheme and which are not.
	The Managing Agency will be responsible for ensuring consumers have access to return their eligible containers in a secure, convenient and efficient manner with minimal wait and transaction times in keeping with best practice and at the same time ensure the return facilities are cost-effective and financially viable. Based on learnings from overseas, feedback from the design process and the outputs from financial modelling it is proposed that the NZ CRS initially establish 415 (i.e., a	Ensuring sufficient access to collection points throughout New Zealand is important to ensure the NZ CRS provides a service to all New Zealanders regardless of where they reside (e.g., rural, urban, city) whilst also providing consumers a range of locations that they can access and use that compliments their day-to-day activities. At the same time, it is important that the collection point sites are financially viable and cost-effective.

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
	projected population of 5.213million as at 2023 and a ratio of 12,500 people per container return facility) registered container return facilities across Aotearoa New Zealand noting that each of the 415 registered sites are anticipated to have informal drop-off points located to increase customer convenience and provide additional volumes of containers to improve financial viability. The NZ CRS Managing Agency will be required to monitor the performance of each geographical area such as containers returned as a proportion of what is available in the area and take appropriate action as required. This action would include working with container return facilities, establishing more return sites and increasing awareness. It is further recommended that no later than 9-months before the scheme commences a final review is undertaken by the regulatory authority to confirm if the establishment of 415 container return facilities is still appropriate.	
	The Managing Agency will give effect to ensuring that container return facilities are located strategically to promote customer convenience (e.g., supermarkets, petrol stations, co-located with community recycling facilities) and access points (e.g., transportation routes).	The benefit of this approach is to provide consumers with a convenient service that individuals can easily interact with while supporting, for example, local businesses (e.g., supermarkets, retail stores).
	The Managing Agency will be responsible for promoting and enabling employment and education (e.g., school certificates, pre-school engagement) and life skill (e.g., budgeting skills) opportunities through the container return scheme (e.g., opportunities provided for at manual container return facilities).	The benefit of these NZ CRS services to New Zealand is the ability to create increased social good within communities by encouraging and facilitating improved social connections. Additionally, these services may facilitate wider opportunities such as the establishment of school-based waste and resource management curriculum supported by NZ CRS education programs.
Section 7	The Managing Agency will contract the scheme Material	The reason why this is appropriate for the NZ CRS design is that contracting

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
Material Processing Facilities	Consolidation Facility. By exception it may directly own and operate these. All scheme material sold to markets will be owned by the Managing Agency. For clarity, where the processing facility is based on utilising an existing MRF then the contractual arrangement would reflect the appropriate delineation of that site to ensure separation of existing sorting activities and materials from the NZ CRS.	the services of the scheme MCF by the Managing Agency will minimise the risk of fraud, maximise the use of existing infrastructure, maximising the number of MCFs around Aotearoa New Zealand and minimising the scheme carbon footprint.
	Where appropriate and practicable, the Managing Agency will give effect to prioritising the use of existing infrastructure in Aotearoa New Zealand to reduce scheme costs and maximise the opportunity for reuse.	Incorporating where possible, Aotearoa New Zealand's existing infrastructure (e.g., TLA owned/contracted resource recovery infrastructure), will assist in establishing a cost-efficient scheme whilst ensuring recognition of businesses already providing relevant services.
	The Managing Agency will give effect to the incorporation of direct and/or weight-based container counting methodology at scheme material processing facilities (i.e., MCF, MRF, general refuse processing facilities). There is no benefit to limit the options at this stage in the design process. The Managing Agency will have maximum flexibility on options that it determines is best for specific situations. A key area with manual method is a condition that regular auditing must be undertaken to ensure payments made to collection depots reflects the weight to count ratio.	Enabling the Managing Agency to have flexibility in specifying the scheme eligible container counting methodology will support a wider range of solutions based on available Aotearoa New Zealand infrastructure.
	The Managing Agency to establish appropriate fraud mitigation processes and procedures to manage and track the flow of eligible containers through the scheme (i.e., container return facilities, transportation to material processing facilities, transportation to re-processors and/or direct to end-markets)	The benefit of this is to ensure the scheme Managing Agency has complete visibility and transparency of the eligible containers moving throughout the scheme, as well as tracking scheme finances against eligible container count.

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
	The Managing Agency may approve baling of scheme material (e.g., plastic, aluminium) on a case by case basis at selected container return facilities where it is demonstrated that these facilities would contribute to improved scheme efficiencies such as transport savings without compromising increased risk of fraud. To achieve this, the Managing Agency will establish a scheme baling and audit process based on robust standards and procedures, including, for example, a contractual 'Baling Services Agreement' between the Managing Agency and the container return facility. This agreement will be supported by robust standards and procedures such as Standard Operating Procedures that the container return facility must contractually abide by. Additionally, the baling process will be standardised across the scheme so that the same baling process (i.e., weight and size of bale) is used at the container return facility and the scheme MCF ensuring consistency of methodology and minimisation of fraud.	The benefit presented by baling at container return facilities is the ability for the Managing Agency to use existing infrastructure whilst contractually managing the expansion of the facility's role and responsibility. Additionally, this approach will support the establishment of regional/remote Aotearoa New Zealand collection facilities to also bale and transport material to end-markets under contract with the Managing Agency, thereby improving scheme efficiencies such as transportation of loose material (i.e., payload efficiencies). Further, the Managing Agency is best placed to establish and manage the 'Baling Services Agreement' and the supporting Standard Operating Procedures in order to track scheme material and minimise fraud.
	The Managing Agency may also approve compaction of scheme material (e.g., plastic, aluminium) at selected container return facilities where it is demonstrated that these facilities would contribute to improved scheme efficiencies such as transport savings without compromising increased risk of fraud. To achieve this, the Managing Agency will determine the optimised compaction ratio that enables the scheme MCF to re-count and verify eligible scheme containers.	The benefit of this approach is the ability of regional/remote Aotearoa New Zealand collection facilities to reduce costs associated with transporting materials to the scheme MCF. Further, the Managing Agency is best placed to manage setting compaction ratios in order to track eligible containers and minimise fraud.
	The Managing Agency will be responsible for managing the establishment of collection service contracts and/or	The establishment of transportation service contracts will ensure that the NZ CRS benefits from a consistent transportation service.

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
	agreements (e.g., contracted back-haul arrangements, transportation of material by the material purchaser) to be managed by the Managing Agency to deliver the service needed to transport eligible scheme containers from the scheme Material Processing Facility and either the scheme Material Consolidation Facility, material re-processor or direct to end-markets.	
	The Managing Agency to establish processes to audit scheme eligible glass container return rates collected via kerbside recycling collections to support appropriate MRF glass material handling fee claims.	Acknowledging the likelihood of glass breakage in kerbside collections, enabling the Managing Agency to audit kerbside collection bins for scheme eligible glass container return rates will benefit the NZ CRS by ensuring the Managing Agency can verify MRF claims.
	The Managing Agency to establish criteria to determine weight-based assessment.	The benefit to Aotearoa New Zealand is that the Managing Agency establishes a consistent weight-based assessment tool.
	The Managing Agency to establish a scheme MCF, MRF and General Refuse Processing Facility protocol, including all auditing requirements and determine a protocol review period.	The benefit of this approach for a NZ CRS is to enable the Managing Agency to have complete transparency and visibility of scheme material processing facility operations as they relate to the successful functioning of the scheme.
	The Managing Agency to establish clear and consistent collection, quality control and auditing processes integrating all scheme participants to maintain material quality.	The benefit of this approach to a NZ CRS is to ensure that the Managing Agency coordinates and manages all scheme participants to ensure integrity of the scheme to ensure accurate and auditable count of containers and payment to collection depots.
	The Managing Agency to support the establishment of a revenue sharing arrangement (deposit or handling fee amount, including a transitional period) underpinned by clear guidelines (e.g., the default position could have the deposit shared 50/50 between the MRF and the Territorial Local Authority making sure no party is disadvantaged nor gains a windfall from the NZ CRS with	The benefit to Aotearoa New Zealand is to ensure that scheme funds generated from council kerbside recycling collections is appropriately shared with the MRF in recognition of the respective contractual commitments and to incentivise continual operational improvements related to the collection and sorting of eligible scheme containers. It is recommended that further detailed analysis is undertaken to determine

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
	any surplus returned to the ratepayer) between the local council and the MRF for eligible containers collected via kerbside recycling collections. It is recommended each Territorial Local Authority and MRF operator undertake their own negotiations (excluding the involvement of the Managing Agency) and reach agreement on revenue sharing as this recognises the different contractual arrangements that exist across Aotearoa New Zealand. It is recommended that local authorities use the opportunity of recognising revenue from containers in the recycling bin to offset recycling collection costs incurred by ratepayers. The reason for this is to incentivise the MRF operator to make all appropriate efforts to separate out eligible and redeem containers (in accordance with the scheme container acceptance criteria). Notwithstanding any contractual requirements between MRF operators and local councils it is recommended that a revenue sharing arrangement be established between the local council and the MRF. The revenue sharing arrangement is to be established and set at a level that will support kerbside recycling and incentivise the MRF to fund processing and maximise recovery of eligible containers.	if the revenue sharing is based on the deposit value or the handling fee, but not both. The detailed analysis would be undertaken to reflect the different collection types, MRF operations, capital investments and scale of these and financial viability across Aotearoa New Zealand to ensure the revenue sharing is fair and reasonable and does not result in unintended consequences or perverse outcomes for the NZ CRS. The default position would be sharing of the deposit value.
	The Managing Agency to establish requirements for refunds associated with eligible containers recovered from kerbside collected general refuse via waste transfer stations (i.e., those facilities that do not allow public refuse drop-off).	The benefit to Aotearoa New Zealand is to ensure that scheme funds generated from council kerbside refuse collections is appropriately shared with the waste transfer station in recognition of the respective contractual commitments and to incentivise continual operational improvements related to the collection and sorting of eligible scheme containers to maximise recovery. Maximising the recovery of eligible scheme containers that meet the conditions of acceptance as specified by the scheme requirements (e.g.,

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
		clean, scheme barcode and/or logo is visible and legible).
	The Managing Agency to ensure that all scheme material sold to markets will be owned by the Managing Agency	The reason why this is good for Aotearoa New Zealand is that the Managing Agency is in the best position to manage this risk and promote the beneficial use of material over the long term. This is beneficial for the Aotearoa New Zealand environment as it will encourage the supply of scheme materials to Aotearoa New Zealand based manufacturers. The Managing Agency may, for example, enter long-term supply arrangement with material re-processors that results in certainty of supply to enable and assist investment in infrastructure.
Section 8 **The Material Re-Processor**	The Managing Agency, as owner of the recovered scheme material, will give effect to and ensure that all recovered material is beneficially reused through measures such as legislative drivers, establishment of long-term contractual arrangements, encourage the use of scheme recycled material for the production of containers, ensure scheme material can have adequate quality to be used again for food packaging, undertake regular inspections of approved scheme re-processors ensuring that minimal scheme material is wasted.	The benefit of this approach to Aotearoa New Zealand is that the NZ CRS promotes a holistic end-to-end solution requiring the Managing Agency to take ownership and accountability of the end fate of scheme material and the Managing Agency is enabled to promote the outcomes of the pūnaha whakarōpū para - waste hierarchy.
	The Managing Agency will work with the material re-processor to optimise scheme collection and sorting methodologies to lift material quality.	The reason why this is good for Aotearoa New Zealand is to require scheme participants and associated industries to carry out more robust sorting and collection of materials to reduce contamination levels whilst encouraging the production of higher value products (e.g., PET flakes and PET pellets) for sale to markets and material re-processors.
	The Managing Agency controls and/or has full transparency of the end fate of scheme materials (i.e., closed loop system) via, for example, contractual relationships or competitive tendering processes with re-processors (e.g., long-term contracts, process to achieve	The benefit to Aotearoa New Zealand is ensuring that scheme material is, where possible (noting recycled scheme material may also be sold and exported to offshore markets) recycled in a closed-loop cycle with the Managing Agency promoting the use of 'bottle to bottle' and 'can to can' processes, whilst promoting and supporting onshore material re-processing

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
	market rates with known contracted parties), encouraging minimum scheme recycled material for the production of containers, re-purposing of materials, ensure scheme material can have adequate quality to be used again for food packaging, undertaking regular inspections of approved scheme re-processors ensuring that minimal scheme material is wasted.	activities and investments in infrastructure.
	The Managing Agency to optimise the establishment of contractual arrangements to include material end fate and recyclability requirements of scheme material.	The reason why this is good for Aotearoa New Zealand is that the Managing Agency will encourage and promote Extended Producer Responsibility through the use of an Advanced Material Recycling Fee to ensure producers cover the true cost to beneficially use their respective container materials. This approach will also help encourage producers to move to more recyclable materials, thereby promoting and delivering the objectives of the scheme.
	The Managing Agency to undertake regular audits and inspections of the material re-processor to ensure minimal scheme material is wasted and scheme material is recycled in accordance with contractual agreements.	The benefit of this approach for a NZ CRS is to enable the Managing Agency to have complete transparency and visibility of operations as they relate to the successful functioning of the scheme.
	The Managing Agency to utilise back-haul transportation relationships where possible to reduce the carbon dioxide emissions from transporting scheme beverage containers to material re-processors or end-markets.	The benefit of this approach to Aotearoa New Zealand is to support Aotearoa New Zealand's goal to reduce greenhouse gas emissions and progress New Zealand's obligations under the Kyoto Protocol. The added benefit is to utilise existing infrastructure to support scheme activities whilst encouraging scheme employment.
	The Managing Agency will promote and encourage the development of the refillables market through options including, but not be limited to: 1. Funding and promoting the benefit and awareness of refillables as a preferred choice to New Zealanders.	This is in alignment with the three (3) key project outcomes as discussed in Section 1 and noted below: 1. Change the way New Zealand values beverage containers that will see increased recycling and new opportunities for refilling; 2. Reduce the volume of plastics and other container litter currently ending

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
	2. Working closely with existing and future New Zealand refillable schemes to identify and remove barriers to their growth, irrespective of whether existing or future refillable schemes choose to be included within a NZ CRS or not. This approach recognises and provides for individual companies to manage and promote their own unique refillable containers and where companies may wish to share a universal bottle. 3. Further to item 2, investment in, or funding of, infrastructure by addressing and removing barriers such as the return, re-washing and refilling of bottles. 4. Ensuring that the method of return by customers is convenient, accessible and where appropriate and practicable is compatible with existing NZ CRS container return facilities. 5. Establishment of NZ CRS container return facilities that, where practicable, can accept, sort and store for transportation both eligible single-use beverage containers and reusable beverage containers. 6. Support and facilitate the uptake of reusables through the integration of strategic directives embedded within the NZ CRS scheme performance indicators. 7. Securing the funding to achieve the above from the scheme fee.	up in our awa - waterways, moana - marine environment, wāhi tūmatanui - public spaces and ruapara - landfills; and 3. Give effect to ōhanga āmiomio - circular economy outcomes and any future priority product guidelines.

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
Section 9 **The Container Manufacturer**	The Managing Agency to implement a transition period to help ensure that container manufacturers are given enough time to make the necessary changes to their containers to comply with regulations.	The benefit of a transition period to Aotearoa New Zealand container manufacturers is to ensure manufacturers are provided sufficient time to adjust to scheme requirements, as requested by the beverage producers, and establish new processes where needed.
	The Managing Agency to require as part of contractual obligations and/or key contractual performance indicators with beverage producers that contractual negotiations support the provision of post-consumer recycled scheme material to local container manufacturers.	The reason why this is good for Aotearoa New Zealand is that the Managing Agency will encourage and promote Extended Producer Responsibility by requiring where appropriate (e.g., safe to consumers) container manufacturers to use recycled scheme material in the production of new containers.
	The Managing Agency to require as part of contractual obligations and/or key contractual performance indicators with beverage producers that container manufacturers use and maximise the proportion of post-consumer recycled scheme material in the manufacturing of new containers as required by the beverage producers. The minimum proportion target of post-consumer recycled material to be based on best international practice.	The benefit to Aotearoa New Zealand is further investment and diversification in existing New Zealand re-processing capacity and encouragement in innovative solutions that support onshore employment opportunities.
	The Managing Agency to require as part of contractual obligations and/or key contractual performance indicators with beverage producers that, the use of post-consumer recycled scheme material in container manufacture be exempted if containers can be reused or refilled. The Managing Agency, working with the regulatory authority and industry to determine the number of times reuse and/or refill can occur to enact this exemption.	The reason why this is good for Aotearoa New Zealand is to encourage and facilitate further development and expansion of the refillable market.

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
	The Managing Agency to provide information to clearly set out any specific labelling requirements to help ensure container manufacturers are compliant.	The benefit of this approach is primarily driven by the Managing Agency to track registered scheme containers and to minimise scheme fraud.
	The Managing Agency to provide information to container manufacturers including an online portal to access training material, courses and specific scheme information.	The provision of information resources to container manufacturers is beneficial to a NZ CRS as it will provide the platform to ensure the provision of consistent messaging and the ability to address concerns quickly and efficiently.
	The Managing Agency to recommend regulations that stipulate technical specifications for containers manufactured or imported into Aotearoa New Zealand that give effect to maximising ōhanga āmiomio - circular economy outcomes and principles of kaitiakitanga whakanaonga - product stewardship are realised.	Taking on board the experiences and learnings from other countries, the benefit of this approach is to ensure container production and its impacts on the economy and environment is sustainable and reflects best practice
	The Managing Agency will be required to promote and develop the refillables market. Options to achieve this may include, but not be limited to: 1. Investment in, or funding of, infrastructure by addressing barriers such as the return, re-washing and refilling of bottles. 2. Working together with beverage companies to enable the method of return by customers is convenient and accessible. 3. Working together with beverage companies to promote refillables including awareness and education. 4. Working with beverage companies to promote both a universal and bespoke refillable bottle. Universal bottle here refers to a generic bottle that could be	This is in alignment with the three (3) key project outcomes as discussed in Section 1 and noted below: 1. Change the way Aotearoa New Zealand values beverage containers that will see increased recycling and new opportunities for refilling; 2. Reduce the volume of plastics and other container litter currently ending up in our awa - waterways, moana - marine environment, wāhi tūmatanui - public spaces and ruapara - landfills; and 3. Give effect to ōhanga āmiomio - circular economy outcomes and any future priority product guidelines.

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
	used by multiple beverage companies but each with their own unique label.	
Section 10 **The Beverage Producer**	The Managing Agency to ensure that all eligible beverage containers to be registered with the Managing Agency.	The benefit of this approach is primarily driven by the Managing Agency to track registered scheme containers (i.e., both imported and locally produced) and to minimise scheme fraud.
	The Managing Agency to require for beverage producers to register eligible containers with the scheme in order to supply containers to the Aotearoa New Zealand market.	The benefit of this approach is primarily driven by the Managing Agency to track registered scheme containers and to minimise scheme fraud.
	The Managing Agency to stipulate clear conditions of acceptance criteria for beverage producers.	The reason why this is good for Aotearoa New Zealand is that the Managing Agency is driven to encourage and promote Extended Producer Responsibility by putting in place measures to influence material type whilst also ensuring consistent scheme acceptance criteria are met.
	The Managing Agency to recommend appropriate container labelling requirements to be legislated and to include requirements for scheme verification such as a scheme logo, barcode and deposit amount.	The benefit of this approach is primarily driven by the Managing Agency to track registered scheme containers and to minimise scheme fraud.
	The Managing Agency to undertake regular reviews of beverage containers and materials by undertaking huringa mataora – life-cycle analyses of these in keeping with the economic, environmental, social and cultural outcomes of the NZ CRS design. Reviews shall be undertaken at a frequency of at least once per three years.	The benefit to Aotearoa New Zealand is that the huringa mataora – life-cycle analysis can assess the beverage production process including the production and/or consumption of resources including knowledge of the energy consumption and carbon emissions associated, and where appropriate, the scheme can through appropriate processes and procedures seek to improve systems and processes.
	The Managing Agency to implement a transition period for beverage producers to make the necessary changes to their containers in order to comply with the regulations. The implementation period shall not be less than 9-	The benefit of a transition period to Aotearoa New Zealand container manufacturers is to ensure manufacturers are provided sufficient time to adjust to scheme requirements and establish new processes where needed.

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
	months.	
	The Managing Agency to ensure contractual arrangements with beverage producers support the provision of minimum post-consumer recycled scheme material content in the manufacturing of new beverage containers.	The reason why this is good for Aotearoa New Zealand is that the Managing Agency will encourage and promote Extended Producer Responsibility by requiring container manufacturers to use recycled scheme material in the production of new containers in keeping with best international practice.
	The use of post-consumer recycled scheme material in container manufacture will be exempted if containers can be re-used or refilled. The Managing Agency, working with the regulatory authority and industry to determine the minimum number of times re-use and/or refill can occur to enact this exemption.	The reason why this is good for Aotearoa New Zealand is to encourage and facilitate further development and expansion of the refillable market.
	The Managing Agency to determine the scheme costs and appropriate cost recovery fees including but not limited to a product registration fee and disposal fee. Provide appropriate incentives to promote and encourage the use of post-consumer recycled scheme material in the manufacture of new containers.	The reason why this is good for Aotearoa New Zealand is that the Managing Agency will encourage and promote Extended Producer Responsibility through the application of fees including an Advanced Material Recycling Fee encouraging container manufacturers to use recycled scheme material in the production of new containers.
	The Managing Agency to provide information to clearly set out any specific labelling requirements to help ensure beverage producers are compliant with scheme requirements.	The benefit of this approach to Aotearoa New Zealand is primarily driven by the Managing Agency to track registered scheme containers and to minimise scheme fraud.
	Beverage producers to provide the Managing Agency with monthly sales data to track scheme containers placed on to the market and those eligible containers returned.	The benefit of this approach to Aotearoa New Zealand is primarily driven by the Managing Agency to track registered scheme containers and to minimise scheme fraud.
	The Managing Agency to take all necessary steps and actions as required to ensure compliance by all beverage	The benefit of this approach is primarily driven by the Managing Agency ensuring beverage producers comply with all scheme requirements

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
	producers with the scheme requirements.	including those as specified in the bespoke NZ CRS legislative instrument. This will ensure data transparency supporting a cost efficient and effective scheme is provided to consumers.
Section 11 **Scheme Financials**		
	The specific container return scheme legislative instruments to set a minimum eligible container return rate of 85% target is applied to the NZ CRS with interim annual container return targets (set at the anniversary date of the NZ CRS) of 60%-year-1 (12-months), 65%-year-2 (24-months), 70%-year-3 (36-months), 80%-year-4 (48-months), 85%-year-5 (60-months) set for the first five (5) years (60-months) of scheme operation. Thereafter, a return rate target of 85% will apply with an aspirational target of 95%.	The benefit of this approach is to acknowledge the build-up period from scheme start to when the scheme reaches the optimal eligible container return rate and enable the Managing Agency to engage with consumers through measures including, for example, targeted scheme consumer marketing and engagement campaigns.
	Implementation of regulated scheme review periods comprising of two (2) initial scheme review periods to assess scheme performance and operation (e.g., eligible scheme container return rates, consumer accessibility) and strategic direction set at the end of the year-3 (36-months) and year-5 (60-months) financial periods, then every 5-years (60-months) thereafter.	The benefit of two (2) interim scheme review periods is to enable sufficient time for the scheme to build towards optimal performance and enable the Managing Agency to assess the schemes performance, including, for example, the interim annual container return rate targets and the accessibility of a consumer focussed network of container return facilities. Regarding the specific scheme review triggers such as the deposit level, the following will apply and align with the above interim annual container return targets - if the return rates does not reach 70% within 36-months, 80% within 48-months or 85% within 60-months, whichever occurs first, the deposit shall automatically be increased to NZD20-cents. This is on the basis that the Managing Agency has explored other improvements to scheme performance including but not limited to increasing scheme awareness and the number of collection sites (along with any increase to the container handling fee to ensure collection sites remain viable) to improve convenience. Notwithstanding the above, the recommended deposit fee of NZD10-cents shall be reviewed by the government regulatory authority

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
		(Manatū Mō Te Taiao - Ministry for the Environment) no later than 9-months prior to the scheme to confirm this as the correct starting deposit value.
	Scheme review trigger. The following will apply and align with the above interim annual container return targets - if the return rates does not reach 70% within 36-months, 80% within 48-months or 85% within 60-months, whichever occurs first.	The deposit shall automatically be increased to NZD20-cents. This is on the basis that the Managing Agency has explored other improvements to scheme performance including but not limited to increasing scheme awareness and the number of collection sites (along with any increase to the container handling fee to ensure collection sites remain viable) to improve convenience. Notwithstanding the above, the recommended deposit fee of NZD10-cents shall be reviewed by the government regulatory authority (Manatū Mō Te Taiao - Ministry for the Environment) no later than 9-months prior to the scheme to confirm 10-cents as the correct starting deposit value.
	A range of options for consumers to receive the deposit refund is provided for in the design of a NZ CRS, including cash, supermarket voucher (including, for example, a 2-year expiration date), donation, electronic funds transfer, other (e.g., scheme credit system, loyalty card, gift card). The scheme Managing Agency is to have flexibility to expand the range of refund options supported by robust information (e.g., consumer surveys) and in consultation with the scheme Governance Board and the Government department responsible with scheme oversight. The Managing Agency to also determine whether container return facilities are to provide all or several options to the consumer.	The benefit of providing New Zealanders with a range of options to receive the NZ CRS deposit refund ensures the scheme is fair to all and provides consumers with choice depending on current situations (e.g., job status, involvement in charities).
	Setting of an appropriate handling fee including reviews of the handling fee at intervals to be determined by the Managing Agency.	The reason why this is beneficial for Aotearoa New Zealand is primarily for the Managing Agency to compensate those scheme participants responsible for handling and sorting eligible containers and ensure that their respective

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
		activities remain profitable to ensure service continuation.
	The Managing Agency may approve baling of scheme material (e.g., plastic, aluminium) at some container return facilities where it is demonstrated that these facilities would contribute to improved scheme efficiencies such as transport savings without compromising increased risk of fraud. To achieve this, the Managing Agency will establish a scheme baling and audit process based on robust standards and procedures, including, for example, a contractual 'Baling Services Agreement' between the Managing Agency and the container return facility. This agreement will be supported by robust standards and procedures such as Standard Operating Procedures that the container return facility must contractually abide by. Additionally, the baling process will be standardised across the scheme so that the same baling process (i.e., weight and size of bale) is used at the container return facility and the scheme MCF ensuring consistency of methodology and minimisation of fraud;	The benefit presented by baling at container return facilities is the ability for the Managing Agency to use existing infrastructure whilst contractually managing the expansion of the facility's role and responsibility. Additionally, this approach will support the establishment of regional/remote New Zealand collection facilities to also bale and transport material to end-markets under contract with the Managing Agency, thereby improving scheme efficiencies such as transportation of loose material (i.e., payload efficiencies). Further, the Managing Agency is best placed to establish and manage the 'Baling Services Agreement' and the supporting Standard Operating Procedures in order to track scheme material and minimise fraud.
	The Managing Agency may also approve compaction of scheme material (e.g., plastic, aluminium) at some container return facilities where it is demonstrated that these facilities would contribute to improved scheme efficiencies such as transport savings without compromising increased risk of fraud. To achieve this, the Managing Agency will determine the optimised compaction ratio that enables the scheme MCF to re-count and verify eligible scheme containers.	The benefit of this approach is the ability of regional/remote Aotearoa New Zealand collection facilities to reduce costs associated with transporting materials to the scheme MCF. Further, the Managing Agency is best placed to manage setting compaction ratios in order to track eligible containers and minimise fraud.
	The Managing Agency to give effect to the utilisation of	The benefit of this approach to Aotearoa New Zealand is to support New

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
	appropriate transportation logistics providers and/or back-haul arrangements, including for remote/regional areas.	Zealand's goal to reduce greenhouse gas emissions and progress New Zealand's obligations under the Kyoto Protocol. The added benefit is to utilise existing infrastructure to support scheme activities whilst encouraging scheme employment.
	The Managing Agency to implement appropriate anti-fraud measures including, for example, contractual obligations, auditing and verification and reporting to closely monitor and assess performance of the logistics companies involved in the scheme. Additionally, there is also a role for the scheme regulator (i.e., central government agency responsible for the NZ CRS) and/or police in legally enforcing the breaches of the law and regulations where relevant.	The benefit of this approach is primarily driven by the Managing Agency to track registered scheme containers and to minimise scheme fraud and maximise scheme compliance (e.g., integrated IT and financial systems to track eligible and financial transactions).
	Revenue generated by the sale of eligible scheme material to be passed on via the Advanced Material Recycling Fee to beverage producers to reflect the choice of container materials used.	The reason why this is good for Aotearoa New Zealand is that the Managing Agency is in the best position to manage the risk and promote the beneficial use of material over the long term. This is beneficial for the New Zealand environment as it will encourage the reuse of scheme materials to New Zealand based material re-processors.
	Application of an Advanced Material Recycling Fee (AMRF) recognises that not all container packaging materials are equal with some more recyclable and valuable than others. In practice this means that materials that are difficult to recycle or problematic such as liquid paperboard may need to incur additional cost to see them successfully recycled in keeping with the outcomes of the NZ CRS design while other materials may receive a net income such as aluminium.	The reason why this is beneficial for Aotearoa New Zealand is that this in an open and transparent way to ensure container material choices by beverage producers are recognised and reflect any net cost or revenue that is expected to ultimately be passed on to the customer. Also, in keeping with the outcomes of the NZ CRS design, the non-financial impacts associated with container material choice must be factored in or at the very least provided for to help shape the direction and choice of container material in the future.
	The Managing Agency to give effect to fraud mitigation	The benefit of this approach is primarily driven by the Managing Agency to

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
	measures such as a specific scheme logo applied in a way so as to minimise fraud.	track registered scheme containers and to minimise scheme fraud.
	The Managing Agency to integrate a separate financial accounting system and Information and Communications Technology (ICT) platform to manage scheme costs.	The benefit of this approach for a NZ CRS is to enable the Managing Agency to have complete transparency and visibility as they relate to the successful functioning and performance of the scheme.
	The Managing Agency to give effect to reporting of key scheme performance data.	The benefit of this requirement to Aotearoa New Zealand is to ensure the Managing Agency provides clear and transparent information on the efficiency and performance of the scheme whilst highlighting areas of improvement.
	The Managing Agency to support the establishmentof a revenue sharing arrangements (deposit or handling fee amount, including a transitional period) underpinned by clear guidelines (e.g., the default position could have the deposit shared 50/50 between the MRF and the Territorial Local Authority making sure no party is disadvantaged nor gains a windfall from the NZ CRS with any surplus returned to the ratepayer) between the local council and the MRF for eligible containers collected via kerbside recycling collections. It is recommended each Territorial Local Authority and MRF operator undertake their own negotiations (excluding the involvement of the Managing Agency) and reach agreement on revenue sharing as this recognises the different contractual arrangements that exist across Aotearoa New Zealand. It is recommended that local authorities use the opportunity of recognising revenue from containers in the recycling bin to offset recycling collection costs incurred by ratepayers. The reason for this is to incentivise the MRF operator to make all appropriate efforts to separate out eligible and redeem containers (in accordance with	The benefit to Aotearoa New Zealand is to ensure that scheme funds generated from council kerbside recycling collections is appropriately shared with the MRF in recognition of the respective contractual commitments and to incentivise continual operational improvements related to the collection and sorting of eligible scheme containers. It is recommended that further detailed analysis is undertaken to determine if the revenue sharing is based on the deposit value or the handling fee, but not both. The detailed analysis would be undertaken to reflect the different collection types, MRF operations, capital investments and scale of these and financial viability across Aotearoa New Zealand to ensure the revenue sharing is fair and reasonable and does not result in unintended consequences or perverse outcomes for the NZ CRS. The default position would be sharing of the deposit value.

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
	the scheme container acceptance criteria). Notwithstanding any contractual requirements between MRF operators and local councils it is recommended that a revenue sharing arrangement be established between the local council and the MRF. The revenue sharing arrangement is to be established and set at a level that will support kerbside recycling and incentivise the MRF to fund processing and maximise recovery of eligible containers.	
Section 12 **Extended Producer Responsibility and Kaitiakitanga Whakanaonga - Product Stewardship**	A single independent not-for-profit Managing Agency is to be established to manage the operations and performance of the NZ CRS.	The benefit of this approach is the ability for one entity to take responsibility for the operations and performance of the NZ CRS coupled with providing clarity of roles and responsibilities to all scheme participants.
	The specific container return scheme legislative instruments to set a minimum 85% eligible scheme container return rate target and an aspirational eligible scheme container return rate target of 95% (including the establishment of drivers to achieve an aspirational target) against which the Managing Agency scheme performance will be held accountable.	Establishing targets for a minimum and an aspirational eligible container return rate means the scheme Managing Agency has set targets against which performance of the scheme can be measured and against which both Management (specifically the Managing Agency Chief Executive Officer) and Governance can be held to account.
	The Managing Agency to establish a risk and compliance monitoring programme.	The benefit of this approach is to ensure all scheme participants abide by the specific regulation requirements and any other operational and/or performance standards and/or requirements as established by the Managing Agency. Establishment of a risk and compliance monitoring programme will assist the Managing Agency to identify any operational and/or performance issues which may arise and implement remedial measures as required.
	The Managing Agency to establish and implement a transparent financial management system and Information and Communications Technology (ICT)	The provision of a transparent financial accounting system which will benefit the NZ CRS by ensuring scheme finances are protected and managed so as to provide security of information. Managing free-riding will benefit

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
	platform including the management of any free-riding.	Aotearoa New Zealand by requiring all eligible scheme containers and persons/organisations selling these containers to be registered thereby ensuring all sellers of eligible scheme containers are treated equally and comply with the NZ CRS requirements.
	The Managing Agency to provide clear and transparent reporting of scheme costs to consumers at the point of sale (e.g., visibility of all scheme costs on customer receipt and/or on the scheme website)	The benefit of this approach is ensuring consumers have complete transparency of the costs of products, the current deposit rate and the current scheme charges, i.e., the cost of recycling the purchased products. The additional benefit of this approach is the ability for the NZ CRS to facilitate greater public awareness of the kaupapa - principles of Extended Producer Responsibility and by extension greater engagement in environmental stewardship.
	The Managing Agency promote and encourage the development of the refillables market through options including, but not be limited to: 1. Funding and promoting the benefit and awareness of refillables as a preferred choice to New Zealanders. 2. Working closely with existing and future New Zealand refillable schemes to identify and remove barriers to their growth, irrespective of whether existing or future refillable schemes choose to be included within a NZ CRS or not. This approach recognises and provides for individual companies to manage and promote their own unique refillable containers and where companies may wish to share a universal bottle. 3. Further to bullet 2, investment in or funding of, infrastructure to remove barriers such as the costs associated with the return, re-washing and refilling of bottles.	This is in alignment with the three (3) key project outcomes as discussed in Section 1 and noted below: 1. Change the way Aotearoa New Zealand values beverage containers that will see increased hangarua - recycling and new opportunities for refilling; 2. Reduce the volume of plastics and other container litter currently ending up in our streams (i.e., awa – waterways), moana - marine environment, wāhi tūmatanui - public spaces and ruapara - landfills; and 3. Give effect to ōhanga āmiomio - circular economy outcomes and any future priority product guidelines.

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
	4. Ensuring that the method of return by customers is convenient and accessible and where appropriate and practicable is compatible with existing NZ CRS container collection return facilities. 5. Establishment of NZ CRS container return facilities that can accept, sort and store for transportation both eligible single-use beverage containers and reusable beverage containers. 6. Support and facilitate the uptake of reusables through the integration of strategic directives embedded within the NZ CRS scheme performance indicators. 7. Securing the funding to achieve the above from the scheme fee.	
Section 14 **Scheme Managing Agency Organisational Form**	A key function of the Managing Agency will be to provide the day-to-day operational and performance management to ensure the scheme meets consumer and scheme participant expectations, as well as regulated requirements.	
	The Managing Agency will be established as a single independent, government appointed Governance Board, not-for-profit organisation supported by clear regulatory conditions including consequences for not delivering on the minimum container return rate target of 85% and to strive towards the aspirational container return target of 95% (including the establishment of drivers and levers to achieve the aspirational target such as level of deposit). Consequences include, but are not limited to, the government: • Replacing one (1) or more of the scheme Governance Board members; and • Increasing the level of container deposit (e.g., an	The benefit of this approach is the ability for one entity to take responsibility for the operations and performance of the NZ CRS coupled with providing clarity of roles and responsibilities to all scheme participants. Establishing targets for a minimum and an aspirational eligible container return rate means the scheme Managing Agency and scheme Governance Board have set targets against which performance of the scheme can be measured and against which both management (specifically the Managing Agency Chief Executive Officer) and governance functions can be held to account.

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
	increase of 10-cents).	
	The independent not-for-profit Managing Agency organisation will comprise of an Executive Management Team comprising senior managers of the organisation, including but not limited to, the Chief Executive Officer, Financial Manager, Operating Manager, Marketing and Communications Manager, Audit and Risk Manager, Community and Social Enterprise Manager, Collection Facility Manager, Mana Whenua Relationship Manager (noting that relationships with Mana Whenua will be interconnected throughout the NZ CRS with the Managing Agency and scheme Governance Board accountable for achieving this);	The benefit of this approach is that the operation and performance of the NZ CRS is managed by a dedicated Executive Management Team comprising employees directly involved in the day-to-day operational performance of the scheme. The Executive Management Team representatives will be experienced (e.g. commercial acumen) in and have active working knowledge of all aspects of their respective operational areas, including areas for improvement, any risks and/or opportunities.
	The independent not-for-profit Managing Agency organisation will comprise an Operations Team responsible for fulfilling the day-to-day scheme activities comprising for example, Logistics Manager, Audit and Compliance Manager, Finance Manager, IT Manager, Communications Manager, Community Engagement Manager, Regional Coordinator Manager.	The benefit of this approach is that the day-to-day scheme activities are managed by a dedicated Operations Team comprising employees directly involved in fulfilling the duties of the scheme.
	The Managing Agency employees, including the Chief Executive Officer will be independent of any individual or organisation involved with the scheme Governance Board and must not own, be employed by or have any involvement in any organisation that is financially gaining from the NZ CRS. Any family, relatives, etc that are employed by the scheme Managing Agency and where such relationships exist must be fully disclosed and approved by the scheme Governance Board and not at the discretion of the Managing Agency Chief Executive	Establishment of independence between the Management and Governance functions of the Managing Agency will ensure avoidance of any undue influence by a vested interest and confidence that information available to the Managing Agency is held in confidence for the purposes of operating the NZ CRS only.

