

# Reserve Sale Examples

*California Cap-and-Trade Program Sale of  
Greenhouse Gas Allowances from the  
Allowance Price Containment Reserve  
Issued on February 6, 2025*

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# I. Background

As part of the Cap-and-Trade Program, the California Air Resources Board (CARB) will offer sales of greenhouse gas (GHG) allowances from the Allowance Price Containment Reserve (Reserve). CARB will offer allowances from the Reserve (Reserve allowances) for sale in two fixed-price tiers. This document provides information and examples of how to determine a bid guarantee amount, bid evaluation procedures for holding limits and bid guarantees, and examples of Reserve sale bid fulfillment and purchase determinations. Allowances purchased at Reserve sales are deposited directly into an entity's compliance account. Only California covered entities and opt-in covered entities are eligible to participate in Reserve sales.

This document should be read in conjunction with the [Detailed Reserve Sale Requirements and Instructions](#) document. Terms defined in the [Detailed Reserve Sale Requirements and Instructions](#) also apply to this document. This document is guidance only and does not supersede the California Cap-and-Trade Regulation (Regulation). In circumstances of uncertainty, the Regulation is the controlling document.

When bidding in a Reserve sale during the open bidding window, the tier and number of bid lots are entered for each bid. The bid fulfillment and purchase determinations in a Reserve sale are determined after the bidding window is closed based on the following steps:

1. Each entity's submitted bids are evaluated to ensure that submitted bids or value of submitted bids do not exceed the current vintage holding limit or the entity's bid guarantee.
2. Each entity's qualified bids are determined as the bid quantity that remains after the submitted bids have been evaluated and reduced to meet all limits.
3. Allowances are awarded to entities, beginning with bids submitted for Tier 1 and followed by bids submitted for Tier 2, with bids filled in each tier until the entire supply of allowances in the tier is exhausted or all qualified bids have been filled.
  - a. If the quantity of qualified bids for Tier 1 is fewer than the number of allowances in Tier 1, then the Tier 2 allowances are sold at the Tier 1 price until the available allowances in Tier 1 are exhausted. Remaining Tier 2 bids are fulfilled at the Tier 2 price until the available allowances in Tier 2 are exhausted.

The discussion in the remainder of this document follows the steps listed above, in order, to illustrate the various elements of the bid fulfillment and purchase determinations process.

## II. Determining an Entity's Bid Guarantee

The Auction and Reserve Sale Administrator (Auction Administrator)<sup>1</sup> will accept bids for lots of Reserve allowances; each bid lot represents 1,000 Reserve allowances. The tier prices for Tier 1 and Tier 2 are fixed for each year and are provided in the [2025 Annual Allowance Price Containment Reserve Notice](#). Table 1 presents hypothetical bid submissions for a Reserve sale in which three entities are participating. Each row in Table 1 provides the bid value at each tier price. Table 1 includes the fixed-prices for 2025 Tier 1 and Tier 2. For all examples in this document, there are 1,000,000 allowances in each Reserve tier.

**Table 1: Reserve Sale Bid Submissions**

Entity Name	Tier	Tier Price	Bid Lots	Bid Number of Allowances	Bid Value <sup>2</sup>	Entity Cumulative Bid Allowances	Entity Cumulative Bid Value <sup>2</sup>
A	1	\$60.47	500	500,000	\$30,235,000	500,000	\$30,235,000
A	2	\$77.70	300	300,000	\$23,310,000	800,000	\$53,545,000
B	1	\$60.47	750	750,000	\$45,352,500	750,000	\$45,352,500
B	2	\$77.70	500	500,000	\$38,850,000	1,250,000	\$84,202,500
C	1	\$60.47	200	200,000	\$12,094,000	200,000	\$12,094,000
C	2	\$77.70	100	100,000	\$7,770,000	300,000	\$19,864,000

Table 1 Terminology:

- Bid Number of Allowances = Bid Lots × 1,000
- Bid Value = Bid Number of Allowances × Tier Price
- Entity Cumulative Bid Allowances = The Bid Number of Allowances by an entity at that tier plus the Bid Number of Allowances in any lower tier for the entity
- Entity Cumulative Bid Value = For a given entity, the Bid Value at that tier plus the Bid Value in any tier below it

The Regulation requires bid guarantees to be greater than or equal to the maximum value of the bids submitted considering both tiers (i.e., the maximum bid value). Thus, each entity's bid guarantee should be equal to or greater than the maximum bid value for the planned bid schedule in Table 1. Entities bidding in a Reserve sale will be

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<sup>1</sup> For simplicity, the Auction and Reserve Sale Administrator is referred to as the Auction Administrator in all notices regarding auctions and reserve sales.

