COEX Container Exchange

Building a Sustainable Pricing Framework for Queensland's Container Refund Scheme

Discussion Paper

June 2025

CFO Message

Welcome and thank you for participating in this consultation process. At Container Exchange (COEX) we are committed to enhancing container recycling and maximising environmental, social and economic benefits.

To deliver on our commitments we are continuously looking for opportunities to grow and develop the Containers for Change scheme, in a transparent and impactful way. For these reasons, we have conducted a review of the Scheme's Pricing Framework and identified several potential changes to be considered to enhance the scheme.

As key stakeholders and participants in the scheme we wish to invite you to provide your feedback and input on these proposed changes to the scheme pricing framework, to understand are these the right solutions to enhance the scheme's overall objectives.

This discussion paper outlines the rationale for these proposed changes, how they would work, and the key implications. Engaging with this discussion paper is the first step in this consultation process. We have also drafted a consultation pack which is a summary of the information found in this discussion paper.

Throughout the consultation period COEX will host a series of webinars to support beverage manufacturers as you review the discussion paper and consultation pack, prior to submitting your feedback on the proposed changes.

This feedback is a critical input to inform any revision of the Scheme Pricing Framework. Once gathered, your feedback will be analysed and results will be published on the COEX website in the form of a summary report.

For enquiries about the discussion paper or consultation process, please email our beverage manufacturer team at schemepricingconsultation@containerexchange.com.au

COEX looks forward to your contributions and will provide updates throughout the consultation period.

Kind regards,

Lauren Seymour
CFO and Executive General Manager Corporate Services

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Executive Summary

About COEX

Container Exchange (COEX) is the Product Responsibility Organisation, appointed by the Queensland Government to manage and grow the Containers for Change scheme launched in 2018. The organisation's governing purpose is to reduce beverage container litter, increase recycling efforts, and help the community benefit through the participation of charities, community groups and not-for-profit organisations in the scheme.

COEX has established itself as one of Australia's most effective and fastest growing container recycling programs. Since its launch on 1 November 2018, the scheme has grown to more than 380 container refund points (CRPs) which accept around 2.1 billion containers each year.

COEX's not-for-profit status enables investment in areas that may not be commercially viable in a for-profit model, ensuring all Queenslanders can access the scheme's benefits. Furthermore, COEX's vision is that "no container goes to waste", reflecting the role it plays in the circular economy and supporting the goal to remove eligible, recyclable containers from landfills.

COEX has driven significant environmental, social and economic benefits across the state while ensuring all Queenslanders can access its advantages.

10.2 billion
containers returned for recycling and refunds in just over 6 years

$1.02 billion
in refunds paid back to Queenslanders, charities, community groups, schools and businesses in just over 6 years

>1580
jobs created for Queenslanders in their local communities

383
refund points servicing Queensland

15
out of 17 First Nation's Local Government Areas serviced by the scheme

$17 million
in refunds supporting charities and community groups

67.7%
currently more than two thirds of eligible containers returned for recycling

100%
of all containers returned are recycled

13
social enterprises operating in the network or supplying services or products to the scheme

COEX has achieved year-on-year growth in containers returned since scheme launch

>600,000 tonnes of material returned for recycling

All figures as at 31 May, 2025

Scheme overview

Consumers can engage with the scheme by returning containers through two recovery channels:

1. **Direct pathway:** Consumers return eligible containers to a Containers for Change refund point and receive a 10-cent refund. Refund point and network operators are contracted by COEX to collect and process containers.

2. **Kerbside pathway:** Some containers which are eligible for refunds are put into yellow top kerbside recycling bins. Material Recovery Facilities (MRFs) receive items from kerbside bin collection and process some of these for back through the scheme and are paid the 10-cent refund per item.

Eligible containers are collected and processed for recycling through both channels. Materials recycled through the direct pathway channel are then resold through an online auction portal or by direct sales. Depending on the material, the recycled materials are repurposed into second-life products for use by beverage manufacturers and in other products.

As the scheme operates as a not-for-profit, its pricing is set to cover its forecasted operational costs.

As part of beverage manufacturers product stewardship responsibility under Queensland legislation, they are responsible to financially support the Containers for Change scheme through the “scheme price” charged per container as reported by each beverage manufacturer. The scheme price is set based on the costs of the scheme. The key cost elements of the scheme are:

- Consumer refunds
- Collection refund point (CRP) handling fees
- Logistics fees
- Processor expenses
- Refund paid to material recycling facilities (MRF)
- PRO (COEX) admin fee and strategic initiatives investments
- Shared service fees

The scheme also generates revenue through material sales. As COEX is a not-for-profit, this revenue is deducted from the cost base before the scheme price is set.

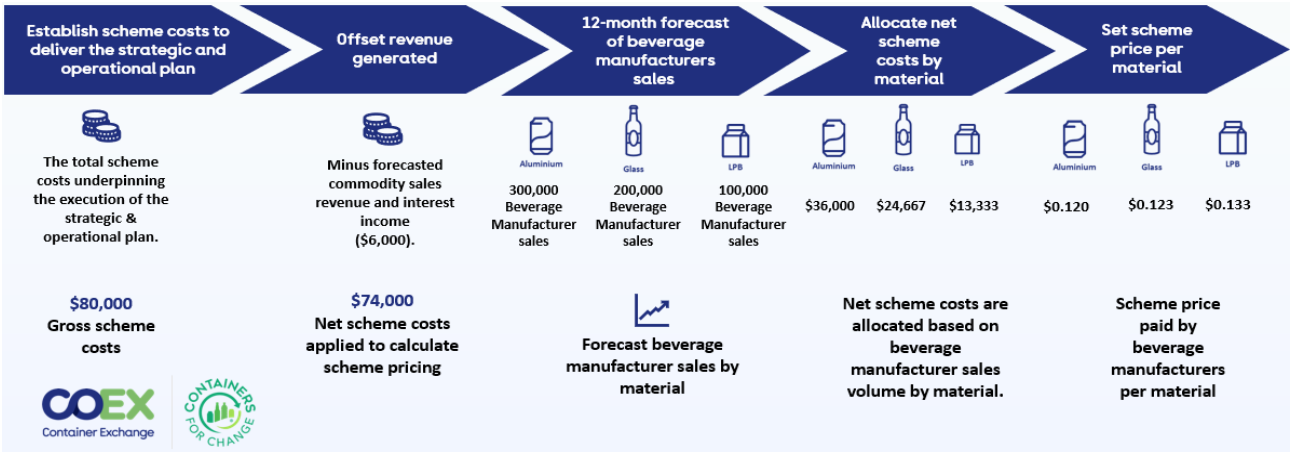
The scheme is not responsible for funding any of the MRF operations (other than the payment of the refund amount on containers processed through the MRF) or the costs associated with containers sent to landfill (i.e. eligible containers that do not enter the scheme).

Current approach to scheme pricing

The approach to determining scheme price is currently anchored in forecasted total costs aligned to a total forecast recovery rate. Costs are then allocated based on material level weightings.

Scheme price is currently calculated based on "totals", that is, the total forecasted beverage manufacturer sales, a total forecast recovery rate and total scheme costs. Levels of variability between materials are currently only considered at a high level when calculating cost allocations by material after the total costs have been established.

Below is an illustrative example of the current state approach to scheme pricing:



1. **Establish scheme costs to support COEX's Strategic and Operational Plan and Budget**
   i. Total scheme costs, that is, the sum of the total fixed and total variable costs to operate the scheme, are calculated.

2. **Offset revenue generated**
   i. Revenue from the sale of recycled materials is subtracted from total scheme costs, to calculate total net scheme costs.

3. **Allocate scheme costs by material**
   ii. Total net scheme costs are allocated to each material type according to the proportion of each material type within the total scheme volume.

4. **Forecast volume of containers to be recycled and funded**
   i. Beverage manufacturer sales are forecasted for the next 12 months.
   ii. This forecast provides a view of the budgeted containers returned per material type over the next 12 months.

5. **Set scheme price per material**
   i. The scheme price per container to be paid by the beverage manufacturers is calculated by dividing the total net scheme costs for each material type by the forecasted beverage manufacturer sales for that material type.

ii. Under this approach, recovered costs should equate to the net scheme costs to be funded; however, as this is based on forecasted data; actual results may differ.

