



# Cap-and-Invest Program Allowance Auction Revenue Forecast Summary – November 2023 –

## Purpose

To update revenue estimates from cap-and-invest allowance auctions under the Climate Commitment Act, and provide a summary of the process and methodology for forecasting this fund source moving forward.

## Background

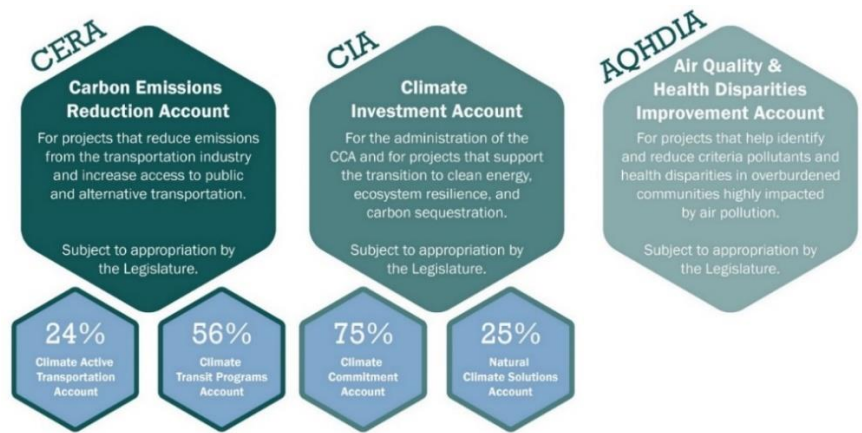
In 2021, the Legislature passed the Climate Commitment Act (CCA), [Chapter 70A.65 RCW](#), which establishes a comprehensive, market-based program to reduce carbon pollution and achieve the greenhouse gas limits set in state law.

The cap-and-invest program under the CCA sets a limit, or cap, on overall carbon emissions in the state and requires businesses to obtain allowances equal to their covered [greenhouse gas emissions](#). These allowances can be obtained through [quarterly auctions](#) hosted by Ecology’s contracted vendor, or bought and sold on a secondary market (just like stocks and bonds). The cap will be reduced every year to help ensure Washington achieves its 2030, 2040, and 2050 emissions-reduction commitments, which means we will issue fewer emissions allowances each year.

The program began January 1, 2023, and the first allowance auction took place on February 28, 2023. To date, there have been three quarterly auctions and two Allowance Price Containment Reserve (APCR) auctions. For more information on the cap-and-invest program, please visit: <https://ecology.wa.gov/Air-Climate/Climate-Commitment-Act/Cap-and-invest>.

## Accounts and Revenue Overview

The CCA established three primary accounts and two sub-accounts to house cap-and-invest auction proceeds until they are appropriated for specific uses and projects by the Legislature. During the 2022 legislative session, ESSB 5974 established two additional sub-accounts under the Carbon Emissions Reduction Account (CERA). Funds in each of these seven accounts are earmarked for specific types of climate, environmental justice, and ecological projects. Per RCW 70A.65.100, auction proceeds must first be deposited into CERA each fiscal year, and statute sets those deposit amounts.





### Updated Revenue Forecast

Ecology provided its first updated revenue estimates for the cap-and-invest program auctions since the CCA was enacted in October 2022. At that time, the program was still a few months from launching and hadn't held its first quarterly auction yet. The following revenue estimates reflect more current information regarding auction results in both Washington and the combined California/Québec market, as well as updates to allowance supply and allocations for Washington's program.

<b>Updated – November 2023</b>				
\$ in thousands	Fiscal Year 2024	Fiscal Year 2025	Fiscal Year 2026	Fiscal Year 2027
<b>Total Revenue</b>	<b>\$ 1,481,456</b>	<b>\$ 1,096,783</b>	<b>\$ 945,233</b>	<b>\$ 827,530</b>
<b>26A - CERA <sup>1</sup></b>	\$ 356,697	\$ 366,558	\$ 359,117	\$ 359,117
<b>26E - AQHDIA <sup>2</sup></b>	\$ 2,500	\$ 2,500	\$ 10,000	\$ 10,000
<b>26B - CIA <sup>3</sup></b>	\$ 1,122,259	\$ 727,725	\$ 576,116	\$ 458,413

<b>Previous – October 2022</b>				
\$ in thousands	Fiscal Year 2024	Fiscal Year 2025	Fiscal Year 2026	Fiscal Year 2027
<b>Total Revenue</b>	<b>\$ 957,521</b>	<b>\$ 901,902</b>	<b>\$ 730,953</b>	<b>\$ 592,371</b>
<b>26A - CERA <sup>1</sup></b>	\$ 356,697	\$ 366,558	\$ 359,117	\$ 359,117
<b>26E - AQHDIA <sup>2</sup></b>	\$ 2,500	\$ 2,500	\$ 10,000	\$ 10,000
<b>26B - CIA <sup>3</sup></b>	\$ 598,324	\$ 532,844	\$ 361,836	\$ 223,254