<sup>2</sup> For simplicity throughout this document, all currency data other than Tier Price is shown rounded to whole dollars.

limited to incurring a total cost less than or equal to the dollar amount of the bid guarantee submitted and should evaluate their bids against the bid guarantee they provided in the manner illustrated in this example. Entities submit a bid guarantee that is used first to satisfy purchases in Tier 1. Any portion of the bid guarantee remaining after Tier 1 purchases are satisfied is subsequently applied to Tier 2 purchases until either all allowances are sold from the Reserve or all the qualified bids are filled.

#### *A. Minimum Bid Guarantee Calculation*

Example 1 illustrates how an entity might calculate the minimum bid guarantee required to avoid having bids rejected when there are multiple bids at the two tiers.

##### Example 1: Calculating a Bid Guarantee When Submitting Multiple Bids

As shown in Table 1, Entity A has submitted one bid for each of the two tiers. The Reserve sale may result in the complete fulfilment of the entity's bid schedule. Thus, the bid guarantee that Entity A should submit to avoid having bids rejected is the sum of the entity's bid values.

- Tier 1: Entity A bid for 500,000 Reserve allowances at a cost of \$30,235,000.
- Tier 2: Entity A bid for 300,000 Reserve allowances at a cost of \$23,310,000.

Entity A's bid schedule shows that it is willing to purchase a total of 800,000 Reserve allowances at a total bid value of \$53,545,000. **Entity A should submit a bid guarantee of at least \$53,545,000 in order to guarantee that those bids be considered for settlement determination.**

The minimum bid guarantee Entities A, B, and C should submit to avoid having their bids rejected in lots of 1,000 allowances by the Auction Administrator would be as follows:

- Entity A - \$53,545,000
- Entity B - \$84,202,500
- Entity C - \$19,864,000

### **III. Entity Bid Evaluation Procedures for Purchase Limits and Holding Limits**

#### *A. Purchase Limits*

There are no purchase limits for Reserve sales.

## *B. Holding Limits*

The holding limit is the maximum number of allowances that may be held by an entity or jointly held by a group of related entities. The holding limit applies to all entities across all linked jurisdictions and is based on the following formula:

$$\text{Holding Limit} = 0.1 \times \text{Base} + 0.025 \times (\text{Annual Allowance Budget} - \text{Base})$$

Where:

- “Base” equals 25 million metric tons of carbon dioxide equivalent (CO<sub>2</sub>e).
- “Annual Allowance Budget” is the number of allowances issued for the current budget year.<sup>3</sup>

For 2025, the combined annual budget in California and Québec is 317,710,000 allowances.

$$\begin{aligned} \text{2025 Holding Limit} &= (0.1 \times 25,000,000) + 0.025 \times (317,710,000 - 25,000,000) \\ \text{2025 Holding Limit} &= 9,817,750 \text{ allowances} \end{aligned}$$

Allowances purchased in the Reserve sale are subject to the current vintage holding limit detailed in section 95920(c)(1) of the Regulation. The current vintage holding limit applies to allowances from the current calendar year, previous calendar years, and allowances with no vintage, such as Reserve allowances.

A covered entity may exempt a limited number of allowances from the current vintage holding limit by transferring them to its compliance account. This “limited exemption” is described in section 95920(d)(2) of the Regulation. The limited exemption is based on an entity’s emissions and is designed to allow covered entities the ability to accumulate the allowances they need for compliance. Refer to the [Limited Exemption from the Holding Limit Fact Sheet](#) for more information.

Entities can calculate the maximum number of allowances they can hold by following Example 2 and using the holding limit values calculated above.