Key challenges in Queensland's current scheme pricing framework

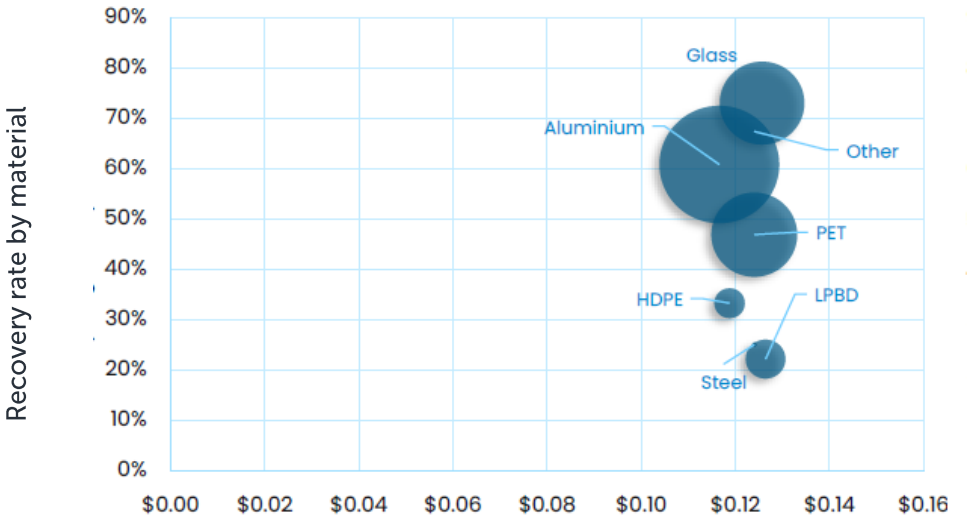
Nationally, though there are differences in how schemes are structured, common challenges around eco-modulation, cost allocation and cross subsidisation are faced.

Currently, in Australia, scheme pricing is primarily structured in two ways:

A. Material recovery rates are not correlated with the unit pricing level applying to each material type e.g. QLD
B. Material-specific recovery rates are used to set material unit prices e.g. NSW and ACT

A primary difference between these approaches is the variability in price across materials. In approach A, material types with low recovery rates pay the same or similar amounts to those with high recovery rates; however, in approach B, materials with low recovery rates have substantially lower prices, making them cheaper than other materials (all else being equal).

Approach A (QLD Current State):



Approach B (NSW Current State):

Though there are differences in the approach, both face similar challenges:

- **Ability to enable eco-modulation**: Neither approach actively promotes eco-modulation as neither encourages the use of more recyclable materials.
- **The material level cost allocation of recycling:** There is a lack of consideration for fixed and variable cost allocation based on the material level cost allocation of recycling.
- **Cross subsidisation**: In both approaches, there is high risk of cross-subsidisation between material types.

In Queensland, material level cost allocation, transparency and long-term pathways and aligning requirements for beverage manufacturers and industry practices present opportunities to evolve scheme pricing.

Three key challenges have been identified in the scheme pricing framework today:

1. **Accounting for the material level cost allocation -** Whilst factors such as recovery rates and sales volumes are considered in the current approach, more granularity can be brought to the process by addressing areas such as material recovery rates mismatching with unit pricing, cost allocation challenges and one-dimensional pricing, to further drive scheme goals such as the promotion of circular economy and price accuracy.

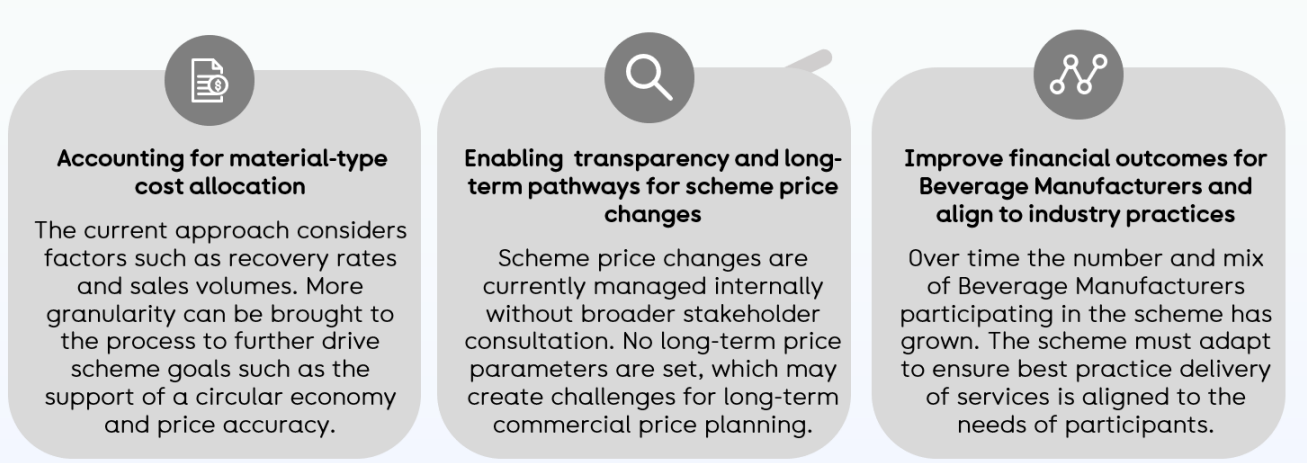
2. **Enabling transparency and long-term pathways for scheme price changes -** Scheme price changes are currently managed internally without broader stakeholder consultation. There is no long-term price parameters set which can create difficulties for consumer price expectations and scheme stakeholder long-term planning.

3. **Establishing pricing requirements that optimise financial outcomes and align with industry practices -** As the scheme has grown, so too has the number and mix of beverage manufacturers. With a focus on continuous improvement, the scheme must adapt to ensure best practice delivery of services aligned to the needs of participants.

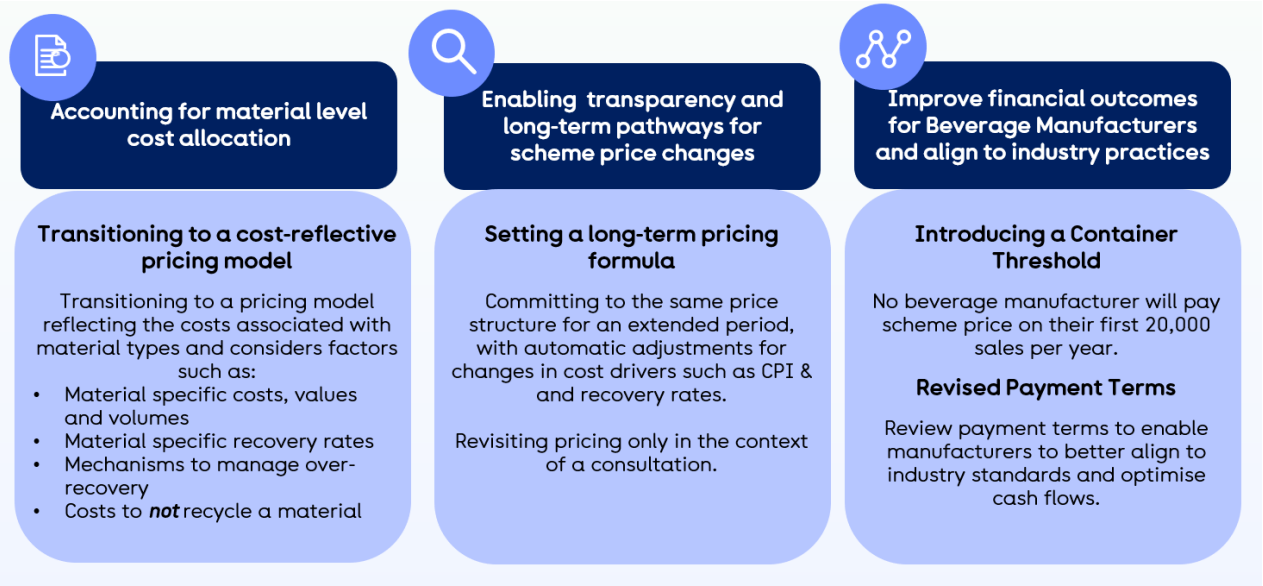
Introduction to four proposed changes

To evolve the scheme pricing approach and address today's key challenges, four changes to the scheme have been identified for consideration. It is these four proposed changes that are the subject of this consultation process and COEX is seeking feedback from BMs on.