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
	Officer to approve.	
	Full transparent tender processes with probity oversight to be in place for all Managing Agency procurement processes, for example, the access to the sale of recyclable scheme material.	Ensuring robust procurement and probity processes are in place will ensure the Managing Agency will undertake procurement activities in an open and fair environment to ensure all potential suppliers are given impartial and equitable treatment.
	Clear processes will be established to manage and protect all commercial information and/or data that is confidential and/or sensitive to competitors market activities.	Establishment of a clear process and or individual employee contracts specifically restricting the use of commercial and/or sensitive information and/or data will ensure scheme participants have confidence that commercially sensitive information will be used for scheme purposes only.
	The specific container return scheme legislative instruments to set a minimum 85% eligible scheme container return rate target and an aspirational eligible scheme container return rate target of 95% (including the establishment of drivers to achieve the aspirational target) against which the Managing Agency scheme performance will be held accountable.	Establishing targets for a minimum and an aspirational eligible container return rate means the scheme Managing Agency has set targets against which performance of the scheme can be measured and held to account.
	The specific container return scheme legislative instruments to set a minimum eligible container return rate of 85% target is applied to the NZ CRS with interim annual container return minimum targets of 60%-year 1, 65%-year 2, 70%-year 3, 80%-year 4, 85%-year 5 set for the first five (5) years of scheme operation.	The benefit of this approach is to acknowledge the build-up period from scheme start to when the scheme reaches the optimal eligible container return rate and enable the Managing Agency to engage with consumers through measures including, for example, targeted scheme consumer marketing and engagement campaigns
	Implementation of regulated scheme review periods comprising of two (2) initial scheme review periods to assess scheme performance and operation (e.g., eligible scheme container return rates, consumer accessibility)	The benefit of two (2) interim scheme review periods is to enable sufficient time for the scheme to build towards optimal performance and enable the Managing Agency to assess the schemes performance, including, for example, the interim annual container return rate targets and the

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
	and strategic direction set at the end of the year-3 and year-5 financial periods, then every 5-years thereafter.	accessibility of a consumer focussed network of container return facilities.
	Scheme review trigger. The following will apply and align with the above interim annual container return targets - if the return rates does not reach 70% within 36-months, 80% within 48-months or 85% within 60-months, whichever occurs first.	The deposit shall automatically be increased to NZD20-cents. This is on the basis that the Managing Agency has explored other improvements to scheme performance including but not limited to increasing scheme awareness and the number of collection sites (along with any increase to the container handling fee to ensure collection sites remain viable) to improve convenience. Notwithstanding the above, the recommended deposit fee of NZD10-cents shall be reviewed by the government regulatory authority (Manatū Mō Te Taiao - Ministry for the Environment) no later than 9-months prior to the scheme to confirm 10-cents as the correct starting deposit value.
	Annual reviews of the Managing Agency will be undertaken by the respective central government department responsible for 'owning' the NZ CRS.	The benefit of this approach is to ensure the Managing Agency is held accountable for the performance and operation of the scheme with appropriate financial incentives, for example, to meet and where possible exceed set targets.
	Implement appropriate anti-fraud measures including, but not limited to, contractual obligations, auditing, verification and reporting to closely monitor and assess performance of participants involved in the scheme. Additionally, there is also a role for the scheme regulator (i.e., central government agency responsible for the NZ CRS) and/or police in legally enforcing the breaches of the law and regulations where appropriate.	The benefit of this approach is primarily driven by the Managing Agency's ability to track registered scheme containers and participants to minimise scheme fraud and maximise scheme compliance (e.g., integrated IT and financial systems to track eligible and financial transactions).
	Fraud mitigation measures such as a maximum cap on the number of eligible scheme containers returned at any point in time by non-scheme registered individuals.	The benefit of this approach is to ensure that all scheme participants involved in the bulk collection of eligible scheme containers are registered within the scheme so that the scheme Managing Agency can manage, monitor and track collection activities and the numbers of containers being returned and deposits refunded through the scheme. Additionally, capping

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
		the number of eligible containers returned at any point in time influences tax avoidance by non-scheme registered individuals. The cap will be set at 1,500 containers for a cash deposit refund in alignment with the New South Wales, Queensland and Northern Territory container return schemes in Australia and subject to any specific Aotearoa New Zealand tax laws and scheme measures such as fraud mitigation and reporting requirements. Additionally, the option to include additional container cap numbers for specific container return facilities, for example, retail, will be considered during the NZ CRS implementation stage.
	The maximum container return amount will have to be considered across the three envisaged return point scenarios (Manual Depot, Automated Depot and Return to Retail) with an emphasis on striking a balance between container return efficiency and impact on existing business activities, particularly when considering return to retail points. It may be the case that return to retail points will require site by site consideration to ensure that retail activities are not unduly disrupted by container return activities particularly when the return point is inside the retail operation, for example, inside a supermarket.	The benefit of this approach to the NZ CRS is ensuring that container return facilities are not unduly disrupted by container return activities.
	Risk and compliance measures, including but not limited to, auditing of scheme participants and adopting best practice methodology carried out in a way so as to minimise fraud.	The benefit of this approach is primarily driven by the Managing Agency to monitor scheme participant compliance with scheme requirements to minimise scheme fraud.
	Revenue generated by the sale of eligible scheme material to be passed on via the Advanced Material Recycling Fee to beverage producers to reflect the choice of container materials used.	The benefit of this approach is that the Managing Agency is in the best position to manage the risk and promote the beneficial use of material over the long term. This is beneficial for the New Zealand environment as it will encourage the reuse of scheme materials with a priority focus on New

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
		Zealand based manufacturers.
	Reporting of key scheme performance data including but not limited to monthly rolling average data of scheme performance (e.g., operational, fiscal, health and safety, customer satisfaction) and container return rate targets, or other reporting time period to align with, for example, contractual key performance indicator measures.	The benefit of this approach is to ensure the Managing Agency provides clear and transparent information on the efficiency and performance of the scheme whilst highlighting areas of improvement.
	A range of options for consumers to receive the deposit refund is provided for (e.g., manual container return facilities, RVMs) in the design of a NZ CRS, including cash, supermarket voucher (including, for example, a 2-year expiration date), donation, electronic funds transfer, other (e.g., scheme credit system, loyalty card, gift card). The scheme Managing Agency is to have flexibility to expand the range of refund options supported by robust information (e.g., consumer surveys) and in consultation with the scheme Governance Board and the Government department responsible with scheme oversight. The Managing Agency to also determine whether container return facilities are to provide all or several options to the consumer.	The benefit of providing New Zealanders with a range of options to receive the NZ CRS deposit refund ensures the scheme is fair to all and provides consumers with choice depending on current situations (e.g., employment status, involvement in charities).
	The Managing Agency will be responsible for the incorporation of social and indigenous procurement elements (e.g., establishment of employment number targets for manual collection depots) in all relevant scheme related contractual requirements.	The benefit of this approach is that the Managing Agency can set social targets to support, for example, indigenous employment opportunities.
	The Managing Agency will be responsible for the establishment and ongoing implementation of a NZ CRS scheme education (e.g., school and employment	The establishment of a scheme specific education and employment programme will support the NZ CRS to provide the New Zealand community with a programme that provides New Zealander's with more than simply a

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
	programme which may include NZ CRS waste and resource management curriculum), for example, life skill (e.g., budgeting skills) opportunities.	container recycling and instead with a scheme that encourages and promotes the social good of New Zealand communities. Additionally, in a post-COVID-19 economy the ability to provide New Zealand communities and individuals with opportunities to diversify skills and provide a mechanism to develop new and/or additional life skills will be an important element in supporting Aotearoa New Zealand's economy.
	The roles and responsibilities, including Managing Agency review periods will be set in the specific container return scheme legislative instruments.	Setting the roles and responsibilities of the Managing Agency in the New Zealand Container Return Scheme legislative instruments will provide transparency and accountability to the Managing Agency. Ultimately, the Managing Agency is responsible for the operational and performance success of the NZ CRS and so their specific roles and responsibilities need to be clearly established within the legislative instruments.
	The Managing Agency to ensure all scheme participants (including the general public) comply with relevant legislation, for example, health and safety.	The benefit of this approach is to ensure all scheme participants are aware of and meet their obligations as per relevant legislation. Further, the Managing Agency is to ensure that all scheme participants (e.g., container return facilities) have established approved health and safety plans to ensure the safety of all persons engaged in the NZ CRS (including the general public accessing and engaging with container return facilities).
Section 16 **Reporting**	Notwithstanding the contractual arrangements between the scheme Managing Agency and container return facilities, Material Consolidation Facilities and Material Recovery Facilities, legislative instruments will be required to ensure that the Managing Agency is able to access these sites and able to obtain information required to measure and manage the performance of the scheme.	The benefit of this approach is primarily driven by the Managing Agency to monitor scheme participant compliance with scheme requirements to minimise scheme fraud and ensure compliance with scheme requirements and expectations.
	Acknowledging the potential make-up of the Managing Agency, clear processes will be established to manage any	Establishment of a clear process and or individual employee contracts specifically restricting the use of commercial and/or sensitive information

	Managing Agency Requirements	Benefits of a New Zealand Container Return Scheme
	commercial information and/or data that is confidential and/or sensitive to competitors market activities.	and/or data will ensure scheme participants have confidence that commercially sensitive information will be used for scheme purposes only.

Appendix E

Te Tai Ōhanga – TheTreasury best practice impact analysis guidance note

TE TAI ŌHANGA
THE TREASURY

Guide to Cabinet's Impact Analysis Requirements

June 2020

New Zealand Government

The Treasury URL at June 2020 for this document is
https://treasury.govt.nz/publications/guide/guide-cabinets-impact-analysis-requirements

Contents

1. Introduction

This Guide is about how to meet Cabinet's Impact Analysis Requirements for government policy initiatives that involve a proposal to create, amend or repeal primary or secondary legislation (a "regulatory proposal").[1] These requirements are set out in the Cabinet Office circular: CO (20) 2: Impact Analysis Requirements https://dpmc.govt.nz/publications/co-20-2-impact-analysis-requirements and explained here with extra guidance.

Cabinet's Impact Analysis Requirements support and inform the government's decisions on regulatory proposals. They are both a process and an analytical framework that encourages a systematic and evidence-informed approach to policy development. The requirements incorporate the *Government Expectations for Good Regulatory Practice*.[2] In particular, the requirements focus on the expectation that agencies provide robust analysis and advice to Ministers before decisions are taken on regulatory change.

The key product of the requirements is a Regulatory Impact Statement. This is a government agency document which summaries an agency's best advice on the Impact Analysis relating to a regulatory proposal. That Impact Analysis should be completed and summarised in a Regulatory Impact Statement before the Cabinet paper is drafted.

Cabinet's Impact Analysis Requirements and this Guide are focused on ensuring high-quality Regulatory Impact Statements are provided to Ministers to support and inform their decisions on regulatory proposals.

For further advice or information on Cabinet's Impact Analysis Requirements and Regulatory Impact Statements, see:

- Treasury's Regulation webpage (https://treasury.govt.nz/impact-analysis-requirements-regulatory-proposals), or
- contact Treasury's Regulatory Quality Team via RIA.Team@treasury.govt.nz

[1] See cl 2 of Legislation Bill (Government Bill 275-1) for the definition of "secondary legislation".
[2] See https://treasury.govt.nz/information-and-services/regulation/regulatory-stewardship/good-regulatory-practice

2. How to use this Guide

Use this Guide to prepare Regulatory Impact Statements together with the Cabinet Office circular: CO (20) 2: Impact Analysis Requirements https://dpmc.govt.nz/publications/co-20-2-impact-analysis-requirements

Sections 3 and 4 of this Guide explain the purpose of Impact Analysis and Cabinet's Impact Analysis Requirements. They also summarise the topics covered by the requirements.

Sections 5 to 15 of this Guide set out the requirements in detail and explain how to meet them.

2.1. Policy development for regulatory proposals

This Guide focuses on how to meet the formal requirements for a regulatory proposal. For guidance on policy development of regulatory proposals, see:

- Guidance Note: Best Practice Impact Analysis https://treasury.govt.nz/sites/default/files/2018-03/ia-bestprac-guidance-note.pdf
- Guidance Note: Effective consultation for Impact Analysis https://treasury.govt.nz/publications/guide/effective-consultation-impact-analysis

Further guidance and tools for the development of policy (in general) are available on the Department of Prime Minister and Cabinet's the Policy Project webpage: www.dpmc.govt.nz/our-programmes/policy-project

The Policy Project can be contacted at policy.project@dpmc.govt.nz.

2.2. Further information beyond this Guide

The templates for a Regulatory Impact Statement and forms to support the impact analysis requirements are on Treasury's Regulation webpage (https://treasury.govt.nz/impact-analysis-requirements-regulatory-proposals).

Developing effective policy interventions is a complex undertaking and the realities of the policy development process may at times differ from the process set out in this Guide. This Guide cannot address all potential issues that may arise in regulatory proposals or policy situations.

Consequently, there will be times when agencies will need to exercise their best judgement on how to give effect to the intent of Cabinet's Impact Analysis Requirements in the particular circumstances.

Some agencies have their own policy development processes and guidelines, and their Quality Assurance panels/specialists should be able to help with advice about individual cases. Otherwise, the Regulatory Quality Team is the authoritative source of general guidance on the development of regulatory proposals and can assist agencies with advice on individual cases, good practice in Impact Analysis, and on-going training.

The nature of the Regulatory Quality Team's involvement in individual proposals will depend on the characteristics of the proposal and the policy development process, as well as the existing capabilities and internal Quality Assurance processes of the lead agency. It may involve:

- working alongside agencies to assist them in meeting Cabinet's requirements, such as by providing comments on early commissioning documentation and draft Regulatory Impact Statements
- referring proposals to other agencies or specialists who have relevant expertise in regulatory quality issues or the subject matter.

The Regulatory Quality Team can be contacted via RIA.Team@treasury.govt.nz or through your Treasury policy team, who should also be copied into correspondence.

The Treasury may issue more detailed, supplementary guidance on specific topics, where experience shows that such additional material would be helpful. For example, there is a range of guidance and tools available on Cost Benefit Analysis: www.treasury.govt.nz/publications/guidance/planning/costbenefitanalysis

The Government Economic Network also provides training in some of the skills required for regulatory and other policy development and advice: https://gen.org.nz/upcoming-gen-training/

2.3. Check online for the latest version

This Guide will be updated periodically online, to keep it accurate and as helpful as possible. This version of the Guide was last updated in June 2020.

Check for the latest version of this Guide at https://treasury.govt.nz/impact-analysis-requirements-regulatory-proposals.

2.4. Your feedback is welcome

We welcome your feedback on this Guide, including suggestions for possible additions or improvements. We would also like examples of good practice that can be shared with other agencies. Any comments or suggestions can be sent to RIA.Team@treasury.govt.nz

3. The purpose of Impact Analysis and Cabinet's Impact Analysis Requirements

The purpose of Impact Analysis is to improve the quality of policy by ensuring that policy proposals are subject to careful and robust analysis. Impact Analysis is intended to provide assurance about whether problems might be adequately addressed through private or non-regulatory arrangements—and to ensure that particular policy solutions have been demonstrated to enhance the public interest.

The Impact Analysis framework is recommended for any form of policy development process. It is also complementary to other approaches to improve policy quality, such as the Policy Project's Policy Quality Framework and agency-specific policy quality processes.

Impact Analysis is a formal requirement for regulatory proposals taken to Cabinet for approval.

Cabinet's Impact Analysis Requirements support and inform decisions by Ministers on regulatory proposals. The requirements and this Guide are intended to help advisers and decision-makers avoid the potential pitfalls that arise from natural human biases and mental short-cuts, including by seeking to ensure that:

- the underlying problem or opportunity is properly identified, and is supported by available evidence
- all practical options to address the problem or opportunity have been considered
- all material impacts and risks of proposed actions have been identified and assessed in a consistent way, including possible unintended consequences
- it is clear why a particular option has been recommended over others.

The requirements also contribute to the transparency and accountability of government through the routine publication of Regulatory Impact Statements.

3.1. Expectations for designing and implementing regulation

The Government Expectations for Good Regulatory Practice https://treasury.govt.nz/information-and-services/regulation/regulatory-stewardship/good-regulatory-practice outline how agencies should design and implement regulation. These expectations form the basis of the Impact Analysis framework:

> *Before a substantive regulatory change is formally proposed, the government expects regulatory agencies to provide advice or assurance on the robustness of the proposed change, including by:*

- assessing the importance of the issue in relation to the overall performance and condition of the relevant regulatory system(s), and how it might fit with plans, priorities or opportunities for system improvement already identified;
- clearly identifying the nature and underlying cause of the policy or operational problem it needs to address, drawing on operational intelligence and available monitoring or review information;
- undertaking systematic impact and risk analysis, including assessing alternative legislative and non-legislative policy options, and how the proposed change might interact or align with existing domestic and international requirements within this or related regulatory systems;
- making genuine effort to identify, understand, and estimate the various categories of cost and benefit associated with the options for change;
- identifying and addressing practical design, resourcing and timing issues required for effective implementation and operation, in conjunction with the regulator(s) who will be expected to deliver and administer the changes;
- providing affected and interested parties with appropriate opportunities to comment throughout the process and, in the right circumstances, to participate directly in the regulatory design process (co-design); and
- use of “open-book” exercises to allow potential fee or levy paying parties to scrutinise the case for, and structure and level of, proposed statutory charges.

4. Overview of Cabinet's Impact Analysis Requirements

The Cabinet Office circular: CO (20) 2: Impact Analysis Requirements sets out the requirements for when and how to perform Impact Analysis for regulatory proposals.

This Guide sets out the requirements in more detail than the Cabinet Office Circular and provides information to help you succeed in producing a high-quality Regulatory Impact Statement.

It covers the following areas:

- **Developing a regulatory proposal**: what a Regulatory Impact Statement is, and how they are required for most regulatory proposals
- **Getting started**: seeking early feedback on problem definition and options on problems with important impacts and early process confirmation
- **Exemptions from providing a Regulatory Impact Statement**: understanding situations where a Regulatory Impact Statement is not required, and the process for requesting an exemption
- **Confirming your Regulatory Impact Statement process**: confirming the appropriate Regulatory Impact Statement template and whether the agency or Treasury is responsible for arranging Quality Assurance
- **Completing the Climate Implications of Policy Assessment (CIPA) early engagement form:** to determine whether a CIPA is required for your proposal
- **Preparing the Regulatory Impact Statement:** preparing the required content for your Regulatory Impact Statement and completing the appropriate template
- **Quality Assurance arrangements**: obtaining independent Quality Assurance for your Regulatory Impact Statement and understanding the assessment criteria used, as well as guidance for assessors
- **Preparing the Cabinet paper**: filling in the "Impact Analysis" section of the Cabinet paper, including documenting any exemptions
- **Regulatory proposals with inadequate Impact Analysis**: the value of giving an early warning, and the process for a Supplementary Analysis Report or post-implementation assessments/review if required
- **Publication of Regulatory Impact Statements (and Supplementary Analysis Reports, if any):** when and how to publish Regulatory Impact Statements and notes the requirements for Disclosure Statements for Government Legislation.

Cabinet's Impact Analysis Requirements at a glance

Developing a regulatory proposal

- Start policy work
  - A Regulatory Impact Statement (RIS) may be required

Getting started

- Best practice to get feedback early on problem definition and options (especially if important impacts) from:
  - Treasury (Regulatory Quality and policy teams)
  - Agency Quality Assurance (QA) panel/expert

If an exemption may apply

- Must seek in writing
- Treasury determines whether exempt plus any conditions
- If granted, include Treasury confirmation in Cabinet paper

Do your policy analysis

- Impact Analysis provides a framework for quality policy development
- Use cost benefit analysis or other analysis

Confirm your RIS process

- Process confirmation and CIPA must be completed
- Treasury determines:
  - appropriate RIS template
  - who is responsible for arranging independent QA

Summarise your Impact Analysis using RIS template

- This is your agency's best advice to support and inform Ministers' decisions

Responsible manager's sign-off

- Emphasises RIS is an agency document

Get independent QA

- QA statement must be included in Cabinet paper

Prepare Cabinet paper

- Should explain if preferred option in the RIS is not the same as Cabinet paper.

If the proposal has inadequate impact analysis

- Chair of the Cabinet committee has discretion over whether considered
- A Supplementary Analysis Report (SAR) or Post-Implementation Assessment/ Review required if considered and substantive decisions made
- Nature and timing of the SAR, Post-Implementation Assessment/ Review must be agreed

Publish the RIS (and SAR, if any)

- On agency and Treasury websites
- URLs included in the Explanatory Note to Bills
  - Hard copies provided to the House if a Bill is introduced under urgency.

New Zealand Government

KEY: Form or template available | A RIS is not required | A SAR, PIA/Review is required

5. Developing a regulatory proposal

Impact Analysis is required for any government policy initiative that includes consideration of regulatory options (that is, options that will ultimately create, amend, or repeal primary or secondary legislation).

Cabinet papers that include a regulatory proposal must be accompanied by a Regulatory Impact Statement, unless an exemption applies (see Section 7 *Exemptions from providing a Regulatory Impact Statement*).

This includes papers submitted to Cabinet that involve:

- decisions to introduce legislative changes that are merely enabling (the substantive decisions as to whether and what sort of intervention will be made later), including creating or amending a power to make secondary legislation
- decisions to create, or amend, a statutory authority to charge third parties to cover the costs of a government activity (ie, cost recovery proposals)
- decisions on discussion documents that have the effect of narrowing down the range of options, including regulatory options being considered
- “in principle” policy decisions and intermediate policy decisions, particularly those where regulatory options are narrowed down (eg, limiting options for further work/consideration)
- seeking negotiating mandates for, concluding, or seeking approval to sign, an international treaty with regulatory impacts
- secondary legislation made by a Minister under an enabling power in an Act and the Minister’s decision is referred to Cabinet for noting.
- decisions about a regulatory proposal that has previously been announced, for example by a Minister or in a political party manifesto

A Regulatory Impact Statement must be provided when papers are submitted to Cabinet committees (or a similar Ministerial group) for policy approval. In rare circumstances, the policy proposal and draft legislation may be submitted together. In these cases, the usual procedure is for the paper to be submitted to the relevant Cabinet policy committee rather than directly to the Cabinet Legislation Committee (LEG).

During the parliamentary process, it often becomes necessary to amend a bill. The policy content of the amendments may be such that further approvals from Cabinet are needed for new policy or to alter existing policy approvals. If so, the original Regulatory Impact Statement should be updated to indicate how the changes affect the agency’s Impact Analysis (eg, how they alter the nature and/or magnitude of the impacts).

You should also contact the Regulatory Quality Team to discuss the Impact Analysis requirements when a proposal is to be submitted to Cabinet seeking a decision on whether a Member’s Bill should be adopted as a Government Bill.

6. Getting started

How you scope and plan your process will have a strong bearing on the quality of the product. Incomplete problem definitions, and failure to consider all feasible options are frequent causes of inadequate Impact Analysis. These problems cannot be easily fixed late in the policy process.

The Regulatory Quality Team and your Treasury policy team are available to provide feedback and advice on these areas through the early engagement process.

Early engagement should be part of your early thinking (or your *Start Right* process – see paragraph 6.4 below), and therefore ideally occurs well before a decision is made to pursue a regulatory solution that might require your agency to prepare a Regulatory Impact Statement.

6.1. When, how and with whom to engage

Early in your policy process you will develop a problem definition and identify likely options. We strongly advise you ask the Treasury to test your initial ideas before you proceed further with the analysis, and suggest you also seek feedback from your agency's Quality Assurance panel/specialist.

This feedback will be especially valuable when your agency considers that the problem is materially important in terms of its human, social, economic or environmental impacts, and your policy process is likely to explore options to introduce, amend or repeal legislation.

You will have to decide when the best time to get feedback is, but ideally it would be both:

- after tentative decisions have been made to pursue action or commission a policy project
- before your agency is committed to a particular approach.

You may use the Early Engagement for Impact Analysis Form on Treasury's Regulation webpage https://treasury.govt.nz/impact-analysis-requirements-regulatory-proposals, an equivalent agency document, or a document from the *Start Right* toolkit if it covers the same material.

6.2. Using early feedback to check you are on track

The feedback will focus on the types of things a Quality Assurance panel would look for in the final assessment of the problem definition and options identification.

At this early engagement point the feedback is not a formal assessment. Instead, it will indicate whether the work is broadly on the right track, and where more analysis or information might be needed. The feedback may do one or more of the following:

- suggest areas for further exploration
- refer you to analogous analysis undertaken in other policy areas

- suggest contacts in other agencies who may also be able to provide useful early input
- pose questions around gaps in logic, evidence, data, etc.

Depending on the issues, there will likely be discussions in addition to written feedback. If there are serious concerns at this stage, the feedback will identify them.

Seeking and responding to feedback may create extra work in the early stages of your impact analysis. But if the feedback identifies potential weaknesses or missing elements, then it will save time and effort later in the process, and help you provide your Minister with robust advice.

Another benefit of early engagement is as a 'heads up' to both Treasury and your Quality Assurance panel/specialist about what is in the pipeline. This helps reviewers plan their work and can speed up the turnaround time for the formal Quality Assurance process.

When you seek feedback, please indicate your timeframe. Provided that your timeframe is reasonable, the Treasury will make best-endeavours to respond.

6.3. Early confirmation of your Regulatory Impact Assessment process

As part of your early engagement, the Regulatory Quality Team may determine whether a Regulatory Impact Statement is required and, if so, the appropriate template and who is responsible for arranging Quality Assurance. Where possible, the Regulatory Quality Team will confirm this as part of their early feedback.

6.4. Other early considerations in the policy process

The Policy Project also recognises the potential for early, robust consideration to efficiently drive improvements to policy quality. The Policy Project's *Start Right* is a set of tools and guidance designed to assist policy practitioners to consider all the important drivers of policy quality early in the policy-making process. *Start Right* covers both regulatory and non-regulatory policy, and is both compatible with, and supportive of, the Impact Analysis process.

Start Right recommends early "Validation and Testing" activities relating to the assessment of the policy problem / opportunity and key assumptions. You may find it useful to use these tools as part of your impact analysis process.

For more information, see the Policy Project webpage (https://dpmc.govt.nz/our-programmes/policy-project) or contact policy.project@dpmc.govt.nz.

7. Exemptions from providing a Regulatory Impact Statement

Impact Analysis is encouraged and always recommended in the development of advice on any form of government policy initiative. However, a Regulatory Impact Statement is not required for certain types of regulatory proposals.

Exemptions are granted by Treasury. You must apply to the Regulatory Quality Team for an exemption and provide evidence of being granted that exemption to Cabinet.

7.1. Grounds for an exemption

The grounds for an exemption are grouped under the following categories:

- technical or case-specific
- minor impacts
- discretionary.

Technical and minor impacts exemptions are complete and unconditional. Where RQT grants a discretionary exemption, conditions may be imposed.

In June 2020 Cabinet agreed new “technical” and “discretionary” exemptions available to be activated in situations of, or in response to, a declared emergency. These exemptions are explained further below.

Technical or case-specific exemptions

A Regulatory Impact Statement is not required where a government regulatory proposal:

1. is suitable for inclusion in a Revision Bill (as provided for in the Legislation Act 2012)
2. is suitable for inclusion in a Statutes Amendment Bill (as provided for in Standing Orders)
3. would repeal or remove redundant legislative provisions
4. provides solely for the commencement of existing legislation or legislative provisions
5. is solely a request to authorise spending in Appropriation or Imprest Supply Bills
6. is solely a request to confirm secondary legislation that has already been made
7. implements deeds of settlement for Treaty of Waitangi claims, other than those that would amend or affect existing regulatory arrangements
8. brings into effect recognition agreements under the Marine and Coastal Area (Takutai Moana) Act 2011

These exemptions relate to the particular circumstances of a regulatory proposal. They include technical adjustments to improve the enforceability or clarity of existing law and transitional arrangements.

Technical exemptions only available for an emergency

A Regulatory Impact Statement is not required where a government regulatory proposal is:

1. to make, amend, or to modify or suspend the effect of, primary or secondary legislation, under powers only able to be exercised by the government during a declared emergency or emergency transition period

2. to do one or more of the following:

   2.1 temporarily defer or extend legislative deadlines, or

   2.2 provide limited temporary exemptions or modifications to existing legislative requirements, or

   2.3 temporarily enable alternative methods of legislative compliance

   in situations where a declared emergency has made compliance with the existing legislative requirements impossible, impractical or unreasonably burdensome

3. to temporarily defer the start date of legislative requirements not yet in force, in order to reduce burdens, or where the Government or affected entities will no longer be ready by the planned start date, as a result of an emergency.

These emergency technical exemptions are specifically designed for urgent regulatory changes in an emergency. They draw on the experience of COVID-19 and other emergencies such as the Christchurch earthquakes.

Proposals covered by exemption 1 would include new instruments required to manage or contain an emergency. For example, Orders made by the Director-General of Health exercising the functions of a Medical Officer of Health to prevent the outbreak or spread of an infectious disease under section 70 of the Health Act. They would also include proposed modifications to existing legislation, such as allowed by Immediate Modification Orders provided for in the Epidemic Preparedness Act.

Proposals covered by exemptions 2 and 3 are some of the most common temporary legislative changes sought in recent declared emergencies. While the changes must be temporary, measures covered by these two categories of exemption need not necessarily come to an end when the emergency itself formally ends.

Note that the actual statutory declaration of an emergency is not included in the proposed technical exemption. These declarations already fall outside the scope of the regulatory impact analysis requirements, as they are not treated as secondary legislation and do not normally come to Cabinet for approval.

Minor impacts exemption

Regulatory proposals that have no impacts, or only minor impacts, on businesses, individuals or not-for-profit entities do not require a Regulatory Impact Statement.

This is the most commonly used exemption. It is sometimes referred to as the "catch-all" exemption – the proposal does not fit the criteria for the other exemptions, but given the circumstances, it is likely to have "no or minor" impacts.

The meaning of "no or minor impacts" is subjective. Often common sense will dictate whether the impacts of a regulatory change are actually minor. Ultimately this interpretation is decided by the Regulatory Quality Team based on information provided by, and/or discussion with, the agency.

A wide variety of proposals fall under this exemption. Common themes include:

- technical adjustments that do not fall under the technical or case-specific exemptions but are likely to have no or very low impacts
- changes to the internal administrative or governance arrangements of the New Zealand government which are likely to have no or very low impacts outside of government (eg, the transfer of responsibilities, staff, or assets between government agencies)
- changes to statutory governance arrangements being implemented through a Treaty of Waitangi settlement where these changes are likely to have no or only minor impacts.

You may encounter marginal cases, or instances where the nature of the changes makes it less certain what the impacts will be. In these situations, the minor impacts exemption is more likely to apply where the proposal meets one of the following conditions:

- it has localised impacts, or the implications are limited to a small group of affected people or parties
- it clarifies an area of current law, or amends the purpose statement of legislation, consistent with the objectives of that regulatory system
- it codifies, rather than changes, an existing practice
- the Net Present Value is expected to be low over the medium-term (when all of the impacts can be monetised).

Conversely, the minor impacts exemption is unlikely to apply where the proposal's effects include any of the following:

- having regional or national impacts or widespread implications;
- substantially altering the nature or objectives of the relevant regulatory system;
- creating or amending the legal rights or responsibilities of government agencies or agency chief executives
- affecting policy processes which are public facing (eg, consultation requirements).

This does not preclude the proposal from being exempt on other grounds.

Discretionary exemptions

Discretionary exemptions may be granted subject to conditions as determined by the Regulatory Quality Team following discussions with you. Conditions are determined case-by-case. Relevant factors include the timeframe for development and implementation of the proposal, the extent and nature of likely impacts, and the degree of uncertainty, risks or novelty of the proposal.

A Regulatory Impact Statement **may** not be required where both of the following apply:

- the regulatory proposal fits within one of the following situations:

  i. the relevant issues have already been adequately addressed by existing Impact Analysis

  ii. a Regulatory Impact Statement would substantively duplicate other government policy development, reporting and publication requirements or commitments

  iii. the government has limited statutory decision making discretion or responsibility for the content of proposed delegated legislation.

- **And** formal Impact Analysis is not the best and most cost-effective way to ensure that Ministers have access to relevant information to inform their decisions.

The following paragraphs provide some further information on when these discretionary exemptions may apply.

i. The relevant issues have already been adequately addressed by existing Impact Analysis

This is most likely to arise where:

- final decisions are being made post-consultation, where Impact Analysis has already been provided to Cabinet before that consultation

- decisions are being made about the content of delegated legislation that had some previous consideration when the enabling power to make delegated legislation was proposed.

In cases like these, conditions could require that additional information and analysis is provided to update or supplement the previous RIS.

ii A Regulatory Impact Statement would substantively duplicate other government policy development, reporting and publication requirements or commitments

This is likely to include situations where:

- a business case is required for a project involving substantial capital investment
- an extended National Interest Analysis[3] is required.

iii The government has limited statutory decision-making discretion or responsibility for the content of proposed delegated legislation

This is likely to include situations where government is:

- making the minimum necessary legislative changes required to comply with international obligations that, due to previous treaty actions, are automatically binding on New Zealand
- approving proposals developed through a statutory process done by an external party with statutory authority for that process.

Discretionary exemption available for an emergency

A Regulatory Impact Statement **may** not be required where the Regulatory Quality Team is satisfied that a government regulatory proposal, not covered by other existing Regulatory Impact Statement exemptions, is:

- intended to manage, mitigate or alleviate the short term impacts of a declared emergency event or of the direct actions taken to protect the public in response to a declared emergency event; and
- required urgently to be effective (making a complete, robust and timely Regulatory Impact Statement unfeasible).

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[3] In accordance with the Cabinet Manual and Standing Orders 397 to 400, all multilateral treaties or "major bilateral treaties of particular significance" concluded by New Zealand require the preparation of a National Interest Analysis (NIA). Drafting Guidelines produced by the Ministry of Foreign Affairs (MFAT) in collaboration with the Regulatory Quality Team require that, for treaties with regulatory impacts, the NIA also includes all the requirements which would otherwise be considered in a Regulatory Impact Statement (becoming an "extended NIA"). A separate, standalone Regulatory Impact Statement is therefore not required when an extended NIA is prepared.

The International Treaty Making Guide, which includes the NIA drafting instructions, contains guidance on how Cabinet's Impact Analysis Requirements apply to treaties. For questions regarding international treaties and arrangements, please contact the Treaty Officer in the MFAT Legal Division (treatyofficer@mfat.govt.nz).

This discretionary exemption may be granted subject to conditions, which may include, as appears most feasible or appropriate:

- the provision and/or publication of some alternative information, or limited impact analysis in alternative form (which could be provided to Cabinet, to Ministers with delegated power to act, or others as appropriate); and/or

- a commitment to include a suitable sunset provision and/or undertake a post-implementation assessment or review on agreed terms and timing.

This discretionary exemption recognises that some regulatory changes sought in emergency or emergency transition situations may fall outside the grounds of the technical exemptions, but may still warrant an exemption or conditional exemption due to obvious urgency.

Such changes will usually be temporary, narrowly focussed, and seek to support, protect, or reduce the burden of compliance on newly vulnerable or heavily impacted groups or areas. For example, this could cover the sorts of changes made in response to COVID-19 to support the mortgage repayment deferral scheme or the business debt hibernation regime. It could also cover proposals to waive or reduce statutory fees or charges imposed by the government.

7.2. Applying for an exemption

If you consider one of the exemptions may apply to your regulatory proposal (or aspects of the proposal), you should apply for an exemption from Treasury. You can do this by contacting the Regulatory Quality Team (RIA.Team@treasury.govt.nz). Please also copy in your Treasury policy team into any correspondence.

The Impact Analysis (IA) Exemption Application Form on Treasury's Regulation webpage https://treasury.govt.nz/impact-analysis-requirements-regulatory-proposals will assist with applying for an exemption. This form enables you to state for each proposal, which exemption you are seeking and why you consider it applies. Alternatively you can provide this information directly in your email to the Regulatory Quality Team.

The Regulatory Quality Team considers the information you have provided and, if necessary, may request further information or clarification.

If you are seeking one of the discretionary exemptions, there may be further discussion needed with the Regulatory Quality Team. These discussions will include matters such as:

- how Cabinet's Impact Analysis Requirements have already been met

- why further Impact Analysis is not the best and most cost-effective way to provide Ministers with information relevant to their decision-making

- the extent to which Government's decision-making discretion or responsibility has been constrained

- the potential conditions of any discretionary exemption (ie, the provision and/or publication of some alternative information, or limited impact analysis in alternative form. For the emergency discretionary exemption, this may include a sunset provision and/or post-implementation assessment or review).

The Regulatory Quality Team will then determine whether and to what extent a regulatory proposal, or aspects of it, is exempt from the requirement to provide a Regulatory Impact Statement. If it is a discretionary exemption, the Regulatory Quality Team will also determine any conditions of the exemption and the timing for fulfilling those conditions. This timing will largely depend on the timing of the decisions the conditions are intended to assist.

Note, if you do not apply for an exemption, or you are not granted one, *and* a Regulatory Impact Statement is not submitted along with the Cabinet paper seeking policy approval, then it will be subject to the process for proposals with inadequate Impact Analysis (see Section 13 *Regulatory proposals with inadequate Impact Analysis*).

7.3. Next steps if exemption is granted

If your proposal is granted an exemption, the Regulatory Quality Team will provide you with a statement setting out that decision which you need to include in the Cabinet paper. If relevant, this statement will also outline any of the conditions of that exemption.

If the proposal is exempt subject to conditions, you will need to fulfil the conditions of the exemption and advise the Regulatory Quality Team when you have done so. Depending on the nature of the conditions, you may be required to do this before or after the relevant Cabinet paper is submitted. For example, the condition may be that you publish and consult on an exposure draft of the proposed legislation before seeking Cabinet Legislation Committee (LEG) approval.

If an exemption is not granted, the Regulatory Quality Team will advise you which Regulatory Impact Statement template you will need to complete, and whether the Regulatory Quality Team or your agency will be responsible for arranging Quality Assurance of that Regulatory Impact Statement.

If there is not enough information to decide this, the Regulatory Quality Team will request further information from you as part of the process described in the next section of this Guide.

8. Confirming your Regulatory Impact Statement process

Treasury determines the appropriate Regulatory Impact Statement template and responsibility for arranging independent Quality Assurance based on information you provide about your processes and on the particular proposal. These decisions are made by the Regulatory Quality Team at the same time using the one process. It is best to seek these decisions as soon as possible in your policy process – before drafting the Cabinet paper.

For further information on the templates for a Regulatory Impact Statement see Section 9 *Preparing a Regulatory Impact Statement*. For further information on potential Quality Assurance arrangements see Section 10 *Obtaining independent Quality Assurance*.

8.1. The confirmation process

Once it is clear that Cabinet's Impact Analysis Requirements apply to your proposal or aspects of it, you will need to provide information to the Regulatory Quality Team to enable these template and Quality Assurance decisions.

The Regulatory Quality Team will determine the appropriate template for the Regulatory Impact Statement, and whether your agency or the Treasury is responsible for arranging Quality Assurance, taking into account the following factors:

- your agency's policy capability and the demonstrated robustness of its in-house Quality Assurance processes
- the strength of your agency's regulatory stewardship practice in the affected regulatory system
- the robustness of your planned policy process
- the level of significance of the likely impacts of the regulatory options
- the levels of risk or uncertainty around the likely impacts of the regulatory options.

The Regulatory Quality Team will make these decisions based on the information you provide using the Impact Analysis (IA) Process Confirmation Form on Treasury's Regulation webpage https://treasury.govt.nz/impact-analysis-requirements-regulatory-proposals. Please send the completed form to the Regulatory Quality Team (RIA.Team@treasury.govt.nz), copied to your Treasury policy team.

If necessary, you may be asked for additional information, or the Regulatory Quality Team may discuss the information and options with you. If none of the templates are suitable for your proposal, the Regulatory Quality Team will discuss that with you and may agree an alternative approach (see section 8.2 below).

Decisions on your Regulatory Impact Statement process are not necessarily final as they are made on the basis of knowledge and assumptions about the policy process at that time. If any of these factors change, for instance, timeframes become compressed, or additional policy options are included, you must advise the Regulatory Quality Team and the decisions will be reviewed.

If you have any issues or concerns about these decisions, please go back to the Regulatory Quality Team to discuss.

8.2. Completing the Climate Implications of Policy Assessment (CIPA) early engagement form

The IA Process Confirmation Form on Treasury's Regulation webpage https://treasury.govt.nz/impact-analysis-requirements-regulatory-proposals is adjacent to a tab for the CIPA early engagement form.

If you have not already completed this form, you should fill it out at the same time as you complete the IA Process Confirmation Form.

The purpose of this form is to help determine if a climate implications of policy assessment needs to be completed, in accordance with Cabinet's requirements that central government agencies must undertake and report in the Impact Analysis section of the Cabinet paper on a greenhouse gas (GHG) emissions analysis, known as a CIPA, for all policy proposals that meet certain qualifying criteria.

For further information on Cabinet's CIPA requirements, see:

- The Ministry for the Environment's webpage (https://www.mfe.govt.nz/climate-change/climate-implications-policy-assessment), or
- Contact the Ministry for the Environment's CIPA team via CIPA@mfe.govt.nz.
- Email your completed CIPA early engagement form to the Regulatory Quality Team (RIA.Team@treasury.govt.nz) and to CIPA@mfe.govt.nz.

8.3. Agreeing departures from the templates

The Regulatory Quality Team may agree on a case-by-case basis to depart from the Regulatory Impact Statement templates.

Impact Analysis is required for a wide range of subject areas and to achieve many different objectives. In some cases, it is likely that these standardised templates will be unnecessarily and inappropriately constraining. For example:

- several different aspects of a single problem are addressed and cannot easily be separated into several single-issue impact statements because of their interdependence

- the regulatory decision is about whether, or to what extent, Parliament should delegate its legislative power on a particular matter, and who is best placed to exercise that power appropriately. (Here the level and nature of impacts on the so-called “winners” and “losers” is largely the same. Instead, the analysis is more likely to focus on issues like relative credibility and expertise, certainty versus flexibility, constitutional propriety, and appropriate safeguards.)

In such cases it may be necessary for the agency and the Regulatory Quality Team to work together to develop case-specific tailored approaches that better reflect the type of Impact Analysis that is appropriate to the proposal.

The Regulatory Quality Team is monitoring these instances to determine what, if any, further adjustments may be needed, and further guidance to provide.

9. Preparing a Regulatory Impact Statement

The Regulatory Impact Statement, whichever template is used, is a government agency document, as distinct from a Cabinet paper, which is a Minister's document.

A Regulatory Impact Statement presents the outcomes of your Impact Analysis process and provides a summary of your agency's best advice to your Minister and Cabinet on the problem definition, objectives, identification and analysis of the range of feasible options, and information on implementation arrangements. By contrast, the Cabinet paper presents the Minister's advice or recommendations to Cabinet.

The purpose of the Regulatory Impact Statement is to:

- provide the basis for consultation with stakeholders, and with other government agencies
- provide the basis for engagement with Ministers and therefore help to inform the policy discussion and Ministers' decisions
- inform Cabinet about the range of feasible options and the benefits, costs and risks of the preferred option(s)
- enhance the transparency of, and accountability for, decision making, through public disclosure once decisions are taken.

The Regulatory Impact Statement should provide an objective, balanced presentation of the analysis of impacts, with any conclusions reached by the agency explained and justified. It should be prepared before the Cabinet paper, so that it informs the development of the preferred option and hence the Ministerial recommendations in the Cabinet paper. It should provide a reference point from which the Cabinet paper is developed, thus avoiding the need for a lengthy Cabinet paper and repetition between the two documents.

In some cases, it will be helpful to start work on drafting the Regulatory Impact Statement early on in the Impact Analysis process, building up the drafting as you go along. In other cases, it may be more suitable to put together the Regulatory Impact Statement at a later stage when policy development is further advanced and proposals are ready to be put to Ministers.

You may also find it useful to use the Regulatory Impact Statement format as a vehicle for providing advice to the portfolio Minister during the course of policy development.

Efficient and effective consultation must also have taken place when carrying out Impact Analysis and the results of this set out in the Regulatory Impact Statement. Further guidance on consultation can be found in the Guidance Note on Effective Consultation for Impact Analysis https://treasury.govt.nz/publications/guide/effective-consultation-impact-analysis

9.1. Standard templates

Your Impact Analysis must be provided alongside the Cabinet paper, and unless agreed otherwise with the Regulatory Quality Team, the analysis will be presented using one of the standard templates. The Regulatory Impact Statement templates are available on Treasury's Regulation webpage https://treasury.govt.nz/impact-analysis-requirements-regulatory-proposals

The standard templates are designed to tailor the form and content of the Impact Analysis to the significance and nature of the regulatory proposal. The four templates are the Impact Summary, the Full Impact Statement, and the stage 1 and 2 Cost Recovery Impact Statements.

The Impact Summary

The Impact Summary contains many of the elements of the Regulatory Impact Statement, but analyses the impacts of the preferred option only; that is, the option proposed in the Cabinet paper. This template encourages brevity and does not require extensive analysis of alternative options. It may be more appropriate where:

- there was a good, sound, well consulted policy process
- you have identified a clear preferred option, and
- this option is recommended in the Cabinet paper.

The Full Impact Statement

The Full Impact Statement requires analysis of all the feasible options. The template includes a coversheet which highlights the issues decision-makers need to readily access, and helps them to identify the aspects of the Full Impact Statement that they may wish to closely scrutinise. This template provides for a more comprehensive summary of your Impact Analysis.

It is most likely to be required where the proposed changes are significant and/or novel, and is also more likely when there is no clear preferred option or the preferred option is different from the one recommended in the Cabinet paper.