### Example 2: Determining the Maximum Number of Allowances an Entity Can Hold and Purchase to Comply with the Holding Limit

The maximum number of allowances an entity can hold at one time equals the holding limit plus the limited exemption. The limited exemption is available only to covered entities. The limited exemption is entity-specific and based on recent levels of annual covered emissions. For allowances to be counted within an entity’s limited exemption,

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<sup>3</sup> The annual allowance budget in a linked program includes allowances issued by participating jurisdictions.

they must be held in the entity's compliance account. In 2025 the maximum number of allowances that an entity may hold is calculated as:

$$2025 \text{ Maximum Number of Allowances Held} = 9,817,750 + \text{Limited Exemption}$$

When submitting bids for a Reserve sale, an entity may not exceed the applicable holding limit plus the limited exemption. Suppose an entity's limited exemption is equal to 2,000,000 allowances and it holds 1,000,000 allowances in its compliance account and an additional 9,000,000 allowances of vintage 2025 or prior year vintage allowances in its general holding account. The maximum number of allowances the entity may acquire at a Reserve sale before exceeding its holding limit plus the limited exemption is:

$$\begin{aligned} \text{Maximum Number of Reserve Allowances That Can Be Purchased} = \\ 9,817,750 + 2,000,000 - 1,000,000 - 9,000,000 = 1,817,750 \text{ allowances} \end{aligned}$$

If Reserve allowances are purchased at a Reserve sale, the Reserve allowances are placed directly in the entity's compliance account. Any allowances in the compliance account in excess of the limited exemption will be considered in the calculation of the entity's account holdings compared to the holding limit.

## **IV. Auction Administrator Application of the Bid Evaluation Criteria**

Submitted bids that contain bid quantities that would cause an entity to be in excess of the holding limit, that have a maximum value in excess of the bid guarantee, or that are in excess of the number of allowances available for sale in a reserve tier will be rejected, in bundles of 1,000 allowances, until all bid limitations are met. Only that portion of the bid quantity that exceeds one or more limit(s) will be rejected, not the entire bid quantity. "Qualified bids" are the bids that remain after the submitted bids have been evaluated and reduced to meet all limits. Determination of qualified bids occurs after the bid window has been closed and before the final bid fulfillment and purchase determinations are made.

### ***A. Bid Fulfillment***

Starting with allowances in the lowest-priced tier, allowances will be sold to entities that submit qualified bids to the lowest-priced tier (i.e., Tier 1). Given that each tier contains a fixed number of Reserve allowances, there are three potential outcomes for the sale of allowances within each tier:

- The quantity of qualified bids exactly corresponds to the quantity of allowances available in a given tier. In this case, all qualified bids are filled, and no allowances remain in the tier.
- The quantity of qualified bids exceeds the quantity of allowances in a given tier. In this case, the tiebreaker process in section 95913(i)(5) of the Regulation

determines allowance sales based on each bidder's proportion of all qualified bids in the given tier.

- The quantity of qualified bids is fewer than the number of allowances in a given tier. If this occurs in Tier 1 and there are bids submitted at Tier 2, this will result in a tier roll-down as detailed in section 95913(i)(4) of the Regulation. In a tier roll-down, qualified bids from Tier 2 are filled at the Tier 1 price until all available Tier 1 allowances are exhausted.

#### 1. Tiebreaker Process for an Oversubscribed Reserve Tier

Should the sum of qualified bid quantities for any tier exceed the quantity of allowances in that tier, the Auction Administrator will allocate allowances to entities based on their share of qualified bids submitted to that tier. Only qualified bids submitted to the oversubscribed tier (not the total qualified bids placed across the two tiers) will be used to determine an entity's share of allowances bid for in a tiebreaker process.

Each entity is awarded allowances based on its share of qualified bids multiplied by the number of allowances available for sale in the tier, rounded down to the nearest whole allowance. If there are allowances remaining as a result of rounding down, those allowances are awarded to qualified bidders for that tier by assigning a random number to each entity. The remaining allowances are sequentially awarded to entities starting with the lowest assigned random number and proceeding in order of increasing random number until all remaining allowances are awarded. Under the tiebreaker procedure, allowances sold to entities in the tiebreaker will not necessarily be in lots of 1,000 allowances.

#### Example 3a: Bid Fulfillment with a Tiebreaker for an Oversubscribed Tier Sale

Examples 3a and 3b represent one Reserve sale with qualified bids across Tiers 1 and 2, respectively. These examples use the bid schedules for Entities A, B, and C in Table 1 and the bid guarantees in Example 1. Again, the supply of allowances in each tier is 1,000,000 allowances. Example 3 demonstrates the bid fulfillment and purchase determinations process of a Reserve sale when there is an excess demand for allowances in a tier. Example 3a shows a tiebreaker process for Tier 1. The same tiebreaker methodology is applicable to either tier of the Reserve sale.