Challenges



Proposed Changes



A more detailed analysis of each of the proposed changes is included in Section 2 of this paper.

Anticipated Benefits

The proposed changes aim to drive greater transparency, accuracy and predictability in prices, as well as improved financial outcomes and standard industry practice alignment for beverage manufacturers.

1. **Transitioning to a cost-reflective pricing model** may enable:
    - Promotion of the use of recyclable materials and **eco-modulation**
    - Consideration of more **accurate cost allocation** across recyclable materials
    - Increased **economic efficiency** through consideration of material impacts and costs of non-recycling
    - Reduced risk of **cross-subsidisation**

2. **Setting a long-term pricing formula** may create:
    - A more **transparent price setting process**
    - Enable beverage manufacturers to **engage** in the **pricing requirements**
    - **Greater consistency, and predictability** and long-term stability of prices, supporting beverage manufacturers in future business planning

3. **Introducing a zero-fee container threshold** may enable:
    - **Reduced financial contributions** for all beverage manufacturers, in particular supporting small volume businesses
    - A more **consistent experience** for beverage manufacturers participating across multiple schemes – e.g. Tasmania

4. **Review payment terms** may:
    - Support beverage manufacturers to **better align cashflows**
    - Allow better alignment with **common industry practice**

Proposed Changes

2.1 Overview of Four Proposed Changes

The four proposed changes for consideration aim to address key challenges facing the QLD scheme today. The purpose of the following sections is to provide detailed analysis of each of the proposed changes, how they would work if implemented and highlight the rationale and key considerations relating to each.

Change 1: Transitioning to a cost-reflective pricing model - Transitioning to a pricing model which looks to reflect material cost allocation considering factors such as:

- Material specific costs, values and volumes
- Material specific recovery rates
- Mechanism to manage over-recovery
- Costs to not recycle

Change 2: Setting a long-term pricing formula - Committing to the same price structure for an extended period of time, with automatic adjustments for changes in cost drivers (CPI and recovery rates) and revisiting only in the context of a consultation

Change 3: Introducing a zero-fee container threshold - Introduction of a container threshold, whereby beverage manufacturers will not pay for their first 20,000 beverage sales each financial year

Change 4: Revised payment terms - Reviewing payment terms to enable beverage manufacturers to better align to industry standards and optimise cash-flows

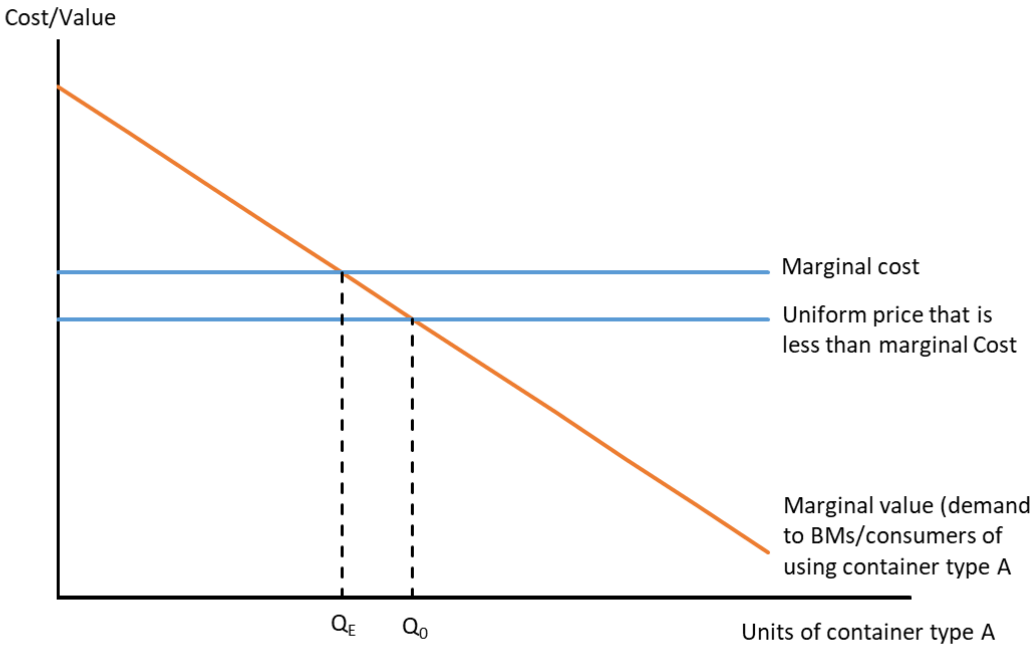
Change 1: Transitioning to a cost-reflective pricing model

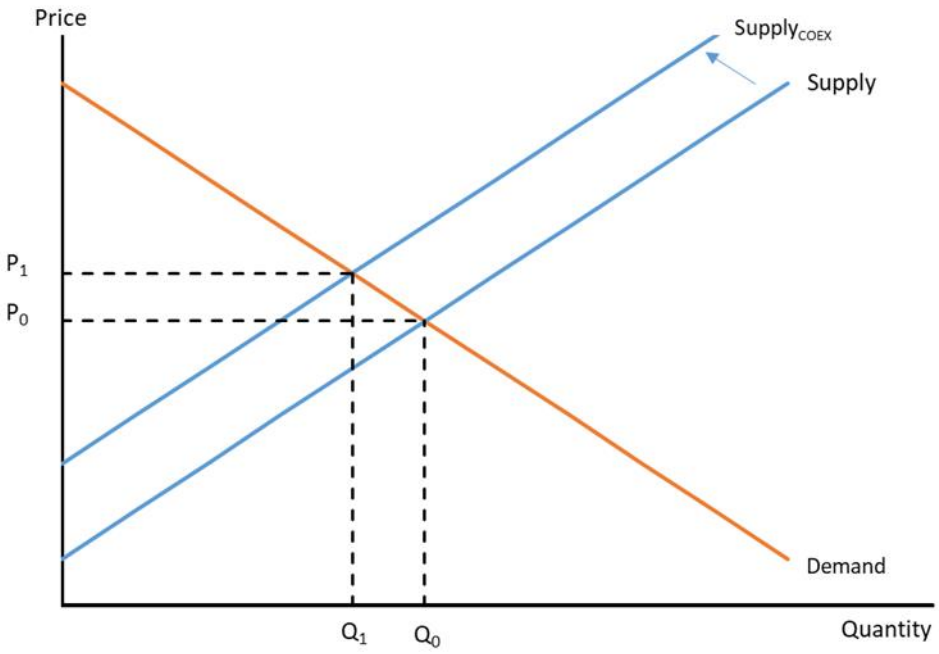
2.2.1 Change Overview

A cost reflective pricing model looks to most accurately reflect the cost of supplying a service, in this case the recycling of materials, and effectively communicates the economic impact of decisions to both producers and consumers. Such pricing motivates adjustments in behaviour when the perceived value of an activity is lower than its accurate cost. Transitioning to such a pricing model will support the scheme to drive eco-modulation and supports in reducing cross-subsidisation.

Such pricing also promotes efficiency by transparently signalling the costs associated with different types of beverage containers to manufacturers and consumers. In this context, it is important to define what constitutes cost-reflective pricing. For instance, should the pricing for a specific container type account solely for the scheme's recycling costs, or should it also encompass the broader costs of recycling and not to recycle activities?

Figure 1-1: Illustration of efficient price signal





In this graphical depiction, the marginal value of ("**demand for**") producing beverages on container type A falls with the number of units produced. This falling marginal value can reflect the fact that there are certain beverages/circumstances

where container type A has very high utility to beverage manufacturers/consumers but other beverages/circumstances where beverage manufacturers/consumers consider other container types (or other beverages) are good substitutes.