The stage 1 Cost Recovery Impact Statement

The stage 1 Cost Recovery Impact Statement is designed specifically for proposals seeking policy agreement to recover costs, but not yet seeking policy agreement on cost recovery levels (ie, agreement on cost recovery levels will be sought at a later date).

The stage 2 Cost Recovery Impact Statement

The stage 2 Cost Recovery Impact Statement is designed specifically for proposals seeking agreement on cost recovery levels.

9.2. Required content

The templates include guidance notes and advice on how to fill them out. This advisory text should be deleted in the final form of the Regulatory Impact Statement.

Your Impact Analysis should be completed and summarised in a Regulatory Impact Statement before the Cabinet paper is drafted. Further guidance on how to do Impact Analysis can be found in the Guidance Note on Best Practice Impact Analysis https://treasury.govt.nz/sites/default/files/2018-03/ia-bestprac-guidance-note.pdf

9.3. Consultation and circulation

The Regulatory Impact Statement summarises the Impact Analysis that you have already done, and therefore will reflect the results of your consultation to date. The completed templates themselves provide a vehicle for further consultation as appropriate with affected parties and with government agencies.

You will ideally circulate the draft Regulatory Impact Statement for comment to relevant government agencies before the Cabinet paper is prepared.

You must circulate your Regulatory Impact Statement to interested agencies with the draft Cabinet paper.

9.4. Manager sign-off and agency disclosure

The following two requirements emphasise that the Regulatory Impact Statement is an agency document, not a Ministerial one, and that its quality and the analysis in it is the responsibility of the policy team and the responsible manager.

- The Regulatory Impact Statement must be signed off by a manager for the responsible agency. There is a space in the templates for their signature.
- You must also disclose information about any key gaps, assumptions, dependencies and significant constraints, caveats or uncertainties regarding the Impact Analysis. The templates provide space for this information.

10. Obtaining independent Quality Assurance

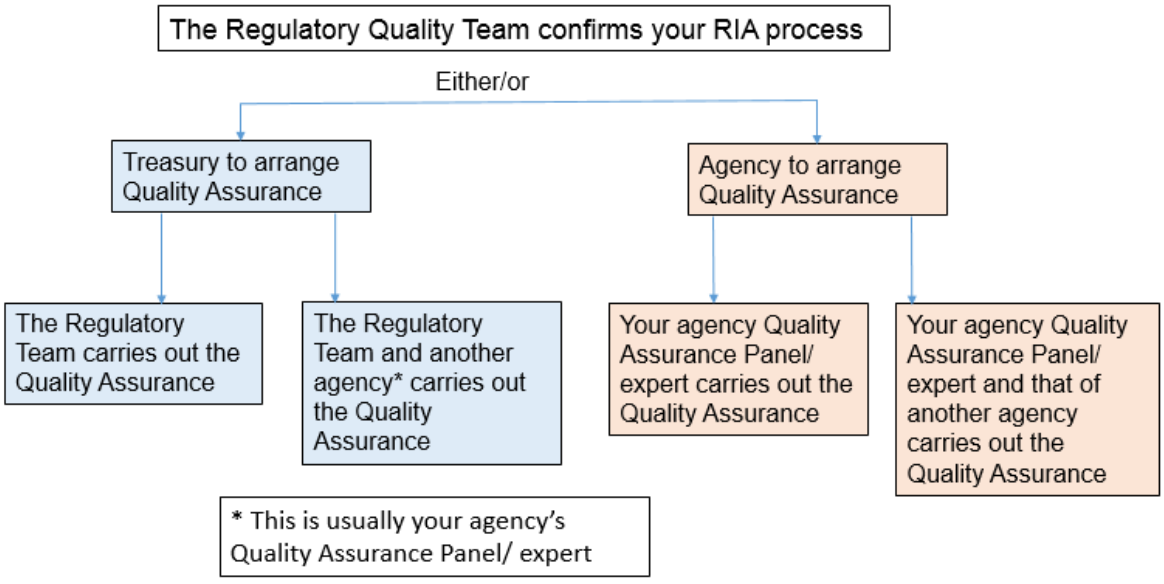
Independent Quality Assurance is a key part of Cabinet's Impact Analysis Requirements. It helps Ministers determine the confidence they can have in the analysis, bearing in mind the decisions they are asked to make.

Regulatory Impact Statements must be independently assessed as to whether they are appropriately complete, convincing, clear and concise, and consulted (see Section 11 *Guidance for Quality Assurance assessors*). This Quality assurance must take place before the Regulatory Impact Statement is lodged with the Cabinet paper.

If your Regulatory Impact Statement is not independently quality assured before it is lodged with the Cabinet paper then it will be subject to the process for proposals with inadequate Impact Analysis (see Section 13 *Regulatory proposals with inadequate Impact Analysis*).

10.1. Quality Assurance arrangements

The Regulatory Quality Team will determine whether your agency or the Treasury, or some combination of the two, will be responsible for arranging independent Quality Assurance. Smaller agencies may need assistance with obtaining quality assurance – if so, please contact the Regulatory Quality Team. Once this has been decided, there are a range of possible arrangements for carrying out that quality assurance depending on what is most appropriate.



Quality Assurance may be done by:

- the Regulatory Quality Team
- internal Quality Assurance panels within agencies
- panels made up of people from several agencies
- an individual assigned as the Quality Assurance specialist, who may be inside or outside of the agency (especially in the case of smaller agencies).

Where the agency is responsible for arranging Quality Assurance, the agency must ensure it is done by a person or group not directly involved in the policy process for the proposal.

A permanent internal panel may not be possible for all agencies. Another option is to identify a pool of experienced people who can be drawn on, on an *ad hoc* basis. This pool could include people from other agencies (not just internally sourced). The Regulatory Quality Team can help to facilitate this.

Outsourcing independent Quality Assurance such as from a private sector consultant or subject matter expert (eg, academic) may be appropriate for some large or complex pieces of work, or for small agencies where conflicts of interest are difficult to avoid. In these circumstances, it is important that the assessors are familiar with Cabinet's Impact Analysis Requirements and with the Quality Assurance criteria (see Section 11.4 *What Quality Assurance involves*).

The extent, nature and timing of Quality Assurance assessors' involvement in the quality assurance process and the number of times they consider the draft RIS is likely to vary.

10.2. Independent Quality Assurance

An assessment of the overall quality of the Regulatory Impact Statement is made by independent assessors on whether it is complete, convincing, consulted, and clear and concise. The same Quality Assurance criteria (https://treasury.govt.nz/information-and-services/regulation/impact-analysis/quality-assurance-ria) are used regardless of the template used for the Regulatory Impact Statement or who independently assesses it. These Quality Assurance criteria are discussed in 11.4 *What Quality Assurance involves*.

The outcome of the Quality Assurance process will be a formal statement from the Quality Assurance assessors on the quality of the Impact Analysis. You must copy this (without edits) into the "Impact Analysis Requirements" section of the Cabinet paper.

The Quality Assurance statement sets out whether the assessors consider the information and analysis summarised in the Regulatory Impact Statement is sufficiently comprehensive, robust and effectively communicated to enable Ministers to fairly compare the available policy options and take informed decisions on the proposals in this paper.

The Quality Assurance statement is not a comment on the merit of the regulatory proposals themselves. This remains the responsibility of the policy team. Quality Assurance should be undertaken before final advice is provided to the portfolio Minister.

You should contact your Quality Assurance assessors to let them know the nature and timing of your Regulatory Impact Statement. It is best to keep them informed of your progress.

You will ideally have already been in touch with the relevant people in your agency, for instance, during the *Start Right* process. Your agency may also provide people with experience in Impact Analysis to assist you as coaches during the process, and to assist you in the various stages where you have been engaging with the Regulatory Quality Team.

Your assessors may have some specific rules or guidelines on how you should engage with them, including how much time to allow for the Quality Assurance. It's important that you allow time for several iterations, as it is not often that Quality Assurance is completed with only one round of comments. There are usually several rounds of back and forth, drafting and amendments before the assessors provide their final assessment.

As well as sight of draft Regulatory Impact Statements, the Quality Assurance assessors may ask you for additional material to test statements made about the Impact Analysis. For example, the assessors may wish to view evidence that has been cited or referenced, assumptions and calculations underlying the cost benefit analysis, or the summary of stakeholder submissions. This enables the assessors to be assured that the analysis is accurate and robust.

The Quality Assurance assessors will need to know what the Cabinet paper is asking ministers to decide so that they can assess the extent to which the RIS will assist ministerial decision-making.

10.3. Meeting the consultation criteria

Agencies proposing new or changed regulation must demonstrate consultation with affected parties on the problem definition, the range of feasible options, and the impacts of the options.

Consultation can be inadequate for a number of reasons, including:

- when affected or interested parties are not consulted (eg, not consulted at all or unrepresentative consultation, such as where only large organisations are consulted)
- when consultation processes are ineffective (eg, consulted parties not given enough time to respond, important issues not consulted on, consultation documents not promoted widely enough).

The magnitude of the proposal, including who is likely to be affected determines who and how to consult—more consultation is required if the proposal has wide-reaching impacts.

As indicated in the Regulatory Impact Statement templates, you are expected to report on the results of consultation and your responses to the issues raised.

11. Guidance for Quality Assurance assessors

This section contains advice on providing independent Quality Assurance of Regulatory Impact Statements. Much of the advice also applies to reviewing other forms of policy documentation, such as discussion documents.

11.1. Why independent Quality Assurance is done

Cabinet requires that independent Quality Assurance is undertaken on all Regulatory Impact Statements.

The purpose of independent Quality Assurance is to advise Cabinet on whether it is making decisions on the basis of the best possible advice. It does this by requiring that an appropriate person (someone who is not responsible for, and has not been involved in the policy process for the proposal) has considered whether the analysis and information summarised in the Regulatory Impact Statement are of a sufficient standard to properly inform the decisions being taken. This independent assessment is summarised in a formal Quality Assurance statement that is included in the Cabinet paper accompanying the Regulatory Impact Statement.

11.2. Who should undertake independent Quality Assurance

The Regulatory Quality Team will determine whether the authoring agency or the Treasury must arrange independent Quality Assurance of the Regulatory Impact Statement.

If Quality Assurance is provided by the agency, it must be done by a person or group not directly involved with the policy process for the proposal and nominated by the agency's Chief Executive. This means:

- the Quality Assurance assessor/s should have suitable capability – including a thorough understanding of Cabinet's Impact Analysis Requirements, and sufficient experience and expertise in policy analysis
- internal assessors should be sufficiently senior as to have sign-out authority on behalf of the agency
- a certain level of independence is required.[4]

Many agencies have standing Quality Assurance panels from which individuals may be assigned to take on responsibility for specific cases. Some do not have such capability themselves but may have an arrangement with a larger agency for help in such cases.

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[4] The person providing the Quality Assurance should not be a member of the same team that has prepared the Regulatory Impact Statement. In smaller agencies where this is not possible, the Quality Assurance may need to be outsourced in order to ensure independence (see Table 1 for options).

If your agency does not have such capability, you can contact the Regulatory Quality Team (copied to your Treasury policy team) for assistance with individual cases. However, if your agency is likely to produce more than a handful of Regulatory Impact Statements per year you should consider a more permanent arrangement. The Regulatory Quality Team can help arrange this with you.

11.3. Support for Effective Quality Assurance arrangements

Senior management buy-in and support is essential to the credibility and effectiveness of a robust Quality Assurance process.

A high-level of awareness throughout the agency about Cabinet's Impact Analysis Requirements and the Quality Assurance process is important in ensuring that all Regulatory Impact Statements obtain the required Quality Assurance and are independently assessed to a consistent and robust standard.

Widespread understanding of the role of Quality Assurance assessors and the Quality Assurance process is also needed. The Quality Assurance process should be documented and communicated across the agency.

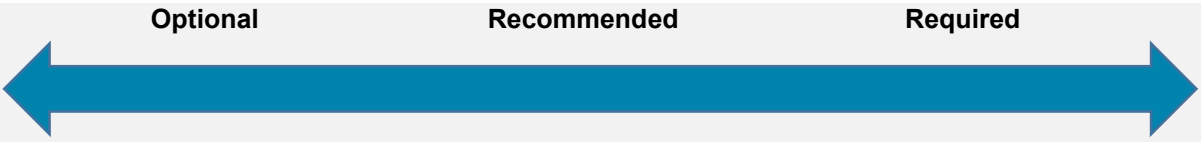
Having the Impact Analysis framework embedded early as part of the generic policy development process will help lift the quality of analysis more generally and enable the requirements to be met.

11.4. What Quality Assurance involves

There are two aspects to Quality Assurance: assessing and assisting. Formal assessment of the final Regulatory Impact Statement is a mandatory requirement and represents the core role of assessors. This assessment is made using the Quality Assurance criteria https://treasury.govt.nz/information-and-services/regulation/impact-analysis/quality-assurance-ria.

Assessors can also provide assistance to the writer, to help lift the quality of the final product. There are choices around the degree to which assessors get involved in the earlier stages of the policy development process, illustrated in the box below.

Degree of Quality Assurance involvement



Optional	Recommended	Required
Advice on Cabinet's Impact Analysis Requirements and how they should be built into the policy work, including suitable analytical frameworks Explaining what the assessors will be looking for (nature and depth of analysis) Comments on draft terms of reference for major projects Comments on draft reports for major pieces of analysis	Comments on draft discussion documents	Comments on draft Regulatory Impact Statement (at least one iteration) Formal Quality Assurance of Regulatory Impact Statement submitted to Cabinet for in-principle or intermediate policy decisions (including decisions that discard alternative options) Formal Quality Assurance of final Regulatory Impact Statement submitted to Cabinet

Formal assessment (required)

The core role involves assessing the final Regulatory Impact Statement. Based on our experience, we strongly recommend that you plan for at least one iteration of the Regulatory Impact Statement. This means the Quality Assurance assessors would provide comments on at least one draft of the Regulatory Impact Statement.

Formal assessment is required for Regulatory Impact Statements provided for final policy decisions, as well as those that are to be submitted to Cabinet to support any in principle or intermediate policy decisions.

However, the Quality Assurance for interim Regulatory Impact Statements will need to be tailored to the circumstances, considering the stage of policy development, the nature of the decision being sought, and the level of analysis possible. At early stages of the policy process, it may not be feasible to prepare a comprehensive Regulatory Impact Statement, so the Quality Assurance will need to reflect these constraints.

Both the Quality Assurance assessors and the people responsible for the preparation of the Regulatory Impact Statement should be clear that the assessors are concerned solely with the quality of the underlying analysis and its presentation in the Regulatory Impact Statement. The role of assessors is not to assess the merits of any policy options considered in the Regulatory Impact Statement — the assessors do not provide a view on whether the proposal is a good idea.

In practice, it can sometimes be hard to draw a firm distinction between the quality of the Regulatory Impact Statement and the quality of the proposal: essentially the assessors need to determine whether Ministers have enough information of sufficient quality, to make an informed decision.

Material required

As well as the final Regulatory Impact Statement, the Quality Assurance assessors may want to ask for material to test statements made about the Impact Analysis. For example, you may wish to view evidence that has been cited or referenced, assumptions and calculations underlying the cost benefit analysis, or the summary of stakeholder submissions.

The Quality Assurance assessors will need to know what the Cabinet paper is asking ministers to decide, so that they can determine whether there is enough information of sufficient quality to assist ministers to make an informed decision.

Applying the Quality Assurance criteria

The criteria for assessing the Regulatory Impact Statement are the same regardless of who undertakes Quality Assurance. All four dimensions must be assessed for each element of the Impact Analysis framework. The associated questions, however, are indicative and do not purport to be exhaustive.

The first three criteria are the most important in terms of the substance of the analysis, and more weight should be placed on these aspects:

Complete:

- Is all the necessary information in the Regulatory Impact Statement, as set out in the relevant template?

Convincing:

- Is the analysis accurate, robust and balanced?
- Are the analysis and conclusions supported by the analytical framework, and a commensurate assessment of costs and benefits and supporting evidence?
- Do assumptions make sense?

Consulted:

- Does the Regulatory Impact Statement show evidence of efficient and effective consultation with stakeholders, key affected parties and relevant experts?
- Does it show how any issues raised have been addressed or dealt with?

Clear and concise:

- Is the material communicated in plain English?
- Is the Regulatory Impact Statement of an appropriate length?

An important issue for consideration relates to how far any constraints identified – such as a lack of time for consultation, or gaps in the available data - should be considered a mitigating

factor with respect to the quality of the Impact Analysis. Judgement will be required on a case-by-case basis.

In general, Quality Assurance assessors should consider whether the significance of the constraint is such that it impairs the ability of Cabinet to fully rely on the analysis in the Regulatory Impact Statement for its decision making. For instance, a genuine analytical constraint may exist when there are no existing data for example, on the scale of the policy problem, and it is simply not possible to obtain or gather such data.

There are two possible ways in which this situation can be handled:

- the Regulatory Impact Statement would note the uncertainty and risks this raises, and the Quality Assurance assessment could be subject to the constraint
- the Quality Assurance assessment might determine that the Regulatory Impact Statement does not meet the “convincing” criterion but note that these deficiencies have been identified.

There is a “line” between these two forms of Quality Assurance statement, and it is a matter of judgement on a case-by-case basis to discern where that line is.

Another example is when the portfolio Minister has directed that analysis be undertaken only on particular policy options (and other feasible options are taken off the table prior to the preparation of the Regulatory Impact Statement). In this case, the Quality Assurance assessors may state whether the analysis is as good as could be expected in light of these constraints, but nonetheless only partially meets the Quality Assurance criteria. In such a situation, the Regulatory Impact Statement should also identify the alternative options that they would have analysed, had they been able to consider the full set of feasible options.

11.5. Preparing a Quality Assurance statement

The Quality Assurance assessors must provide a formal assessment of the overall quality of the Regulatory Impact Statement for inclusion in the “Impact Analysis” section of the Cabinet or Cabinet Committee paper.

This Quality Assurance statement follows the statement by the responsible agency that the Impact Analysis Requirements apply and, therefore, a Regulatory Impact Statement is required and is attached to the Cabinet paper.

A suggested form for the Quality Assurance statement is:

> [Name of team or position of person completing assessment – eg, authoring agency or the Regulatory Quality Team] has reviewed the Regulatory Impact Statement prepared by [name of agency] and associated supporting material, and
>
> [Statement on whether the assessors consider that the information and analysis summarised in the Regulatory Impact Statement **meets** or **does not meet** or **partially meets** the Quality Assurance criteria.]

[Explanation of the above assessment and comments on any issues that have been identified in relation to any of the dimensions of Quality Assurance criteria. For example, where the assessment is that the Regulatory Impact Statement "does not meet" or "partially meets" the Quality Assurance criteria, state:

- the areas that do not meet and the impacts of these areas on the robustness of the advice as a support to Ministers' decision making; or

- comment on how the policy proposal should be moved forward or put on more solid foundations (eg, further analysis of a particular issue, consultation with certain stakeholders, or careful monitoring and preparedness to take further action if necessary).]

The purpose of the Quality Assurance statement is to provide decision-makers with advice on the quality of the information in the Regulatory Impact Statement and the reliance they should place on the underlying Impact Analysis. It is not a comment on the efforts of the author or their agency.

In practice, judgement is required in deciding which category a Regulatory Impact Statement falls into (particularly when choosing between "meets" and "partially meets"; and between "partially meets" and "does not meet"). The Quality Assurance assessors need to consider the context of the decisions being taken (eg, whether they are in principle or final policy decisions) and any constraints that have been identified or disclosed that may compromise the quality of the Impact Analysis.

In general, we recommend that "does not meet" is used when the Regulatory Impact Statement falls short of the standards on more than one aspect (eg, several components of the required information are absent or of inadequate quality). "Partially meets" may be appropriate when the Regulatory Impact Statement meets the quality standards on most dimensions, but there is one area of deficiency that should be highlighted.

There is no set format for the explanation of the assessment or comments on Quality Assurance issues, as these will depend on the particular circumstances of the individual Regulatory Impact Statement. However, the Quality Assurance statement should:

- be succinct

- provide an indication as to the reliance that can be placed on the Regulatory Impact Statement, as a basis for informed decision-making

- link the issues raised to the relevant Quality Assurance criterion

- explain any gaps between the Impact Analysis in the Regulatory Impact Statement and what the Quality Assurance assessors would have expected to see, and the implications or risks this poses. That is, what further analysis could or should have been undertaken, and/or what risk mitigation can be done (eg, additional, targeted consultation).

Where a Regulatory Impact Statement is assessed as "partially meets" or "does not meet" the Quality Assurance criteria, agencies should have an internal process. This may include briefing senior management and Ministers' offices.

The assessment by the Quality Assurance assessors should be considered independent and final. There may be instances when the policy team responsible for preparing the Regulatory Impact Statement is not satisfied with the final assessment and/or the wording of the Quality Assurance statement. In anticipation of such scenarios, agencies may wish to consider the process by which these situations will be managed. For example, identifying the responsible senior management and how they will provide support to the Quality Assurance assessors to maintain their independence.

11.6. Other Quality Assurance assistance

Assistance can be useful for other elements of the process, beyond those covered by formal Quality Assurance.

Discussion documents

For guidance on quality assurance of discussion documents, please refer to the practice note on discussion documents on the Treasury impact analysis page https://treasury.govt.nz/information-and-services/regulation/impact-analysis-requirements-regulatory-proposals

Other assistance (optional)

As a Quality Assurance assessor you could choose to be involved earlier in the policy process to assist in lifting the quality of the analysis, the final Regulatory Impact Statement, and ultimately the regulatory proposal itself.

This assistance role can involve engaging at key points in the process. You might provide advice at the outset of the policy development process on:

- Cabinet's Impact Analysis Requirements and how they could be built into the policy work, including suitable analytical frameworks and tools
- what Quality Assurance assessors will be looking for in terms of the nature and depth of Impact Analysis and the extent of evidence on the problem, impacts and risks.

You might also comment on draft reports on major pieces of analysis, or on draft terms of reference for the commissioning of major pieces of analysis (such as cost-benefit analysis), to assist in establishing a suitable analytical framework.

The purpose of commenting on draft material is to help enable the final Regulatory Impact Statement to fulfil Cabinet's Impact Analysis Requirements. The comments by Quality Assurance assessors should, therefore, relate to the substance of the analytical methods employed and the analytical process (including consultation), looking to the nature and level of information that will need to be presented in the final Regulatory Impact Statement. Areas of focus may include:

- the extent of evidence on the nature and size of the problem, and of likely impacts
- the analytical framework and techniques including whether an established methodology (such as market analysis or cost-benefit analysis) will be employed

- identification and assessment of costs, benefits and risks
- the nature and quality of the consultation process.

It is usually helpful if early comments (eg, on draft Regulatory Impact Statements) are as comprehensive as possible, to avoid raising substantive issues late in the process. When reviewing draft Regulatory Impact Statements, it can be useful for Quality Assurance assessors to provide an indication as to the likely final assessment, highlighting any areas that require further work (and what the specific gaps are) so that effort can be focused on these main areas.

The Quality Assurance assessors should, however, take care to preserve the independence of their final Quality Assurance assessment by focusing on the nature and quality of the Impact Analysis rather than the features of the proposal.

Non-standard situations

Policy processes are often non-linear, and a wide variety of non-standard situations can arise. Quality Assurance assessors may come under pressure to provide Quality Assurance statements in a very short timeframe, on non-final Regulatory Impact Statements, or on Regulatory Impact Statements that change rapidly (eg, as policy options are altered by Ministers). Sometimes regulatory proposals will "bypass" Cabinet's Impact Analysis Requirements altogether by not having a Regulatory Impact Statement or by not being submitted to the appropriate Quality Assurance process (see Section 13 *Regulatory proposals with inadequate Impact Analysis*).

This guidance chapter does not attempt to cover all possible circumstances, and agencies will need to exercise judgement in many cases. The Regulatory Quality Team is available to provide advice on a case-by-case basis, and to share their experiences in dealing with similar situations.

Agency assessors may choose to review significant Regulatory Impact Statements prior to assessment by the Regulatory Quality Team. There are some benefits with this approach: it can identify and address issues with the Regulatory Impact Statement before it is provided to the Regulatory Quality Team, and it may assist in agency capability building. However, it could also increase the time taken to obtain Quality Assurance. This additional Quality Assurance is therefore optional.

The Policy Project provides guidance and tools that are relevant in a wide range of policy situations. For more information, see the Policy Project webpage (www.dpmc.govt.nz/policyproject) or contact policy.project@dpmc.govt.nz.

11.7. Moderation and review

The Quality Assurance criteria must be applied consistently across proposals and over time. Moderation arrangements could include:

- having centralised oversight of all Quality Assurance assessments (eg, the chair of your agency's Quality Assurance panel)
- ensuring all Quality Assurance is subject to peer review by others within your Quality Assurance panel or pool of assessors
- rotating Quality Assurance responsibilities for types of proposals (ie, particular policy areas) so that they are not always reviewed by the same person.

Periodic evaluations of Quality Assurance assessments can provide a further check. One way of obtaining this is by having an independent party (such as a consultant) review a random sample of Quality Assurance assessments. To assist this process, agencies should maintain a register of Regulatory Impact Statements assessed and the outcomes of these assessments. Where a Quality Assurance panel has been established, this could be undertaken by the secretariat or a nominated panel member.

Keeping track of regulatory proposals in this way may also be useful in providing material for agencies' reporting requirements. In addition, the Treasury may request information for their report backs to Cabinet on the operation of the regulatory management system and how the Government is meeting its regulatory management commitments and any other reporting Treasury may undertake.

12. Preparing the Cabinet paper

While the Regulatory Impact Statement is a document produced by an agency summarising its analysis of an identified problem, the associated Cabinet paper is written from the perspective of a Minister.

All Cabinet papers must include a section entitled “Impact Analysis” to link the two documents.

If an exemption has been granted, this section must include a statement from the Treasury confirming that the proposal, or aspects of it, is exempt from the requirement to provide a Regulatory Impact Statement. If relevant, this statements will include any conditions of that exemption (see Section 7 *Exemptions from providing a Regulatory Impact Statement*).

If an exemption is not applicable (or was not granted), this section must contain two parts:

- a statement by the responsible agency that Cabinet’s Impact Analysis Requirements apply, a Regulatory Impact Statement is required, and the assessment is attached to the Cabinet paper

- a statement from the Quality Assurance assessors providing an independent assessment of the overall quality of the Regulatory Impact Statement (see Section 11.5 Preparing a Quality Assurance statement).

Ministers no longer need to certify in the Cabinet paper that proposals are consistent with the 2009 Government Statement on Regulation.

13. Regulatory proposals with inadequate Impact Analysis

Impact Analysis may be considered inadequate where:

- there is no accompanying Regulatory Impact Statement for the government regulatory proposal in the Cabinet paper and the Treasury has not granted the proposal an exemption from Cabinet's Impact Analysis Requirements
- the accompanying Regulatory Impact Statement in the Cabinet paper has not been independently quality assured or has been assessed as "does not meet" against the Quality Assurance criteria.

In such cases, a Supplementary Analysis Report will be required or where a proposal is being implemented urgently, a Post-Implementation Assessment or Review may be an alternative option. These options are outlined in sections 13.3 *Supplementary Analysis Reports* and 13.4 *Post-Implementation Assessment or Review as a further option for inadequate or missing impact analysis*.

13.1. Early warning

Ministers have expressed a strong preference for early warning about proposals with inadequate Impact Analysis.

Early warning is the primary responsibility of the agency responsible for preparing the Regulatory Impact Statement and needs to be given sufficient priority by agency officials. Further, for any significant Regulatory Impact Statement that has not met, or in the view of Quality Assurance assessors is unlikely to meet, Cabinet's Impact Analysis Requirements, Treasury may advise the Minister of Finance and any other Minister with responsibilities for the oversight and operation of the Impact Analysis Requirements.

In many cases where Quality Assurance assessors conclude that a Regulatory Impact Statement does not meet the Quality Assurance criteria, you may be able to revise your Regulatory Impact Statement to address the identified deficiencies and have it reassessed before it is lodged. This may, for instance, require the Cabinet submission to be delayed and is therefore something that you will need to discuss and agree with your agency leadership and Minister as relevant.

Sometimes it is not possible to improve the Regulatory Impact Statement to the extent that it "partially meets", so the proposal is lodged with Cabinet Office accompanied by a Regulatory Impact Statement that "does not meet" the criteria. There may also be a small number of Cabinet papers that involve regulatory options but are not accompanied by a Regulatory Impact Statement and have not been exempt from the requirements.

13.2. Cabinet Committee Chair discretion

The relevant Cabinet Committee Chair has discretion on whether Cabinet papers containing with inadequate Impact Analysis are considered by the committee.

13.3. Supplementary Analysis Reports

In the event that a Cabinet paper with inadequate Impact Analysis does proceed and substantive decisions are made, a "Supplementary Analysis Report" is generally required. (See section *13.4 Post-Implementation Assessment or Review as a further option for inadequate or missing impact analysis*).

To help ensure that the Supplementary Analysis Report fulfils a useful purpose, the nature and timing is to be agreed by, or on behalf of, the responsible Minister, and the Minister responsible for the oversight and operation of the Impact Analysis Requirements.

The Regulatory Quality Team will discuss the nature, timing and scope of the Supplementary Analysis Report with you. This will be informed by factors such as the nature and significance of the proposal, the gaps in the impact analysis, and the further ministerial decision-making opportunities that a Supplementary Analysis Report could usefully inform.

In most cases, the Supplementary Analysis Report would provide Ministers with a final reassurance, or otherwise, of the policy they have approved. The report would be a form of regulatory "pre-mortem", which systematically analyses the risks associated with the proposal and how these have been, or will be, mitigated. It would provide an additional check point at which the evidence base and free and frank advice can inform Ministers. Such analysis is good practice in any event as it informs implementation planning.

The Supplementary Analysis Report may also include matters such as:

- supplementary analysis on specified issues (for instance, on costings, compliance levels, implementation plans) to inform implementation decisions
- the findings of consultation on an exposure draft of the regulatory measure
- a commitment to report the findings of a post-implementation review
- a commitment that the original Cabinet paper be published – this would aid transparency by showing the information that Ministers did have available to them.

To assist transparency, the Supplementary Analysis Report is required to reference the particular purpose for which it is required, including the stage at which it is provided to Cabinet. It is a separate standalone document and is required to be published along with the original Regulatory Impact Statement, if any.

Supplementary Analysis Reports are subject to Quality Assurance requirements in the same way as are Regulatory Impact Statements. Each Supplementary Analysis Report is assessed against its fitness for purpose to the task it was set, including its adequacy to support any decisions it may be designed to inform.

The Supplementary Analysis Report requirement covers the situation previously addressed by the requirement for post-implementation review, as agreed by Cabinet in 2009.

13.4. Post-Implementation Assessment or Review as a further option for inadequate or missing Impact Analysis

Where the Regulatory Quality Team is satisfied that a Supplementary Analysis Report might not be feasible or useful before Cabinet's regulatory decisions are confirmed or implemented, the Regulatory Quality Team may instead require a Post-Implementation Assessment or Review[5].

This alternative will likely be most appropriate where departments are unable to provide appropriate impact analysis in the timeframes required, but an exemption is not available.

If not already agreed by Cabinet, the nature and timing of the Post-Implementation Assessment or Review (including whether, or what type of, quality assurance is expected) will be agreed by or on behalf of joint Ministers as for a Supplementary Analysis Report. These decisions will be informed by discussion between you and the Regulatory Quality Team.

[5] A Post-Implementation Assessment/Review could range from a full review of the performance of a regulatory change after a certain period, including whether it remains appropriate, to a more targeted or earlier assessment of the implementation of a regulatory change to check if any adjustments are desirable.

14. Publishing the Regulatory Impact Statement

To foster openness and transparency around the regulatory decision-making process, the full text of all Regulatory Impact Statements and Supplementary Analysis Reports (if any) must be published on the websites of both the administering Agency and Treasury.

Any publication requirements for Post-Implementation Assessments or Reviews will be determined on a case-by-case.

14.1. Withholding sensitive or confidential information

Deletions can be made from published versions of Regulatory Impact Statements and Supplementary Analysis Reports, consistent with the provisions of the Official Information Act 1982 http://www.legislation.govt.nz/act/public/1982/0156/latest/DLM64785.html?src=qs

14.2. Timing of publication

Publication is required when:

- any resulting Bill is introduced into the House or Supplementary Order Paper is released
- any resulting regulation is gazetted
- the government announces its decision not to regulate
- when Ministers approve the publication of a RIA under Cabinet's proactive release requirements for Cabinet papers[6].

Regulatory Impact Statements and Supplementary Analysis Reports (if any) may be published earlier at the discretion of the responsible Minister and/or Cabinet. For example, with the press statement announcing any new policy for which a Regulatory Impact Statement was required.

14.3. Process for publication

When the Regulatory Impact Statement and Supplementary Analysis Report (if any) is due for publication (according to the requirements set out above), agencies must send the completed publication form on Treasury's Regulation webpage https://treasury.govt.nz/impact-analysis-requirements-regulatory-proposals and Word versions of these documents to the Regulatory Quality Team at RIA.Team@treasury.govt.nz

6 https://dpmc.govt.nz/publications/co-18-4-proactive-release-cabinet-material-updated-requirements

Web publication must comply with the New Zealand Government Web Standards and Recommendations, which are available at https://www.digital.govt.nz/standards-and-guidance/nz-government-web-standards?rf=1

Agencies must keep the Regulatory Quality Team informed (via RIA.Team@treasury.govt.nz) about the timing of introduction/gazettal so that Treasury can publish the Regulatory Impact Statement and Supplementary Analysis Report (if any) as soon as possible after the Bill or regulations become publicly available.

Forty printed copies of the Regulatory Impact Statement, and Supplementary Analysis Report (if any) for Bills must also be provided to the Bills Office. See http://www.pco.parliament.govt.nz/ris-guidance/. Select committee clerks will include relevant Regulatory Impact Statements and Supplementary Analysis Reports (if any) in the material provided to Select Committees on Bills referred to that Committee.

The URLs to the location of the Regulatory Impact Statement and Supplementary Analysis Report (if any) must also be included in the Explanatory Note to any Bill, Supplementary Order Paper (SOP), or regulations for which a Regulatory Impact Statement and Supplementary Analysis Report (if any) was prepared.

The Parliamentary Counsel Office (PCO) http://www.pco.govt.nz/ will provide standard wording for text to accompany the URLs. This wording may need to be adapted for different circumstances (eg, when multiple Regulatory Impact Statements were prepared for a series of policy decisions). Agencies must provide a specific, designated URL to PCO for each Bill, SOP, or regulations. Agencies must ensure that these are supplied in sufficient time to enable them to be included in the copies of the draft Bill, SOP, or regulations that are printed for submission to the Cabinet Legislation Committee (LEG), “when Ministers approve the publication of a RIA under Cabinet’s proactive release requirements for Cabinet papers”.

14.4. Disclosure statements for proposed legislation

Agencies must disclose in a standalone statement the Quality Assurance processes they have undertaken during the development of legislation, and key features of that legislation that are likely to be of interest to the public and Parliament

A disclosure statement is separate from a Regulatory Impact Statement. Like the Regulatory Impact Statement, it is an agency document that provides factual information about the development and content of legislation proposed by the government. It largely takes the form of a series of questions that must be answered YES or NO, with further information required to elaborate, explain or clarify the answer given.

The information to be disclosed is linked to existing government expectations for the development of legislation, or to significant or unusual features of legislation that tend to warrant careful scrutiny. The Detailed Guide to Disclosure Statements can be found online at: https://treasury.govt.nz/publications/guide/disclosure-statements-government-legislation-technical-guide-departments-html

15. Improving the quality of Regulatory Impact Statements over time

Learn from previous Quality Assurance processes and build these lessons into future policy processes and projects. Many agencies have policy quality assessment processes that provide for this cycle of learning and ongoing improvement, and these processes are likely to cover both regulatory and other policy.

In addition, the Policy Project publishes a range of guidance and tools on how best to learn from previous policy quality assurance processes, including ex-post quality assessment, peer review and quality assurance panels. Also, *Start Right* – the Policy Project's approach for embedding quality from the outset of policy initiatives – includes mechanisms for incorporating lessons from previous policy processes into new initiatives.

For more information, see the Policy Project webpage (www.dpmc.govt.nz/policyproject) or contact policy.project@dpmc.govt.nz.

Appendix F

New Zealand Container Return Scheme financial model report

New Zealand Container Return Scheme: Overview of financial modelling

Marlborough District Council
Final report | Strictly private and confidential
July 2020

Strictly private and confidential

Alec McNeil
Solid Waste Manager
Marlborough District Council
15 Seymour Street
PO Box 443, Blenheim

30 July 2020

New Zealand Container Return Scheme: Overview of financial modelling

Dear Alec,

We are pleased to provide our final report providing an overview of the financial modelling for the New Zealand Container Return Scheme (CRS) and the accompanying Excel spreadsheet model "CRS Cashflow Model (Final 30.07.20)" (the model).

This report and the accompanying model are provided in accordance with the terms of our consultancy contract dated 25 November 2019 and are subject to the restrictions set out in Appendix A of this report. This report and accompanying model supersede all previous advice and draft documents.

If you have any queries please contact us.

Yours sincerely,

Craig Rice
Partner
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Associate Director
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027 404 5799

Contents

1

Background and scope of work

The NZ CRS project will help New Zealanders to make a difference in reducing waste

Background

> A container return scheme would change the way New Zealanders see beverage containers. They would again become something of value, and we would see increased recycling and new opportunities for refilling

Hon Eugenie Sage
Associate Minister for the Environment

2019 announcement

In September 2019 Associate Minister for the Environment, Hon Eugenie Sage announced that work had begun on the development of a beverage CRS for New Zealand.

The announcement recognised the Government's commitment to 'recharging New Zealand's recycling system'. An estimated 2.4 billion glass, plastic, aluminium, paperboard and other single use drink containers are consumed each year. Many end up in landfills or littering streets, streams, beaches and other public spaces.

Marlborough District Council (MDC) and Auckland Council (AC) are leading the work. MDC and AC ('the NZ CRS project team') are adopting a co-design approach where both councils work closely and collaboratively with a wide range of stakeholders, including end users, the beverage, packaging and recycling industries, central government, retailers, Māori, consumer representatives, and product stewardship groups.

The project team are due to report back on the scheme design in October 2020.

What is a CRS?

A CRS requires beverage containers to carry a fee that reflects the cost of recovering these materials for future reuse and/or recycling. The fee associated with the NZ CRS is split into a refundable deposit and a scheme fee.

A CRS encourages recycling, and helps ensure the costs of waste management are met by producers and consumers, not communities and the environment.

Globally there are now approximately 40 CRS schemes operating. Most Australian states have a CRS, as do parts of Europe and the United States.

Broadly speaking, there are two variants of a CRS, deposit model and a refund model.

- A deposit model is where producers pay the deposit and scheme fees on all containers produced, irrespective of whether they are recycled through the scheme or not.
- Under a refund model, the producer only pays the deposit and scheme fees on containers returned through the scheme.

What is the NZ CRS seeking to achieve?[1]

The key outcomes of the NZ CRS are to:

- Change the way New Zealand values beverage containers, that will see increased recycling and new opportunities for refilling.
- Reduce the volume of plastics and other container litter currently ending up in our streams, marine environment, public spaces and landfills.
- Give effect to circular economy outcomes and any priority product guidelines.

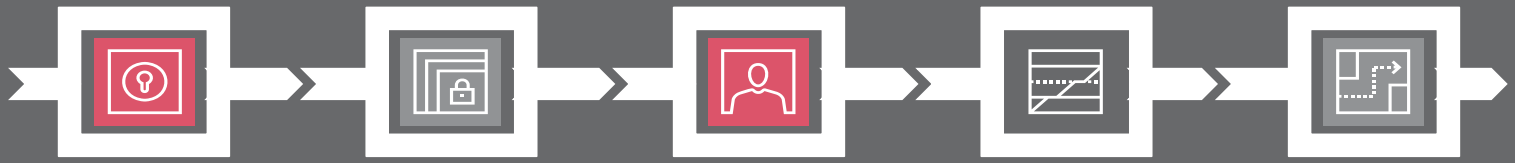
NZ CRS guiding principles include:

- Make it easier and convenient to return containers across New Zealand.
- Design a solution that is cost effective and efficient.
- Improve quality and marketability of recyclables and assess impact of design on current kerbside and other collection and processing systems.
- Create new opportunities for employment, community and iwi participation and fund-raising for charities and social enterprises.

[1]Marlborough District Council and Auckland Council (2020). CRS Design Working Group – Terms of Reference

CRS operations span the beverage producer through to the recycling facility

Scheme overview



Beverage producer

- Produces beverage in container
- Pays a CRS fee to incentivise the return of containers and to cover the costs of recycling beverage container

Retailer

- Sells beverage to consumer on behalf of producer
- Price of beverage includes CRS fee (ie assumption is beverage producer passes on CRS fee to retailer, who in turn passes the fee on to the consumer)

Consumer

- Purchases and consumes beverage
- Returns container to return facility

Return facility

- Receives empty beverage containers and pays out redeemed deposit fee to consumer
- Receives a handling fee for facilitating recycling
- May be a 'reverse vending machine' (RVM), automated depot* or manual facility (such as a community recycling centre)

Materials consolidation and processing facility

- Picks up containers from return facility and bales containers
- Processing facility which recycles the containers
- Sells recycled material

Managing agency

- Oversees the operation of the scheme
- Determines the scheme fee
- Monitors and reports on scheme performance

*Automated depots are specialist return and recycling centres services by staff where containers are automatically sorted.

Parties involved in the operation of a NZ CRS

There are a range of parties involved in the operation of a CRS including:

- the beverage producer
- the retailer
- the consumer
- the container return facility (where the empty eligible beverage container is deposited)
- the materials consolidation facility (where the containers are baled) and processing facility (where materials are recycled into new containers or products)
- and a 'managing agency' (who oversee the operation and performance of the scheme)

CRS fee components

The CRS fee can comprise up to three components:

- **Deposit fee:** A deposit fee is fully refunded when a container is returned to a return facility.
- **Scheme fee:** Covers the costs of recycling an average container through the CRS, including costs of the return facility, transport, materials consolidation facility and managing agency.
- **Advanced material recycling fee:** Additional fee (or negative fee) to reflect cost of recycling a given material. It may also incentivise a shift to materials which are easier and more cost effective to recycle.