Table 2 presents the cumulative bids of the three entities for Tier 1. These bids are qualified bids and do not violate the holding limit or bid guarantee for each of the entities. Each entity has submitted a bid guarantee amount sufficient to cover all bids in the bid schedule in Table 1. Table 2 shows the results of the Tier 1 sale including the allowances sold to each entity and their respective purchase cost.



**Table 2: Tier 1 Bid Fulfillment with a Tiebreaker for an Oversubscribed Tier 1 Sale (Example 3a)**

Entity Name	Tier Price	Tier 1 Bid Lots	Tier 1 Qualified Bid Allowances	Proportion	Tier 1 Allowances Sold	Tier 1 Purchase Cost
A	\$60.47	500	500,000	0.3448	344,827	\$20,851,689
B	\$60.47	750	750,000	0.5172	517,241	\$31,277,563
C	\$60.47	200	200,000	0.1379	137,932	\$8,340,748
Total	-	1,450	1,450,000	1	1,000,000	\$60,470,000

Since the quantity of qualified bids is 1,450,000 allowances and only 1,000,000 allowances are available for sale from Tier 1, a tiebreaker procedure is required. For Example 3a, each entity is sold allowances based on the proportion of their qualified bid to the total quantity of qualified bids submitted to the oversubscribed tier. Entity A's qualified bid is 500,000 allowances, and its proportion to the total quantity of qualified bids is  $500,000/1,450,000 = 0.34482759$ . The proportion is then multiplied by the number of allowances available and rounded down to the nearest whole allowance, in this case,  $0.34482759 \times 1,000,000 = 344,827$  allowances. The rounding down of allowances results in 999,999 total allowances sold. To sell the residual allowance, each entity is assigned a random number, and the allowance is awarded to the entity with the lowest random number. In this example, Entity C with the lowest random number receives the residual allowance (changing the number of allowances sold to Entity C from 137,931 to 137,932).

After completing the sale of the lowest-price tier, the Auction Administrator will proceed to Tier 2. Allowances purchased in Tier 1 reduce the allowances a Reserve sale participant may acquire in Tier 2 before exceeding its holding limit and limited exemption. The total cost of allowances purchased in Tier 1 is deducted from the entity's bid guarantee, reducing the remaining bid guarantee that can be applied to subsequent tier sales. Thus, evaluation of submitted bids in Tier 2 is based on the remaining bid guarantee and allowances that may be acquired before exceeding an entity's holding limit and limited exemption.

Example 3b: Tier 2 Bid Fulfillment after a Tiebreaker for an Oversubscribed Tier 1 Sale

The Reserve sale continues until either all the allowances in the two tiers are sold, or until all qualified bids are fulfilled. Given the results from the sale of Tier 1 in Example 3a, Tier 2 bid lots and remaining bid guarantee amounts for each entity are:

- Entity A: 300 qualified bid lots at \$77.70 with a remaining bid guarantee amount of \$32,693,311

- Entity B: 500 qualified bid lots at \$77.70 with a remaining bid guarantee amount of \$52,924,937.
- Entity C: 100 qualified bid lots at \$77.70 with a remaining bid guarantee amount of \$11,523,252.

Allowances sold in the Tier 2 sale are sold at a price of \$77.70. Table 3 shows the results of the Tier 2 sale, including the allowances sold to each entity and their respective purchase cost.

**Table 3: Tier 2 Bid Fulfillment After a Tiebreaker for an Oversubscribed Tier 1 Sale (Example 3b)**

Entity Name	Tier Price	Tier 2 Bid Lots	Tier 2 Qualified Bid Allowances	Tier 2 Purchase Cost
A	\$77.70	300	300,000	\$23,310,000
B	\$77.70	500	500,000	\$38,850,000
C	\$77.70	100	100,000	\$7,770,000
Total		900	900,000	\$69,930,000

Table 4 summarizes the total number of Reserve allowances sold from the two tiers and the total purchase cost for each entity for Examples 3a and 3b.

**Table 4: Total Allowances Sold to Entities in Examples 3a and 3b**

Entity Name	Tier Price	Allowances Sold	Total Purchase Cost
A	\$60.47	344,827	\$20,851,689
A	\$77.70	300,000	\$23,310,000
Entity A Total		644,827	\$44,161,689
B	\$60.47	517,241	\$31,277,563
B	\$77.70	500,000	\$38,850,000
Entity B Total		1,017,241	\$70,127,563
C	\$60.47	137,932	\$8,340,748
C	\$77.70	100,000	\$7,770,000
Entity C Total		237,932	\$16,110,748

## 2. Roll-Down Procedure for an Undersubscribed Tier 1 Sale

If allowances remain in Tier 1 after all qualified bids are filled, Tier 1 is undersubscribed relative to qualified bids. The Auction Administrator will sell the

remaining allowances of the undersubscribed tier by “rolling down” qualified bids from Tier 2.