That is, the downward sloping marginal value curve reflects trade-offs that face beverage manufacturers and consumers. If beverage manufacturers and consumers would never substitute away from container type A then the marginal value (demand) curve would be vertical. If beverage manufacturers and consumers had a perfect substitute for container type A then the marginal value (demand) curve would be horizontal.

If the scheme price for container type A is set below cost, then beverage manufacturers (and consumers) will produce (consume) at Q_0. However, with cost reflective prices they will produce/consume at Q_E. The difference between Q_E and Q_0 represents efficient substitution away from container type A once cost reflective prices are introduced.

This substitution can take the form of beverage manufacturers, faced with higher prices for container type A relative to other containers, choosing to package the same beverage in a lower cost container. Alternatively, beverage manufacturers may continue to package that beverage type in container type A, but consumers faced with higher prices might substitute away from that beverage type.

Prior to cost reflective prices being implemented the units of production and consumption from Q_E to Q_0 were valued by beverage manufacturers and consumers at less than the cost to society of using container type A. That is, the "marginal value to beverage manufacturers/consumers of using container type A" was less than the marginal cost.

This substitution is efficient so long as the higher prices for container type A reflect the higher costs of producing and consuming beverages in container type A. Of course, if scheme prices are set above cost for container type A that would encourage inefficiently high substitution away from container type A (and *vice versa*).

2.2.2 Options to implement a cost-reflective pricing model in Queensland

This discussion paper identifies two broad approaches to how COEX could set cost-reflective prices for beverage manufacturers. Specifically, prices reflect:

- **Option 1**. The cost to the scheme of recycling the fraction of the beverage manufacturers containers that the scheme recovers; or

- **Option 2.** The cost to the scheme, and society more generally, of disposing of all containers produced by the beverage manufacturers (i.e., including the costs associated with that fraction of containers that are not recovered)

Under Option 1, prices charged to beverage manufacturers for containers with low recovery rates (such as liquid paper board (LPB)) would tend to be materially lower than prices for other container types.

Under Option 2, containers with low recovery rates do not necessarily attract low prices provided the estimated cost of not recycling is similar or higher than the cost of recycling. There are at least two sub options for implementing Option 2:

- **Option 2a**. Assume that the cost of not recycling a container is at least as high as the cost of recycling a container. One way to implement this is to set prices "as if" all containers were recycled (or a common fraction of each container type was recycled); or

- **Option 2b.** Explicitly arrive at a cost of not recycling (which would include a weighted average of the direct cost of landfill, the cost of collecting and transporting waste from public rubbish bins, the cost of collecting containers from residential kerbside bins, the cost of littering and any other externality costs)

Table **1-1** Below is COEX's estimate of prices on a base case implementation of the above options using the scheme's cost and volume data from FY24.

Table 1-1: Base case pricing options based on the scheme 2024 cost information (price excluding refund)

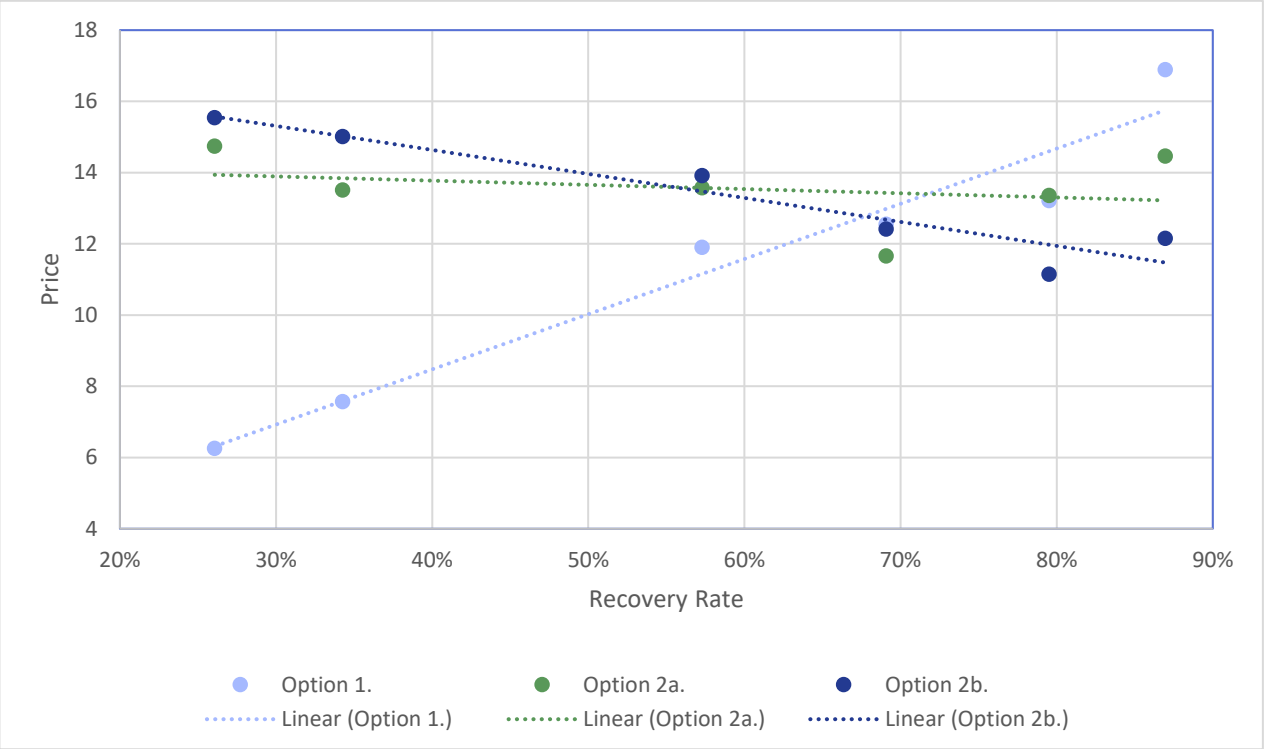
	LPB	Steel	PET	Alum.	HDPE	Glass
Volume produced (millions)	151.9	3.9	890.3	1463.4	54.4	618.4
Recovery rate	26%	34%	57%	69%	80%	87%
Marginal cost per unit recycled	12.54	10.62	10.72	7.74	10.39	12.11
Option 1	6.3	7.6	11.9	12.5	13.2	16.9
Option 2a	14.7	13.5	13.6	11.7	13.4	14.5
Option 2b*	15.5	15.0	13.9	12.4	11.1	12.2

* Assuming a cost of not recycling of 30c/unit

Under Option 1, LPB attracts a third of the price of glass despite having a higher marginal cost of recycling than glass. This is entirely due to LPB's recovery rate being less than one-third. Under Options 2a. and 2b., this is reversed, and LPB attracts the highest price.

These prices are illustrated graphically. Figure 1-2 Shows a scatter plot of prices against the recovery rate.

Figure 1-2: Prices vs recovery rate for Options 1, 2a and 2b. from model
I



Implements each of the three versions of cost-based pricing based on hypothetical estimates of fixed and marginal costs.

Option 1: Unit cost to the scheme of recycling (treating non-recycled containers as zero cost);

Option 2a: Unit cost to the scheme "as if" there was a common 100% recovery rate for all containers (i.e., assuming that not recycling is the same cost as recycling);

Option 2b: Unit cost of recycling (based on the costs of the scheme) and a 30c per container assumed cost of not-recycling.