The financial model helps inform the NZ CRS design

Scope of services

PwC role

PwC has developed a financial model to help inform the development of New Zealand's CRS design. The purpose of the model is to understand the cashflows (revenues and costs) of operating a CRS in New Zealand. The model calculates the 'cashflow' impact of the managing agency which will administer the scheme. Cashflows include deposit and scheme fee revenue, deposit payments, handling fee payments to return facilities, processing of materials at material consolidation facilities and fixed organisational costs.

The model calculates the impact on consumers (assuming all costs paid by producers are passed through to consumers) for a given set of inputs. The model calculates the additional cost that consumers are paying and the revenue they will receive from redeeming single use beverage containers.

The model also provides indicative estimates of other impacts of a CRS scheme. Impacts include the indicative net savings for kerbside recycling/refuse collection and the indicative net savings of landfill disposal costs.

The model includes five scenarios linked to key design choices (such as glass out of the scheme). It is understood that this model will be an input into the cost benefit analysis (CBA) for the CRS design.

This report and the accompanying model

The modelling methodology or approach, assumptions and limitations are set out in Section 2 of this report. Section 3 summarises the key findings from the model. The appendices of this report are in Section 4.

This report accompanies the delivery of the Excel spreadsheet model "CRS Cashflow Model (Final 30.07.20)".

The version of the model accompanying this report includes the current inputs and assumptions outlined in this document. The model has been designed so that the NZ CRS project team can revise inputs and assumptions to test key scheme design choices as work on the scheme development continues. Any changes to these inputs and assumptions in the model will impact the findings, or model outputs, accordingly.

Link to CRS project team reports

The modelling has been developed using research and information provided by the NZ CRS project team, as well as publicly available information (eg Stats NZ population projections). PwC has worked closely with the project team to develop the model, testing and refining the assumptions.

This report and the accompanying model must be considered in parallel with the work of the CRS project team.

Out of scope

Key matters out of scope include:

- Profit and Loss and Balance Sheet analysis
- Cost benefit analysis
- Tax implications
- Detailed analysis of consumer behaviour (eg price elasticity of demand)
- Detailed analysis of wholesaler, distributor and retailer behaviour (eg extent to which costs will be passed on to consumers)
- Analysis of impacts of scheme on wholesalers, distributors, retailers, domestic and global recycling and refuse markets, (including employment, asset write downs, commercial viability of council and MRF operations).

2 Methodology

PwC has worked closely with the NZ CRS project team to develop and refine the financial model (1 of 2)

Methodology

Overview

The purpose of the model is to help determine the implications of different scheme design choices on the cashflows of the managing agency 'MA'. The model also provides an indicative view of the impacts of the scheme on consumers and local government.

The modelling takes a whole of life view, covering a 30 year period. It includes both upfront and ongoing costs and revenues (associated with the CRS fee and sale of recycled material).

The modelling assumes that the managing agency that operates the scheme is a not-for-profit. Accordingly the scheme fee per container is set to meet the costs of scheme operation.

The modelling assumes establishment costs (eg upfront capex and professional services fees) are incurred from 1 July 2021, with the scheme beginning operation from 1 July 2022.

CRS fee payments by producers are made one month in arrears.

A loan will be required to finance the establishment costs and provide working capital due to CRS payments being in arrears.

The modelling also assumes that the CRS fee will be passed on in full to the consumer, and that the increase in the cost of the beverage will result in additional GST. No impact on consumer purchasing behaviour as a result of the scheme fee has been factored in at this point in time.

Finally, the modelling assumes that the scheme will be required to refund deposits to councils and/or materials recycling facility 'MRF' operators for kerbside containers collected. The modelling does not factor in costs or revenues from processing containers collected via kerbside, as these will continue to be processed through council materials recycling facilities.

Figure 1 overleaf provides a summary of the key inputs and outputs of the model.

Model functionality

The model has been designed to help understand the cashflow implications of different scheme design choices. Accordingly, users of the model can easily alter the following variables to help understand the implications of each variable on the scheme:

- Volume
- Deposit model vs refund model
- Deposit fee (eg 10c, 20c, 30c)
- Scheme fee
- Advanced material recycling fee (by plastic, liquid paperboard, metal, glass)
- Loan and financing terms
- Return rate (starting, max, period between starting and max)
- Kerbside return rate
- Materials in and out (by plastic, liquid paperboard, metal, glass)
- Number of people per collection point
- Proportion of containers returned by return facility type (manual only, automated depot, reverse vending machine)
- Whether or not deposit fee payments are for containers collected through kerbside

The model has been built so that users can update inputs as further information becomes available. Examples of inputs users may wish to update include:

- Handling fee (paid to return facilities)
- Materials consolidation facility 'MCF' capex and opex costs (e.g. land costs, balers, conveyors and silos, depot cages, conveyor belts, transport costs, processing costs, staff costs, utilities costs)
- MCF materials revenue
- MA costs (e.g. professional services, staff costs, other expenses, administration costs, marketing and communications costs, leases etc.)
- Kerbside recycling costs
- Landfill costs
- Population forecasts

Pages 12-14 summarise the inputs and assumptions used in the 20c refund model noting that (as above) the model has been designed so that inputs and assumptions can be altered as work on the scheme development continues.

Sensitivity testing

The model also includes sensitivity testing to understand the implications of key variables on the modelling. Sensitivities modelled include:

- Container return rates: The impact of a ±5% change in return rates.

PwC has worked closely with the NZ CRS project team to develop and refine the financial model (2 of 2)

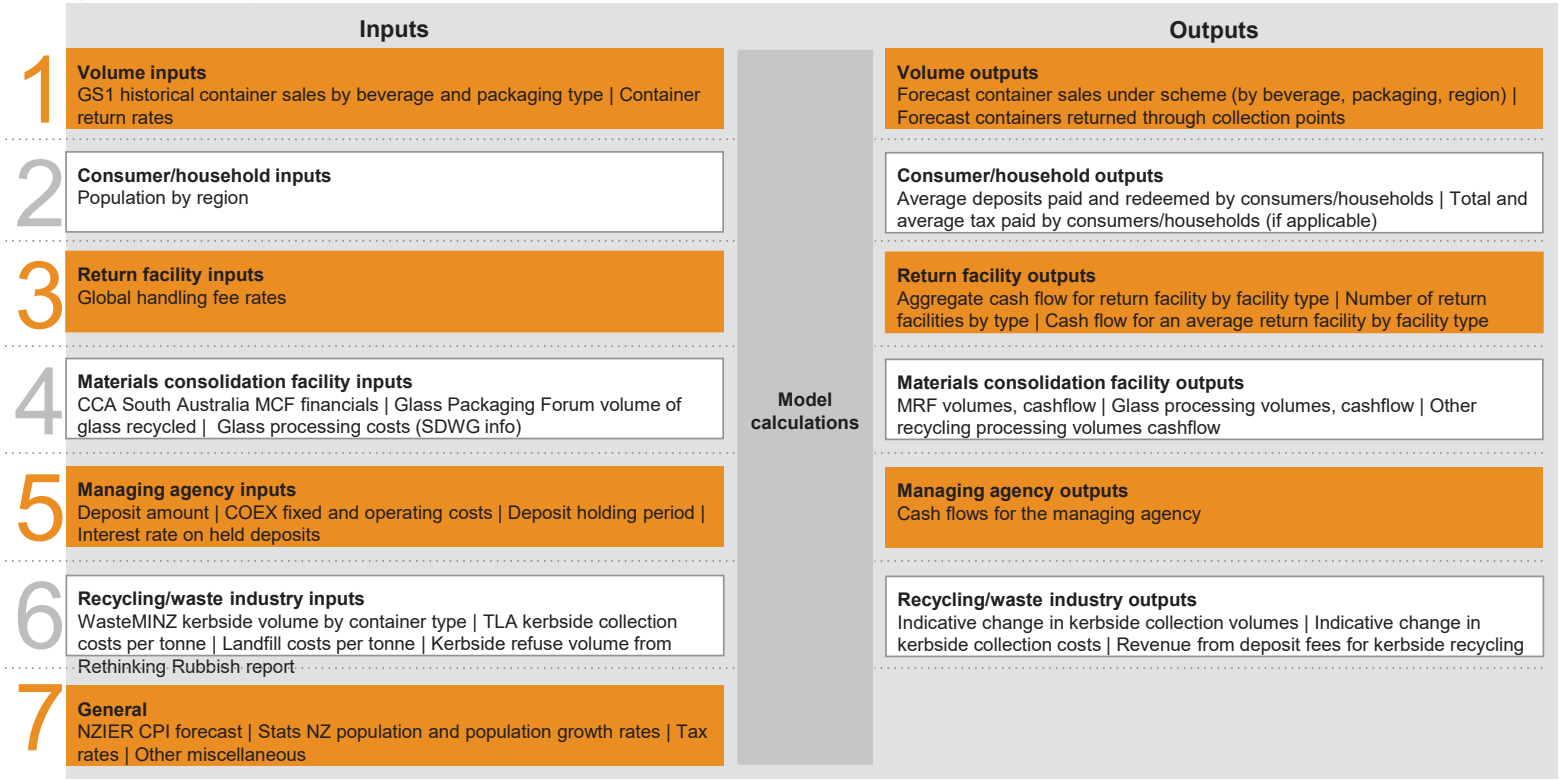
Methodology

- Container volume: The impact of ±5% change in container volume sales.
- Scheme costs: The impact of ±5% change in scheme costs.

Relationship between inputs

Many of the inputs and assumptions included in the model are interdependent. The model does not seek to incorporate the interactions between inputs. This is because they are complex and involve multiple inputs (eg return rates can be affected by a range of scheme design choices, such as deposit fees and number of return facilities). In making changes to inputs and assumptions in the model, users will need to review other model inputs and assumptions to ensure their appropriateness.

Figure 1. Summary model map



The financial model allows for comparison between the deposit and refund models

Overview of the deposit and refund models

A deposit model involves the beverage producer paying a deposit fee and scheme fee for all containers sold to the market, regardless of whether eligible containers are returned or not.

A refund model involves the producer paying fees on all containers sold, but equal to the value which will cover the costs of containers returned through the scheme. This can mean that for schemes where return rates are low, the fees per container may be less than the value of the deposit.

Financial model implications

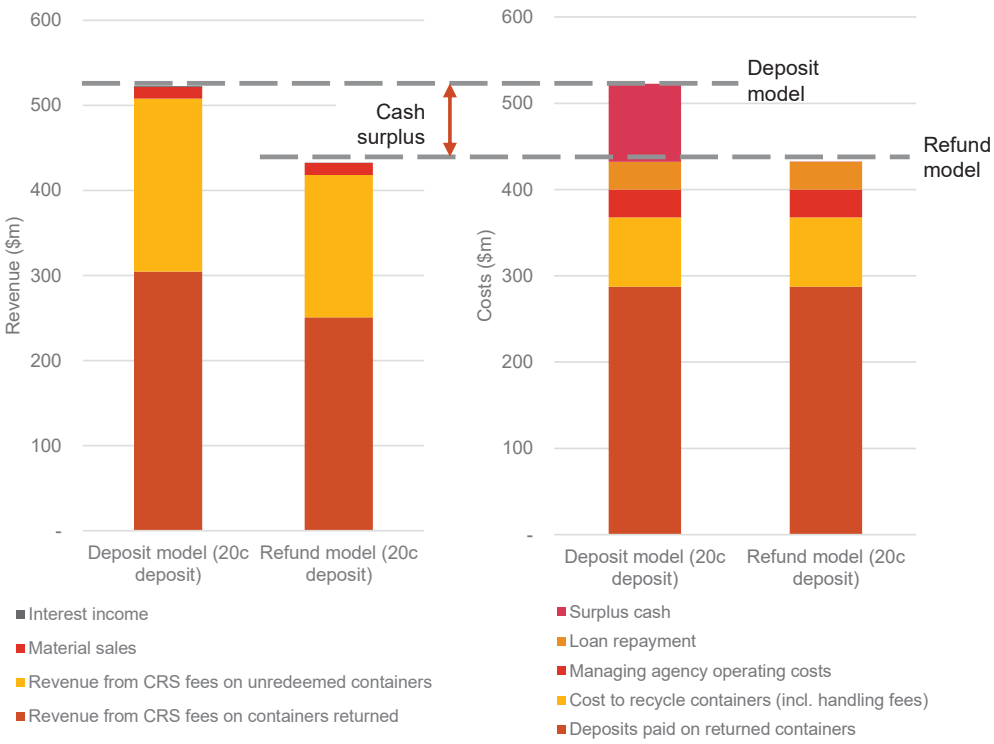
The deposit and refund models are treated differently in the financial modelling.

To set the CRS fee under the refund model, the financial model calculates the costs to run the scheme (less revenue from materials) for each year and then divides the value by the number of containers sold that are eligible for the scheme. The derived value is equal to the CRS fees per container.

For the deposit model, the scheme fee is an 'input' where the user of the financial model sets the scheme fee in addition to the deposit fee. The scheme fee grows at a constant rate of 2.6% p.a. to adjust for increasing scheme costs. The implication of this is that a deposit model will generate cash surpluses when the return rate is low (as seen in Figure 2).

The financial model has functionality to reset the scheme fee under the deposit model every five years, which allows for a lower scheme fee in the initial years of a CRS where the return rate is lower. Setting a reduced scheme fee within the first 5 year period reduces the surplus the scheme creates.

Figure 2. Scheme revenue and costs for year 1 under a deposit and refund model



The modelling uses inputs and assumptions based on information provided on CRS schemes globally (1 of 3)

Assumptions

Table 1. Key assumptions – 20c refund model

Category	Assumption title	Assumption	Source and/or rationale
CRS fee	**Deposit fee**	20c per container	• Year one deposit fee assumption provided by project team (refer Tranche 3 report, Section 12)
	Scheme fee	Variable each year, the fee is set to ensure the scheme is fiscally neutral	• Determined as a result of the modelling to cover scheme costs including costs of the return facility, transport, materials consolidation facility and managing agency (deposit model sets the scheme fee in years 1 and year 5, this then grows at 2.6% per annum)
	Advanced material recycling fee	0c per container	• Instructed by CRS project team to set to 0c noting the model has the functionality to implement the fee • The fee can be set on each material type at differing rates to capture the true cost of recycling each material type
Volume assumptions	**Forecast growth in container volume**	2.03% across all container types	• GS1 historical volume sales CAGR 2017-2019
	Return rate (% of containers returned through CRS and kerbside)	60% rising to 85% 5 years from scheme operation start date	• Assumption provided by project team (refer Tranche 3 report, Section 12), a conservative view in line with newly introduced schemes in New South Wales and Queensland

Table 1. Key assumptions – 20c refund model (cont.)

Category	Assumption title	Assumption	Source and/or rationale
		rising to 80% under scenario 4, 'fewer return facilities'	
Return facility	**Number of people per collection point**	12,500	• Assumption provided by project team (refer Tranche 3 report, Section 5)
	Handling fee (a component of the scheme fee paid to the return facility to cover its costs)	6.3c per container (20% increase under scenario 3, 'glass out')	• Based on Queensland CRS model adjusted to NZD, benchmarked against other Australian schemes • Scenario 3 assumption provided by project team.
Materials consolidation facility	**Capex (metal, plastic and liquid paperboard)**	Land costs: $5.7m Balers, conveyors and silos: $33.4m Depot cages: $8.0m Conveyor belts: $0.3m (model assumes belts require replacing every 4 years) Above assumptions are all based on year 0 of operation	• Land costs at $150m² (FY20 real), sourced from latest available online council rating valuation data • Land costs assume ~3.6ha required across all facilities (based on CCA South Australia super MRF) • Remaining capex costs based on CCA South Australia super MRF capex, adjusted for NZD and required NZ container capacity. CCA South Australia expected to be broadly indicative of NZD materials consolidation facility capex as stipulated by project team

The modelling uses inputs and assumptions based on information provided on CRS schemes globally (2 of 3)

Assumptions

Table 1. Key assumptions – 20c refund model (cont.)

Category	Assumption title	Assumption	Source and/or rationale
Materials consolidation facility (cont.)	**Opex (metal, plastic and liquid paperboard)**	Transport costs: $3.9m Staff costs: $3.3m Utilities costs: $0.6m	• Based on CCA South Australia super MRF opex adjusted for NZD and New Zealand container volumes
	Opex (glass)	Transport costs: $11.4m Cost to crush glass: $0m in first year	• Transport costs based on $112 per tonne (provided by project team) • Net cost to crush glass based on $90 per tonne (provided by members of the SDWG) • It is assumed glass processing facility O-I bottle capacity is 128,000 tonnes, when this capacity is reached, excess glass is crushed for other uses
	Revenue (glass)	Revenue from glass sent to OI: $7.1m	• Revenue based on $70 per tonne (provided by members of the SDWG). Applicable to containers sent to O-I assuming capacity of 128,000 tonnes.
	Net revenue after export costs (metal, plastic and liquid paperboard)	Metal:$3.5m Plastic: $4.7m Liquid paperboard: ($1.4m)	• Net revenue for metal based on $1150 per tonne • Net revenue for plastic per tonne based on $315 per tonne • Net revenue for liquid paperboard based on ($180) per tonne • Assumptions provided by CRS project team (refer Tranche 4 report, Section 18)

Table 1. Key assumptions – 20c refund model (cont.)

Category	Assumption title	Assumption	Source and/or rationale
Managing agency	**Establishment costs**	Professional services: $8.7m Employee benefits: $0.2m Other expenses: $1.6m	• Based on Queensland CRS model adjusted for NZD, as stipulated by project team given similarities in scheme nature and size
	Fixed costs during scheme operation	Admin and support services: $10.5m Professional services: $3.7m Marketing and communications: $5.3m Employee benefits: $3.5m Other expenses: $6.6m Office lease: $0.1m	• Based on Queensland CRS model adjusted for NZD, as stipulated by project team given similarities in scheme nature and size (including the composition of the managing agency which is expected to be broadly similar) • Note: Other expenses largely includes outsourced IT costs. Admin and support services are high due to large amounts of customer queries. Professional services includes legal, accounting, external audit and other consultancy costs.
	Loan (to fund scheme establishment and ongoing costs until payments in arrears received)	$87.5m at 5% interest (paid back within 3 years) • $47.0m for MCF capex • $29.0m for initial working capital • $11.4m for MA fixed costs in pre-implementation year • Remainder to cash reserves	• Quantum required to ensure scheme has sufficient funding to operate

The modelling uses inputs and assumptions based on information provided on CRS schemes globally (3 of 3)

Assumptions

Table 1. Key assumptions – 20c refund model (cont.)

Category	Assumption title	Assumption	Source and/or rationale
Recycling and waste industry	**% reduction in kerbside containers due to CRS**	85% across all container types (refuse and recycling)	• Assumption provided by project team (refer Tranche 3 report, Section 12) which is informed off Australian experience
	Kerbside recycling cost	$144 per tonne	• Average kerbside costs provided by 7 TLAs which responded to information request (commercial in confidence)
	Landfill costs	$79 per tonne	• "Reducing waste: a more effective landfill levy" MFE consultation document
General	**GST rate**	15%	• IRD
	CPI forecasts	1.94% - 2.04%	• NZIER
	Population forecasts	0.40% - 1.70%	• Stats NZ
	Rolling 12 month average exchange rate NZD/AUD	0.9494	• IRD mid month March 2020 currency rates

The model runs five scenarios, with different key inputs

Scenarios

Scenarios

The modelling includes five scenarios linked to key scheme design choices. The scenarios help to demonstrate the implications of different choices on volumes, cash flows and consumers.

It is important to note that these scenarios are illustrative, created to help demonstrate the implications of several of the scheme design choices. The model has been designed so that the scenarios and other inputs and assumptions in the model can be altered to test key scheme design choices as work on the scheme development continues.

The scenarios are summarised in Table 2 and are:

1. 20c refund model
2. 10c refund model
3. 20c glass out refund model
4. 30c refund model
5. 20c deposit model

Table 2. CRS model scenarios (changes from scenario 1 in pink)

Key characteristics	1. 20c refund model	2. 10c refund model	3. 20c Glass out refund model	4. 30c refund model	5. 20c deposit model
Deposit or refund model	Refund	Refund	Refund	Refund	Deposit
Material included	Plastic Liquid paperboard Metal Glass	Plastic Liquid paperboard Metal Glass	Plastic Liquid paperboard Metal Glass excluded	Plastic Liquid paperboard Metal Glass	Plastic Liquid paperboard Metal Glass
CRS fee	20c deposit fee scheme fee calculated yearly 0c advanced material recycling fee	10c deposit fee scheme fee calculated yearly 0c advanced material recycling fee	20c deposit fee scheme fee calculated yearly 0c advanced material recycling fee	30c deposit fee scheme fee calculated yearly 0c advanced material recycling fee	20c deposit fee 1.2c scheme fee in year one, 4.9c in year five, growing at 2.6% p.a. thereafter 0c advanced material recycling fee
Return rate on eligible containers (includes containers returned through kerbside)	60% starting return rate 85% max return rate	60% starting return rate 85% max return rate	60% starting return rate 85% max return rate	60% starting return rate 85% max return rate	60% starting return rate 85% max return rate
% of kerbside containers redirected to return facilities (recycling and refuse)	85%	85%	85%	85%	85%
Number of people per collection point	12,500	12,500	12,500	12,500	12,500
Loan to finance establishment costs and provide working capital	$87.5m	$75.5m	$76.8m	$99.5m	$87.5m

Modelling limitations have varying impacts on findings

Limitations

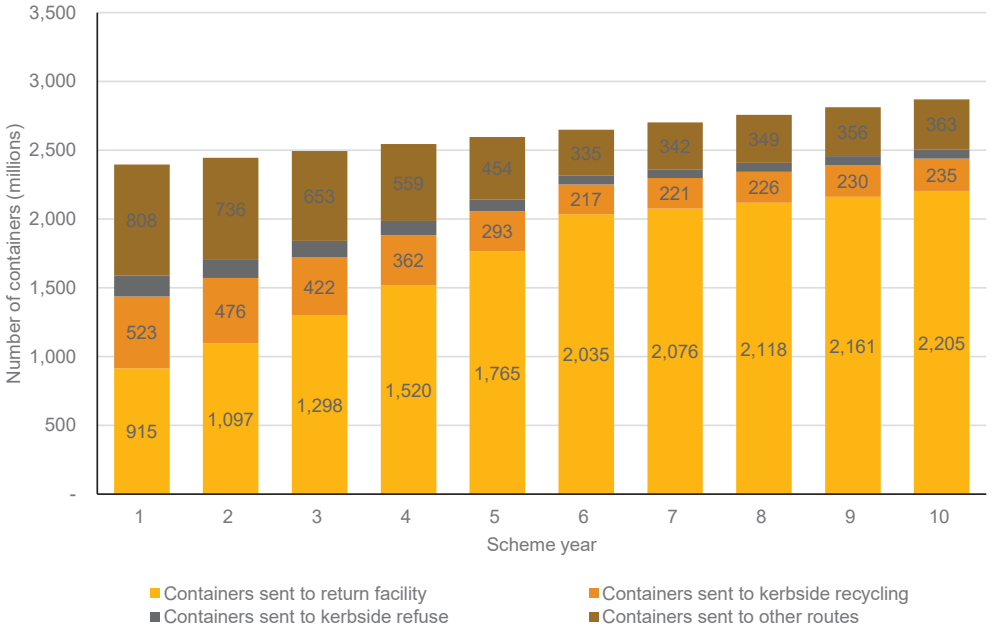
The modelling includes a number of limitations, each with varying impacts on the findings. Further changes to inputs in the model can be made as information becomes available to help address or refine some of these limitations.

- The model assumes deposit, scheme and advanced materials recycling fees (if applicable) are passed through to the consumer – in practice some producers may choose to absorb these costs and consequently reduce their margins.
- Due to limited information the model does not factor in any additional compliance costs or increases to margin that producers and retailers may choose to pass on to the consumer.
- The model assumes a 6.5% decrease in the volume of containers consumed upon CRS commencement, based on experience from like Australian schemes – in practice consumers' consumption patterns may differ.
- The model assumes a handling fee which reflects costs and profit margins from return facilities in Australian schemes. In New. Zealand the actual costs may vary from what the model assumes
- The model assumes MCFs are built prior to scheme operation and allow for sufficient capacity for 30 years (the period of the model). In practice the phasing for the construction of the MCFs may differ.
- Based on the information available, the model assumes the managing agency controls and funds the materials consolidation facilities, with resulting capex and opex implications. The managing agency may prefer to procure these services from third parties.
- The model does not assume Managing Agency surpluses are reinvested into broader scheme outcomes (eg different processing capabilities). In practice the Managing Agency may seek approval to invest surpluses to improve social, environmental and economic outcomes.
- The model assumes the managing agency will make deposit payments to councils and/or MRF operators for their kerbside containers. Other costs for kerbside containers (eg handling fee and materials consolidation costs) are not included.
- The model provides indicative kerbside cost savings based on limited information from councils regarding their kerbside refuse and recycling costs and costs of landfill. Actual costs, and therefore savings, may differ.

3 Summary of findings

60% (1.4b) of all containers will be sent through the scheme in the first year of operation ~38% (0.9b) will be through return facilities

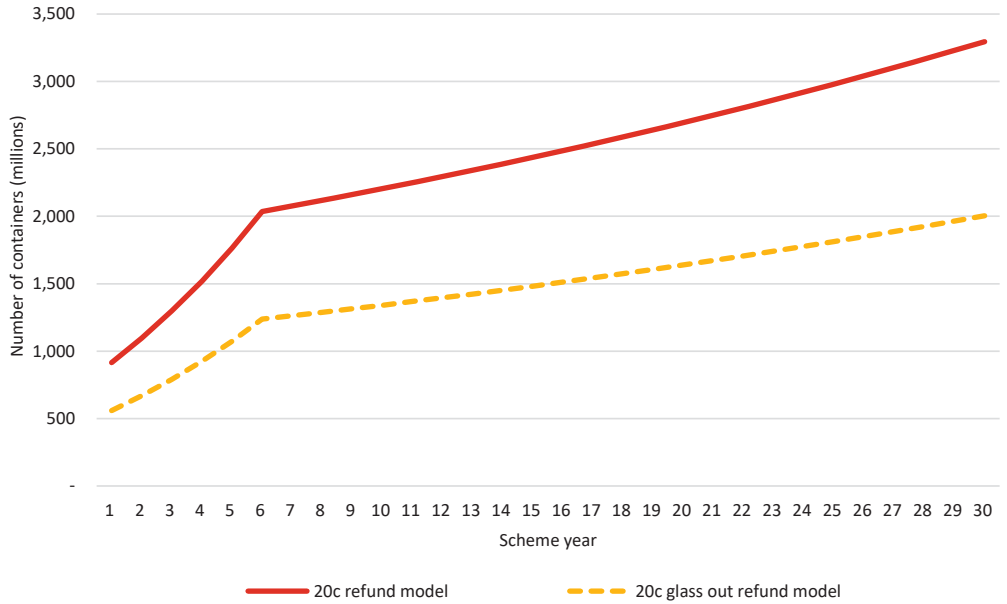
Figure 3. Container volumes - 20c refund model



Note: 'Other routes' refers to material flow we have not analysed (eg into the environment, city bins, etc.)

Source: PwC analysis based on inputs and assumptions outlined in this report and provided to MDC in the Excel spreadsheet model "CRS Cashflow Model (Final 30.07.20)". Should the underpinning inputs and assumptions change the above results may change.

Figure 4. Number of containers sent to return facilities - all scenarios



Note: Because the return rate has been set to 60% rising to 85% over five years, the volume of containers is the same for all scenarios except '20c glass out refund model'.

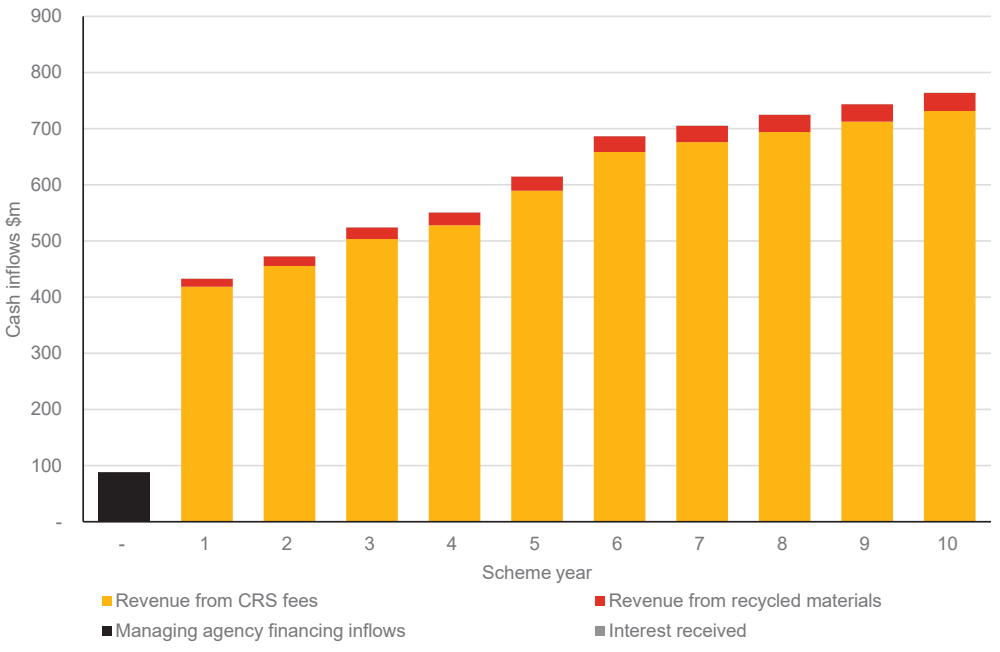
Source: PwC analysis based on inputs and assumptions outlined in this report and provided to MDC in the Excel spreadsheet model "CRS Cashflow Model (Final 30.07.20)". Should the underpinning inputs and assumptions change the above results may change.

Deposit fee payments comprise the highest cost to the MA, at ~$290m in year 1 of operation under a 20c refund model

Figure 5. Managing agency cash outflows – 20c refund model

Source: PwC analysis based on inputs and assumptions outlined in this report and provided to MDC in the Excel spreadsheet model "CRS Cashflow Model (Final 30.07.20)". Should the underpinning inputs and assumptions change the above results may change.

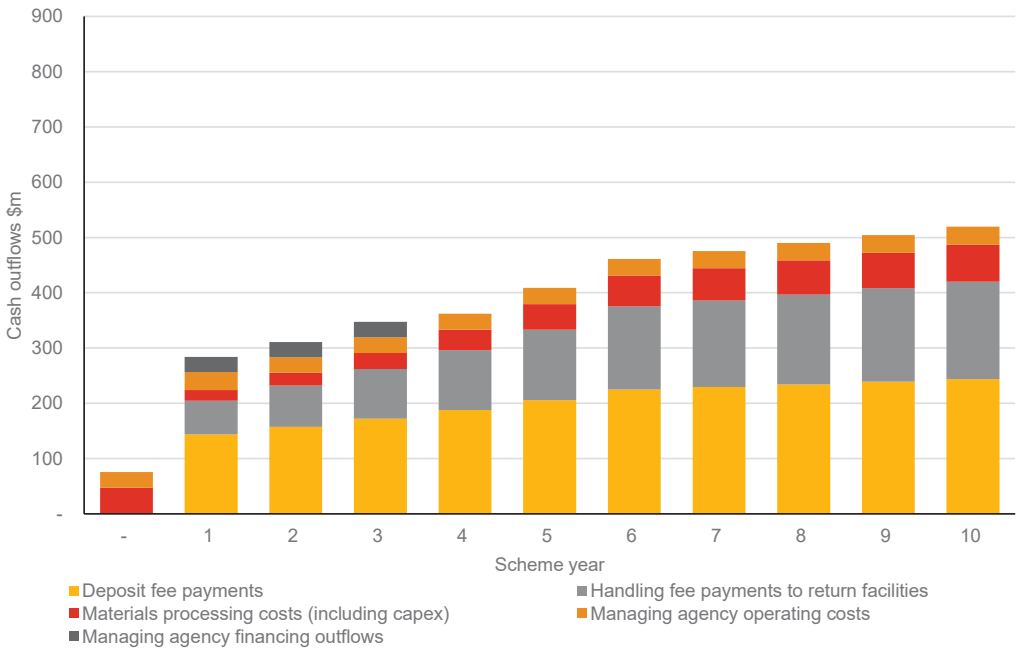
Figure 6. Managing agency cash inflows – 20c refund model



Source: PwC analysis based on inputs and assumptions outlined in this report and provided to MDC in the Excel spreadsheet model "CRS Cashflow Model (Final 30.07.20)". Should the underpinning inputs and assumptions change the above results may change.

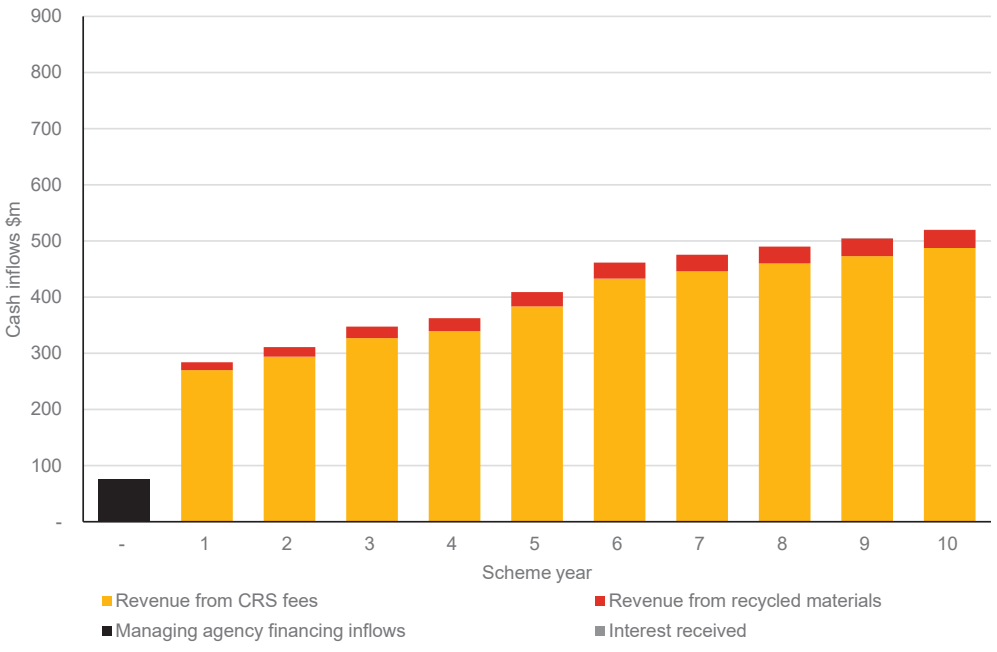
All else held constant, MA costs for a 10c refund model are ~33% lower than a 20c refund model over a 10 year period

Figure 7. Managing agency cash outflows – 10c refund model



Source: PwC analysis based on inputs and assumptions outlined in this report and provided to MDC in the Excel spreadsheet model "CRS Cashflow Model (Final 30.07.20)". Should the underpinning inputs and assumptions change the above results may change.

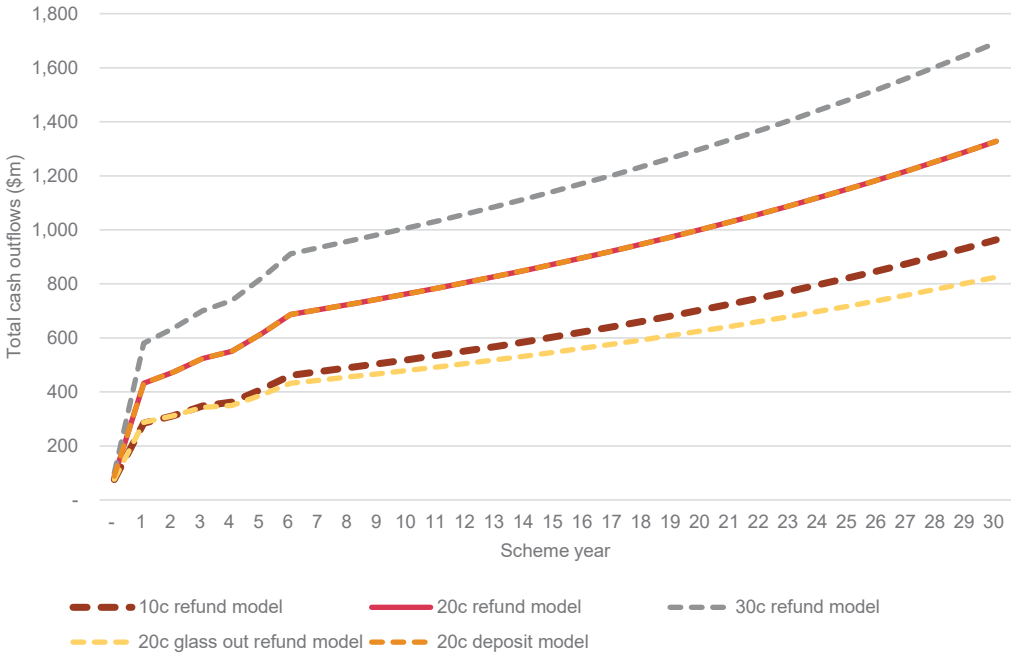
Figure 8. Managing agency cash inflows – 10c refund model



Source: PwC analysis based on inputs and assumptions outlined in this report and provided to MDC in the Excel spreadsheet model "CRS Cashflow Model (Final 30.07.20)". Should the underpinning inputs and assumptions change the above results may change.

Differing deposit fees has a significant impact on cashflows across scenarios

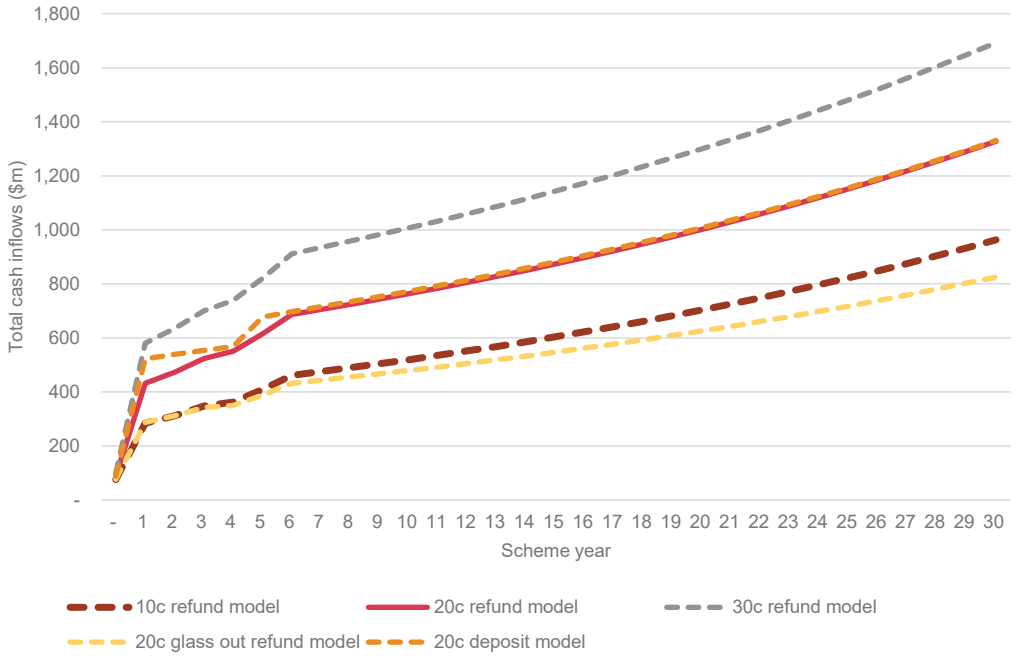
Figure 9. Managing agency cash outflows – all scenarios



Note: Cash flows for the 20c refund model and the refund model are the same.

Source: PwC analysis based on inputs and assumptions outlined in this report and provided to MDC in the Excel spreadsheet model "CRS Cashflow Model (Final 30.07.20)". Should the underpinning inputs and assumptions change the above results may change.

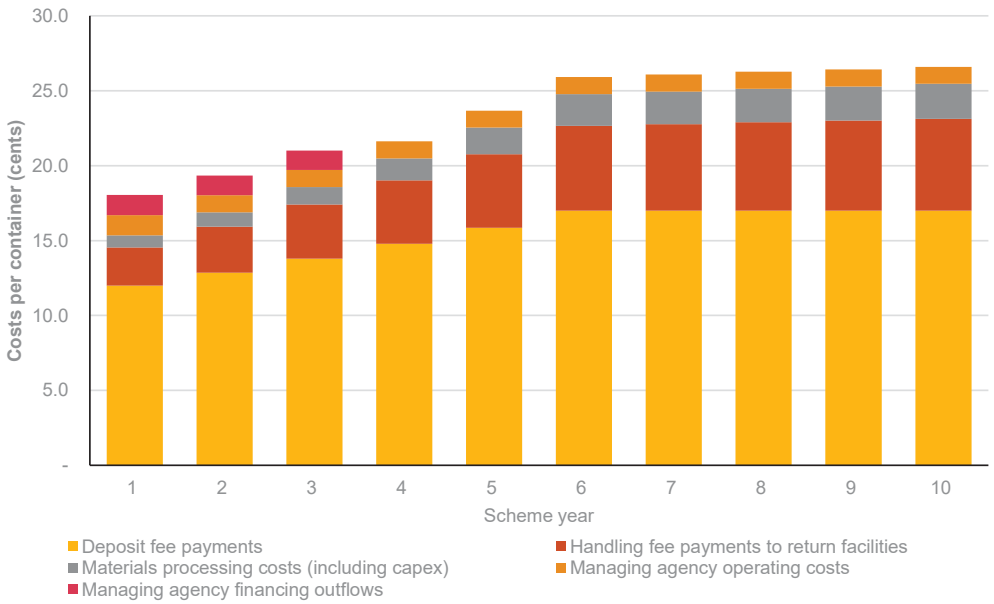
Figure 10. Managing agency cash inflows – all scenarios



Source: PwC analysis based on inputs and assumptions outlined in this report and provided to MDC in the Excel spreadsheet model "CRS Cashflow Model (Final 30.07.20)". Should the underpinning inputs and assumptions change the above results may change.