To accomplish this, the Auction Administrator evaluates all bids from Tier 2 with respect to the remaining bid guarantee and holding limit plus limited exemption of each entity. The bid guarantee evaluation in the roll-down procedure is based on the Tier 1 price. Then, a random number is assigned to each bundle of 1,000 allowances in a qualified bid. The remaining allowances in Tier 1 will be sold at the Tier 1 price to bidders in Tier 2, starting with the lot assigned the lowest random number and proceeding in increasing order of random numbers until all the allowances in the Tier 1 are sold. The price for the allowances sold under this procedure is the price of Tier 1, not the Tier 2 price at which the bid was submitted. The remaining bids from Tier 2, if any, will be fulfilled at the Tier 1 price until all Tier 1 allowances are exhausted. Qualified bid roll-downs occur only from Tier 2 to Tier 1, and only when Tier 1 allowances are still available after all Tier 1 bids are fulfilled, whereas the tiebreaker process for an oversubscribed tier is applicable to sales from each tier.

Example 4a: Bid Fulfillment for an Undersubscribed Tier 1 Sale with Roll-Down of Tier 2 Qualified Bids

Examples 3a and 3b represent one Reserve sale across Tiers 1 and 2, respectively. Table 5 presents hypothetical bid submissions for a Reserve sale in which three entities are participating. Each row in Table 5 provides the bid value at each tier price. The Auction Administrator will accept bids for lots of Reserve allowances; each bid lot represents 1,000 Reserve allowances. For this example, the bid guarantees for each entity are equal to the minimum bid guarantee required for their bids submitted. The bid guarantees are \$37,566,000, \$47,498,000, and \$19,864,000 for entities A, B and C, respectively. As for all previous examples, the supply of allowances in each tier is 1,000,000 allowances for Examples 4a and 4b.

**Table 5: Reserve Sale Bid Submissions for Examples 4a and 4b**

Entity Name	Tier	Tier Price	Bid Lots	Bid Number of Allowances	Bid Value	Entity Cumulative Allowances	Entity Cumulative Bid Value
A	1	\$60.47	300	300,000	\$18,141,000	300,000	\$18,141,000
A	2	\$77.70	250	250,000	\$19,425,000	550,000	\$37,566,000
B	1	\$60.47	400	400,000	\$24,188,000	400,000	\$24,188,000
B	2	\$77.70	300	300,000	\$23,310,000	700,000	\$47,498,000
C	1	\$60.47	200	200,000	\$12,094,000	200,000	\$12,094,000
C	2	\$77.70	100	100,000	\$7,770,000	300,000	\$19,864,000

Table 5 shows that the cumulative qualified Tier 1 bids for the three entities is 900,000 allowances in the example.

Given a supply of 1,000,000 allowances in Tier 1, there are 100,000 allowances remaining in Tier 1 after the qualified Tier 1 bids have been fulfilled. To sell these remaining Tier 1 allowances, the 650,000 qualified bids for allowances in Tier 2 will be split into individual bid lots of 1,000 allowances, and each Tier 2 bid lot will be assigned a random number.

The remaining 100,000 allowances in Tier 1 will be sold in bid lots from Tier 2 starting with the bid lot assigned the lowest random number and proceeding in increasing order. Given that entities submitted a total of 650 bid lots in Tier 2, there will be a total of 650 random numbers assigned. In this example, 250 bid lots for Entity A are assigned random numbers, 300 bid lots for Entity B are assigned random numbers, and 100 bid lots for Entity C are assigned random numbers. The remaining Tier 1 allowances will be sold starting with the Tier 2 bid lot assigned the lowest random number and proceeding in increasing random number order until all remaining 100,000 allowances in Tier 1 have been sold.