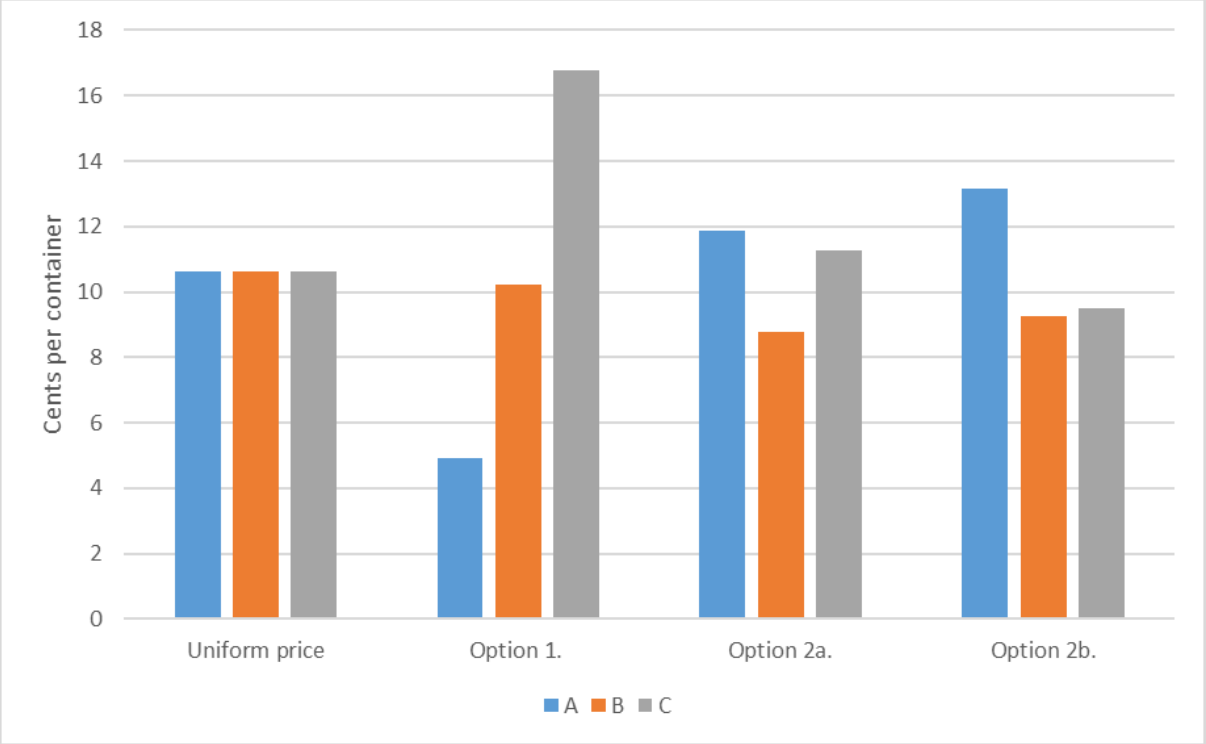
Table 1-2: Illustration of pricing options

Container type	A	B	C	Sum
BM production units	100	100	100	300
Recovery rate (RR)	25%	70%	90%	
Units recycled via COEX	25	70	90	185
Schemes' total fixed costs				300
Schemes fixed costs allocated in proportion to the Schemes recycling volumes (c/unit)	0.4	1.1	1.5	
Schemes fixed costs allocated in proportion to production volumes (c/unit)	1.0	1.0	1.0	
Marginal costs (c/unit)				
Handling, logistics and refund cost less resale revenue	18	13	17	
Total Schemes costs $ (fixed + marginal cost × volume recycled)				$3,190
Pricing options - relativities				Revenue
Option 1. The Scheme marginal costs × recovery rate plus fixed costs allocated in proportion to recycling volume	4.9	10.2	16.8	3,190
Option 2a. The Scheme marginal costs plus fixed costs allocated in proportion to production volume	19.0	14.0	18.0	5,100
Option 2b. The Scheme marginal costs × recovery rate plus fixed costs allocated in proportion to recycling volume + 30c per unit not recycled	27.4	19.2	19.8	6,640
Final prices after adjustment to remove surplus but retain relativities				
Uniform price (total costs / total container produced)	10.6	10.6	10.6	3,190
Option 1.	4.9	10.2	16.8	3,190
Option 2a. (62.5% proportional adjustment)	11.9	8.8	11.3	3,190
Option 2b. (48.0% proportional adjustment)	13.2	9.2	9.5	3,190

The prices from 1.2 under each pricing option are illustrated graphically in 1.3

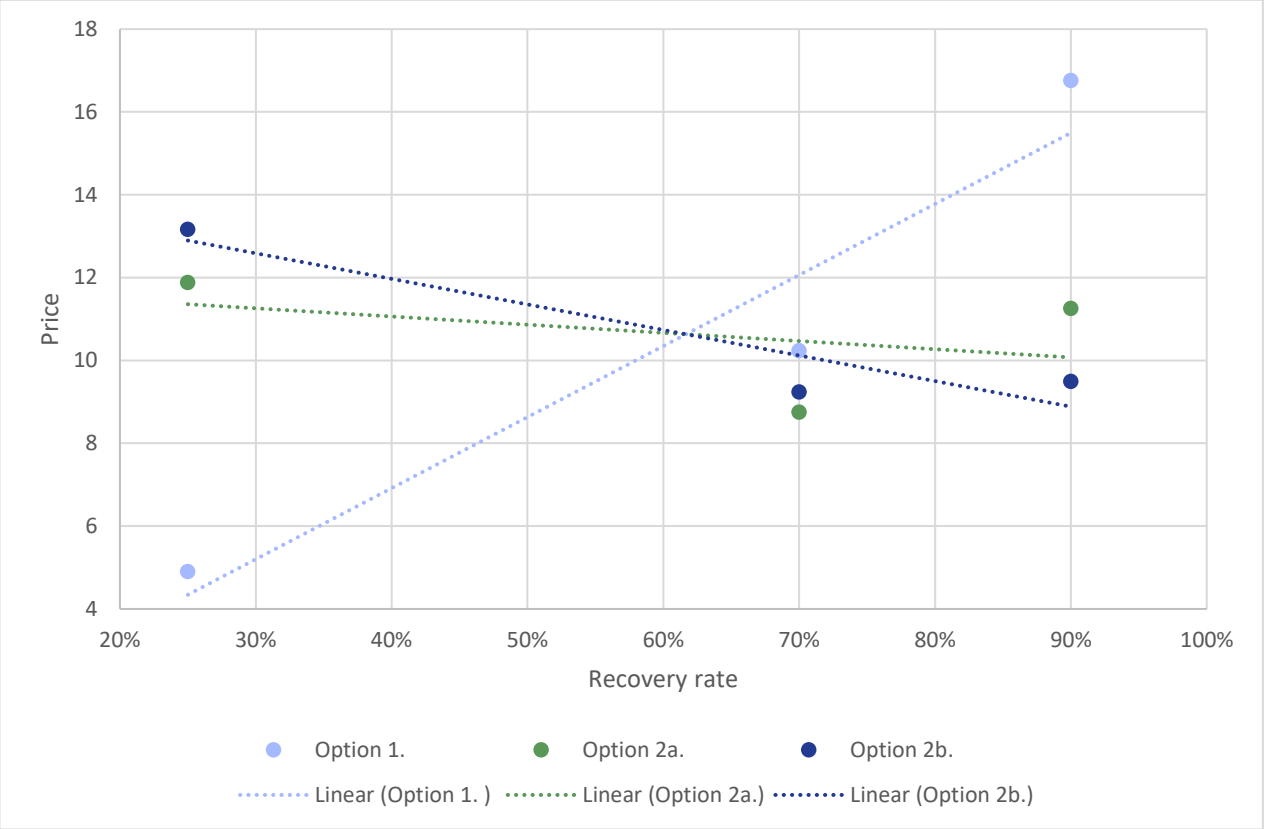
- Under **Option 1**, prices are lowest for the lowest recovery rate containers.
- Under **Option 2a**, prices reflect only the costs of recycling and are more similar (with container type A being modestly higher priced because it is the highest cost to recycle).
- Under **Option 2b**, with a high 30c cost of not recycling container type A has the highest price by a large margin – because it has both high costs of recycling and even higher (assumed) costs of not recycling.

Figure 1-3: Graphical illustration of prices



It is also instructive to plot prices under each option in a scatter plot against the recovery rate. This is done for our illustrative example pricing in 4 below.

Figure 1-4: Prices vs recovery rate for Options 1, 2a and 2b. From 2.



Note: See Appendix I for application of COEX data

2.2.3 Option 1: Cost-reflective pricing

Overview of change:

In this option scheme costs are calculated by material type based on the units recycled (forecasted recovery rates).

How it works:

In Table 1-2, container type A is the costliest to recycle at 18 cents marginal cost. Nonetheless, under **Option 1** it has the lowest cost to the Scheme per unit produced. This is because its high unit recycling costs are reduced in direct proportion to its low recycle volumes. Stepping through the calculation for container type A (which is the same for all materials).