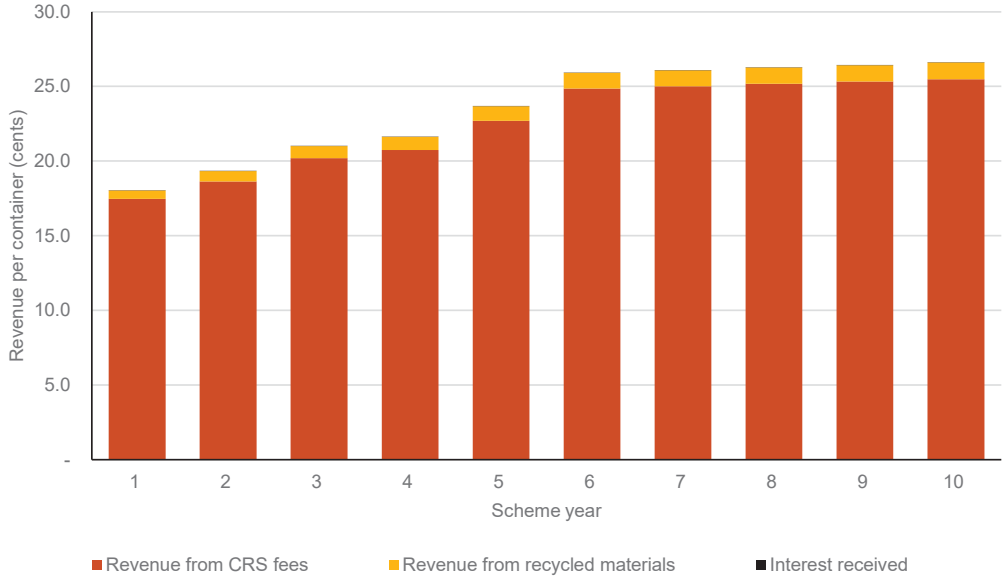
From year 6, when scheme is in steady state, MA costs on a per container basis are 26c on average under a 20c refund model

Figure 11. Managing agency costs per container – 20c refund model



Source: PwC analysis based on inputs and assumptions outlined in this report and provided to MDC in the Excel spreadsheet model "CRS Cashflow Model (Final 30.07.20)". Should the underpinning inputs and assumptions change the above results may change.

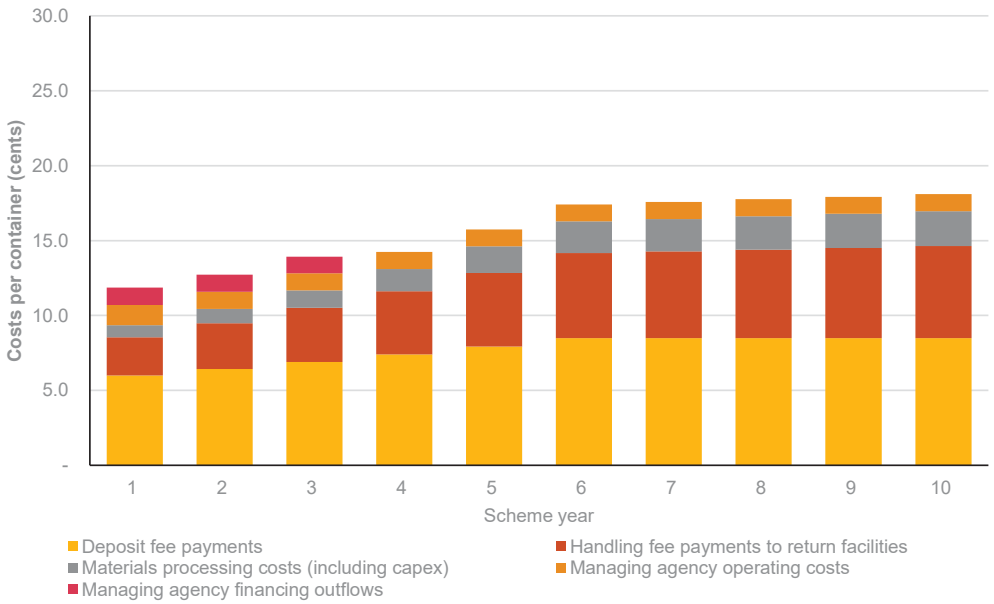
Figure 12. Managing agency revenue per container – 20c refund model



Source: PwC analysis based on inputs and assumptions outlined in this report and provided to MDC in the Excel spreadsheet model "CRS Cashflow Model (Final 30.07.20)". Should the underpinning inputs and assumptions change the above results may change.

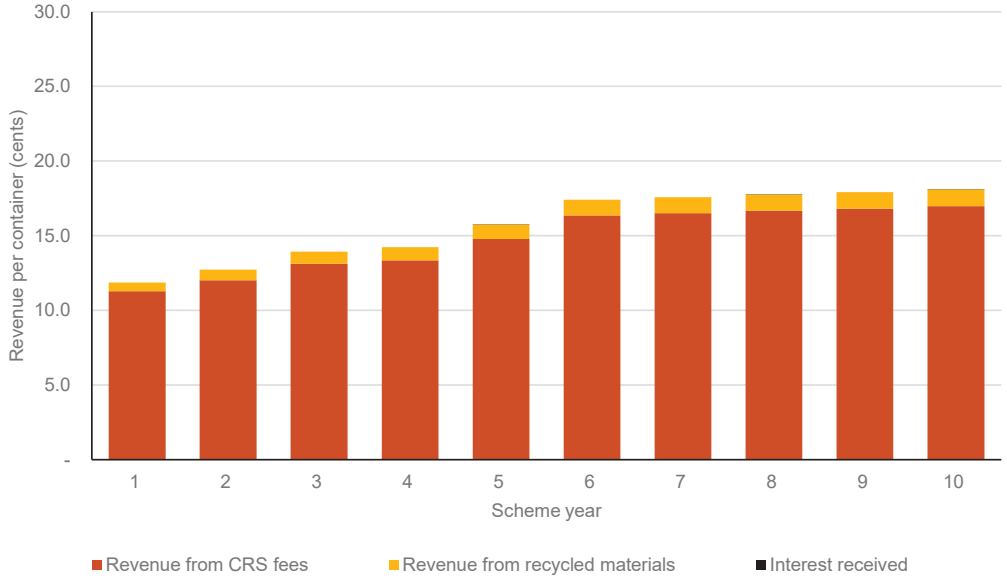
All else held constant, MA cost per container for a 10c refund model is between 6.2-8.5c less than a 20c refund model (from year 6)

Figure 13. Managing agency costs per container – 10c refund model



Source: PwC analysis based on inputs and assumptions outlined in this report and provided to MDC in the Excel spreadsheet model "CRS Cashflow Model (Final 30.07.20)". Should the underpinning inputs and assumptions change the above results may change.

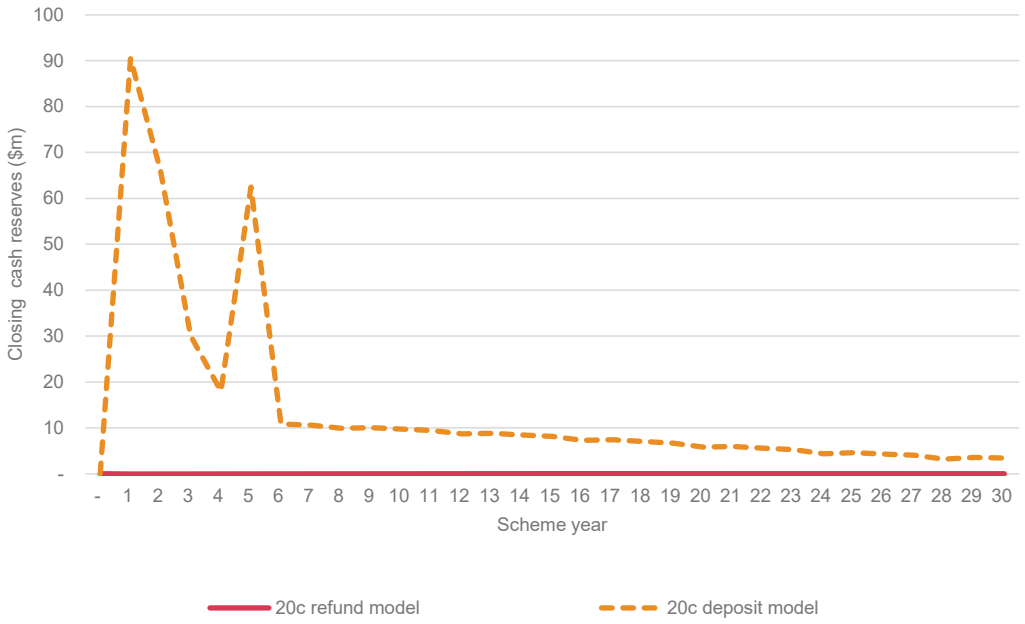
Figure 14. Managing agency revenue per container – 10c refund model



Source: PwC analysis based on inputs and assumptions outlined in this report and provided to MDC in the Excel spreadsheet model "CRS Cashflow Model (Final 30.07.20)". Should the underpinning inputs and assumptions change the above results may change.

Refund models do not generate any significant surpluses, whereas the deposit model generates cash reserves which can be used for other purposes

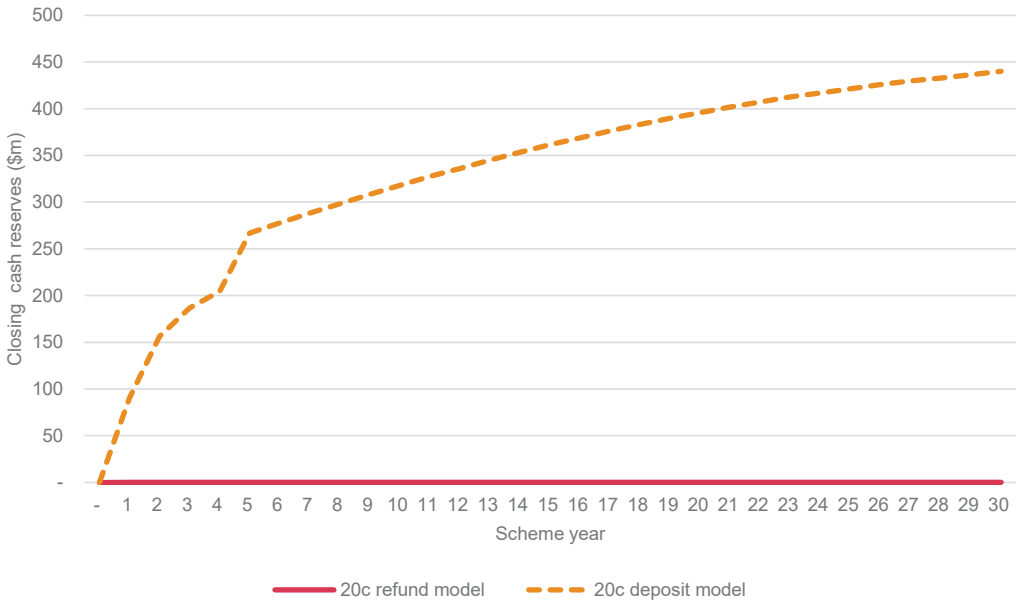
Figure 15. Managing agency surplus/deficit - all scenarios



Note: Other refund scenarios create the same surplus and have therefore been excluded

Source: PwC analysis based on inputs and assumptions outlined in this report and provided to MDC in the Excel spreadsheet model "CRS Cashflow Model (Final 30.07.20)". Should the underpinning inputs and assumptions change the above results may change.

Figure 16. Managing agency cash reserves - all scenarios

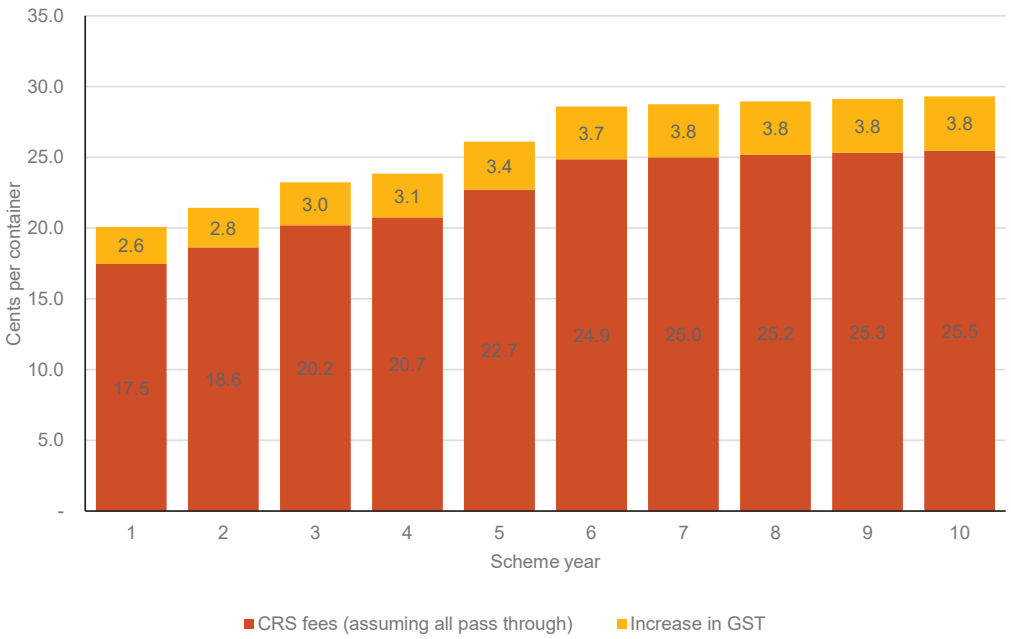


Note: Other refund scenarios create the same cash reserves and have therefore been excluded

Source: PwC analysis based on inputs and assumptions outlined in this report and provided to MDC in the Excel spreadsheet model "CRS Cashflow Model (Final 30.07.20)". Should the underpinning inputs and assumptions change the above results may change.

All else held constant, consumers could pay ~20-30c more per container under a 20c refund model and ~13-19c under a 10c refund model

Figure 17. Increased cost per container – 20c refund model



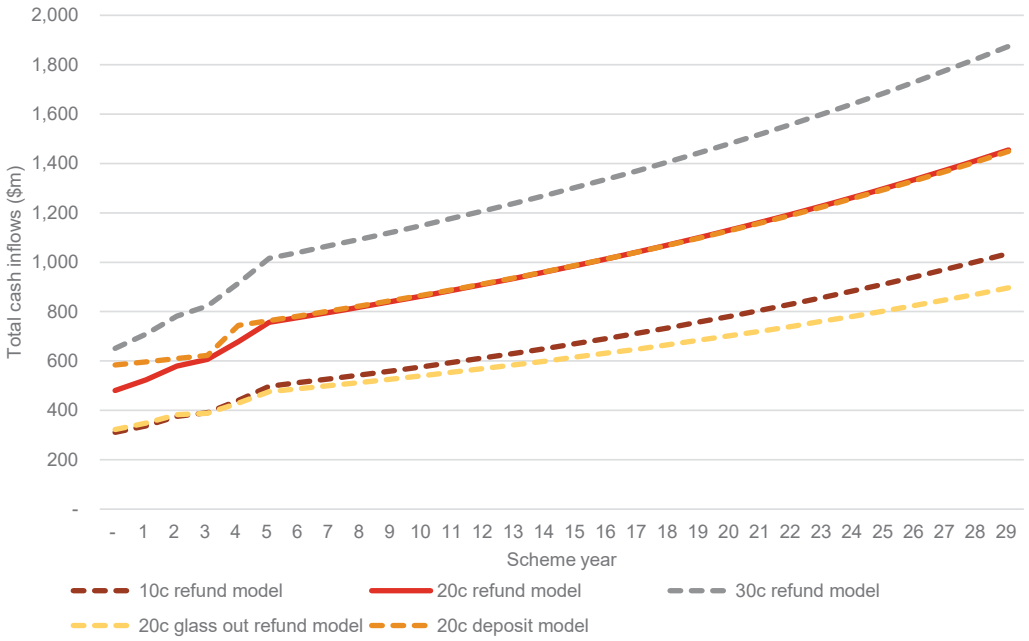
Source: PwC analysis based on inputs and assumptions outlined in this report and provided to MDC in the Excel spreadsheet model "CRS Cashflow Model (Final 30.07.20)". Should the underpinning inputs and assumptions change the above results may change.

Figure 18. Increased cost to consumers – 10c refund model

Source: PwC analysis based on inputs and assumptions outlined in this report and provided to MDC in the Excel spreadsheet model "CRS Cashflow Model (Final 30.07.20)". Should the underpinning inputs and assumptions change the above results may change.

All else held constant, New Zealanders could pay between ~$4.3b - $9.2b more for beverages over the first 10 year period depending on the scheme design choice

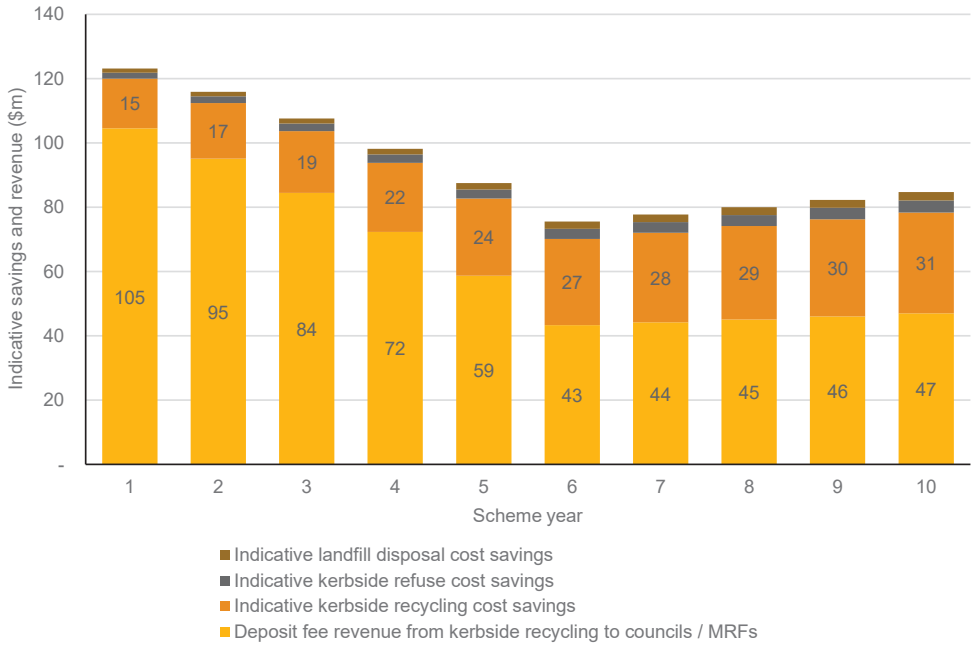
Figure 19. Increased cost to consumers – all scenarios



Source: PwC analysis based on inputs and assumptions outlined in this report and provided to MDC in the Excel spreadsheet model "CRS Cashflow Model (Final 30.07.20)". Should the underpinning inputs and assumptions change the above results may change.

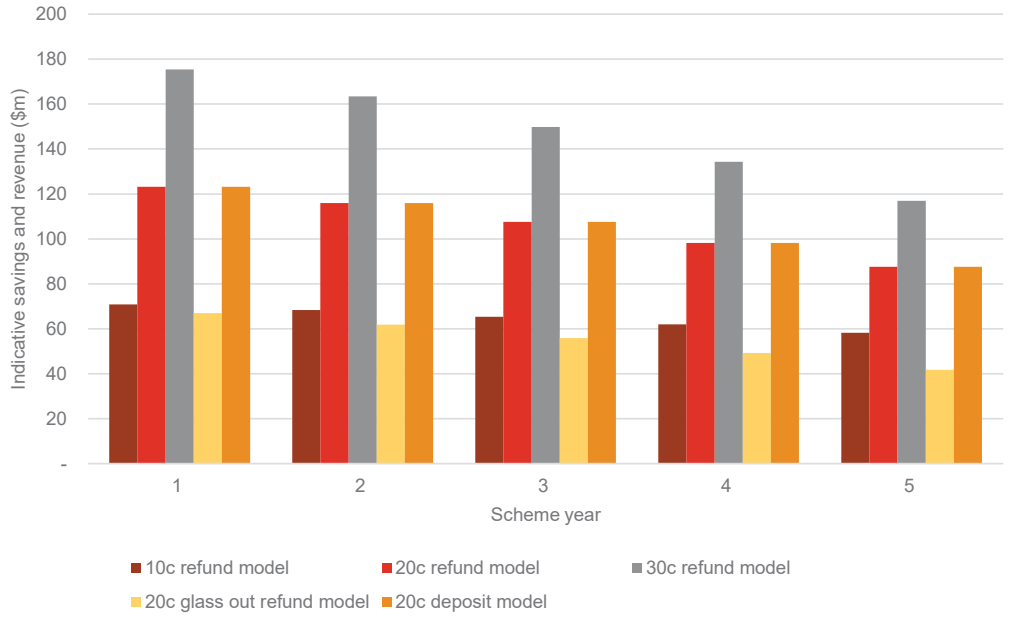
Local government and/or MRF operators receive revenue from deposit fees and save costs to kerbside collection and landfill

Figure 20. Indicative benefits to local government / MRF operators – 20c refund model



Source: PwC analysis based on inputs and assumptions outlined in this report and provided to MDC in the Excel spreadsheet model "CRS Cashflow Model (Final 30.07.20)". Should the underpinning inputs and assumptions change the above results may change.

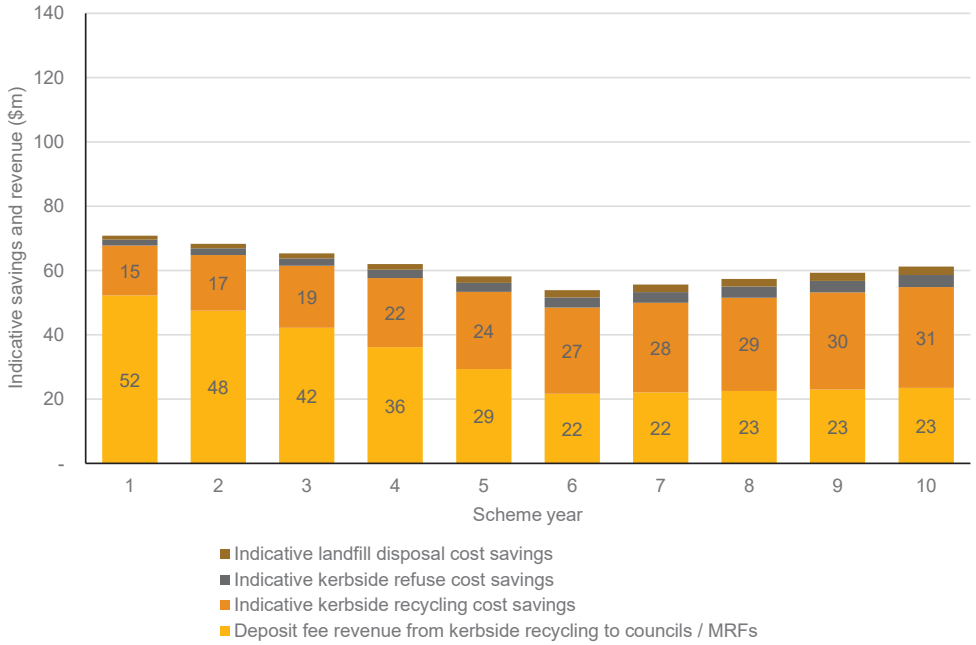
Figure 21. Indicative benefits to local government / MRF operators - all scenarios



Source: PwC analysis based on inputs and assumptions outlined in this report and provided to MDC in the Excel spreadsheet model "CRS Cashflow Model (Final 30.07.20)". Should the underpinning inputs and assumptions change the above results may change.

All else held constant, reducing the deposit amount from 20c to 10c, reduces the indicative benefits to local government / MFR operators by ~$320m over a 10 year period

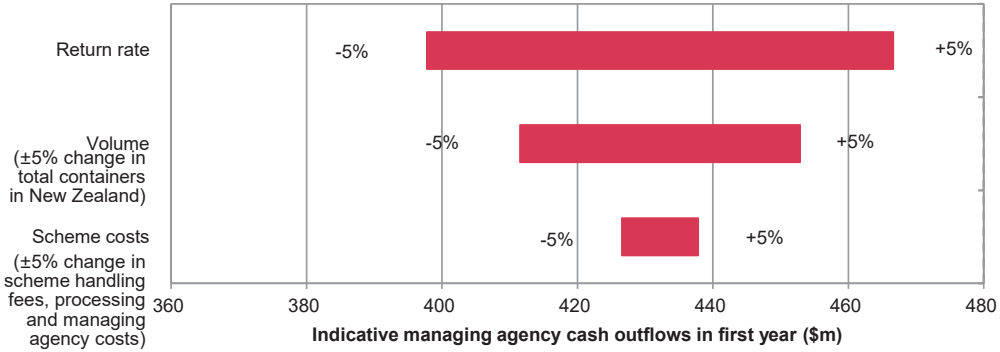
Figure 22. Indicative benefits to local government / MRF operators – 10c refund model



Source: PwC analysis based on inputs and assumptions outlined in this report and provided to MDC in the Excel spreadsheet model "CRS Cashflow Model (Final 30.07.20)". Should the underpinning inputs and assumptions change the above results may change.

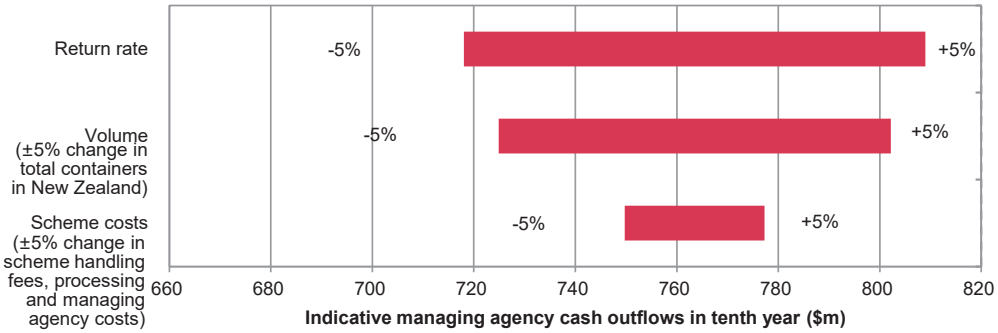
Changes in return rates have the largest impact on cash outflows

Figure 23. Impact of sensitivities on managing agency outflows - year 1 – 20c refund model



Source: PwC analysis based on inputs and assumptions outlined in this report and provided to MDC in the Excel spreadsheet model "CRS Cashflow Model (Final 30.07.20)". Should the underpinning inputs and assumptions change the above results may change.

Figure 24. Impact of sensitivities on managing agency outflows - year 10 – 20c refund model



Source: PwC analysis based on inputs and assumptions outlined in this report and provided to MDC in the Excel spreadsheet model "CRS Cashflow Model (Final 30.07.20)". Should the underpinning inputs and assumptions change the above results may change.

4

Appendices

Appendix A: Restrictions

This report and the accompanying Excel spreadsheet model "CRS Cashflow Model (Final 30.07.20)" have been prepared for Marlborough District Council (MDC) to assist MDC and members of the New Zealand Container Return Scheme Project Team ('the NZ CRS project team') to understand the costs associated with the design decisions of a container return scheme (CRS) for New Zealand. This report and the accompanying Excel spreadsheet model have been prepared solely for this purpose and should not be relied upon for any other purpose. We accept no liability to any party should they be used for any purpose other than that for which they were prepared.

This report and the accompanying Excel spreadsheet model have been prepared solely for use by MDC and may not be copied or distributed to third parties without our prior written consent, though we note that MDC will share a copy with the NZ CRS project team and other agreed stakeholders.

To the fullest extent permitted by law, PwC accepts no duty of care to any third party in connection with the provision of this report and the accompanying Excel spreadsheet model and/or any related information or explanation (together, the "Information"). Accordingly, regardless of the form of action, whether in contract, tort (including without limitation, negligence) or otherwise, and to the extent permitted by applicable law, PwC accepts no liability of any kind to any third party and disclaims all responsibility for the consequences of any third party acting or refraining to act in reliance on the information.

In the course of our assessment we have had access to information provided by MDC and the NZ CRS project team, but we have not carried out anything in the nature of an audit. Accordingly, we express no opinion on the reliability, accuracy or completeness of the information provided to us and upon which we have relied. Responsibility for the reliability, accuracy and completeness of such information therefore remains with MDC and the NZ CRS project team. Certain inputs have been supplied by PwC. PwC accepts no responsibility for the accuracy of the assumptions we have supplied.

PwC accepts no liability for the commercial performance of the project being modelled, or any of the consequences of MDC and the NZ CRS project team's commercial decisions. PwC has not given or implied any warranty as to the commercial performance of the project.

We do not assume any responsibility or liability for losses suffered by MDC, the NZ CRS project team or any unauthorised user as a result of the circulation, publication, production or use of this report and the accompanying Excel spreadsheet model contrary to the provisions set out in this section.

We specifically disclaim any obligation or liability to any party whatsoever in the event the report and the accompanying Excel spreadsheet model is supplied or applied for any purpose other than as set out above.

The statements and opinions expressed herein have been made in good faith, and on the basis that all information relied upon is true and accurate in all material respects, and not misleading by reason of omission or otherwise.

The statements and opinions expressed in this report are based on information available as at the date of the report.

We reserve the right, but will be under no obligation, to review or amend our report and the accompanying Excel spreadsheet model, if any additional information, which was in existence on the date of this report, was not brought to our attention, or subsequently comes to light.

This report is issued pursuant to the terms and conditions of our consultancy contract dated 25 November 2019.

Appendix B: Model change log

This appendix contains a list of changes to the financial model since the draft version

Table 3. Changes to the model since 22 June 2020 (Excel spreadsheet model "CRS Cashflow Model (Draft 22.06.20)")

Refund model methodology	
Scheme fee	The methodology for setting the scheme fee under the refund model has changed. Previously, scheme fees were applicable on containers returned. Scheme fees are now applicable to all containers sold. The fee is created through a calculation rather than an input, where the deficit / (surplus) is calculated (before any scheme fee revenue). This deficit / (surplus) is then divided by all containers to calculate the scheme fee / (negative scheme fee). The implications of this, is the MA will not build large cash reserves under the refund model.
Deposit model methodology	
Scheme fee	After gathering feedback from members of the SDWG, we have modified the deposit model so surpluses created in the initial years of the scheme are not used to fund the latter years of the scheme. Under the deposit model, we have indexed the scheme fee to a growth rate of 2.6% (note: this greater than the CPI growth rate as scheme costs are driven by a combination of CPI and container growth). We have also changed the number of scheme fee resets from every 10 years to every 5 years. This results in reduced scheme fees for the initial years of the scheme operating and therefore reduced surpluses.
Return rates	
Starting return rate	The initial return rate has been amended for all scenarios. The starting return rate is 60% (previously 75%). The maximum return rate continues to be 85%, with a ramp up period of 5 years. Please note return rate refers to the average return rate throughout the year.
Scenarios	
10c refund model	In order to understand the true costs of the scheme, we have amended the applied the revised refund model to 4 scenarios, where it was previously only being applied to one. Using a refund model for the revised scenarios allows the scheme fee to be dynamic and updated automatically when underlying inputs change. Return rates do not differ between the same across all scenarios. We have edited the scenarios in this version of the model to include a 10c deposit fee scenario.
20c refund model	This scenario has been created, where the deposit fee is set at 20c per container.
30c refund model	This scenario has been created, where the deposit fee is set at 30c per container.
Glass out 20c refund model	We have edited the 'glass out' scenario, where the CRS is a refund model.
20c deposit model	The deposit model (previously the base case) has been amended to include one scheme fee reset in year 5. The deposit model applies a constant growth rate (2.6%) to the scheme fee.
Local government / MRF impact	
Landfill costs	Landfill costs have been updated to $79 per tonne (previously $132 per tonne) as per feedback from MFE.

Appendix B: Model change log (cont.)

Table 3. (cont.) Changes to the model since 22 June 2020 (Excel spreadsheet model "CRS Cashflow Model (Draft 22.06.20)")

Consumer impact	
Reduction in consumer beverage demand	Non-alcoholic container beverage volume and weight forecast for the first year of the scheme has been adjusted to account for the price increase from the introduction of deposit and scheme fees. We have forecasted an average decrease of 6.5% in container numbers and weight (sourced from the Queensland pricing review report). We have included a 6.5% decrease for alcoholic products to match the effect on non-alcoholic beverages. We do note the IPART and QPR reports did not have conclusive evidence on the effect of a CRS fee on demand (both studies showed no change to buying behaviour but note this cannot be relied upon due to the small sample size that was observed). Please note the change in consumption behaviour was outside the scope of this model. We have included the indicative reduction to help inform scheme design choices but note that further work is needed to better understand consumer behaviour under a CRS.
Deposit fee reset	
Deposit fee increase	We have removed the increase in the deposit fee of 5c in year 20. This is to ensure the scheme has the option to use cash at return facilities. Funcitonality for a deposit fee reset remains in the model.
Managing Agency	
Terms of loan	The terms of the loan have been adjusted from a payback period of 30 years to 3 years (in line with Australian schemes).
Marketing expenditure	Functionality has been included in the 'Scenario Manager' sheet to adjust marketing expenditure. This was requested as members of the SDWG have noted that scheme awareness is a driver of return rates.
MCFs and glass processing	
Transport costs	At request of members of the SDWG, there is additional functionality in the 'Scenario Manager' to adjust the transport costs, when the number of return facilities increase or decrease.
Treatment of glass	The model previously assumed glass from return facilities did not flow through OI and was instead crushed. After discussion, this assumption has changed, where the model now assumes OI's glass capacity is 160,000 tonnes with beverage bottles accounting for 128,000 tonnes (as per glass lifecycle report). The model assumes initially glass from return facilities will be sent to OI (rationale is the glass will be better quality than that in kerbside). If there is remaining capacity at OI, capacity will be met from kerbside recycling. When there is excess glass from return facilities over OI's capacity, this glass will be crushed at a cost of $90/tonne (previously $48/tonne).
MCF opex	The earlier version of the model had three line items around MCF opex (processing, transport and staff costs). These were based on the SA costings adjusted for NZ. As we worked through feedback from the group and revisited the MCF costs we've realised that processing included transport and staff costs. We have now updated the model to remove processing costs and resolved the issue.
Revenue from recycled materials	We have adapted the model to calculate the net revenue from each material type (after exporting costs). The model was previously using a weighted average.
Return facilities	
Number of return facilities	Under direction of the CRS project team, the number of return facilities for the base case has decreased. The purpose of this is to increase the average revenue per return facility. Average revenue is now in the first year is ~$181,000. For comparison, the average revenue in Queensland is ~$180,000 and New South Wales is ~$120,000.

Appendix C: Managing agency revenue and costs

Table 4. Managing agency revenue and costs (FY23-FY32) - 10c refund model

Nominal $millions	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Revenue										
Deposit fees	239.5	244.4	249.4	254.4	259.6	264.9	270.2	275.7	281.3	287.0
Scheme fees	30.6	49.3	77.8	85.1	124.0	168.3	175.8	184.1	191.9	200.4
Advanced material recycling fees	-	-	-	-	-	-	-	-	-	-
Interest on cash reserves	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total revenue	270.1	293.7	327.1	339.6	383.6	433.1	446.1	459.8	473.2	487.4
Fixed costs										
Admin and support services	11.5	9.4	9.5	9.7	9.9	10.1	10.3	10.5	10.7	11.0
Professional services	4.0	2.4	2.5	2.5	2.6	2.6	2.7	2.7	2.8	2.8
Marketing and communication expenses	5.7	4.7	4.8	4.9	5.0	5.1	5.2	5.3	5.4	5.5
Employee benefits expense	3.8	3.9	4.0	4.1	4.2	4.2	4.3	4.4	4.5	4.6
Other expenses	7.2	7.3	7.5	7.6	7.8	8.0	8.1	8.3	8.4	8.6
Office lease	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Loan repayments	27.7	27.7	27.7	-	-	-	-	-	-	-
Total fixed costs	**60.1**	**55.6**	**56.2**	**29.0**	**29.6**	**30.2**	**30.8**	**31.4**	**32.0**	**32.7**
Variable costs										
Handling fees for return facilities	61.1	74.7	90.2	107.7	127.6	150.1	156.2	162.5	169.1	176.0
Deposit fee payments	143.7	157.2	172.0	188.1	205.8	225.1	229.7	234.4	239.1	244.0
Net cost to recycle materials	5.2	6.2	8.8	14.7	20.6	27.8	29.4	31.5	32.9	34.8
Total variable costs	**210.0**	**238.1**	**271.0**	**310.6**	**354.0**	**403.0**	**415.3**	**428.4**	**441.1**	**454.7**
Total expenses	270.1	293.7	327.1	339.6	383.6	433.1	446.1	459.8	473.2	487.4
Surplus / (Deficit)	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Appendix C: Managing agency revenue and costs (cont.)

Table 5. Managing agency revenue and costs (FY23-FY32) - 20c refund model

Nominal $millions	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Revenue										
Deposit fees	479.1	488.8	498.7	508.9	519.2	529.7	540.5	551.4	562.6	574.1
Scheme fees	(60.8)	(33.5)	4.8	18.9	70.2	128.6	135.3	142.7	149.7	157.3
Advanced material recycling fees	-	-	-	-	-	-	-	-	-	-
Interest on cash reserves	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total revenue	418.3	455.4	503.5	527.7	589.4	658.3	675.8	694.2	712.3	731.4
Fixed costs										
Admin and support services	11.5	9.4	9.5	9.7	9.9	10.1	10.3	10.5	10.7	11.0
Professional services	4.0	2.4	2.5	2.5	2.6	2.6	2.7	2.7	2.8	2.8
Marketing and communication expenses	5.7	4.7	4.8	4.9	5.0	5.1	5.2	5.3	5.4	5.5
Employee benefits expense	3.8	3.9	4.0	4.1	4.2	4.2	4.3	4.4	4.5	4.6
Other expenses	7.2	7.3	7.5	7.6	7.8	8.0	8.1	8.3	8.4	8.6
Office lease	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Loan repayments	32.1	32.1	32.1	-	-	-	-	-	-	-
Total fixed costs	**64.5**	**60.0**	**60.6**	**29.0**	**29.6**	**30.2**	**30.8**	**31.4**	**32.0**	**32.7**
Variable costs										
Handling fees for return facilities	61.1	74.7	90.2	107.7	127.6	150.1	156.2	162.5	169.1	176.0
Deposit fee payments	287.5	314.5	344.0	376.3	411.6	450.3	459.4	468.7	478.2	488.0
Net cost to recycle materials	5.2	6.2	8.8	14.7	20.6	27.8	29.4	31.5	32.9	34.8
Total variable costs	**353.8**	**395.4**	**443.0**	**498.7**	**559.8**	**628.1**	**645.0**	**662.8**	**680.3**	**698.7**
Total expenses	418.3	455.4	503.5	527.7	589.4	658.3	675.8	694.2	712.3	731.4
Surplus / (Deficit)	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Appendix C: Managing agency revenue and costs (cont.)

Table 6. Managing agency revenue and costs (FY23-FY32) - 30c refund model

Nominal $millions	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Revenue										
Deposit fees	718.6	733.2	748.1	763.3	778.8	794.6	810.7	827.2	844.0	861.1
Scheme fees	(152.3)	(116.2)	(68.2)	(47.4)	16.4	88.8	94.7	101.4	107.5	114.3
Advanced material recycling fees	-	-	-	-	-	-	-	-	-	-
Interest on cash reserves	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total revenue	566.4	617.0	679.9	715.9	795.2	883.4	905.5	928.5	951.4	975.4
Fixed costs										
Admin and support services	11.5	9.4	9.5	9.7	9.9	10.1	10.3	10.5	10.7	11.0
Professional services	4.0	2.4	2.5	2.5	2.6	2.6	2.7	2.7	2.8	2.8
Marketing and communication expenses	5.7	4.7	4.8	4.9	5.0	5.1	5.2	5.3	5.4	5.5
Employee benefits expense	3.8	3.9	4.0	4.1	4.2	4.2	4.3	4.4	4.5	4.6
Other expenses	7.2	7.3	7.5	7.6	7.8	8.0	8.1	8.3	8.4	8.6
Office lease	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Loan repayments	36.5	36.5	36.5	-	-	-	-	-	-	-
Total fixed costs	**68.9**	**64.4**	**65.0**	**29.0**	**29.6**	**30.2**	**30.8**	**31.4**	**32.0**	**32.7**
Variable costs										
Handling fees for return facilities	61.1	74.7	90.2	107.7	127.6	150.1	156.2	162.5	169.1	176.0
Deposit fee payments	431.2	471.7	516.0	564.4	617.4	675.4	689.1	703.1	717.4	731.9
Net cost to recycle materials	5.2	6.2	8.8	14.7	20.6	27.8	29.4	31.5	32.9	34.8
Total variable costs	**497.5**	**552.6**	**615.0**	**686.8**	**765.6**	**853.2**	**874.7**	**897.1**	**919.4**	**942.7**
Total expenses	566.4	617.0	679.9	715.9	795.2	883.4	905.5	928.5	951.4	975.4
Surplus / (Deficit)	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Appendix C: Managing agency revenue and costs (cont.)