Table 6 shows the final result of the roll-down of qualified bids from Tier 2 to Tier 1. In the roll-down procedure, the 650 Tier 2 bid lots are ranked in ascending order of their assigned random number, starting with the lowest random number. There are 100 bid lots remaining in Tier 1 after the fulfillment of all qualified Tier 1 bids. Tier 2 bid lots will be fulfilled at the Tier 1 price, starting with bid lot assigned the lowest random number and increasing in ascending order until 100 bid lots are filled. In this example, 29 bid lots for Tier 2 are from Entity A bids, 59 from Entity B bids, and 12 from Entity C bids. Bids submitted for these 100 Tier 2 bid lots are filled with Tier 1 allowances.

Each of the 1,000,000 allowances sold in the Tier 1 sale is sold at a price of \$60.47 regardless of the tier in which the bid was originally submitted, including qualified Tier 2 bids that are rolled-down and fulfilled at the Tier 1 price. Table 6 shows the results of the Tier 1 sale with the roll-down of 100 qualified bid lots from Tier 2, including the allowances sold to each entity and their respective purchase cost.

**Table 6: Tier 1 Bid Fulfillment with Roll-Down of Qualified Bids from Tier 2 (Example 4a)**

Entity Name	Tier Price	Tier 1 Bid Lots	Tier 1 Allowances Sold to Tier 1 Qualified Bids	Rolled-Down Tier 2 Bid Lots	Tier 1 Allowances Sold to Rolled-Down Tier 2 Qualified Bids	Total Tier 1 Allowances Sold	Tier 1 Purchase Cost
A	\$60.47	300	300,000	29	29,000	329,000	\$19,894,630
B	\$60.47	400	400,000	59	59,000	459,000	\$27,755,730
C	\$60.47	200	200,000	12	12,000	212,000	\$12,819,640
Total		900	900,000	100	100,000	1,000,000	\$60,470,000

Example 4b: Bid Fulfillment for a Tier 2 Sale After a Roll-Down Process for an Undersubscribed Tier 1 Sale

Following the fulfillment of bids for the Tier 1 Sale in Example 4a, the Reserve Sale continues until either all the allowances in both tiers are sold or all qualified bids are fulfilled. Given the results from the Tier 1 sale in Example 4a, the remaining Tier 2 bid lots and remaining bid guarantee amounts for each entity are:

- Entity A: 221 qualified Tier 2 bid lots at \$77.70 with a remaining bid guarantee amount of \$17,671,370.
- Entity B: 241 qualified Tier 2 bid lots at \$77.70 with a remaining bid guarantee amount of \$19,742,270.
- Entity C: 88 qualified Tier 2 bid lots at \$77.70 with a remaining bid guarantee amount of \$7,044,360.

Tier 2 allowances are sold at a price of \$77.70. Table 7 shows the results of the Tier 2 sale, including the allowances sold to each entity and their respective purchase cost.

**Table 7: Tier 2 Bid Fulfillment After the Roll-Down of Some Qualified Bids from Tier 2 to Tier 1 (Example 4b)**

Entity Name	Tier Price	Original Tier 2 Bid Lots	Tier 2 Bid Lots Remaining After Roll-Down	Tier 2 Allowances Sold	Tier 2 Purchase Cost
A	\$77.70	250	221	221,000	\$17,171,700
B	\$77.70	300	241	241,000	\$18,725,700
C	\$77.70	100	88	88,000	\$6,837,600
Total		650	550	550,000	\$42,735,000

In this example, each entity has its entire Tier 2 qualified bids fulfilled. Tier 2 qualified bids take into account any bid lots that were rolled down and fulfilled in Tier 1. Entity A's bid schedule shows a bid of 250 bid lots for Tier 2. However, 29 of Entity A's Tier 2 bid lots were fulfilled at the Tier 1 price. Therefore, Entity A has 221 qualified bid lots remaining for Tier 2, and Entity A is sold 221 bid lots at the Tier 2 price. Additionally, 450,000 allowances will remain in Tier 2 to be offered in subsequent Reserve sales. Table 8 presents the total number of Reserve allowances sold from both tiers and the total cost for each entity.

**Table 8: Total Allowances Sold to Entities (Example 4a and 4b)**

Entity Name	Tier Price	Allowances Sold	Total Purchase Cost
A	\$60.47	329,000	\$19,894,630
A	\$77.70	221,000	\$17,171,700
Entity A Total		550,000	\$37,066,330
B	\$60.47	459,000	\$27,755,730
B	\$77.70	241,000	\$18,725,700
Entity B Total		700,000	\$46,481,430
C	\$60.47	212,000	\$12,819,640
C	\$77.70	88,000	\$6,837,600
Entity C Total		300,000	\$19,657,240