Fixed costs of 300 are allocated to each material in proportion to its share of recycling volumes. Fixed cost per total units recycled is 1.6c (=3/185 units). Container type A's share at production is 25% of 1.6c which equals 0.4c;

Marginal costs/revenues are similarly allocated to production based on the share of volumes recycled. For Container type A, this results in total marginal costs net of revenue equal to 25% × 18 = 4.5c

These then sum to 4.9c.

Why change:

- **Transparent structure**: Prices are based solely on the scheme's recycling costs.

Key considerations:

- **Cross-subsidisation:** Materials with high recovery rates may compensate for more expensive low recovered materials.
- **Product stewardship:** This option weakens product stewardship as costs don't fully match the material choices.

2.2.4 Option 2a: Cost of 100% recycling

Overview of change:

Under this approach the scheme costs are calculated as if all materials were 100% recovered.

How it works:

Under **Option 2a**, instead of allocating all costs in proportion to recycling volumes, this option estimates the marginal cost of each unit recycled and allocate fixed costs "as if" there was a 100% recovery rate for all products. Stepping through the calculation for container type A (which is the same for all materials).

Fixed costs of 300 are allocated to each material in proportion to its share of production volumes. This results in a unit cost of 1c allocated to all materials, including Container type A;

Marginal costs are estimated on a per unit recycled rate. This results in an estimate for Container type A of 18c.

These then sum to 19c. At these prices, COEX will over recover its costs. (This results from setting prices based on the marginal cost of recycling multiplied by the volumes produced when not all the volumes produced are recycled.)

All prices are then scaled down by the percentage over-recovery to arrive at final prices that:

- retain the cost relativity for each container type; but
- equate revenues with costs

Why change:

- **Supports circular economy**: Prices linked to recyclability encourage recycling.
- **More accurate pricing:** Materials are further aligned to their underlying cost to recycle.

Key considerations:

- **Product stewardship:** Beverage manufacturers pay for the material level cost allocation of their materials.

2.2.5 Option 2b: Cost of not recycling

Overview of change:

In this approach cost reflective pricing is applied plus a cost of not recycling which is attributed to each material based on the cost of non-recycled materials being sent to landfill/littered.

How it works:

Option 2b involves the following steps:

The weighted average cost of recycling and not recycling is calculated as the sum of:
The cost of not recycling is multiplied by one minus the recovery rate. In our illustration, the cost of not recycling is assumed to be 30c, and the recovery rate is 25% so this results in a 22.5c cost (= (1-25%) × 30c);

and

The cost of recycling is multiplied by the recovery rate. This is already estimated under Option 1 (i.e., 4.9c for container type A).

This gives us a price of 27.4c. however, as with option 2a, these prices will over-recover the costs of the scheme because the scheme is not incurring any costs for the containers not recycled.

To return the scheme to cost recovery, all prices can be scaled down by the percentage over-recovery to arrive at final prices that: i) retain the cost relativity for each container type; but ii) equate revenues with costs.

Why change:

- **More accurate fees:** Producers of materials that cost more to recycle may be incentivised to review packaging choices.
- **More accurate costs:** Fees are better aligned to costs, making cost-sharing more accurate for everyone.

Key considerations:

- **Product stewardship:** Producers pay for the impact of their material choices.
- **Data complexity**: Detailed data on waste and environmental damage is needed, making it complex to manage.
- **Cost recovery**: Prices might need adjusting to prevent over recovery and keep costs accurate.

Change 2: Setting a Long-Term Pricing Formula

2.3.1 Change overview

Currently, any changes to scheme price are managed through an internal COEX process without broader stakeholder consultation. COEX's standard operating procedure is to review and adjust prices twice per annum – once in February and once in August, with price changes notified 16 weeks prior. There are no long-term price parameters set, which can create difficulties for price expectations and scheme stakeholder long-term planning. This lack of transparency and consistency creates challenges for scheme participants especially in relation to their ability for long-term strategic planning. To address these challenges the setting of a long-term pricing formula is proposed.

"**Setting a long-term pricing formula**" sets out a possible pricing formula that could be used to provide stability/predictability in price changes with automatic adjustments for changes in cost drivers (CPI and recovery rates). This is a similar approach to that commonly used for regulated utilities (such as electricity "poles and wires" companies). This change will create new transparency on how and why prices change with price commitments also supporting stakeholders manage expectations.

2.3.2 Rationale for change

The introduction of a long-term pricing formula will enable:

- **Stability and predictability:** Provides consistent cost expectations and lowers risks while also adjusting for changes in primary cost drivers.
- **Enables cost-reflective pricing adjustments:** Formula can incorporate periodic adjustments based on CPI and recovery rates, or efficiency improvements and ensures that pricing remains accurate and sustainable over time.

2.3.3 How will this change work?

Equation **1** below formalises the concept of a target liquidity reserve for the scheme. The conception underlying
Equation **1** is that COEX would commit to the same price structure for an extended period (say, 5 years), which would only be revisited in the context of consultation similar to the current consultation.

Between such pricing consultations prices could be set based on applying a predictable formulaic approach to price changes.

In the current context:
Many of the scheme costs tend to increase with CPI. For example, contracts with CRP operators and logistics agreements have explicit CPI indexation clauses. Similarly, other COEX costs, including administration costs, will tend to increase with the general movement in wages and prices.

Equation **1** represents a prediction of how the scheme costs per container produced vary with relevant cost drivers (e.g. CPI and the recovery rate). If COEX could

perfectly predict how the scheme costs vary with relevant cost drivers, then COEX could simply set prices consistent with this formula indefinitely into the future. If this was the case then beverage manufacturers would have predictability about how prices would change with changes in cost drivers (even if the cost drivers, such as CPI, were not themselves variable).

However, any attempt to derive a simple pricing formula will, inevitably have some inaccuracies. Then scheme's actual costs might be more/less sensitive to the cost drivers included in the formula than COEX originally predicted. Moreover, there may be other cost drivers that are difficult to predict or represent in a formulaic manner (such as the impact of natural disasters or disruption to supply chains).

For this reason, any pricing formulae is likely to:

- Need to be revisited periodically (e.g., every 5 years) to reflect new information on costs and cost drivers; and

- Need to have some provision for adjustment within the pricing period if unexpected variations in cash-flow cause the scheme's liquidity reserves fall below prudent levels (or rise to excessive levels)

Equation **1** includes an "unders and overs" mechanism that would adjust prices if the schemes liquidity reserves fell/rose above predetermined thresholds.

In this context, COEX is seeking feedback on adopting the following pricing formula to apply for 5 years from the August 2025 price determination – effective February 2026.

Equation 1

$$P_t^A = P_{t=1}^A \times \left[1 + \alpha\left(\frac{CPI_{Dec\ t-1}}{CPI_{Dec\ t-2}} - 1\right) + \beta\left(\frac{RR_{Dec\ t-1}}{RR_{Dec\ t-2}} - 1\right) + \Delta\text{Refund} * RR_{Dec\ t-1} + \frac{U\&O_{\ Dec\ t-1}}{Z \times V_{Dec\ t-1}}\right]$$

where:

t denotes a 12-month period within the 5-year period X August 2025 to (X-1) August 2030. t=1 refers to the 12 months from period X August 2025 to (X-1) August 2026 and so one until t=5 refers to the 12 months ending (X-1) August 2030.

P_t^A = the value of P^A to apply during the t^{th} 12-month period of the 5-year pricing period where t>1;

$P_{t=1}^A$ = the initial value of P^A for the first year (t=1) of the 5-year pricing period;

α = the assumed sensitivity of COEX costs to CPI;

$CPI_{Dec\ t-1}$ = the index value for the December CPI in the calendar year immediately prior to the start of year t (All Groups, Index Numbers and Percentage Changes Brisbane as published by the ABS and released at the end of January);

$CPI_{Dec\ t-2}$ = the index value for the CPI in December of the calendar year 2 years prior to the start of year t;

β= the assumed sensitivity of COEX costs to the recovery rate;

$RR_{Dec\ t-1}$ = the annual recovery rate ending 31 December of the year prior to the start of year t

$RR_{Dec\ t-2}$ = the annual recovery rate ending 31 December of the calendar year 2 years prior to the start of year t;

$U\&O_{\ Dec\ t-1}$ = the value of an "unders and overs account" on 31 December immediately prior to the start of year t (where the "unders and overs account" simply represents the value of COEX historical surpluses/deficits);

Z = a predetermined number of years over which the unders and overs account is targeted to return to zero; and

$V_{Dec\ t-1}$ = the volume of container production in the year ending 31 December year t-1.