Table 7. Managing agency revenue and costs (FY23-FY32) - 20c glass out refund model

Nominal $millions	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Revenue										
Deposit fees	291.0	296.9	302.9	309.1	315.4	321.8	328.3	334.9	341.7	348.7
Scheme fees	(10.1)	5.8	29.6	28.5	58.4	92.3	96.5	101.2	105.2	109.9
Advanced material recycling fees	-	-	-	-	-	-	-	-	-	-
Interest on cash reserves	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total revenue	280.9	302.7	332.5	337.6	373.7	414.1	424.8	436.1	447.0	458.6
Fixed costs										
Admin and support services	11.5	9.4	9.5	9.7	9.9	10.1	10.3	10.5	10.7	11.0
Professional services	4.0	2.4	2.5	2.5	2.6	2.6	2.7	2.7	2.8	2.8
Marketing and communication expenses	5.7	4.7	4.8	4.9	5.0	5.1	5.2	5.3	5.4	5.5
Employee benefits expense	3.8	3.9	4.0	4.1	4.2	4.2	4.3	4.4	4.5	4.6
Other expenses	7.2	7.3	7.5	7.6	7.8	8.0	8.1	8.3	8.4	8.6
Office lease	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Loan repayments	28.2	28.2	28.2	-	-	-	-	-	-	-
Total fixed costs	**60.6**	**56.1**	**56.6**	**29.0**	**29.6**	**30.2**	**30.8**	**31.4**	**32.0**	**32.7**
Variable costs										
Handling fees for return facilities	44.8	54.7	66.0	78.7	93.2	109.5	113.9	118.6	123.4	128.4
Deposit fee payments	174.6	191.0	208.9	228.6	250.0	273.5	279.0	284.7	290.5	296.4
Net cost to recycle materials	0.9	1.0	1.0	1.3	1.0	0.9	1.0	1.4	1.1	1.1
Total variable costs	**220.3**	**246.6**	**275.8**	**308.6**	**344.1**	**383.9**	**394.0**	**404.7**	**415.0**	**425.9**
Total expenses	280.9	302.7	332.5	337.6	373.7	414.1	424.8	436.1	447.0	458.6
Surplus / (Deficit)	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Appendix C: Managing agency revenue and costs (cont.)

Table 8. Managing agency revenue and costs (FY23-FY32) - 20c deposit model

Nominal $millions	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Revenue										
Deposit fees	479.1	488.8	498.7	508.9	519.2	529.7	540.5	551.4	562.6	574.1
Scheme fees	28.7	30.1	31.5	33.0	128.0	134.0	140.2	146.8	153.7	160.9
Advanced material recycling fees	-	-	-	-	-	-	-	-	-	-
Interest on cash reserves	0.9	2.4	3.4	3.9	4.7	5.4	5.6	5.8	6.0	6.2
Total revenue	508.7	521.4	533.6	545.7	651.8	669.1	686.3	704.1	722.3	741.1
Fixed costs										
Admin and support services	11.5	9.4	9.5	9.7	9.9	10.1	10.3	10.5	10.7	11.0
Professional services	4.0	2.4	2.5	2.5	2.6	2.6	2.7	2.7	2.8	2.8
Marketing and communication expenses	5.7	4.7	4.8	4.9	5.0	5.1	5.2	5.3	5.4	5.5
Employee benefits expense	3.8	3.9	4.0	4.1	4.2	4.2	4.3	4.4	4.5	4.6
Other expenses	7.2	7.3	7.5	7.6	7.8	8.0	8.1	8.3	8.4	8.6
Office lease	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Loan repayments	32.1	32.1	32.1	-	-	-	-	-	-	-
Total fixed costs	**64.5**	**60.0**	**60.6**	**29.0**	**29.6**	**30.2**	**30.8**	**31.4**	**32.0**	**32.7**
Variable costs										
Handling fees for return facilities	61.1	74.7	90.2	107.7	127.6	150.1	156.2	162.5	169.1	176.0
Deposit fee payments	287.5	314.5	344.0	376.3	411.6	450.3	459.4	468.7	478.2	488.0
Net cost to recycle materials	5.2	6.2	8.8	14.7	20.6	27.8	29.4	31.5	32.9	34.8
Total variable costs	**353.8**	**395.4**	**443.0**	**498.7**	**559.8**	**628.1**	**645.0**	**662.8**	**680.3**	**698.7**
Total expenses	418.3	455.4	503.5	527.7	589.4	658.3	675.8	694.2	712.3	731.4
Surplus / (Deficit)	**90.5**	**66.0**	**30.1**	**18.0**	**62.4**	**10.8**	**10.6**	**9.9**	**10.0**	**9.7**

Appendix D: Return facility revenue and material flow

Table 9. Return facility revenue from handling fees (FY23-FY32) - Applicable to 10c, 20c and 30c deposit and refund model

Nominal $000 (unless stated otherwise)	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Average fees per facility	146	177	212	251	295	344	355	367	379	391
Number of return facilities (#)	417	421	425	429	433	436	440	443	447	450
Total handling fees	61,090	74,717	90,189	107,730	127,591	150,053	156,160	162,516	169,131	176,014

Table 10. Return facility material flow (FY23-FY32) - Applicable to 10c, 20c and 30c deposit and refund model

Number of containers (millions)	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Plastic	255	321	394	474	563	662	675	689	703	717
Liquid paperboard	71	79	87	97	107	118	121	123	125	128
Metal	233	269	310	354	403	457	466	476	486	495
Glass	356	428	507	594	691	797	814	830	847	864
Total containers	915	1,097	1,298	1,520	1,765	2,035	2,076	2,118	2,161	2,205

Appendix D: Return facility revenue and material flow (cont.)

Table 11. Return facility revenue from handling fees (FY23-FY32) - 20c glass out refund model

Nominal $000 (unless stated otherwise)	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Average fees per facility	107	130	155	184	215	251	259	268	276	285
Number of return facilities (#)	417	421	425	429	433	436	440	443	447	450
Total handling fees	44,785	54,699	65,954	78,711	93,155	109,488	113,944	118,582	123,408	128,431

Table 12. Return facility material flow (FY23-FY32) - 20c glass out refund model

Number of containers (millions)	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Plastic	255	321	394	474	563	662	675	689	703	717
Liquid paperboard	71	79	87	97	107	118	121	123	125	128
Metal	233	269	310	354	403	457	466	476	486	495
Glass	-	-	-	-	-	-	-	-	-	-
Total containers	559	669	791	925	1,074	1,237	1,262	1,288	1,314	1,341

Appendix E: Revenue and costs to recycle materials

Table 13. Revenue and costs to recycle materials (FY22-FY32) - Applicable to 10c, 20c and 30c deposit and refund model[1]

Nominal $millions	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Revenue											
Glass (sent to OI)	-	7.1	8.7	9.9	10.1	10.3	10.5	10.7	10.9	11.1	11.4
Plastic	-	3.5	4.5	5.6	6.9	8.4	10.1	10.5	10.9	11.4	11.8
Liquid paperboard (after export costs)	-	(1.4)	(1.5)	(1.7)	(2.0)	(2.2)	(2.5)	(2.6)	(2.7)	(2.8)	(2.9)
Metal (after export costs)	-	4.7	5.5	6.5	7.5	8.8	10.1	10.5	11.0	11.4	11.9
Total revenue	-	13.9	17.2	20.3	22.6	25.2	28.2	29.1	30.1	31.1	32.1
Opex											
Glass transport costs	-	11.4	14.0	16.9	20.2	23.9	28.2	29.3	30.5	31.8	33.0
MCF transport costs	-	3.9	4.7	5.7	6.8	8.0	9.3	9.7	10.1	10.5	11.0
Net cost to crush glass not sent to OI	-	-	-	0.9	3.3	6.0	9.2	9.8	10.5	11.2	12.0
MCF staff costs	-	3.3	4.0	4.8	5.7	6.7	7.9	8.2	8.6	8.9	9.3
MCF utilities costs	-	0.6	0.7	0.9	1.0	1.2	1.4	1.5	1.5	1.6	1.7
Total opex	-	19.2	23.4	29.1	36.9	45.9	56.0	58.5	61.2	64.0	66.9
Capex											
Long term assets	41.4	-	-	-	-	-	-	-	-	-	-
Short term assets	0.3	-	-	-	0.4	-	-	-	0.4	-	-
Land	5.3										
Total capex	47.0	-	-	-	0.4	-	-	-	0.4	-	-
Net cost to recycle materials	**47.0**	**5.2**	**6.2**	**8.8**	**14.7**	**20.6**	**27.8**	**29.4**	**31.5**	**32.9**	**34.8**

[1]Includes revenue and costs to recycle materials from return facilities only (i.e. revenue and costs to recycle materials from kerbside or other sources is not included as this is outside the scope of the modelling)

Appendix E: Revenue and costs to recycle materials (cont.)

Table 14. Revenue and costs to recycle materials (FY22-FY32) - 20c glass out refund model

Nominal $millions	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Revenue											
Glass (sent to OI)	-	-	-	-	-	-	-	-	-	-	-
Plastic	-	3.5	4.5	5.6	6.9	8.4	10.1	10.5	10.9	11.4	11.8
Liquid paperboard (after export costs)	-	(1.4)	(1.5)	(1.7)	(2.0)	(2.2)	(2.5)	(2.6)	(2.7)	(2.8)	(2.9)
Metal (after export costs)	-	4.7	5.5	6.5	7.5	8.8	10.1	10.5	11.0	11.4	11.9
Total revenue	-	6.8	8.5	10.4	12.5	15.0	17.7	18.4	19.2	20.0	20.8
Opex											
Glass transport costs	-	-	-	-	-	-	-	-	-	-	-
MCF transport costs	-	3.9	4.7	5.7	6.8	8.0	9.3	9.7	10.1	10.5	11.0
Net cost to crush glass not sent to OI	-	-	-	-	-	-	-	-	-	-	-
MCF staff costs	-	3.3	4.0	4.8	5.7	6.7	7.9	8.2	8.6	8.9	9.3
MCF utilities costs	-	0.6	0.7	0.9	1.0	1.2	1.4	1.5	1.5	1.6	1.7
Total opex	-	7.8	9.4	11.3	13.5	15.9	18.7	19.4	20.2	21.0	21.9
Capex											
Long term assets	41.4	-	-	-	-	-	-	-	-	-	-
Short term assets	0.3	-	-	-	0.4	-	-	-	0.4	-	-
Land	5.3										
Total capex	47.0	-	-	-	0.4	-	-	-	0.4	-	-
Net cost to recycle materials	**47.0**	**0.9**	**1.0**	**1.0**	**1.3**	**1.0**	**0.9**	**1.0**	**1.4**	**1.1**	**1.1**

[1]Includes revenue and costs to recycle materials from return facilities only (i.e. revenue and costs to recycle materials from kerbside or other sources is not included as this is outside the scope of the modelling)

Appendix F: Consumer impact

Table 15. Total consumer impact (FY23-FY32) - 10c refund model

Nominal $millions	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Indicative increased cost	310.6	337.8	376.2	390.5	441.1	498.1	513.0	528.8	544.2	560.5
Deposits received	91.5	109.7	129.8	152.0	176.5	203.5	207.6	211.8	216.1	220.5
Net cost to consumers	219.2	228.1	246.4	238.5	264.7	294.7	305.4	317.0	328.1	340.0

Table 16. Impact per consumer (FY23-FY32) - 10c refund model

Nominal $	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Indicative increased cost	59.5	64.2	70.8	72.8	81.6	91.4	93.3	95.4	97.4	99.6
Deposits received	17.5	20.8	24.4	28.3	32.6	37.3	37.8	38.2	38.7	39.2
Net cost per consumer	42.0	43.3	46.4	44.5	48.9	54.0	55.6	57.2	58.7	60.4

Table 17. Impact per household (FY23-FY32) - 10c refund model

Nominal $	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Indicative increased cost	168.1	181.2	200.0	205.7	230.3	258.0	263.6	269.5	275.2	281.2
Deposits received	49.5	58.8	69.0	80.1	92.1	105.4	106.7	108.0	109.3	110.6
Net cost per household	118.6	122.3	131.0	125.7	138.2	152.6	156.9	161.6	165.9	170.6

Appendix F: Consumer impact (cont.)

Table 18. Total consumer impact (FY23-FY32) - 20c refund model

Nominal $millions	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Indicative increased cost	481.0	523.7	579.1	606.9	677.8	757.0	777.1	798.3	819.1	841.1
Deposits received	182.9	219.3	259.5	304.0	352.9	406.9	415.2	423.6	432.2	441.0
Net cost to consumers	298.1	304.4	319.5	302.9	324.9	350.1	361.9	374.7	386.9	400.1

Table 19. Impact per consumer (FY23-FY32) - 20c refund model

Nominal $	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Indicative increased cost	92.2	99.5	109.0	113.2	125.3	138.8	141.4	144.1	146.7	149.4
Deposits received	35.0	41.7	48.9	56.7	65.2	74.6	75.5	76.5	77.4	78.3
Net cost per consumer	57.1	57.8	60.1	56.5	60.1	64.2	65.9	67.6	69.3	71.1

Table 20. Impact per household (FY23-FY32) - 20c refund model

Nominal $	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Indicative increased cost	260.3	280.8	307.8	319.7	353.9	392.1	399.3	406.9	414.2	422.0
Deposits received	99.0	117.6	138.0	160.1	184.3	210.8	213.3	215.9	218.6	221.2
Net cost per household	161.3	163.2	169.8	159.6	169.6	181.3	186.0	191.0	195.7	200.7

Appendix F: Consumer impact (cont.)

Table 21. Total consumer impact (FY23-FY32) - 30c refund model

Nominal $millions	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Indicative increased cost	651.4	709.6	781.9	823.2	914.5	1,015.9	1,041.3	1,067.8	1,094.1	1,121.7
Deposits received	274.4	329.0	389.3	455.9	529.4	610.4	622.8	635.4	648.3	661.5
Net cost to consumers	377.0	380.6	392.6	367.3	385.1	405.6	418.5	432.4	445.8	460.2

Table 22. Impact per consumer (FY23-FY32) - 30c refund model

Nominal $	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Indicative increased cost	124.8	134.8	147.2	153.6	169.1	186.3	189.5	192.7	195.9	199.3
Deposits received	52.6	62.5	73.3	85.0	97.9	111.9	113.3	114.7	116.1	117.5
Net cost per consumer	72.2	72.3	73.9	68.5	71.2	74.4	76.2	78.1	79.8	81.8

Table 23. Impact per household (FY23-FY32) - 30c refund model

Nominal $	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Indicative increased cost	352.5	380.5	415.6	433.7	477.4	526.2	535.0	544.3	553.3	562.7
Deposits received	148.5	176.4	206.9	240.2	276.4	316.1	320.0	323.9	327.8	331.8
Net cost per household	204.0	204.1	208.7	193.5	201.1	210.0	215.0	220.4	225.5	230.9

Appendix F: Consumer impact (cont.)

Table 24. Total consumer impact (FY23-FY32) - 20c glass out refund model

Nominal $millions	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Indicative increased cost	323.0	348.1	382.4	388.2	429.8	476.2	488.5	501.5	514.0	527.4
Deposits received	111.7	133.8	158.2	185.1	214.7	247.4	252.4	257.6	262.8	268.1
Net cost to consumers	211.3	214.3	224.2	203.2	215.0	228.8	236.0	244.0	251.2	259.2

Table 25. Impact per consumer (FY23-FY32) - 20c glass out refund model

Nominal $	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Indicative increased cost	61.9	66.1	72.0	72.4	79.5	87.3	88.9	90.5	92.1	93.7
Deposits received	21.4	25.4	29.8	34.5	39.7	45.4	45.9	46.5	47.1	47.6
Net cost per consumer	40.5	40.7	42.2	37.9	39.8	42.0	42.9	44.0	45.0	46.1

Table 26. Impact per household (FY23-FY32) - 20c glass out refund model

Nominal $	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Indicative increased cost	174.8	186.7	203.2	204.5	224.4	246.6	251.0	255.6	259.9	264.6
Deposits received	60.5	71.8	84.1	97.5	112.1	128.2	129.7	131.3	132.9	134.5
Net cost per household	114.3	115.0	119.2	107.0	112.3	118.5	121.3	124.4	127.0	130.1

Appendix F: Consumer impact (cont.)

Table 27. Total consumer impact (FY23-FY32) - 20c deposit model

Nominal $millions	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Indicative increased cost	584.0	596.7	609.8	623.1	744.2	763.2	782.8	803.0	823.8	845.2
Deposits received	182.9	219.3	259.5	304.0	352.9	406.9	415.2	423.6	432.2	441.0
Net cost to consumers	401.1	377.4	350.2	319.2	391.3	356.3	367.6	379.4	391.6	404.2

Table 28. Impact per consumer (FY23-FY32) - 20c deposit model

Nominal $	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Indicative increased cost	111.9	113.3	114.8	116.2	137.6	140.0	142.4	144.9	147.5	150.1
Deposits received	35.0	41.7	48.9	56.7	65.2	74.6	75.5	76.5	77.4	78.3
Net cost per consumer	76.9	71.7	65.9	59.5	72.3	65.4	66.9	68.5	70.1	71.8

Table 29. Impact per household (FY23-FY32) - 20c deposit model

Nominal $	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Indicative increased cost	316.0	320.0	324.1	328.2	388.5	395.3	402.2	409.3	416.6	424.0
Deposits received	99.0	117.6	138.0	160.1	184.3	210.8	213.3	215.9	218.6	221.2
Net cost per household	217.1	202.4	186.2	168.1	204.3	184.6	188.9	193.4	198.0	202.8

Appendix G: Local government / MRF impact

Table 30. Indicative benefits for local government and MRF operators (FY23-FY32) - 10c refund model

Nominal $millions	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Revenue from deposit fees	52.3	47.6	42.2	36.2	29.3	21.7	22.1	22.6	23.0	23.5
Indicative reduction in kerbside recycling costs	15.5	17.3	19.3	21.5	24.0	26.8	27.9	29.0	30.2	31.4
Indicative reduction in kerbside refuse costs	1.8	2.1	2.3	2.6	2.9	3.2	3.3	3.5	3.6	3.7
Indicative reduction in landfill disposal costs	1.3	1.4	1.6	1.8	2.0	2.2	2.3	2.4	2.5	2.6
Total	70.9	68.3	65.4	62.0	58.2	53.9	55.6	57.4	59.3	61.3

Table 31. Indicative benefits for local government and MRF operators (FY23-FY32) - 20c refund and deposit model

Nominal $millions	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Revenue from deposit fees	104.5	95.1	84.4	72.3	58.7	43.3	44.2	45.1	46.0	47.0
Indicative reduction in kerbside recycling costs	15.5	17.3	19.3	21.5	24.0	26.8	27.9	29.0	30.2	31.4
Indicative reduction in kerbside refuse costs	1.8	2.1	2.3	2.6	2.9	3.2	3.3	3.5	3.6	3.7
Indicative reduction in landfill disposal costs	1.3	1.4	1.6	1.8	2.0	2.2	2.3	2.4	2.5	2.6
Total	123.2	115.9	107.6	98.2	87.5	75.5	77.7	80.0	82.3	84.7

Appendix G: Local government / MRF impact (cont.)

Table 32. Indicative benefits for local government and MRF operators (FY23-FY32) - 30c refund model

Nominal $millions	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Revenue from deposit fees	156.8	142.7	126.6	108.5	88.0	65.0	66.3	67.7	69.1	70.5
Indicative reduction in kerbside recycling costs	15.5	17.3	19.3	21.5	24.0	26.8	27.9	29.0	30.2	31.4
Indicative reduction in kerbside refuse costs	1.8	2.1	2.3	2.6	2.9	3.2	3.3	3.5	3.6	3.7
Indicative reduction in landfill disposal costs	1.3	1.4	1.6	1.8	2.0	2.2	2.3	2.4	2.5	2.6
Total	175.4	163.5	149.8	134.4	116.9	97.2	99.9	102.6	105.4	108.2

Table 33. Indicative benefits for local government and MRF operators (FY23-FY32) - 20c glass out refund model

Nominal $millions	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32
Revenue from deposit fees	62.9	57.2	50.8	43.5	35.3	26.1	26.6	27.1	27.7	28.2
Indicative reduction in kerbside recycling costs	2.6	2.9	3.2	3.6	4.0	4.5	4.7	4.9	5.1	5.3
Indicative reduction in kerbside refuse costs	0.9	1.0	1.1	1.2	1.4	1.6	1.6	1.7	1.8	1.8
Indicative reduction in landfill disposal costs	0.6	0.7	0.8	0.9	1.0	1.1	1.1	1.2	1.2	1.3
Total	67.0	61.8	55.9	49.2	41.7	33.2	34.0	34.9	35.7	36.6

Appendix G

Key Results from the ConsumerNZ survey

consumer.

BEVERAGE CONTAINER RETURN SCHEME SURVEY

KEY RESULTS

Key Findings

78%

- There is strong public support for a container return scheme. 78 percent of New Zealanders were in favour of a scheme.
- Just 10 percent were opposed while 12 percent were undecided.

72%

- 72% said they were very likely to use the scheme.
- Only 8% were unlikely to do so.
- 7 in 10 felt supermarkets would provide the most convenient place to return containers.

79%

- The key factors for the scheme's success were believed to be convenient drop-off points (79%), followed by easy to understand information regarding what containers the scheme covers (67%).

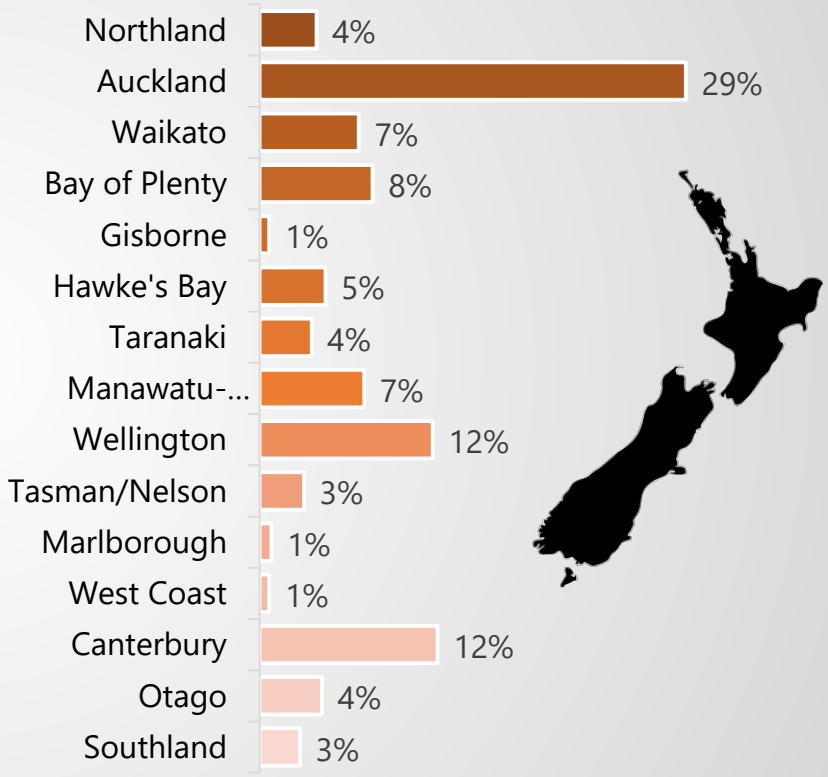
consumer.

WHO DID WE SPEAK TO?

A total of 2,114 New Zealanders aged 18 and over were surveyed online from 21 February to 11 March 2020.

53% Female
47% Male

26% 18-29 years
24% 30-39 years
17% 40-49 years
15% 50-59 years
18% 60 or over



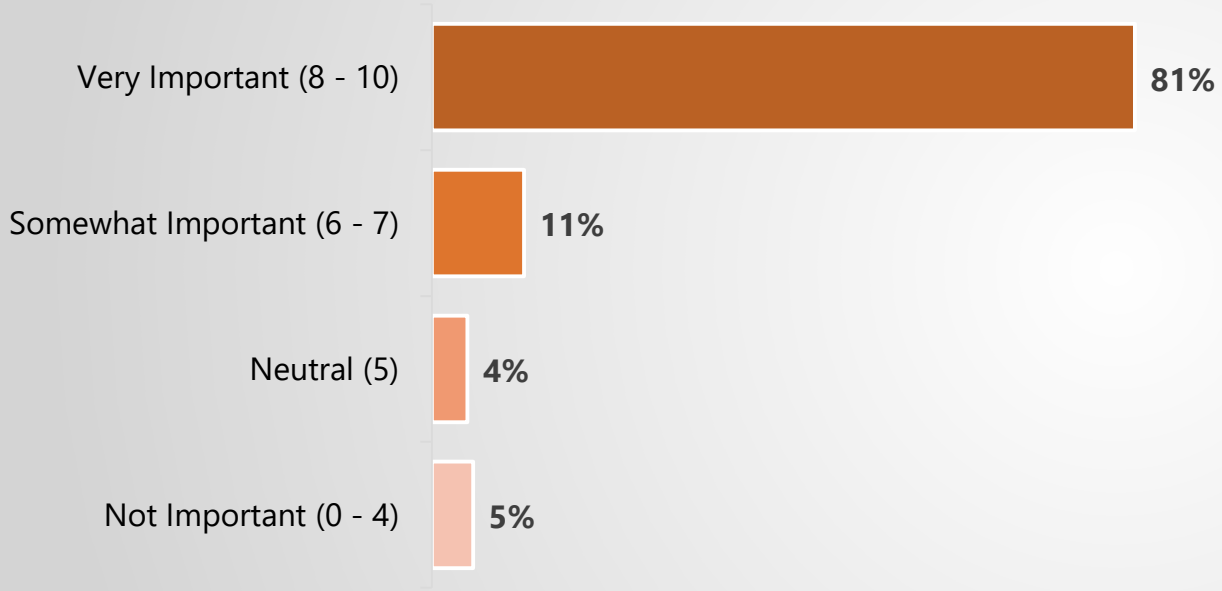
To ensure a nationally representative sample, gender, age and region weights based on the 2018 Census were applied.

consumer.

ATTITUDES TO RECYCLING

Majority of New Zealanders strongly support recycling.

Eighty-one percent believe it's very important to recycle containers such as plastic milk bottles, glass bottles and drink cans.



The following demographic groups are **more likely** to find it very important:

- Women (87%)
- Those aged 50 or over (88%)
- Those from Hawke's Bay (89%)
- Those with access to kerbside recycling (84%)

Less likely to find it very important:

- Men (74%)
- Those aged 18-39 (71%)
- Those with NO access to kerbside recycling (60%)

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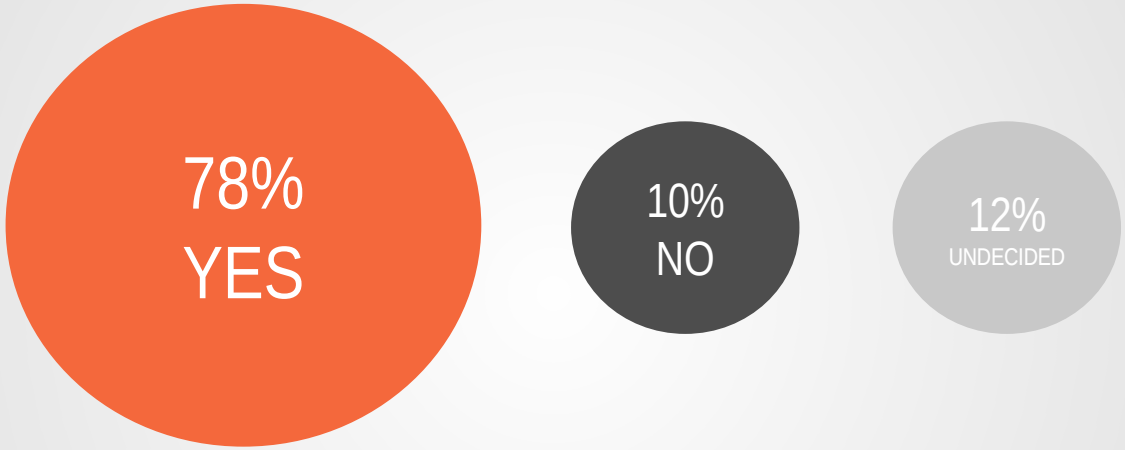
SUPPORT FOR A CONTAINER RETURN SCHEME

There is also strong support for a container return scheme.

Asked if they'd support a scheme, 78% answered "Yes." Those earning below $25,000 a year were less likely than average to be in favour of a scheme (68 percent). This may reflect the extra cost consumers will pay when they purchase a product covered by the scheme.



The following demographic groups are **more likely** to support:
- Those aged 60 or over (85%)
- Those from Bay of Plenty (88%)
- Those with access to kerbside recycling (81%)

Less likely to support:
- Those with annual HH income of less than $25,000 (68%)
- Those with NO access to kerbside recycling (67%)

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SCHEME COVERAGE

What should the scheme include?

Most New Zealanders (64 percent) thought a beverage container return scheme should cover all containers: plastic, glass and metal.

64%
Plastic, glass and metal

15%
Plastic and glass

6%
Plastic only

4%
Others

11%
Undecided

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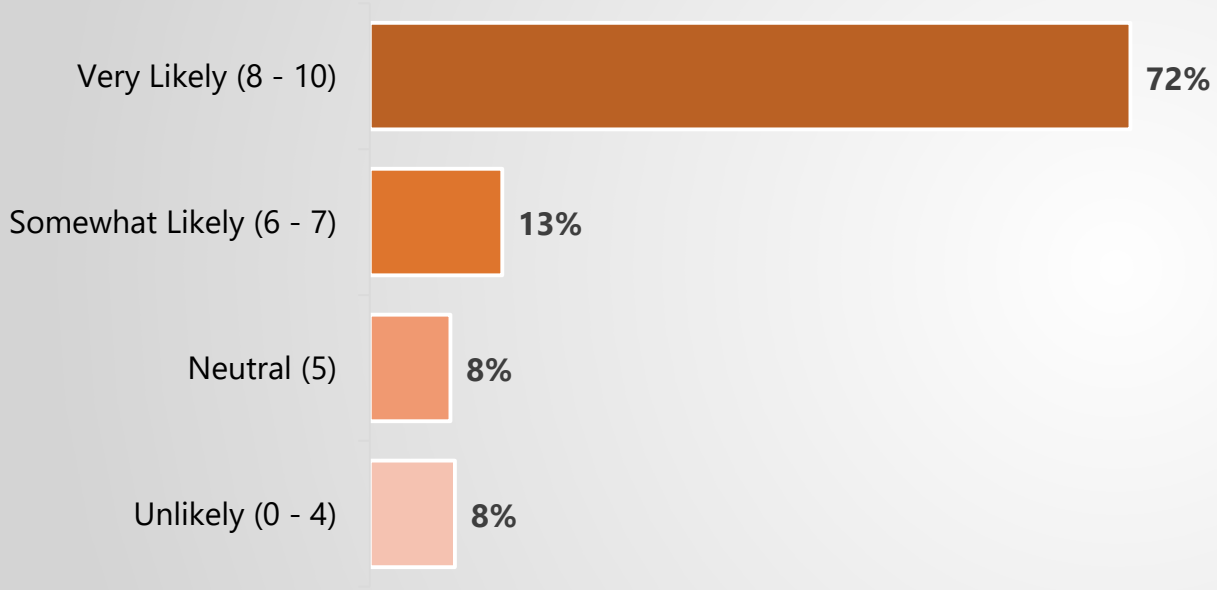
LIKELIHOOD TO USE CONTAINER RETURN SCHEME

The propensity to use a container return scheme is high.

72 percent said they were “very likely” to use it. Just eight were unlikely to do so.



The following demographic groups are **more likely** to use it:

- Women (76%)
- Those aged 60 or over (84%)
- Those from Bay of Plenty (83%), Hawke’s Bay (82%) and Northland (84%)
- Those with access to kerbside recycling (74%)

Less likely to use it:

- Men (67%)
- Those aged 18-39 (62%)
- Those with NO access to kerbside recycling (60%)

consumer.

LOCATION OF REFUND POINTS

The supermarket is the most preferred location for the scheme.

Seven out of 10 New Zealanders felt supermarkets would provide the most convenient place to return containers. Overall, five percent said they wouldn't bother returning containers. The main reason given was that they preferred to use kerbside recycling bins (71 percent).

70%
Supermarkets

63%
Collection depots
e.g. community recycling centre, waste & recycling facilities

40%
Other retail outlets
e.g. bottle stores & dairies

3%
Others

5%
I wouldn't bother returning containers

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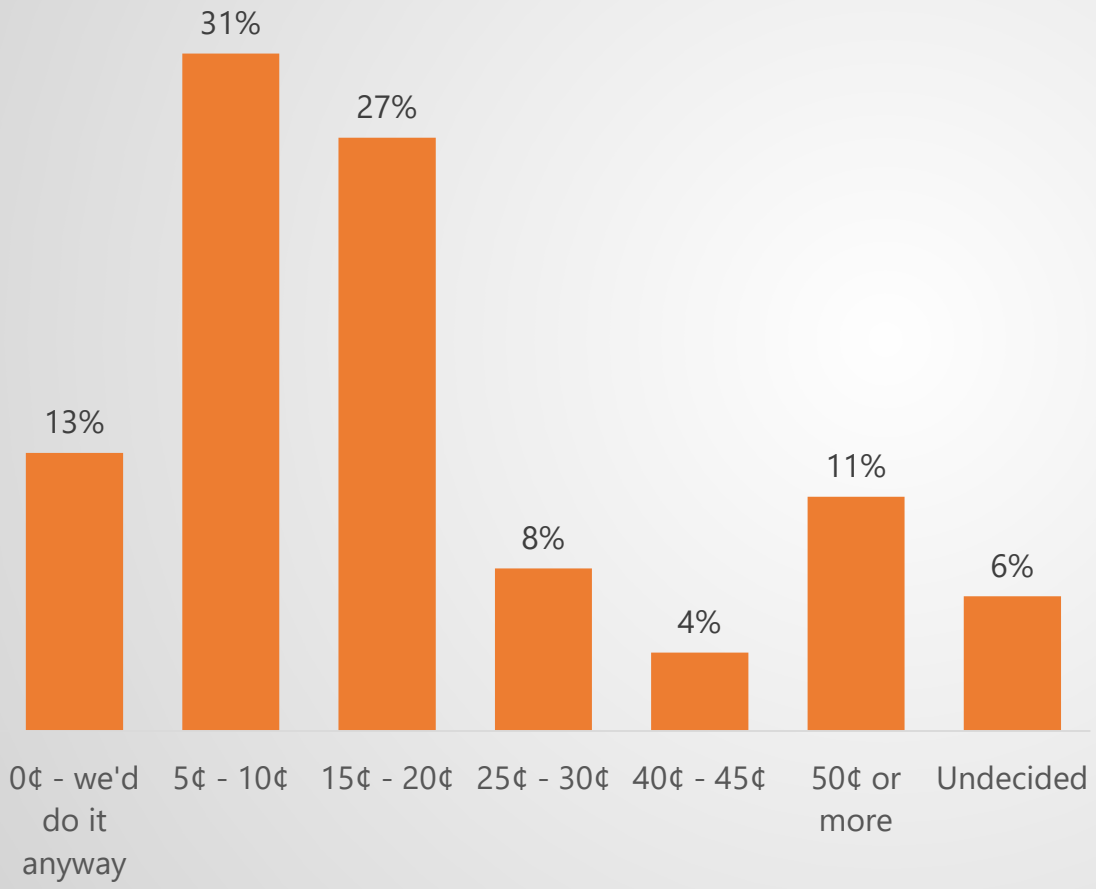
REFUND AMOUNT

What is the minimum refund amount to encourage New Zealanders?

More than half (58 percent) considered an amount up to 20c would be sufficient. A further 13 percent said they'd return containers regardless of whether a refund was provided.



There were no significant differences in responses by annual household income.

consumer.

FORM OF REFUND

The majority prefer receiving their refund in cash.

This is followed by direct payment to their bank account (21 percent).

Just 16 percent have chosen to get a voucher and six percent were happy for the money to be donated to charity.

40%
Cash

21%
Direct payment to bank account

16%
Voucher

6%
Charity

1%
Others

8%
All of the above

8%
No preference

KEY FACTORS IN SCHEME SUCCESS

How do we make sure the scheme works well?

79% Drop-off points must be convenient.

67% It must be easy to understand what containers are covered under the scheme.

64% It must cover a wide range of beverage containers.

62% Good information needs to be provided about how the scheme works.

62% Refunds must be high enough to make it worthwhile.

2% Others

NEW ZEALANDERS' FINAL THOUGHTS ON THE SCHEME

What are their final thoughts on the scheme?

"I think this is a great idea and I didn't know NZ was considering it. I reckon it would help reduce litter as well for those who want to clean up an area for spare change."

Female, 18-24 years old, Southland

"A trial period in parts of NZ would be useful but also a fair representation for communities that may not easily be able to get to a return centre."

Male, 35-39 years old, Auckland

"I am extremely passionate about this scheme and would love to see it really take off. I am excited to hear that it is finally being considered seriously. I hope that it will be funded long term whether it is 'economical' to do so or not, as it is crucial to get on top of the level of plastic in our country. We as a smaller country could show a wonderful example to the world in so many ways. We have great opportunities that way."

Female, 45-49 years old, Auckland

What are their final thoughts on the scheme?

"This is a scheme I am hanging out for and can't wait for NZ to get on board. I saw it in action in Finland last year and it's amazing. They had the stations in convenient stores."

Male, 45-49 years old, Auckland

"It seems to be we are trying to invent the wheel again over this. I remember way back where we got money on empty bottles."

Male, 55-59 years old, Wellington

"My brothers and I did this when were kids at the speedway and we would gather all the glass fizzy drink bottles and make enough to buy sweets. There was hardly a bottle left on a busy night! Other countries do it, why did we stop?"

Female, 60-64 years old, Tasman/Nelson


IDEA
BACK
EXTRA
SEE
GOES
RETURNED
PROVIDE
PLASTIC
REALLY
AGO
AWESOME
YEAR
INITIATIVE
INCOME
STOP
PLACE
SCHEME
RECYCLING
KIDS
RATHER
COUNTRIES
HOPE
POCKET
ACTUALLY
INCENTIVE
WORKED
MUST
FREE
THINK
RECYCLE
NOW
WAY
ETC
DO IT
PUT
HOMELESS
ALSO
CONTAINERS
LIKE
NEW
SOUNDS GOOD
COLLECTED
MAKE
DRINK
MUST
REFUND
BOTTLE
ALREADY
LONG
GREAT
GOVERNMENT
CHANGE
MANY
COLLECTION
CONTAINER
KNOW
ENCOURAGE
HELP
ONE
ENVIRONMENT
LANDFILL
CONVENIENT
DROP
EASY
REMEMBER
JUST
COST
DEFINITELY
ESPECIALLY
TIME
CONSUMER
GREAT
MONEY
FUTURE
NZ
COUNTRY
ITEMS
PEOPLE
WANT
BOTTLES
WITHOUT
NEEDS
LOCAL
DO IT
PEOPLE
BUY
WATER
WORK
WASTE
KEEP
RECYCLED
GREAT
DONE
IDEA
GOOD
SYSTEM
HAPPEN
INCREASE
REDUCE
RETURN
GET
PAY
HIGH
CASH
COLLECTING
WORLD
WORKS
USE
PRODUCT
DRINKS
AROUND
POOR
GIVE
GOING
NEED
USED
YEARS
AUSTRALIA
MADE
POINTS
GO
MAY
ANYWAY
BINS
TAKE
LITTER
IMPLEMENTED
LOVE
WELL
BETTER
SUPPORT
SOFT
RECYCLABLE
COLLECT
CLEAN
MILK
YOUNG
SIDE
SOMETHING
GOOD
NEEDS
GLASS
AMOUNT
START
LOT
LITTLE
REFUNDS
ENOUGH
CENTS
PLEASE

consumer.

Beverage container return scheme: Phase 2 consumer research
Survey results

30 June 2020

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1. Overview

Consumer NZ has carried out additional survey research to inform the work of the Beverage Container Return Scheme Working Group.

From 8 to 16 June 2020, we surveyed 1516 New Zealanders, aged 18 and over, to gauge:

- support for a container deposit scheme and the reasons why consumers may oppose a scheme or be undecided,
- views on showing deposit and administration fees on shopping receipts, and
- views on the need for transparency of scheme costs.

The survey sample was sourced from a third-party sampling provider Dynata (https://www.dynata.com/). The sample was weighted to be nationally representative of the population (aged 18 and above) in terms of age, gender and region. Weights applied are based on the 2018 Census.

The margin of error is +/-2.52%.

2. Survey results

Survey results for each question are presented below. Please note, not all percentages shown add to 100%, due to rounding and/or questions that allow multiple responses (rather than a single response).

2.1 Support for container return scheme

Overall, the survey found strong support for a beverage container return scheme, with 70% in favour (Table 1). This is similar to the result from our first survey (undertaken in February and March 2020), which found 78% of consumers supported a scheme.

The slight decrease may be due to the question wording, which differed from the first survey. In our latest survey, consumers were provided with information explaining that the scheme would mean paying a refundable deposit fee (about 20c) at point of purchase together with a non-refundable administration fee (about 5c to 7c).[1]

Providing information about scheme costs didn't lead to a significant drop in support. The majority remained in favour. There were also no significant differences in responses based on household income in our latest survey.

However, consumers aged 40 to 49 were less likely than average to support the scheme (63%). Those who lived in a household with a pre-schooler/s were also less likely than average to be in favour of the scheme (62%).

[1] The question asked: "To increase recycling, New Zealand is considering a beverage (drink) container return scheme. The scheme would provide a new way of funding container recycling. You would pay a deposit (say 20c) on top of the retail price when you buy milk, juice or other drinks. You get this deposit back when you return the empty container. You would also pay a non-refundable administration fee (say 5 to 7c) to cover the costs of running the scheme. Would you support a beverage (drink) container return scheme for New Zealand?"

Table 1 Would you support a beverage (drink) container return scheme for New Zealand?

Rating	%
Yes	70%
No	15%
Undecided	16%
Number	1516

2.2 Key reasons for being opposed or undecided

Fifteen percent of consumers were opposed to a scheme. Of those, 65% stated they were unsure whether they wanted to pay a non-refundable administration fee (Table 2). This was followed by a preference to use kerbside recycling bins (52%) and uncertainty about paying a refundable deposit fee (50%).

For those who were undecided, about half (52%) said they needed more information before making a decision. Forty-nine percent were unsure whether they wanted to pay a non-refundable administration fee while 37% said they preferred to use kerbside recycling bins.

Consumers aged 60 or over, and those earning $150,000 or above, were more likely to cite the administration fee as a reason why they were opposed or undecided (66% and 75% respectively).

In contrast, those earning $30,000 or below were less likely to identify the fee as a reason why they wouldn't support the scheme or remained undecided (45% compared with the average of 57%).

Table 2. What are the reasons why you're undecided or wouldn't support a scheme? Please select all that apply.

	Would you support a scheme?	
Response	No	Undecided
I'm not sure I want to pay a non-refundable admin fee	65%	49%
I prefer to use kerbside recycling bins	52%	37%
I'm not sure I want to pay a refundable deposit fee	50%	28%
I need more information before I make a decision	23%	52%
It's too much hassle to recycle	15%	9%
I think recycling is a waste of time	6%	2%
Other	4%	3%
Number	223	237

Note: Only asked to those who answered "no" or "undecided" to previous question.

2.3 Transparency of fees on shopping receipts

To gauge views on the transparency of scheme fees, we asked consumers how important it was to be able to see (1) the refundable deposit fee and (2) the non-refundable administration fee on shopping receipts.

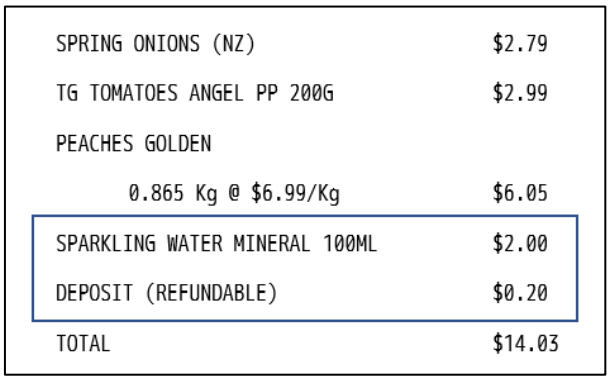
2.3.1 Scheme deposit fee

Sixty-nine percent thought it was either somewhat important (13%) or very important (56%) for the refundable deposit fee to be shown. Only eight percent felt it was unimportant (Table 3).

Those who supported a scheme, and those aged 60 or over, were more likely than average to believe it was very important for the deposit fee to be shown (58% and 63% respectively).

Men were less likely than average to believe it was very important (49%). Those who lived in a household with a school-aged child or children were more likely to be undecided (7% versus 4%).

Table 3. If a scheme was introduced, how important would it be to you for the refundable deposit fee to be shown on your shopping receipt, as in the example below?



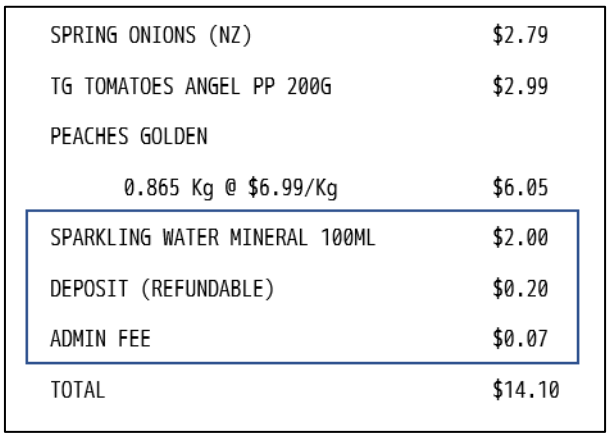
Rating	%
Unimportant (0-2)	8%
Somewhat unimportant (3-4)	4%
Neutral (5)	15%
Somewhat important (6-7)	13%
Very important (8-10)	56%
Undecided	4%
NET	100%
Number	1516

2.3.2 Scheme administration fee

Across all consumers, 62% believed it was somewhat important (14%) or very important (48%) for the non-refundable administration fee to be shown on shopping receipts. Eleven percent felt it was unimportant (Table 4).

Women, and those aged 60 or over, were more likely than average to believe it was very important for the information to be shown (51% and 55% respectively).

Table 4. If a scheme was introduced, how important would it be to you for the non-refundable admin fee to also be shown on your shopping receipt, as in the example below?



SPRING ONIONS (NZ)	$2.79
TG TOMATOES ANGEL PP 200G	$2.99
PEACHES GOLDEN	
0.865 Kg @ $6.99/Kg	$6.05
SPARKLING WATER MINERAL 100ML	$2.00
DEPOSIT (REFUNDABLE)	$0.20
ADMIN FEE	$0.07
TOTAL	$14.10

Rating	%
Unimportant (0-2)	11%
Somewhat unimportant (3-4)	5%
Neutral (5)	16%
Somewhat important (6-7)	14%
Very important (8-10)	48%
Undecided	6%
NET	100%
Number	1516

2.4 Views on scheme costs

Overall, 81% of consumers felt it was either somewhat important (12%) or very important (69%) for the extra costs of the scheme to be transparent. Only two percent thought it was unimportant (Table 5).

Table 5. Overall, how important is it to you that any extra costs of the scheme are transparent?

Rating	%
Unimportant (0-2)	2%
Slightly unimportant (3-4)	1%
Neutral (5)	13%
Somewhat important (6-7)	12%
Very important (8-10)	69%
Undecided	3%
NET	100%
Column n	1516

Scheme supporters, and those aged 60 or over, were more likely than average to believe it was very important for extra charges to be transparent (71% and 77% respectively).

Men were less likely than average to believe it was very important (64%).

2.5 Other comments

Consumers were given the opportunity to provide general feedback on the scheme. One in four provided comments (Table 6).

Of those:

- 29% reiterated their support for the scheme
- 25% expressed opposition to the non-refundable administration fee
- 10% commented on recycling generally.

Table 6. Please add any additional comments you have about this survey.

Comment	%
I support the scheme	29%
Admin fee-related (e.g., not in favour of fee, had scheme before without an admin fee)	25%
Comments about recycling in general	10%
I need more information before I make a decision	5%
Transparency in fees is important	5%
I don't support the idea	4%
I'm already paying for kerbside recycling/I prefer the existing recycling method/s	4%
The scheme needs to be convenient and easy	4%
I'm not sure why consumers need to fund this	4%
General questions about the scheme	2%
I have seen or used this overseas	2%
I live in a rural or remote area/There is no recycling option in my area	1%
Make sure recycling doesn't end up in landfill	1%
Refund amount should be shown on the drink container	1%
I'm not in favour of the deposit fee	1%
Other	13%
Number	368

Note: Base size is smaller due to the question being optional.

About two percent of consumers asked questions at the end of the survey. These included:

- What types of plastics would be covered by the scheme (as some can't be put out in kerbside recycling)?
- What does the admin fee cover?
- Where does the admin fee go?
- If consumers purchase multiple beverages, how would that be shown in the receipt and would there be a fee for each?
- Would the fee attract GST?
- Why should consumers fund the scheme when council rates already include recycling costs?
- Why won't manufacturers and/or retailers cover the admin cost?
- What will happen to kerbside recycling if this scheme goes ahead?
- How convenient is it to return the drink containers? Are the locations convenient enough even to those who use public transportation?

Appendix H

The New Zealand Container Return Scheme Managing Agency Governance Board option scenarios

Appendix H **The New Zealand Container Return Scheme Managing Agency Governance Board option scenarios**

	Option 1: Central Government	**Option 2: Local Government**	**Option 3: Industry**	**Option 4: Central Government and Local Government**	**Option 5: Central Government and Industry**	**Option 6: Local Government and Industry**	**Option 7: Central Government, Local Government and Industry**
Overview	All Governance Board members are appointed by New Zealand Government (presumably the Associate Minister for the Environment, as the Minister overseeing the scheme design).	All Governance Board members appointed by local government.	All Governance Board members appointed by industry (including a combination of manufacturers, beverage suppliers, retailers and recycling industries).	Combination of options 1 and 2.	Combination of options 1 and 3.	Combination of options 2 and 3.	Combination of options 1, 2 and 3.
Examples	**State Owned Enterprises and Crown Entities** Members appointed by Shareholding Ministers	**Watercare Services Limited** 6-8 members appointed by Watercare's shareholder, Auckland Council.	**Dansk Retursystem** 13 members representing Danish breweries and grocers.	**Tamaki Regeneration Company** 5-7 directors; 1 Crown appointment, 1 council appointment and the remaining appointed by ordinary resolution. **Local**	**Western Australia Return Recycle Renew Limited** 9 members; 4 beverage industry (member) appointments (one of which must represent small beverage producers); 5 independent approved by state government (including an independent	**The Agrecovery Foundation** 7 members; 6 industry appointments (5 for the primary sector and 1 for distributors of agrichemicals) and 1 local government appointment.	-

	Option 1: Central Government	Option 2: Local Government	Option 3: Industry	Option 4: Central Government and Local Government	Option 5: Central Government and Industry	Option 6: Local Government and Industry	Option 7: Central Government, Local Government and Industry
				Government Funding Agency (LGFA) 4-7 members appointed by the Shareholders Council (comprising 1 central government appointee and the remainder local government).	chair).approved by state government (including an independent chair). **COEX** (Organisation overseeing QLD CRS) 9 members; 5 beverage industry (member) appointments (one of which must represent small beverage producers); 4 independent approved by state government (including an independent chair).		
Is the option likely to promote social, economic, and environmental objectives, underpinned by a cultural framework?	**Social** Commercial **Environmental** **Cultural**	**Social** Commercial **Environmental** **Cultural**	Social **Commercial** Environmental Cultural	**Social** Commercial **Environmental** **Cultural**	**Social** **Commercial** **Environmental** **Cultural**	**Social** **Commercial** **Environmental** **Cultural**	**Social** **Commercial** **Environmental** **Cultural**

	Option 1: Central Government	Option 2: Local Government	Option 3: Industry	Option 4: Central Government and Local Government	Option 5: Central Government and Industry	Option 6: Local Government and Industry	Option 7: Central Government, Local Government and Industry
Advantages and disadvantages	✓ Represents the people of New Zealand ✓ Accustomed to balancing environmental, social, cultural and commercial outcomes.	✓ Represents the people of New Zealand ✓ Accustomed to balancing environmental, social, cultural and commercial outcomes.	✓ Strong sector technical knowledge and capability (although this expertise can be appointed to the Governance Board).	See commentary regarding options 1 and 2.	See commentary regarding options 1 and 3.	See commentary regarding options 2 and 3.	See commentary regarding options 1, 2 and 3.
Advantages and disadvantages	✓ Helpful for regulator to have first hand exposure to system (although there are other mechanisms for achieving this). • Not directly involved in the production or disposal of beverage containers. • Potential conflict of interest in the event that Board appointments are made by the same part of Government regulating the	✓ Extensive involvement with the system through collection and processing of kerbside refuse and recycling and landfill disposal (although this expertise can be appointed to the Board). • May enable provision of funding through the LGFA (requires further investigation). • Potential conflict of interest due to benefit to council	✓ May enable provision of funding through industry parties (e.g. as is the case with some Australian schemes). • Potential conflict of interest due to scheme costs and operation affecting industry. • Evidence from schemes overseas suggests industry governed schemes tend to focus on commercial outcomes, with less emphasis on environmental and social outcomes.	See commentary regarding options 1 and 2.	See commentary regarding options 1 and 3.	See commentary regarding options 2 and 3.	See commentary regarding options 1, 2 and 3.

	Option 1: Central Government	Option 2: Local Government	Option 3: Industry	Option 4: Central Government and Local Government	Option 5: Central Government and Industry	Option 6: Local Government and Industry	Option 7: Central Government, Local Government and Industry
	scheme (i.e. MfE).	of deposit revenue from kerbside collection. • Not involved in the production of containers.					
Provisional comments on the preferred options	**Pending** – Central government is tasked with regulatory oversight of the system, a potential conflict of interest that would need to be managed..	**Pending** – Partial or full local government ownership has close involvement in system (see assessment under option 1) and possibility of accessing funding through the LGFA, however there is a potential conflict of interest for unredeemed containers in kerbside collections.	**Pending** – Full industry ownership not preferred due to experience with schemes internationally, where commercial objectives outweigh other objectives and due to potential conflict of interest particularly if redemption/ refund model.	**Pending**– see commentary regarding options 1 and 2.	**Pending** – Central government and industry involvement is an option. It is noted that central government does not have as close as involvement in waste recovery as local government.	**Pending** – Partial involvement of local government and industry is an option as it offers strong sector knowledge and experience and ability to balance environmental, social, cultural and commercial objectives.	**Pending** – Central government, local government and industry involvement is an option as it offers strong sector knowledge and experience and ability to balance environmental, social, cultural and commercial objectives.

Appendix I

Assumptions for deriving single-use container volumes and weights

Assumptions for deriving single use container volumes and weight

Set out below are the assumptions and methodology used to derive the total number and weight of single use beverage containers consumed in New Zealand for 2019.

The estimated containers sold using the following assumptions can be found in appendix B.

Data sources

Our estimates for single use beverage container numbers and weight are derived from supermarket point of sale data from IRI Worldwide, product characteristics data from GS1's national product catalogue, 'alcohol available for consumption' data from Statistics New Zealand (Stats NZ) and additional assumptions.

Weight and product characteristics for 'liquid breakfast' products are not available in the GS1 database. We have applied the same weight and product characteristics for a 'UHT milk (dairy and non-dairy)' unit to a 'liquid breakfast' unit.

Terminology

- **Unit** = A unit is what is sold at the point of sale. This means it could be a single container or a 'multipack' containing multiple containers.
- **Container** = A single container.

Assumptions

Litres per container (alcoholic beverages)

The data from Stats NZ is given in litres available for consumption. We use estimates for container sizes (ml) for alcoholic products to estimate the total amount of containers for alcoholic products. The assumptions have been split between units sold as a single container or units sold as a 'multi-pack'.

- Single container volumes
    - Wine (includes sparkling and champagne) 750ml
    - Beer 500ml
    - Cider 500ml
    - Spirits 700ml
    - Spirit-based drinks 330ml
- Multipack container volumes
    - All beverages as 330ml

*Note: The methodology to calculate containers consumed for **non-alcoholic** beverages does not require a litres per container assumption.*

Litres per unit (alcoholic beverages)

The average litres per unit of non-spirit alcoholic products are derived using total litres sold in supermarkets divided by total units sold in supermarkets. An estimation for spirits and spirit-based drinks needs to be derived as these items are not sold in supermarkets.

The unit size was estimated by taking the proportion of products that were sold in a single container and multiplying it by the assumed volume size as outlined above. This was also done for the remaining proportion from multipack units.

The proportion of units sold in a single or multipack is outlined below:

Spirits:

- Singular: 91.5%
- Multipack: 8.5%

Spirit-based drinks:

- Singular: 53.3%
- Multipack: 46.7%

Applying these proportions to the estimated volume size of containers as outlined above, the estimated average unit sizes are:

- Spirits 850ml
- Spirit-based drinks 1530ml

Non-alcoholic products sold outside of supermarkets (e.g. products sold in dairies, petrol stations and commercial sales)

To estimate the total number and weight of non-alcoholic containers consumed in New Zealand, assumed proportions of non-supermarket sales out of total sales are applied to supermarket sales data. The same percentages are applied to calculate container weights and volumes, which assumes that product mix is the same for supermarket and non-supermarket sales.

- Proportion of non-alcohol products outside of supermarkets (% of units):
  - Ambient drinks (e.g. Ribena, fruit drinks, etc.) = 20%
  - Ambient juices (e.g. Keri juice) = 20%
  - Carbonated beverages = 30%
  - Chilled juices & drinks = 20%
  - Flavoured milk = 20%
  - Lifestyle drinks (e.g. energy drinks) = 30%
  - Liquid breakfast = 10%
  - UHT milk (dairy and non-dairy) = 10%
  - Water = 30%
  - Fresh milk = 40%

Alcoholic products sold in bulk

To estimate the total weight and container numbers for alcoholic beverages, we calculate the amount of alcohol (in litres) that is sold in single use containers. This requires assumptions for alcohol that is sold in bulk (i.e. kegs) to subtract from total alcohol consumption volumes to estimate alcohol volumes consumed from containers.

- Proportion of total alcohol sold as 'bulk'
    - Wine (includes sparkling and champagne) = 0%
    - Cider = 2.5%
    - Beer = 15%
    - Spirits = 0%
    - Spirits-based drinks = 0%

Regional data

To calculate container numbers by region we multiply the national figure by the proportion of regional population to national population.

Material type (plastic, glass, liquid board paper and metal)

To calculate units sold in supermarkets by material type, we use an assumption that the proportion of units sold by material type is equal to the proportion of products available to purchase by material type. This is broken down on a beverage type basis.

Appendix A: Key inputs for the model supplied by GS1, IRI Worldwide and Stats NZ

Supermarket sales (data provided by IRI worldwide)

As at 15 Sep 2019		Units*	Volume (L)
Non-alcoholic beverages			
Ambient drinks	*000's*	22,579	36,149
Ambient juices	*000's*	17,823	27,745
Carbonated beverages	*000's*	112,980	203,406
Chilled juice and drinks	*000's*	20,981	17,028
Flavoured milk	*000's*	9,744	6,062
Lifestyle drinks	*000's*	51,893	32,048
Liquid breakfast	*000's*	6,437	6,571
UHT milk (dairy and non-dairy)	*000's*	38,592	31,392
Water	*000's*	39,225	103,055
Fresh milk	*000's*	105,413	210,827
Alcoholic beverages			
Wine (includes sparkling and champagne)	*000's*	67,638	54,888
Cider	*000's*	6,023	8,529
Beer	*000's*	36,508	115,400

*** Note: a** unit is what is sold at the point of sale. This means it could be a single container or a 'multipack' containing multiple containers.

National alcohol sales (data provided by Stats NZ)

As at 31 Dec 2018		
Beer		
=<1.150% alcohol	*litres (000's)*	353
>5.00% alcohol	*litres (000's)*	35,270
1.151%-2.500% alcohol	*litres (000's)*	7,021
2.501%-4.350% alcohol	*litres (000's)*	111,781
4.351%-5.000% alcohol	*litres (000's)*	138,586
Wine (includes sparkling and champagne)		
Grape Wine =<14% alcohol	*litres (000's)*	91,569
Grape Wine >14% alcohol	*litres (000's)*	502
Other Wine =<14% alcohol	*litres (000's)*	16,942
Other Wine >14% alcohol	*litres (000's)*	77
Spirits		
Spirits <23% alcohol	*litres (000's)*	66,155
Spirits >23% alcohol	*litres (000's)*	14,164

Number of products available as per the national catalogue (data provided GS1)

As at Jan 2020	Material			
	Plastic	**Liquid paperboard**	**Metal**	**Glass**
Non-alcoholic beverages				
Ambient drinks	57	13	1	1
Ambient juices	170	61	5	24
Carbonated beverages	287	-	255	416
Chilled juice and drinks	148	6	4	22
Flavoured milk	35	-	-	-
Lifestyle drinks	118	37	12	51
UHT milk (dairy and non-dairy)	94	100	4	17
Water	97	3	9	43
Fresh milk	114	20	-	-
Alcoholic beverages				
Wine (includes sparkling and champagne)	4	7	15	2,657
Cider	17	-	20	144
Beer	12	-	430	750
Spirits	16	1	146	1,135

Average weight of units* by product and material type (data provided GS1)

As at Jan 2020		Material			
		Plastic	**Liquid paperboard**	**Metal**	**Glass**
Non-alcoholic beverages					
Ambient drinks	*grams*	71	195	121	245
Ambient juices	*grams*	80	216	26	229
Carbonated beverages	*grams*	56	-	121	563
Chilled juice and drinks	*grams*	50	36	240	239
Flavoured milk	*grams*	63	-	-	-
Lifestyle drinks	*grams*	68	159	32	574
UHT milk (dairy and non-dairy)	*grams*	94	249	9	155
Water	*grams*	291	130	121	622
Fresh milk	*grams*	65	59	-	-
Alcoholic beverages					
Wine (includes sparkling and champagne)	*grams*	43	115	29	606
Cider	*grams*	169	-	51	1,093
Beer	*grams*	665	-	51	1,551
Spirits	*grams*	254	158	49	760

*** Note: a** unit is what is sold at the point of sale. This means it could be a single container or a 'multipack' containing multiple containers

Appendix B: Estimated containers sold in 2019 (using assumptions as outlined in this document)

Total containers (000's)		Material Type				
		Plastic	Liquid Paperboard	Metal	Glass	**Total**
Beverage Type	Ambient drinks	22,344	15,288	392	392	**38,416**
	Ambient juices	14,567	12,596	428	3,256	**30,848**
	Carbonated beverages	50,374	-	182,797	147,417	**380,588**
	Chilled juice and drinks	21,564	874	2,331	4,080	**28,849**
	Flavoured milk	15,659	-	-	-	**15,659**
	Lifestyle drinks	41,827	27,885	5,781	43,187	**118,680**
	Liquid breakfast	-	11,158	-	-	**11,158**
	UHT milk (dairy and non-dairy)	34,304	31,113	798	3,390	**69,605**
	Water	68,938	1,106	18,064	24,331	**112,439**
	Fresh milk	513,956	26,222	-	-	**540,178**
	Total (non-alcohol)	**783,533**	**126,242**	**210,591**	**226,053**	**1,346,419**
	Wine (includes sparkling and champagne)	181	317	795	122,578	**123,872**
	Cider	3,324	-	4,917	34,901	**43,141**
	Beer	5,106	-	207,514	403,513	**616,133**
	Spirits	413	18	-	22,473	**22,904**
	Spirit-based drinks	1,899	-	91,133	118,663	**211,695**
	Total (alcohol)	**10,922**	**335**	**304,359**	**702,129**	**1,017,745**
	Total	**794,455**	**126,577**	**514,951**	**928,182**	**2,364,164**

Appendix C: Estimated weight of containers sold in 2019 (using assumptions as outlined in this document)

Total weight (tonnes)		Material Type				
		Plastic	Liquid Paperboard	Metal	Glass	**Total**
Beverage Type	Ambient Drinks	1,591	995	48	96	2,729
	Ambient Juices	1,161	1,131	11	472	2,775
	Carbonated Beverages	2,707	-	5,211	39,485	47,404
	Chilled Juice & Drinks	1,086	32	140	765	2,023
	Flavoured Milk	766	-	-	-	766
	Lifestyle Drinks	2,709	2,004	132	9,956	14,801
	Liquid Breakfast	-	1,781	-	-	1,781
	UHT Milk	1,755	4,965	7	526	7,252
	Water	10,421	144	402	9,856	20,823
	Fresh Milk	9,684	1,542	-	-	11,226
	Total (Non-alcohol)	**31,881**	**12,592**	**5,951**	**61,155**	**111,579**
	Wine (includes sparkling and champagne)	7	34	18	67,440	67,499
	Cider	198	-	70	10,860	11,129
	Beer	537	-	1,476	78,287	80,300
	Spirits	61	2	-	12,894	12,958
	Spirit Based Drinks	104	-	958	19,476	20,538
	Total (Alcohol)	**907**	**36**	**2,523**	**188,958**	**192,424**
	Total	**32,788**	**12,628**	**8,474**	**250,113**	**304,003**

Appendix J

New Zealand Container Return Scheme Cost-Benefit Analysis report

A Container Return System for New Zealand

Cost-benefit analysis

Preston Davies, Ben Barton

22 October 2020

Contents

Tables

Figures

Executive summary

This report presents the findings of an economic cost-benefit analysis (CBA) of a Container Return Scheme (CRS) in New Zealand.

The CBA relies on work completed by a Scheme Design Working Group, including financial modelling commissioned by the Working Group from PwC. That is, we largely take as given the design features, options and operations of a CRS based on expert input. We understand that changes to these factors might be made as further work progresses, but for the purposes of the CBA we did not make independent changes.

A peer review by Sense Partners has been completed and the results presented reflect feedback given as part of that review. In addition, feedback received from a range of stakeholders has also been incorporated into the analysis, where available evidence allows.

This CBA essentially refreshes a previous CBA completed in 2016/17 for Auckland Council, which found benefits exceeded costs by a factor of around three and society would be better off by $184 million in present value terms, across a ten-year study period.

Relative to the previous work, this analysis extends the study period to 30 years, models two scenarios (i.e. a CRS with and without glass containers) and includes additional effects (e.g. emissions and machine-based return facilities).

Compared to a 'business as usual' situation of no CRS, a CRS that includes glass containers would result in society being better off to the tune of $1,101 million, in present value terms. In that scenario, benefits exceed costs by 49 per cent.

If glass containers were removed from the CRS design, society is made better off from introducing a CRS by $81 million and benefits exceed costs by seven per cent.

These results are largely robust to changes in the discount rate applied and the time period. However, the results for the glass-out scenario go from net positive to net negative when a ten year study period is used due to the time profile of costs and benefits. The glass-out scenario is also net negative when a 10 cent deposit level assumes lower household participation and litter reduction rates.

	Glass-in scenario	Glass-out scenario
Total benefits ($m, PV)	$3,329	$1,271
Total costs ($m, PV)	$2,227	$1,190
Net benefits ($m, PV)	$1,101	$81
Benefit-cost ratio	1.49	1.07

While the cost and benefit categories were broadly consistent between this CBA and the previous 2016/17 work, some clear differences emerged as a result of better information, especially on the cost side. In particular:

- Operating costs are over six times higher than those estimated previously
- Scheme administration (i.e. Managing Agency) costs are around 15 times higher than those estimated previously
- Benefits from welfare gains to households due to less litter were proportionally about the same in both studies, but in absolute terms were considerably higher than previously estimated
- Benefits from welfare gains to households due to additional recycling were higher in absolute and relative terms, due to the inclusion of additional information on household willingness-to-pay
- The benefit associated with higher value recycled material due to a CRS is much lower in the current study, largely due to lower prices as well as the costs of exporting materials, which were not included previously

The new information available for this study has led to more confidence in the robustness of cost and benefit estimates, but the results of the CBA should be seen as a further step in what is ultimately a journey to precise estimation.

As further information surfaces and key design features are settled (e.g. return facilities) additional updating of the results of this study will allow progress towards a 'true' estimate of the economic costs and benefits. Areas where there are existing gaps or where further exploration is likely to be useful are:

  - Material flows
  - Commercial arrangements, responses and costs
  - The volume and composition of litter
  - Return facility capacity, cost and operations. We have a possible source of data to use but need to establish the extent to which the data can be used, given its commercial sensitivity. In addition, we have developed alternatives to the 'lease' model used, but only to a rudimentary level
  - Possible household behaviour

Introduction and background

CRS's have a range of objectives, meaning precise problem definition is elusive

Cost-benefit analysis (CBA) is usually motivated by a problem statement. While there is no single problem that CRS's are developed to address, a high-level problem statement relevant for this analysis is as follows:

A mismatch between private costs and social costs of disposal and recycling leads to excessive amounts of beverage containers being disposed into landfill or discarded as litter.

We acknowledge that the expression of the problem a CRS (as designed) could address is part of the wider policy development and consideration process, but include a problem statement here for clarity and completeness.

This analysis follows previous work

In 2016, Auckland Council commissioned us to prepare a CBA of a proposed Container Deposit Scheme (CDS). Data from Auckland Council was combined with specialist advice and extrapolated to the national situation. The CDS modelled was 'generic' in nature, with a range of assumptions applied for tractability reasons.

The 2016 CBA indicated that society would be better off from the introduction of a CDS, relative to the status quo of no CDS. Benefits exceeded costs by a factor of around three, meaning society was better off by $184 million in present value terms, across the ten-year study period.

Subsequently, in September 2019 funding was provided by the Waste Minimisation Fund to *Design a Container Return Scheme for New Zealand* in particular, a Working Group was put together to advise on scheme:

- Design
- Management
- Governance
- Financial implications

A CBA of the resulting scheme, referred to as a Container Return Scheme (CRS), was part of the work programme of the Working Group. This report summarises the results of the CBA.

The work 'refreshes' rather than recreates the previous work…

This analysis updates the earlier study. The same basic benefit categories are used, while costs now include those related to carbon emissions. Similarly, the economic effects of introducing the CRS are measured against a counterfactual of no CRS, just like the previous analysis.

Where the two studies differ is the extent to which information is available on the factors summarised immediately above. In addition, more detailed and accurate information is available on consumption of containers and predicted recycling rates/volumes.

We proceed on the basis that readers are familiar with what a CRS is and have had considered relevant material produced by the Working Group and the consultants who assisted the group.

…and is informed by peer review

The CBA was peer reviewed by respected economics consultancy Sense Partners. The peer review identified three major areas where improvement is possible:

- a clearer specification of the problems a CRS would address and consideration of a broader range of options for addressing problems
- wider sensitivity testing of results
- more detailed analysis of litter reduction

In addition, the peer review highlighted a calculation error where the benefit estimation for litter reduction and increased recycling components was understated, as well as other relatively minor issues that were either presentational in nature or questions of clarity.

As a result of the peer review, we:

- included a high-level problem statement (above)
- corrected the benefit calculation error, which meant that net benefits and the benefit-cost-ratio improved
- undertook additional sensitivity analysis, where the change with the most effect was for the assumed deposit level (modelled through changes to participation rates)

The suggested improvements relating to more detailed analysis of litter volumes and reduction (through a more dynamic rather than static approach) and greater options analysis were useful but were not addressed in this updated report.

In the case of litter volumes, we believe that the current treatment is sufficient and adequately represents a potential change relative to a 'status quo' or 'business as usual' scenario. While we agree that the possible use of a stock and flow approach could be beneficial, our assessment is that the degree of difficulty in accurately specifying relevant parameters would not necessarily result in more precise or realistic estimates of effect, even if time was available.

In respect of greater option identification, we consider this to be a question best dealt with through other avenues in the CRS examination process. That is, this is more a scope issue than an analytical one. We were asked to consider only the CRS option, as described by the Working Group. The underlying question of whether there are alternatives to a CRS to address the problems/achieve the objectives that might be preferred to a CRS (as designed) is a good question. But, it is not a question we were asked to answer in this analysis.

In addition, feedback received from a range of stakeholders has also been incorporated into the analysis, where available evidence allows.

What we modelled

Rather than a single scheme design, we were presented with a range of possibilities, each with potentially different cost and benefit implications. For reasons of tractability, we looked to simplify the modelling we undertook, which is described below.

Collection model

We model the capital and operating costs of three components of the Container Return Scheme (CRS):

- Managing Agency (MA), oversees the operation and administration of the scheme
- Material Consolidation Facility (MCF), collects, aggregates and bales returned containers for sale and processing
- Return Facilities (RF), point for consumers to return container for deposit refund

Costs for the MA and MCFs were provided by the PwC financial model. In the absence of information on the costs of the RFs which we recognise would be available during the implementation (procurement) stage of a CRS we used international evidence. The RF are modelled as mix of Reverse Vending Machines (RVM) and manual facilities that have differing cost structures and capacity. The Working Group (WG) guidance was for a lease model to operate the RVMs so we took that approach.

Scheme fees

The CRS fee is applied to all beverage containers and paid by the beverage producers and fully passed onto retailers and ultimately consumers. The only relevant aspect for the CBA is the demand response to the price increase which is modelled as a one-off 6.5 per cent reduction in beverage sales in year one of the scheme. Refer to PwC (2020) financial model for details.

Ideally, for an economic CBA we would use estimates of the price elasticity of demand for different beverages to model the reduction in consumption as a result of a price rise due to the CRS. As indicated in the previous CBA, there is very little data in New Zealand on the relevant elasticities.

In addition, the bundling options available for beverages (particularly alcohol) make it extremely difficult to determine the price impact and consequently the consumption reduction. Moreover, it is not a classical increase in price as such (e.g. from a tax), as consumers have the possibility of recouping the additional payment (although that is not costless). Thus, the somewhat 'blunt' and possibly overstated consumption reduction explained above is used in this analysis.

Material flow changes

As a result of the CRS beverage containers are diverted from kerbside refuse and recycling collections, and the quantity of beverage containers that become litter is reduced.

Key inputs to determine Business as Usual (BAU) and CRS material volumes and flows were provided by PWC and the WG:

- GS1 container sales data by beverage type and container material is used to establish consumption.
- WasteMINZ and Territorial Local Authority (TLA) data on the beverage container flows by material type in kerbside refuse and recycling collections across the country.
- Container consumption and disposal are modelled to grow at 2.03 per cent annually after the initial drop off of 6.5 per cent in consumption when the CRS is introduced.

The financial modelling assumes an initial total return rate of 60 per cent increasing to 85 per cent by year five of the CRS. This is also modelled to correspond with an 85 per cent household participation rate once the CRS is fully operational.

In year one we model 60 per cent of kerbside refuse and recycling diverted into the CRS, in year five when fully implemented 85 per cent is diverted from kerbside into the CRS and this rate continues for the modelling period. [1]

Table 1: Change in kerbside recycling and refuse during implementation (tonnes)

Category	**Year one (60% diversion)**				**Year five (85% diversion)**			
	Recycling		Refuse		Recycling		Refuse	
	BAU	CRS	BAU	CRS	BAU	CRS	BAU	CRS
Plastic	24,038	8,990	7,972	2,982	26,050	3,654	8,639	1,212
Liquid paperboard	1,462	547	2,930	1,096	1,585	222	3,175	445
Metal (Aluminium)	3,367	1,259	1,813	678	3,649	512	1,965	276
Glass	143,280	53,587	13,334	4,987	155,273	21,777	14,450	2,027
Total	172,147	64,383	26,049	9,742	186,557	26,165	28,230	3,959

Source: PwC financial model, Sapere analysis

The reduction in litter assumes that half the consumption quantity not accounted for in kerbside collections become litter and the other half goes to other sources, such as; stockpile, commercial, transfer station and other refuse. This assumption is calibrated with litter collection data from Keep New Zealand Beautiful (KNZB).

[1] Note the actual change in volume is greater due to reduce demand from the CRS price being passed onto consumers.

Litter volumes reduce by 61 per cent once the CRS is fully implemented, 60 per cent of this reduction happens in year one and 100 per cent by year five.

Table 2: Change in litter volumes (tonnes)

Category	Year one (60% impact)		Year five (100% impact)	
	BAU	CRS	BAU	CRS
Plastic	1,761	1,042	1,909	692
Liquid paperboard	4,646	2,748	5,035	1,824
Metal (Aluminium)	2,001	1,184	2,169	786
Glass	57,218	33,838	62,007	22,466
Total	65,627	1,042	71,120	692

Source: Sapere analysis

A change in commercial (Hospitality) volumes is not modelled due to lack of data.

Relevant costs and benefits

This analysis includes some costs and benefits that weren't considered previously and accounts for growth in households over time

The categories of costs and benefits included in this analysis are summarised in Table 3. Those cost or benefit categories marked with an asterisk were not included in the previous CBA.

A key difference between the previous analysis and this updated analysis is that the current exercise grows the number of households in line with historical trends into the future. The previous analysis made no such adjustment. The effect of this adjustment is to increase both costs (associated with household participation) but also benefits (associated with household willingness-to-pay for litter reduction and additional recycling).

Employment effects are not included, but are a qualitative feature of a CRS

In common with other proposals of this nature, claims are often made that employment opportunities arise from a CRS and that these opportunities are a benefit that should be included in any economic CBA. In general, economic CBA does not directly or explicitly include employment effects. This is the position that was taken in the previous CBA.

The opportunity cost of labour employed (i.e. the going wage rate) is implicitly included as part of the various cost elements while any beneficial effect that arises from the deployment of labour to produce goods or services would be captured in terms of the outputs of that labour process (e.g. in the scale of additional recycling, or reduced litter).

The rationale behind excluding employment effects is that labour resources used to undertake activities associated with a CRS would (or could) have been deployed elsewhere in the economy and is therefore a resource transfer rather than resource creation. However, where there is unemployment in the relevant catchment or for the relevant skill area, it is possible that the opportunity cost of labour employed could be low (perhaps even zero). [2]

In such cases the impact of employment could be viewed as positive (i.e. the output produced comes at very low or no cost). There may also be fiscal benefits if the labour that is to be used was previously receiving transfer payments from the government but would no longer do so following a CRS.

[2] The Treasury (2015) *"Guide to Social Cost Benefit Analysis."* p.17.

Lack of available data and the transfer nature of employment effects (i.e. labour deployed as part of a CRS would likely have been deployed elsewhere in the economy) means we do not include employment effects in the analysis.

We note however, that the benefits associated with employment may be broader than just the market wage, with such "externalities" thought to include better civic engagement, enhanced social interactions and overall gains in self-esteem/well-being. Furthermore, in an environment where employment protection is paramount among government goals as a result of the COVID-19 pandemic, the extent to which a CRS is able to preserve employment that might otherwise have disappeared is positive economically, even if such effects are not amenable to inclusion in a CBA.

Table 3 Overview of costs and benefits

	Description	Calculation used	Source
Costs			
Household participation	Costs incurred by households for activity related to the CRS	Time required multiplied by time cost multiplied by proportion of participating households	NZTA Economic Evaluation Manual, Author's estimates
Infrastructure-capital	Asset costs for processing and collecting containers for MCFs	Estimated market cost of assets	SDWG, PwC (2020), Author's estimates
Infrastructure-operating	Transport, administration, handling and processing/staff costs for MCFs, collection facilities and Managing Agency	Cost per tonne for transport and handling Annual estimated labour and other costs	PwC (2020), Auckland Council
Labelling*	Costs to display information on containers, potentially including bar codes and value of refund	One-off cost based on product lines and daily cost for four days' work by design company	Hogg et al (2015), Eunomia
Exporting cost*	Costs associated with sending additional volumes of recyclate matter offshore	Price per tonne, by recyclate matter	PwC (2020)

	Description	Calculation used	Source
Benefits			
Welfare gain from additional recycling	The value households place on additional recycling as a result of a CRS	Willingness to pay per household multiplied by the net change in volumes for the relevant number of households. Updated to today's value and averaged across two sources used.	PwC (2010), Covec (2007)
Welfare gain from less litter	The value households place on the reduction in litter recycling as a result of a CRS	Willingness to pay per household multiplied by the net change in volumes for the relevant number of households. Updated to today's value and averaged across two sources used.	PwC (2010), Wardman et al, (2011)
Lower landfill costs	Avoided costs of landfill due to tonnes diverted from kerbside refuse	Diverted volume multiplied by cost per tonne of landfill	PwC (2020)

	Description	Calculation used	Source
Value of material collected	Additional value due to better quality of material	Dollar value per tonne for relevant material type multiplied by respective volume	PwC (2020)
Reduced litter clean-up costs- market-based	Lower costs of litter clean-up due to reduced volume of litter	Dollar cost per person multiplied by relevant litter reduction	Auckland Council, Author's calculations
Reduced litter clean-up costs- non-market-based	Avoided damage from marine litter and notional value of volunteers	Proportional reduction in litter multiplied by assumed value of time for volunteers; volume of litter reduction times cost of marine litter/tonne. Updated to today's value.	Beaumont et al (2019), NZTA Economic Evaluation Manual, Author's calculations
Reduced contamination	The lower level of contamination in landfills as a result of better quality/less-contaminating material ending up in landfills	Reduction in tonnage multiplied by landfill cost	PwC (2020), Author's estimates
Emissions*	Impact on carbon footprint as a result of CRS. Largest impact stems from replacing virgin material.	Net total of additional emissions from exporting and reduced emissions from replacing virgin use and landfill emissions (due to paperboard)	NZTA Economic Evaluation Manual, UK Government (for emissions factors)

	Description	Calculation used	Source
Lower collection costs	Savings from reduced burden of kerbside collection	Reduction in volume of kerbside refuse and recycling multiplied by cost saving per tonne	PwC (2020), Covec (2016)

* denotes categories not included in previous work

Estimated costs and benefits

This section presents the (quantified) estimates of the costs and benefits of the CRS, as proposed. The estimates are based on the core assumptions contained in Table 4. We highlight that, where value ranges are presented, we use the midpoint for modelling purposes.

Table 4: Core assumptions

Relevant factor	Value	Source
Discount rate	6%	Treasury (2015)
Study period	30 years	Author's estimate
Phase-in period to steady state	5 years	PwC (2020), SDWG
Average annual household growth	0.69%	Statistics New Zealand
Annual change in consumption	2.03%	PwC (2020)
Maximum household participation and return rate	85%	PwC (2020), previous estimate of likely participation

Participation costs ($772 million with glass, $417 million without glass)

Beverage containers must be sorted, stored and transported to return facilities. Thus, there are two elements to household participation costs: the additional time needed to sort and return/redeem the containers and the transportation costs to get to the return facility.

Household time ($446 million with glass, $241 million without glass)

As a result of the CRS, households are likely to spend additional to time sort, store and redeem containers. We assume that such trips will often be combined with other trips, such as weekly grocery shopping.

As indicated above, containers can be returned either at a depot, or by RVM. For this analysis, we assume 85 per cent of containers will be returned through RVMs and 15 per cent at depots.

Table 5: Household participation time variables (seconds per week) for RVMs

Weekly components	Low	High	Midpoint

Additional sorting and storing	30	60	45
Walk time	30	60	45
Wait time	10	30	20
Total	70	150	110
Seconds per container	3	5	4

Given the number of containers assumed to be redeemed per household, the figures above translate into households spending just over **two hours per year** participating via RVMs once the CRS is fully up and running, made up of around 1.25 hours per year putting containers into RVMs and 0.79 hours in additional sorting, storing, walking and wait time per year.

In the case of manual return facilities, we assume monthly to quarterly frequency (i.e. eight return trips per household per year). These trips are estimated to take five to ten minutes time per trip. Based on these figures and a test of likely container number thresholds to generate a trip, our best estimate of the time taken by households to use manual collection depots **is one hour per household per year**.

These time estimates are comparable to findings from overseas studies:

- Container deposit redemption time 1.6 minutes for RVM and 10 minutes for other refund points (Government of Western Australia, 2018)
- RVM is equivalent to 1.7 minutes. Return facility 5 minutes per transaction (PwC & WSC, 2011)

We used a household value of time of $10.63 per hour. This value is the same category of time cost used in the previous CBA, adjusted upwards (from $6.90 per hour) by the update factor contained in the NZTA Economic Evaluation Manual (EEM). The present value of total time costs for household participation is estimated at $446 million, for the glass-in scenario. Costs for the glass out scenario are scaled by a factor of 0.54 to reflect volume and weight.

Transport cost ($326 million with glass, $176 million without glass)

We combine vehicle operating costs (calculated by multiplying estimated additional kilometres travelled and cost per km given by Inland Revenue of $0.79) and the extra time travelling, a function of distance and speed times the NZTA EEM time costs of $10.63 per hour. Table 6 summarises the transport-related costs.