(Note that an alternative approach for COEX is to substitute a forecast for V_t)

ΔRefund = any change in the refund rate relative that applying in the previous year.

Under this approach COEX would set a price for each material (and/or other category of container) for the 12 months beginning X August 2025 based on COEX's best estimate of the prices required to cover the schemes costs plus a liquidity reserve over that 12-month period. Then, on X August 2026 these prices would be updated to reflect:

The percentage change in CPI between December 2024 and December 2025 multiplied by "α" where "α" is COEX's estimate of the sensitivity of COEX costs to CPI [The percentage change in the recovery rate between the 12 months ending December 2024 and December 2025 multiplied by "β" where "β" is COEX's estimate of the sensitivity of the schemes costs (per unit produced) to changes in the recovery rate A change in the refund amount announced by the Government to take place on X August 2026.

The final component of the pricing formula ($\frac{U\&O_{\ Dec\ t-1}}{Z \times V_{Dec\ t-1}}$) requires more detailed description. The variable "$U\&O$" refers to the value of an "unders and overs" account. On any given date, the value of the "unders and overs" account will be the difference between COEX actual liquid assets and target liquid assets.

Equation 2: Unders and overs account

$$U\&O_{\ Dec\ t-1} = COEX\ liquid\ assets_{\ Dec\ t-1} - Target\ liquid\ assets_{\ Dec\ t-1}$$ where:

$COEX\ liquid\ assets_{\ Dec\ t-1}$ = the accumulation of past COEX surpluses of revenues in excess of expenditures as at 31 December in the year prior to the start pricing year t plus the value of any unused line of credit that COEX has established its banking partners;

$Target\ liquid\ assets_{Dec\ t-1}$ = γ multiplied by COEX expenditure in the 12 months ending on 31 December in the year prior to the start pricing year t;

γ = the fraction of annual expenditures it is prudent for COEX to maintain as a liquidity buffer against unexpected variation in costs and/or revenues.

Notwithstanding the existence of such a pricing formula, COEX would still reserve the right to:
depart from any pricing formula if there was a material unanticipated divergence between revenues and costs.

2.3.4 Anticipated benefits

- **Stability and predictability:** Provides consistent cost expectations and lowers risks while also adjusting for changes in primary cost drivers.
- **Enables cost-reflective pricing adjustments:** Formula can incorporate periodic adjustments based on CPI and recovery rates, or efficiency improvements and ensures that pricing remains accurate and sustainable over time.

Changes 3 and 4: Incorporating new initiatives to support in aligning Scheme Pricing to participant needs

2.4.1 Change overview

As part of COEX's responsibility to ensure efficient and effective arrangements for scheme operations to better serve scheme participants, particularly around cashflow management and lower volume beverage manufacturers, COEX is seeking feedback on the following proposed changes:

- **Change 3:** Introduce a threshold similar to the Tasmanian scheme, whereby beverage manufacturers will not pay for their first 20,000 beverage sales each year. This cost-free threshold aims to help small beverage manufacturers continue to thrive.
- **Change 4:** Review current payment terms to improve the alignment of cashflows.

2.4.2 Rationale for change

As the scheme has grown, so too has the number and mix of beverage manufacturers, particularly since the introduction of wine and spirit containers into the scheme scope. With a focus on continuous improvement, the scheme must adapt to ensure best practice delivery of services aligned to the needs of participants.

The introduction of a container threshold and a review of payment terms looks to reduce the impact on the beverage industry and particularly support small businesses to continue to thrive through optimising financial outcomes for beverage manufacturers as well as enabling the scheme to align with industry best practices.

2.4.3 How will this change work?

Change 3: Zero-fee container threshold

The introduction of this zero-fee threshold aims to help small beverage manufacturers continue to thrive by reducing the financial impact of participating in the scheme.

- This zero-fee container threshold will apply to all beverage manufacturers to support in reducing the impact on the beverage industry.
- Rationale of 20,000 as the threshold:
    - Aligns to the threshold set by the Tasmanian scheme.
    - Provides the highest level of benefit to stakeholder groups.

Change 4: Revised payment terms

Review payment terms beyond the five business days.

2.4.4 Associated benefits

Change 3: Zero-fee container threshold

- **Offers advantages for all stakeholders:** The 20,000 threshold applies universally to all beverage manufacturers, supporting reducing the impact on the entire beverage industry.
- **Scheme harmonisation:** The proposed introduction of a zero-fee 20,000 container threshold, is similar to that seen in the Tasmanian scheme. Aligning elements of schemes nationally brings the QLD scheme closer to national scheme harmonisation, unlocking benefits, efficiencies and cross-jurisdictional learnings for all stakeholder groups.

Change 4: Revised payment terms

- **Enhanced flexibility:** Longer payment terms can allow stakeholders greater flexibility to manage any unexpected expenses or invest in growth opportunities.
- **Better management of cashflow:** Introducing payment terms beyond 5 business days will support all beverage manufacturers to manage their cashflows.

Possible national alignment: The feedback could drive a harmonised approach with other jurisdictions.

Glossary of key terms

Term	Definition
Cost-reflective pricing	A pricing model where scheme prices are based on the actual material-level costs to collect, process and recycle beverage containers.
Material-Type cost allocation	The process of assigning costs to each material stream (e.g., glass, aluminium, PET) based on their specific collection, transport and recycling costs.
Scheme price	The amount beverage manufacturers pay per container to fund the scheme, reflecting net scheme costs after accounting for any offsetting income.
Long-term pricing formula	A pre-determined structure for calculating scheme prices over a multi-year period, with adjustments based on cost drivers.
CPI (Consumer Price Index)	An economic indicator used to measure inflation, proposed as a cost driver for adjusting scheme prices over time.
Recovery Rate	The percentage of containers recovered and recycled within the scheme. 100% of containers recovered are recycled.
Unders and Overs mechanism	A pricing adjustment tool to reconcile forecasted vs. actual scheme costs, helping to prevent under- or over-recovery of funds.
Zero-fee container threshold	A policy mechanism where beverage manufacturers are exempt from paying scheme prices on the first 20,000 containers sold annually.
Over-Recovery	When the amount collected from beverage manufacturers exceeds the actual costs of running the scheme.
Cross-Subsidisation	A condition where materials with higher recovery rates or lower costs unintentionally subsidise more expensive or lower-performing materials.

Appendices

Appendix 1.

Application to COEX cost data.
This section uses actual COEX FY2024 cost data and recovery rates[1] (RR) to derive prices under the three options described in section 4 (**Options 1 2a and 2b**).

Continuing with the current approach of pricing based solely on container material.
The following table summarises the FY2024 production volumes (in millions of units), recovery rates, COEX's marginal costs of recycling and the associated relative beverage manufacturers prices under each pricing option by material type.

Table 1-3: Base case pricing options based on COEX 2024 cost information (price excluding refund)

	LPB	Steel	PET	Alum.	HDPE	Glass
Volume produced (millions)	151.9	3.9	890.3	1463.4	54.4	618.4
Recovery rate	26%	34%	57%	69%	80%	87%
Marginal cost per unit recycled	12.54	10.62	10.72	7.74	10.39	12.11
Option 1	6.3	7.6	11.9	12.5	13.2	16.9
Option 2a	14.7	13.5	13.6	11.7	13.4	14.5
Option 2b*	15.5	15.0	13.9	12.4	11.1	12.2

* Assuming a cost of not recycling of 30 c/unit

[1] The percent of a materials production volume that is recycled.