Underlying assumptions are set out further below.

Table 6: Breakdown of household transport costs (PV, $m)

Component	Glass in	Glass out
Vehicle operating costs	$230.3	$124.4

Time in car	$95.9	$51.8

We assume that 10 per cent of trips to both RVMs and manual return facilities are new trips, on the basis that:

- The origin of shopping trips is not always the household, e.g. people may shop on the way home from work
- Households are not likely to make a trip for the sole purpose of returning containers unless they have a significant quantity (PwC & WSC, 2011).

Table 7: Distance and frequency assumptions for participation cost estimation

Depot type	Share of returns	Distance (km)	Average speed (km/h)	Time per trip (minutes)	New trips per year	Minutes per year
RVM	85%	5	30	10	2.6	26
Manual	15%	20	50	24	0.8	19

Capital costs ($47 million with glass, $37 million without glass)

Capital costs relate to the assets required for the MCFs only. We assume that two-thirds of assets cost is incurred in year zero and the remainder in year one.

Long-term assets have an asset life of 35 years and terminal values (of $0.83 million) are netted off capital costs at year 30. Short-term assets are replaced every four years so costs re-appear every four years (see Table 8).

The glass out scenario represents 80 per cent of the glass in scenario, to reflect the fixed nature of capital costs.

Table 8: Capital costs for MCF (PV, $m)

Capital costs	Glass in	Glass out	Asset life
Long term assets (Balers, conveyors and silos)	$33.4	$26.7	35 years
Short term assets (conveyor belts)	$0.3	$0.2	4 years
Land	$5.7	$4.6	3.6ha at $150m2
Cages	$8.0	$6.4	35 years

Source: PwC (2020)

Operating costs ($1,376 million with glass, $709 million without glass)

This category of costs is made up of operating expenses for the Managing Agency, MCF and return facilities.

Managing Agency costs total $361 million with glass, $289 million without glass

Table 9 outlines the Managing Agency operating costs for the initial implementation phase and the 'steady state' or ongoing yearly costs for the glass in scenario.

The glass out scenario results in costs of $289 million- 80 per cent of full cost due to volume reduction.

Table 9: Managing agency fixed costs (PV, $m)

Year	Zero	One	Ongoing
Admin and support services	-	$10.5	$8.4
Professional services	$8.7	$3.7	$2.2
Marketing and communication	-	$5.3	$4.2
Employee benefits	$0.2	$3.5	$3.5
Other expenses	$1.6	$6.6	$6.6
Office lease	-	$0.1	$0.1

Source: PwC financial model

Material Consolidation Facilities costs total $512 million with glass and $148 million without glass

The Working Group (and previous work) signalled an intention to make use of existing facilities such as Community Recycling Centres (CRCs) and existing return points for recycling and existing Material Recovery Facilities (MRFs) that could be converted, expanded or contracted for the required services.

Nevertheless, there are still sizeable operating costs, reflecting the incremental volume of material that such facilities would face. There are transport and processing costs, which are based on cost per tonne multiplied by tonnage, as well as staff and utilities costs. Glass crushing costs are also included as we

understand that local bottle-to-bottle processing is at capacity and any additional glass returned due to the CRS would need to be crushed.

Table 10 shows that total transport and processing costs are estimated to be $459 million with glass included. These costs reduce to $106 million without glass, due to volume and tonnage impacts. The glass cost per tonne figures are at the high end of ranges considered possibly overstating true costs of glass transport and processing.

Table 10: Transport and processing costs, including glass

Category	Cost per tonne	Steady-state cost (PV, $m)	30-year cost (PV, $m)
Transport (plastic, metal, liquid paperboard)	$171	$7.0	$106.0
Transport glass	$112	$19.1	$287.8
Glass crushing	$90	$4.3	$64.9

Source: PwC Financial modelling final report July 2020, Sapere analysis

Staff and utilities costs are estimated at $53.6 million, when glass is included. These costs are reduced by 20 per cent for the glass out scenario to $42 million, based on insights from financial modelling by PwC.

Table 11: Variable costs per MCF (PV, $m)

Category	Annual cost, glass in	Annual cost, glass out
Staff costs	$3.3	$2.6
Utilities costs	$0.6	$0.5

Source: PwC Financial modelling final report July 2020

Return facilities costs total $502 million with glass and $271 million without glass

The costs included in this category are population based, with one facility for every 12,500 people. Based on a 2019 population of 4.9 million 393 return facilities are included in the modelling. As indicated earlier, RVMs make up 85 per cent of facilities and the remaining 15 per cent are manual return facilities.

The costs for return facilities have been estimated by reference to international evidence, applied to New Zealand with relatively little adaptation. Thus, there is more of a question about the validity of these estimates than is the case for others. We have sought to calibrate the model estimates with CRC financials and material volumes as a check but doubt around the precision of these estimates remains.

Of note is the possibility of accessing proprietary knowledge on costs, subject to commercial sensitivity being maintained. This has not been included at this stage.

Reverse vending machines costs total $414 million with glass and $223 million without glass, based on the recommended lease model

The space, capital and operating expenses all differ across potentially suitable models. It is likely that a range of models would be used depending on the volumes expected at a return facility.

A lease model is proposed for the RVM return facilities. While there are many iterations that could eventuate, we make simplifying assumptions and rely on international experience to estimate the costs involved.

We estimate that, based on publicly available information lease costs would total $30 million per year. The inputs into that cost estimate follow.

Model specifications important for capital, space and participation costs

The newly launched Tomra R1 model enables over 100 empty beverage containers to be inserted into the machine at one time, meaning the household participation costs could be drastically reduced when compared to a single-feed machine.

The standard T-90 Tomra RVM has two chambers, meaning two machines would be required per location for a CRS including, glass, plastic, liquid paper board and metal cans. Two RVMs would also be required per site when glass is excluded. However it is likely a model like the T 70 Trisort could be configured to mean only one machine is required in the glass excluded scenario.

Glass

Including glass considerably reduces throughput capacity of RVMs as glass cannot be compacted meaning the RVM needs to be emptied more frequently.

Capital cost estimates

In 2015, Zero Waste Scotland estimated that the upfront cost of a RVM would cost £30,000, development of the business case and scheme design resulted in a forecast of approximately 3,000 RVMs required, with upfront capital costs of approximately £60 million (Scottish Government, 2019).

A report prepared for British Glass indicates Tomra RVM model costs range from £19,000 to £25,000 with glass and £17,100 to £22,500 without glass. A lease for a standard model is estimated at £7,190 per year. Assumed functioning life of models ranges from five to seven years (Simpson, 2019).

Cost per machine

We convert to NZD at an exchange of 1.9 and produce a cost per machine range of $36,100 to $47,500 and a lease cost of $13,661 per RVM per year.

2200 RVMs required

The average density of RVMs in Europe is around 1 per 1,900 people, this is deemed appropriated for Scotland based on similar population densities (Hogg, et al., 2015). Using the assumption that 85 per cent of return facilities will be RVM and serve 85 per cent of the population results in an assumption of 2,200 RVMs required. This equates to 6.6 RVMs per return facility.

Without knowledge of the specification of the machines it is hard to determine if these assumptions are appropriate for the volumes of material modelled.

For the glass out scenario we scale cost to 54 per cent based on the 10 per cent price difference in RVMs and an assumption that only 60 per cent of machines will be needed.

Manual facility costs total $88.6 million with glass and $47.8 million without glass

For manual return facilities, we assume the main costs are staff time, the value of the space required within the business and consumables such as bags and/or tags to link the containers back to a specific business.

We assume an average of these costs 2.7 cents per container, adjusting for income differences and inflation to an average of 2.3 cents per container (see Table 12). The Ontario and Scottish models are designed to encourage more adoption of RVM as this reduces the overall cost of the system whereas the Australian estimate accounts for increased cost in remote locations.

Table 12: Manual return depot costs cents per container

Cost Element	Ontario (2019)	Scotland (2019)	Australia (2013)
Space Costs	0.264	-	-
Labour Costs	0.378	-	-
Container Costs	0.084	-	-
Total	0.73	1.5	6
PPP conversion	0.62	1.4	4.8

Source: (Edwards, Grushack, Elliot, Kelly, & Card, 2019; Scottish Government, 2019; Masden Jacob, 2013)

Again, we estimate the glass out scenario costs at 54 per cent of the glass in equivalent.

Welfare gain from increased recycling is $847 million with glass in and $223 million without glass

The welfare gain to households is proxied by their willingness-to-pay for additional recycling. This willingness-to-pay is expressed in terms of weight, which naturally places greater emphasis on glass containers. Hence, the significant difference between the glass-in and glass-out scenario benefit

estimates. We acknowledge that use of a weight measure might mean that some estimates could be mis-stated, but were unable to source any evidence on which to base willingness-to-pay figures for alternative recycling measures, such as item counts.

Rather than rely on a single measure, we have used two separate studies and derived the estimated benefits using a simple average. The average willingness-to-pay value used in the modelling is $33.14 per household per year for increased recycling.

The first method produces benefits of $1,329 million with glass and $350 million without glass

The first method, from PwC (2010) estimates households are willing to pay, on average, $2.77 per year for every one per cent increase in the weight of waste packaging recycled (PwC, 2010). This is adjusted for income differences and inflation to $2.72 per percentage point increase. The CRS increases the recycling rate by 19 per cent once fully implemented, this translates to households being willing to pay $53 per year for the increase in recycling, with glass included.

Excluding glass sees just a five per cent increase in the rate of recycling and therefore estimated benefits that are just under a third of the glass in scenario, at $350 million.

The second method results in benefits of $365 million with glass and $96 million without glass

Covec (2007) used a survey to find that people were willing to pay $1.68/week to recycle paper, plastic and glass, which implied a surplus of $350/tonne (based on 4.8 kg per week). Using the EEM cost update factors to adjust the $6.90 figure used for the value of time to $10.63 per hour resulted in a value per tonne of $373, compared to $242 per tonne used in the previous analysis. This led to a willingness-to-pay figure of $13.50 per household per year and total benefits of $364 million. This method would seem to understate value as it does not include aluminium cans that will be part of the CRS. Once fully implemented the CRS increases recycling by 65,000 tonnes per year.

Removing glass reduces the benefit to $96 million, again highlighting the role weight plays in estimation of welfare gains.

Welfare gain from reduced litter is around $2,001 million with glass in and $780 million without glass

The approach to calculating the welfare gain is very similar to that used for estimates of the benefits of additional recycling, utilising willingness-to-pay data and averaging across two separate sources. Like the benefit estimates associated with additional recycling, litter benefits are weight-based, which could misstate effects, but is the best evidence available for use in this study.

The first step was to estimate the proportion of litter explained by beverage containers. We used the 2019 Keep New Zealand Beautiful (KNZB) national litter audit and then calibrated assumptions on

proportion of consumption that becomes litter with the 190,000 tonnes litter that was collected in 2016.

Table 13 indicates that the percentage of litter that beverage containers account for is 24 per cent, while the corresponding share when glass is excluded is 13 per cent. This figure was derived using an average of all the metrics available in the KNZB litter audit including weight, volume and item. [3]

Overseas evidence suggests that litter reduction due to CRS implementation produces an average of 61 per cent less container waste, from a range of 84 per cent to 35 per cent (Bottlebill.org; NSW EPA, 2019; Boomerang Alliance, 2020; West, Angel, Kelman, & Lazarro, 2013). The average litter reduction based on composition and overseas evidence is 14.4 per cent for all containers. When glass containers are excluded we conservatively use the lower bound resulting in a 4.4 per cent reduction.

Table 13: Litter reduction due to CRS

Litter reduction		Average (61%)	High (84%)	Low (35%)
Percentage litter from beverage containers	24%	14.4%	19.8%	8.2%
Percentage litter from beverage containers (no glass)	13 %	7.8%	10.7%	4.4%

Source: KNZB litter audit 2019, Sapere analysis

While the average figures are slightly above estimated litter reduction from beverage containers in the previous CBA, they may still be understated given the possibility outlined in some of the overseas studies cited above that a CRS would reduce total litter rather than just beverage container litter. We have not included such effects in the modelling.

Benefits of $1,469 million estimated in one study

An Australian study finds households are willing to pay, on average, $4.15 per one per cent point reduction in litter, or $41.50 per annum for a 10 per cent reduction in litter and $83.00 for a 20 per cent reduction (PwC, 2010). Equating to New Zealand dollar terms and adjusting for income differences and inflation results in a value of $4.08. A 14.4 per cent reduction in litter would result in households being willing to pay $59 per year.

[3] Lids and caps are included as beverage container related litter. While the lids and caps are not directly part of the refund given the evidence that CRS can reduce total litter supports their inclusion in the litter calculations.

Benefits of $2,533 million estimated in another study

A University of Leeds study for DEFRA found that people were willing to spend £3.95 per month on council tax for a 1 point improvement on a 10 point litter scale. On this basis, it is estimated that each household would be willing to spend an additional £47.40 on council tax per year to achieve a 1 point reduction of litter (Wardman, Bristow, Shires, Chintakayala, & Nellthorp, 2011).

Equating the £47.40 to New Zealand dollar terms, adjusting for income differences and inflation results in a value $70.38. Translating that effective 10 per cent reduction in litter to the average of 14.4 per cent reduction in New Zealand results in an estimated willingness-to-pay of $102 per household per year for the reduction with glass in and $31 without glass.

Additional value from material recycled is $97 million with or without glass

The calculation process is essentially the same as that used in the previous CBA. The extra CRS material collected for recycling would have an additional market value. In addition, the value of existing collected materials would increase due to reduced cross-contamination (i.e. a CRS produces cleaner material than existing systems).

Table 14 contains the components used in the calculation of benefits. At the 'steady state' of the CRS almost $6.5 million a year in benefits would accrue that otherwise wouldn't.

Glass is not included in calculation as there are costs to crush regardless.

Table 14: Value of CRS materials recovered, PV

Revenue per tonne	$/tonne	Tonnes CRS steady-state	Value, $m per year
Plastic	$315	8,521	$2.7
Liquid paperboard	$10	5,614	$0.06
Metal (Aluminium)	$1,250	2,932	$3.7

Source: PwC financial model

Reduced contamination of kerbside recycling $25.5 million with glass and $4.3 million without glass

Broken glass is a common contaminant, with the 85% reduction in kerbside volumes a plausible assumption is that the CRS reduces contamination rates at MRFs by half. Current contamination rates reported to be around 12 per cent. The reduction in volume of contamination is multiplied by a conservative estimate of the landfill cost, $78 per tonne.

The glass out scenario reduces benefits to $4.3 million.

Kerbside collection costs are $168 million lower with glass and $35 million lower without glass

The CRS reduces collection costs by removing cumbersome, low-value glass and plastic bottles from the waste stream, allowing for better productivity and efficiency in collection. The saving of $60 per tonne estimated by Covec (2016) and used in the previous CBA is multiplied by the difference in volume kerbside refuse and recycling with and without a CRS.

The glass out scenario reduces these savings to $35 million.

Table 15: Reduction in kerbside collection costs

Category	Tonnes CRS steady-state	Savings $m per year
Change in kerbside refuse glass in	24,271	$1.5
Change in kerbside recycling glass in	160,392	$9.6
Total	184,663	$11. 1
Glass out	38,743	$2.3

Source: Sapere analysis

Avoided landfill costs are $29 million with glass and $14 million without glass

This is a simple calculation where tonnes of kerbside refuse diverted from landfill are multiplied by the $78 tonne landfill cost (see Table 16).

Table 16: Avoided landfill costs

Category	Tonnes CRS steady-state	Saving $m per year
Kerbside refuse diverted glass in	24,271	$1.9
Glass out	11,847	$0.9

Source: Sapere analysis, PwC financial model

Reduced litter clean-up costs are $63.5 million with glass and $20 million without glass

This calculation is merely an update of the benefit estimated in the previous CBA report. Estimated litter clean-up costs in Auckland are in the order of $11million per annum, which means average annual litter clean-up costs per person of $6.95 which is scaled to the national population.

The saving is reduced to $19.5 million with glass out.

Volunteer time savings are $3.9 million with glass and $1.2 million without glass

Again, this benefit is estimated by updating the value in the previous CBA for the new proportional reduction in litter (14.4 per cent for glass in), translating to hours spent by volunteers and multiplying by the updated NZTA EEM time costs of $10.63 per hour.

For the glass out scenario the relevant reduction in litter is 4.4 per cent, lowering benefits to $1.2 million.

Avoided marine litter costs are $59 million with and without glass

Recent analysis showed the total economic cost of marine plastic pollution in 2011 is US$3,300 to US$33,000 per tonne in the ocean (Beaumont, et al., 2019). We conservatively use the lower figure and equate to New Zealand dollar terms adjusting for income differences and inflation to arrive at a figure of $4,616 per tonne of plastic. We assume 80 per cent of reduced litter would have entered waterways (Jambeck, et al., 2015).

The estimated benefit is unaffected by the glass in or glass out scenarios, as glass is not responsible for marine plastic pollution.

Reduced emissions result in benefit of $35 million with glass and $37 million without glass

Greenhouse gas reductions arise from the increase in recycling as a result of the CRS and the reduced volumes going to landfill. This is offset by the increased emissions from transporting additional material to recycling destinations. Due to lack of detailed data we have used a coarse approach relying on the UK Government GHG Conversion Factors for Company Reporting (2018).

Most of the benefit is from increased recycling tonnage replacing virgin material in production. Glass is excluded from this emissions benefit category as local processing is at capacity and additional tonnes are crushed at unknown emissions cost resulting in benefits increasing to $37 million if glass is excluded from the CRS.

Emissions associated with the collection/return, processing and disposal of materials included in the scheme is calculated. We have not been able to include embedded emissions associated with the required infrastructure in this calculation. We assume a cost of carbon $71.19 per tonne, based on NZTA Economic Evaluation Manual (EEM) updated for inflation. We understand this figure is being reviewed and is set to increase in the next update of the EEM.

As the approach is coarse and using emissions factors from a country with different GHG input fundamentals such as electricity generation mix, we have taken a conservative approach whenever a choice is required.

Landfill and transport emissions $3.5 million cost

We calculate the change in emissions caused by a reduction in material going to landfill and an increase in material going to recyclers.

$$\Delta Emissions = Landfill\ BAU\ emssions - Landfill\ CRS\ emissions + Additional\ recycling\ emissions$$

- Landfill emissions BAU – no reduction in consumption
- Landfill emissions CRS – consumption reduction, and 85 per cent diversion from refuse stream achieved after five years, 60 per cent in the first year
- Additional tonnes recycled from litter and refuse - additional transport emissions

For landfill, the factors in the tables include collection, transportation and landfill emissions ('gate to grave'). For recycling, the factors consider transport to a materials recovery facility. This is in line with GHG Protocol Guidelines, with subsequent emissions attributed to recycled material production respectively. Liquid paperboard is assumed to be 88 per cent carboard and 12 per cent plastic and aluminium.

Table 17: Emissions kg CO_2e per tonne

Material	Landfill	Closed-loop	Open-loop
Plastic	9	21.3842	21.3842
Liquid paperboard	1041.9017	21.3842	21.3842
Metal (Aluminium)	9	21.3842	21.3842
Glass	9	21.3842	21.3842

Source: UK Government GHG Conversion Factors for Company Reporting 2018

Substitution of virgin material results in $39 million benefit

Only the additional recycling tonnages collected by the CRS system and reprocessed results in a net emissions reduction. The per tonne emissions of closed–loop recycling (the carbon saving from replacing virgin materials in production with recycled materials) is only relevant for plastic and aluminium, potentially for glass with expanded infrastructure.

Calculations used closed loop emission even though additional glass likely to be crushed as this method results in the smallest change in emissions.

Table 18: Emissions factors for virgin and recycled material (kg CO2e per tonne)

Material	Primary material production	Closed loop source (CL)	Open-loop source (OL)	Emissions change CL	Emissions change OL
Plastic	3,280	2373.6545	604.3039	906	2675.632533
Liquid paperboard	844	795.4032	-	49.0784	
Metal (Aluminium)	12,874	3012.5707	-	9861.0373	
Glass	895	529	19	366	876

Source: UK Government GHG Conversion Factors for Company Reporting 2018

Decreased consumption benefit of $2.2 million

The CRS price increase is modelled to reduce sales of all beverage containers by 6.5 per cent. This is considered a one-off reduction in year one.

Table 19: Emission reduction from demand response

Material	Tonnes	Emissions factor kgCO2e	CO2 tonnes	Monetised
Plastic	2,310	3,280	7,575	539,293
Liquid paperboard	890	844	661	47,059
Metal (Aluminium)	597	12,874	7,684	547,039
Glass	17,618	895	15,768	1,122,546
Total	21,414	-	31,689	2,255,936

Source: UK Government GHG Conversion Factors for Company Reporting 2018

Export of material cost $2.7 million

Increased tonnages from refuse and litter are multiplied by the containership average emissions rate 0.01614 kg CO2e per tonne kilometre (UK GHG, 2018). The distance is an average of Asian destinations in Table 20.

Table 20: Export rate of recycled material

Material	Rate	Tonnes once fully implemented

Plastic	90%	8,521
Liquid paperboard	60%	5,614
Metal (Aluminium)	95%	2,932
Glass	0%	47,934

Source: Tranche 1 p.19-23, Sapere analysis

Destination of material is assumed to be an average of the following Asian countries.

Table 21: Destination assumptions

Destination	Nautical miles	Kilometres
Malaysia	5,016	9,290
Vietnam	5,398	9,997
Thailand	5,739	10,629
Indonesia	3,508	6,497
Average	4,915	9,103

Source: sea-distances.org

Net impacts

This section compares the benefits to the costs over the study period of 30 years. To be of most use for decision-makers, the estimated costs and benefits are expressed in present value terms, using a discount rate of six per cent. A five-year phase-in period is assumed.

Glass-in scenario results in benefits outweighing costs, glass-out scenario is the opposite

Table 22 shows that the extent to which society is made better off from the CRS depend on whether glass containers are included or not. The inclusion of glass results in a net benefit to society of around $1,101 million and benefits exceed costs by 49 per cent.

Excluding glass means society is made better off to the tune of about $81million and benefits exceed costs by seven per cent.

We reiterate that these results are measured against a 'business as usual' scenario where there is no CRS and therefore excluding glass containers means that no change is assumed in the return rates or methods of collection and disposal than is presently the case.

The relativity between the benefits and costs for the respective glass-in, glass-out scenarios highlights the predominance glass containers have with respect to gains in welfare from reduced litter and additional recycling, which are both calculated on a weight basis.

Total benefits with glass-out are just over 38 per cent of total benefits with glass-in (i.e. glass-in benefits are about 2.6 times glass-out benefits). Meanwhile, total costs with glass-out are just over half of total costs for the glass-in scenario (i.e. glass-in costs are about 1.87 times glass-out costs).

Table 22 Summary CBA results (PV, $m)

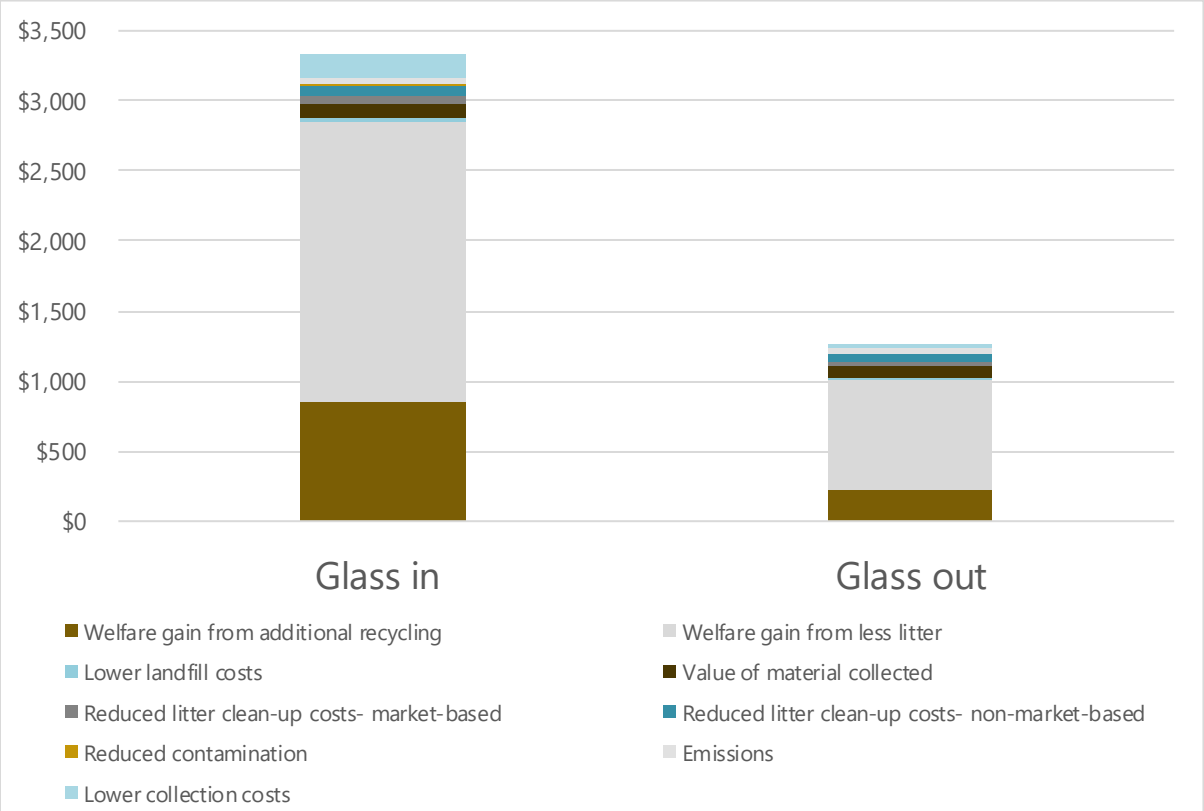
	Glass-in scenario	Glass-out scenario
Total benefits	$3,329	$1,271
Total costs	$2,227	$1,190
Net benefits	$1,101	$81
Benefit-cost ratio	1.49	1.07

Gains in welfare responsible for 79-85 per cent of total benefits, depending on glass scenario

Figure 1 shows that the major benefit category is the welfare gain to households from a reduction in litter following the introduction of the CRS. On its own, this benefit category accounts for about 60

per cent of the total estimated benefits for the glass-in scenario and 61 per cent in the glass-out scenario. When combined with the welfare gain to households from additional recycling, the welfare gains account for 85 per cent and 79 per cent of total benefits for the respective glass-based scenarios.

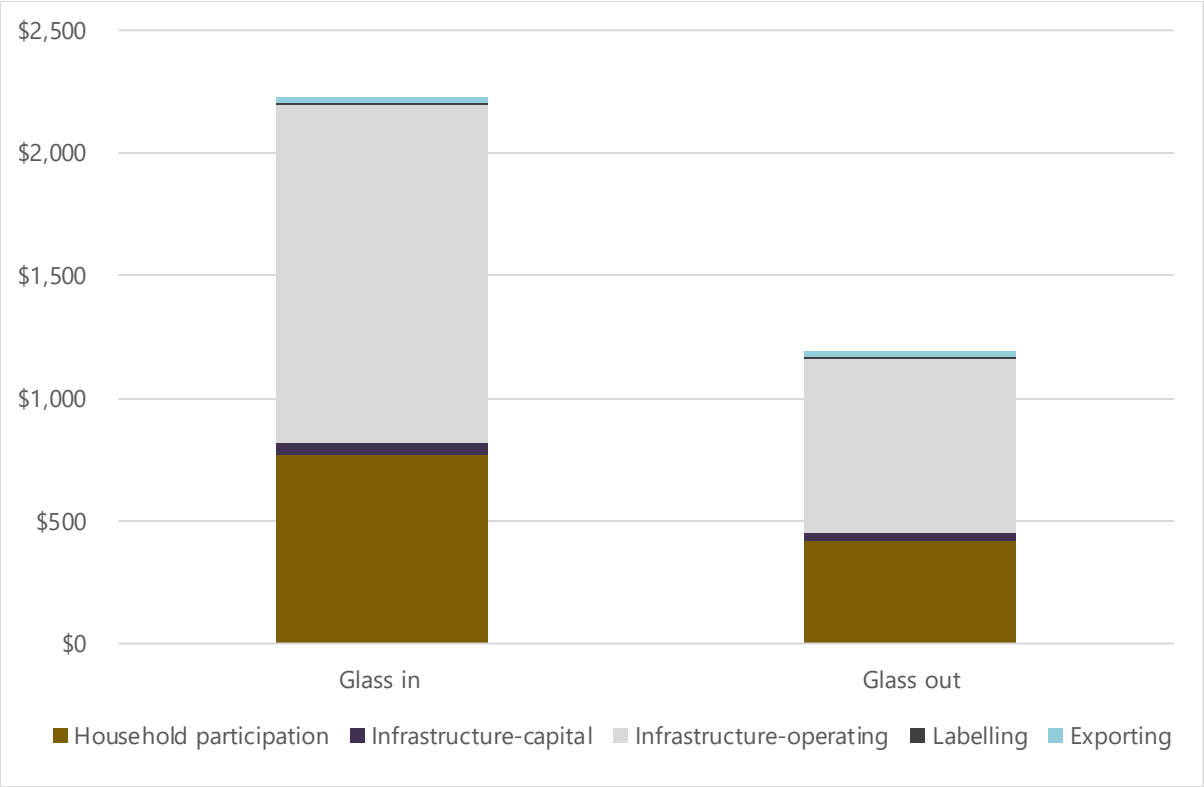
Figure 1: Composition of benefits (PV, $m)



Total costs are dominated by MCF and Collection Facility costs

Figure 2 shows the composition of costs for the glass-in and glass-out scenarios. The lion's share of costs relates to the operations of the MCF and collection depots (around 62 per cent of total costs including glass and 60 per cent when glass is excluded). Household participation costs represent around 35 per cent of total cost in both glass-related scenarios.

Figure 2: Composition of costs (PV, $m)



Basic results mainly robust to sensitivity analysis

We subjected the results above to changes in some key assumptions. While there is an array of possible changes, for simplicity we focus on changes to the :

- analysis time period
- discount rate
- deposit level
- weight-based factors driving key benefit estimates

We present effects on the benefit-cost ratios (BCRs), but can report additional values, if required.

Timing and discount rate changes

The following two tables outline the effect of separate changes to the relevant parameters. The effect of shortening the study period is to lower the BCR, while the opposite effect is observed for reducing the discount rate.

Both changes are largely immaterial. This is not surprising given the ongoing nature of both benefits and costs. That is, rather than being a capital-heavy undertaking with significant costs incurred close to inception and then falling away until asset renewal is required, the majority of costs are operational in nature and continue to be incurred over time, much like benefits which continue to accrue across

time. Thus, any differential that might be brought about through the effect of timing and discounting is effectively nullified.

The one exception is the glass-out scenario in a ten-year study period, where the BCR is below one (indicating society is made worse off as a result of a glass-out CRS).

Table 23 Benefit-cost ratios for alternative time periods

Period	Glass in	Glass out
10 years	1.40	0.96
20 years	1.48	1.04
30 years	1.49	1.07
40 years	1.50	1.08
50 years	1.50	1.09

Table 24 Benefit-cost ratios for alternative discount rates

Discount rate	Glass in	Glass out
2%	1.53	1.11
4%	1.51	1.09
6%	1.49	1.07
8%	1.48	1.05
10%	1.45	1.02

Deposit level and participation rate

We understand it is proposed that the initial recommended deposit will be 10 cents and unless minimum targets are reached within defined time periods this will increase to 20 cents. This approach would delay some of the benefits realised from the reduction in litter and landfill but also reduce household participation costs and initial capital costs (e.g. number of RVMs). An advantage of this approach is it is likely to provide a better understanding of the infrastructure required and the best mix of return facility types for higher participation rates.

A high-level analysis of the impact of adjusting the deposit level through a range from 10 cents to 30 cents was undertaken by adjusting the assumed participation rate, diversion from kerbside collections

and the expected rate of litter reduction. The intuition behind this change is that the deposit level acts as a participation incentive so adjustments will impact participation costs and diversion (litter and kerbside refuse) rates.[4]

We change the participation assumption from a starting rate of 60 per cent and steady state of 85 per cent to starting rates of 50 and 70 per cent, and steady state rates of 75 and 95 per cent respectively, which adjusts household participation costs and timing of litter reduction benefits.

For the 10 cent deposit level we assume litter reduction is reduced to the lowest level reported from international experience (35 per cent), resulting in a lowering of the litter reduction rate from 14.4 per cent to 8.2 per cent (4.4 per cent to 2.5 per cent with glass out[5]). This decreases the BCR to 1.13 (0.79 glass out).

For a 30 cent deposit we correspondingly assume the highest rate of container litter reduction reported in international experience (84 per cent), resulting in a 19.8 percent total litter reduction. This raises the BCR to 1.77 for the glass in scenario. For glass-out we increase to the average rate of 61 percent which results in a 7.8 percent total litter reduction and a BCR of 1.52.

Table 25 Benefit-cost ratios for alternative participation rates and diversion from kerbside

Steady state participation	Deposit level	Glass in BCR	Glass out BCR
75%	10 cents	1.13	0.79
85%	20 cents	1.49	1.07
95%	30 cents	1.77	1.52

For the 10 cent deposit test net benefits reduce by $836 million ($314 million for glass-out) to $265 million (negative $233 million glass-out), with total benefits decreasing by $1,003 million ($393 million in glass out scenario). The largest change is a $892million ($347 million for glass out scenario) reduction in the welfare gain from litter reduction. Of the $167 million decrease in costs the largest change is a decrease in household participation costs of $117 million ($63 million for glass out).

There are also $9 million ($5 million glass out) savings from reduced manual depot costs as they are based on container throughput. For the 30 cent deposit test net benefits increase by $735 million ($583 million glass-out), with total benefits increasing by $906 million ($666 million glass-out) again driven by the change in welfare gain from the associated litter reduction emphasizing the role of this parameter in driving the model's results.

[4] There is no empirical evidence we are aware of to assess the deposit level and litter reduction association

[5] Glass was already using the lowest reported litter rate so we adjust by the same relative change as the glass-in scenario shift of 43 percent.

Table 26: Summary with 75 per cent participation rate

	Glass-in 75%	Glass-in base	Glass-in 95%	Glass-out 75%	Glass-out base	Glass-out 95%
Total benefits	$2,325	$3,329	$4,235	$878	$1,271	$1,937
Total costs	$2,061	$2,227	$2,399	$1,111	$1,190	$1,273
Net benefits	$265	$1,101	$1,836	$-233	$81	$664
Benefit-cost ratio	1.13	1.49	1.77	0.79	1.07	1.52

Figure 3: Glass in deposit level sensitivity test ($m, 6 per cent discount rate)

 **Deposit level $0.30**  **Litter reduction 19.8%** 

Year	0	1	2	3	4	5	6	7	8	9	10	15	20	25	30
Participation rate		70%	80%	85%	90%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
Litter timing		70%	80%	90%	95%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Total benefits	-	177	386	608	832	1,058	1,272	1,477	1,673	1,859	2,036	2,806	3,408	3,874	4,235
Total costs	54	176	300	423	546	668	784	895	1,000	1,101	1,197	1,613	1,940	2,197	2,399
Net benefits	- 54	1	86	185	286	390	488	583	672	758	840	1,193	1,468	1,677	1,836
Benefit-cost ratio	**-**	**1.01**	**1.29**	**1.44**	**1.52**	**1.58**	**1.62**	**1.65**	**1.67**	**1.69**	**1.70**	**1.74**	**1.76**	**1.76**	**1.77**

 **Deposit level $0.20**  **Litter reduction 14.4%**

Year	0	1	2	3	4	5	6	7	8	9	10	15	20	25	30
Participation rate		60%	70%	75%	80%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%
Litter timing		60%	70%	80%	90%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Total benefits	-	127	276	436	607	787	958	1,121	1,277	1,426	1,567	2,183	2,664	3,038	3,329
Total costs	54	174	288	401	515	628	736	838	936	1,029	1,118	1,503	1,805	2,042	2,227
Net benefits	- 54	- 47	- 12	35	92	159	222	283	341	396	449	680	859	996	1,101
Benefit-cost ratio	**-**	**0.73**	**0.96**	**1.09**	**1.18**	**1.25**	**1.30**	**1.34**	**1.36**	**1.39**	**1.40**	**1.45**	**1.48**	**1.49**	**1.49**

 **Deposit level $0.10**  **Litter reduction 8.2%**

Year	0	1	2	3	4	5	6	7	8	9	10	15	20	25	30
Participation rate		50%	60%	65%	70%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Litter timing		50%	60%	70%	80%	90%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Total benefits	-	84	178	281	391	508	630	746	857	962	1,063	1,502	1,846	2,115	2,325
Total costs	54	172	276	380	483	587	687	782	872	959	1,041	1,395	1,673	1,891	2,061
Net benefits	- 54	- 88	- 98	- 99	- 92	- 79	- 57	- 36	- 16	4	23	106	173	225	265
Benefit-cost ratio	**-**	**0.49**	**0.64**	**0.74**	**0.81**	**0.87**	**0.92**	**0.95**	**0.98**	**1.00**	**1.02**	**1.08**	**1.10**	**1.12**	**1.13**

Figure 4: Glass out deposit level sensitivity test ($m, 6 per cent discount rate)

Deposit level $0.30

Litter reduction 7.8%

Year	0	1	2	3	4	5	6	7	8	9	10	15	20	25	30
Participation rate	70%	80%	85%	90%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	0%
Litter timing	70%	80%	90%	95%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%
Total benefits	-	80	176	277	379	482	580	674	763	848	930	1,282	1,557	1,771	1,937
Total costs	40	114	181	248	313	378	439	497	552	605	655	872	1,040	1,171	1,273
Net benefits	- 40	- 34	- 6	29	66	105	142	177	211	243	274	410	517	600	664
Benefit-cost ratio	-	0.70	0.97	1.12	1.21	1.28	1.32	1.36	1.38	1.40	1.42	1.47	1.50	1.51	1.52

Deposit level $0.20

Litter reduction 4.4%

Year	0	1	2	3	4	5	6	7	8	9	10	15	20	25	30
Participation rate		60%	70%	75%	80%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%
Litter timing		60%	70%	80%	90%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Total benefits	0	48	104	165	230	298	363	425	485	541	595	830	1,015	1,159	1,271
Total costs	40	113	175	237	298	358	415	470	522	571	618	819	975	1,097	1,190
Net benefits	-40	-65	-71	-72	-68	-60	-52	-44	-37	-29	-22	11	39	62	81
Benefit-cost ratio	0.00	0.42	0.59	0.70	0.77	0.83	0.87	0.91	0.93	0.95	0.96	1.01	1.04	1.06	1.07

Deposit level $0.10

Litter reduction 2.5%

Year	0	1	2	3	4	5	6	7	8	9	10	15	20	25	30
Participation rate		50%	60%	65%	70%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Litter timing		50%	60%	70%	80%	90%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Total benefits	0	32	67	106	147	191	237	280	322	362	400	565	695	798	878
Total costs	40	112	170	227	283	339	393	443	491	537	581	768	913	1,025	1,111
Net benefits	-40	- 80	- 102	- 121	- 136	- 148	- 156	- 163	- 169	- 176	- 181	- 203	- 217	- 227	- 233
Benefit-cost ratio	0	0.29	0.40	0.47	0.52	0.56	0.60	0.63	0.66	0.67	0.69	0.74	0.76	0.78	0.79

Containers per tonne adjustment

Adjusting the assumptions around containers per tonne has little bearing on the model, as the most significant calculations are not influenced by this conversion factor. The change does increase household participation costs and manual return depot costs as both of these are determined by the number of containers. Hence, the BCR reduces to 1.47 (from 1.49) for the glass-in scenario and 1.06 (from 1.07) following the changes.

Table 27: Containers per tonne conversions

	(000's) per tonne (PwC financial model 2020)	(000's) per tonne (PwC & WSC, 2011)
Plastic	24.230	24.607
Liquid paperboard	10.024	24.060
Metal (Aluminium)	60.770	66.821
Glass	3.711	4.784

High-level comparison with previous work and thoughts on limitations of current study

While the fundamental structure of the analysis is similar to previous work, this study contains more detail and nuance. Direct comparisons should therefore be avoided. Nevertheless, we offer the following comments on some clear differences between the results of the studies. For the current exercise:

- Operating costs are over six times higher than those estimated previously
- Scheme administration (i.e. Managing Agency) costs are around 15 times higher than those estimated previously
- Benefits from welfare gains to households due to less litter were proportionally about the same in both studies, but in absolute terms were around 50 per cent higher than previously estimated
- Benefits from welfare gains to households due to additional recycling were higher in absolute and relative terms, due to the inclusion of additional information on household willingness-to-pay
- The benefit associated with higher value recycled material due to a CRS is much lower in the current study, largely due to lower prices and increases in costs of exporting which were not included previously

With both the previous work and the findings of this study in mind, we offer the following thoughts:

- *Data limitations hamper precision on cost side*

There is a lack of detail in a range of areas. In particular, specificity around the return facilities and the associated costs of such options is most lacking (e.g. use of existing Community Recycling Centres, performance specifications of RVMs and the mix of capital and operating costs associated with the model most likely to be employed).

The dearth of data means a heavy reliance on assumptions and adaptation of overseas data was needed. The effect of this requirement is that we are unsure how close to the 'actual' costs our estimates are.

- *Further exploration is possible with additional time*

Areas where there are existing gaps or where further exploration is likely to be useful are:

    - Material flows
    - Commercial arrangements, responses and costs
    - The volume and composition of litter
    - Return facility capacity, cost and operations
    - Possible household behaviour
- *This report is a conversation starter and advancement towards a goal*

This report should be seen as the first step in the walk towards a decision on a CRS. A CBA will never be the sole determinant of any decision, but rather is a contribution. It may be that the constraints discussed above are binding in nature, but at this stage we do not know for sure.

We are confident that this analysis advances knowledge around the economic costs and benefits of a CRS, but caution against it being seen as the final word. Further consideration is needed.

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Appendix K

SDWG Stakeholder Map

Appendix K **Stakeholder Map**