Figure 1-5: Graphical illustration of modelled prices

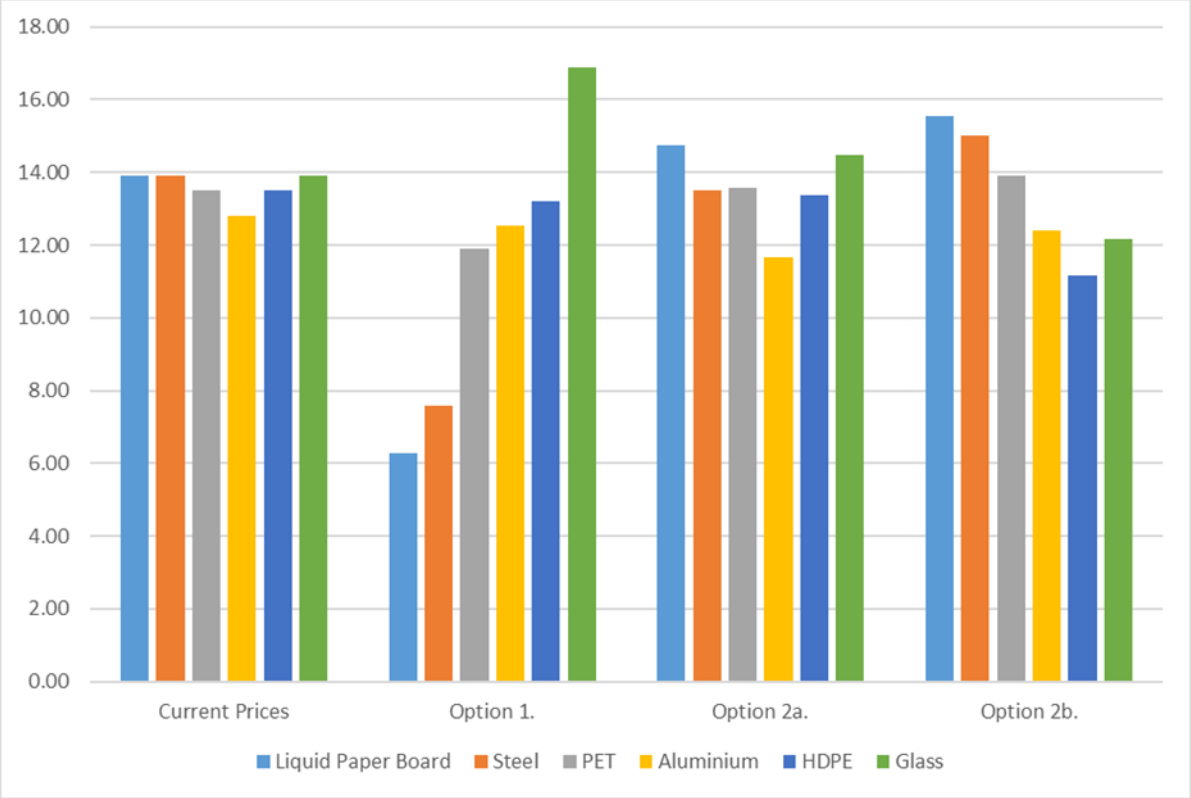
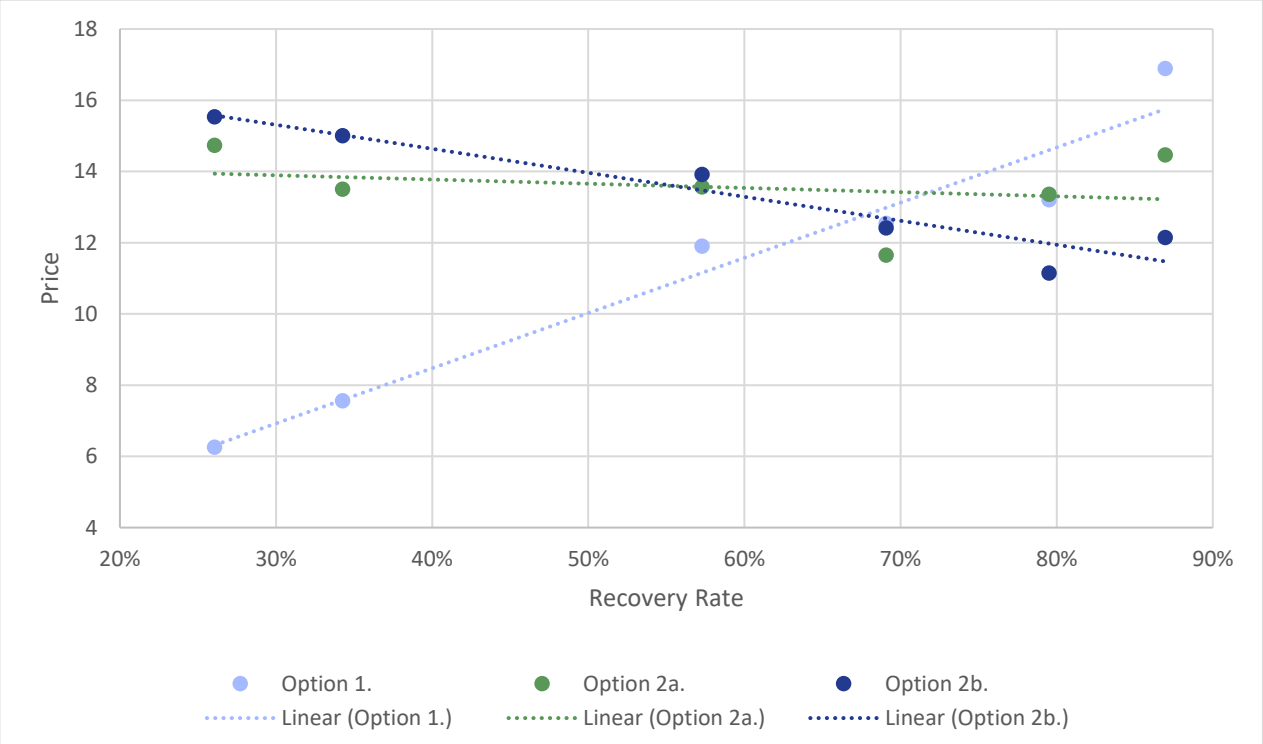


Figure 17: Prices vs recovery rate for Options 1, 2a and 2b. from model



Appendix 2.

Consultation Questions

Questions: Cost-reflective pricing

1. Do respondents agree that COEX should set cost-reflective prices? If not, why not?
2. Do respondents consider that COEX has correctly identified the methodologies for estimating cost-reflective prices as detailed on pages 13-14? If not, what alternatives other than the options presented in the discussion paper do stakeholders suggest?
3. Which cost-reflective pricing options should be implemented?
4. Under the option preferred above, do respondents consider that COEX should continue to charge on a per container basis, or should COEX move to a mix of per container, per container volume and/or per container weight pricing basis? Please explain the reasons for this answer.
5. Can beverage manufacturer respondents please describe the extent to which they are able to substitute between container types (material, volume and weight) in response to changes in COEX pricing?
6. Can beverage manufacturer respondents please describe the extent to which there are container types that COEX has not identified (including those not currently in use) that have low/high costs of recycling and which should attract a lower/higher price from COEX? For example:
    - If designs existed for LPB containers that would lower the cost of recycling those containers COEX could consider introducing a separate lower price for that type of LPB.
    - If some forms of PET or aluminum cans are higher recyclable value than others COEX could similarly differentiate between those.
7. Do respondents consider that there should be differential pricing between:
    - Clear versus coloured PET (to reflect the latter's lower resale value).
    - Refillable containers.

Questions: Setting long-term pricing

8. Should a pricing formula such as the one detailed on pages 21-24 be implemented?
9. Is a 5-year periodic review appropriate?

10. Are the cost drivers of CPI and recovery rate suitable, or should others be considered?
11. Should an “unders and overs” adjustment mechanism be included in the formula?

Questions: Introduction of a Container Threshold

12. Should a container threshold be implemented? Please provide reasons for this response.
13. Should the threshold be set at 20,000 containers? Please provide reasons for this response.

Questions: Payment terms review

14. Should current payment terms be revised? Please provide reasons for this response.
15. What is the optimal payment term? Please provide reasons for this response.