<b>Change – October 2022 to November 2023</b>				
\$ in thousands	Fiscal Year 2024	Fiscal Year 2025	Fiscal Year 2026	Fiscal Year 2027
<b>Total Revenue</b>	<b>\$ 532,935</b>	<b>\$ 194,881</b>	<b>\$ 214,280</b>	<b>\$ 235,159</b>
<b>26A - CERA <sup>1</sup></b>	\$ -	\$ -	\$ -	\$ -
<b>26E - AQHDIA <sup>2</sup></b>	\$ -	\$ -	\$ -	\$ -
<b>26B - CIA <sup>3</sup></b>	\$ 532,935	\$ 194,881	\$ 214,280	\$ 235,159

<sup>1</sup> Annually, beginning July 1, 2023, the State Treasurer will transfer 24% of the revenues in Carbon Emissions Reduction Account (CERA) to the Climate Active Transportation Account (26M) per RCW 46.68.490, and 56% to the Climate Transit Programs Account (26N) per RCW 46.68.500. State Treasurer transfers are not reflected in the revenue estimates above (revenue is shown in CERA).

<sup>2</sup> FY26-FY27 amounts based on legislative intent in RCW 70A.65.280(3) that no less than \$20 million per biennia be dedicated to AQHDIA for the purposes of the account.

<sup>3</sup> Annually, beginning July 1, 2023, the State Treasurer will transfer revenues available in the CIA that are not already appropriated in the account to administer the program. Per RCW 70A.65.250, 75% will be transferred to the Climate Commitment Account (26C) and 25% will be transferred to the Natural Climate Solutions Account (26D). State Treasurer transfers are not reflected in the revenue estimates above (revenue is shown in Climate Investment Account).

**Please note**, as Washington's cap-and-invest program is still very new, there remains a high level of uncertainty in any estimates of auction proceeds into the future. While the updated projections above represent Ecology's best estimate of potential revenues, actual auction proceeds could be higher or



lower, depending on the actual price that allowances sell for at each auction (the settlement price<sup>1</sup>). Because of this inherent uncertainty, we strongly recommend caution when relying on these forecasted projections to appropriate funds from the associated accounts. Historically, the early years of emissions trading systems such as Washington's are the most variable in allowance prices, and therefore in revenue.

### Summary of Changes Between November 2023 Forecast and October 2022 Estimates

Several factors have contributed to the change in forecasted revenue over what was estimated in October 2022. These include a change in methodology for estimating allowance prices for each auction, higher settlement prices for the first three quarterly auctions than was anticipated, and higher than estimated actual settlement prices in the California/Québec joint auctions over the past year.

- **Change in methodology:** Because Washington had not yet held a quarterly auction under the new cap-and-invest program as of October 2022, Ecology relied on information from the joint California/Québec joint market to build those revenue estimates. We used the average settlement price for the last four California auctions at the time to establish the price for calendar year 2022, and then increased that year's price by 5% plus the prior year's inflation.

However, for the November 2023 revenue forecast above, Ecology was able to use actual settlement prices from Washington's first three quarterly auctions, as well as more recent auction results from the California/Québec joint market, in developing the amounts for the forecast, using the methodology described below.

- **Higher settlement price actuals:** The estimated allowance price for calendar year 2023 auctions used in the 2022 revenue estimates was \$32.65 (based on actuals from the California/Québec joint market in 2022). However, the actual average current vintage settlement price over Washington's first three quarterly auctions in 2023 was \$55.85. Furthermore, [actual settlement prices](#) for the joint California/Québec auctions in 2023 were also higher than estimated in October 2022, and have been trending upward over the last four quarterly auctions (\$33.03 average vs. \$28.82 average used when calculating the October 2022 estimates). These higher settlement price actuals, across both markets, resulted in a higher starting average for calculating the November 2023 forecast.

Another factor contributing to the increase in revenue for the 2023-25 biennium in this forecast is that the higher-than-expected settlement prices over Washington's first three quarterly auctions also triggered two additional auctions from the Allowance Price Containment Reserve (APCR). The two APCR auctions produced an additional \$322 million in revenue in fiscal year 2024.

Ecology also has more definitive information about the state-owned portion of the annual allowance budget than it did a year ago, which means that the supply of allowances eligible to be offered at each auction is now more accurate than it was in October 2022. This resulted in a lower allowance supply for this forecast than was estimated in October 2022 (23.87 million vs. 29.63 million for calendar year 2023).

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<sup>1</sup> The terms "allowance price" and "settlement price" are sometimes used interchangeably. Ecology refers to settlement price, or allowance settlement price, as the *actual* price per allowance as determined by an auction. Allowance price may also refer to the settlement price, but in the context of this forecast, "allowance price" is generally used to refer to a forecasted, average, or projected price.



However, the increase in actual and forecasted allowance prices more than offsets the decrease in estimated supply, as it pertains to total revenue.

### Forecasting Methodology for Estimating Revenue Proceeds

Moving forward, Ecology will use the methodology below to provide an official (baseline) forecast of allowance auction revenue estimates twice a year, once in November and again in June. Ecology will also provide optimistic (high) and pessimistic (low) bounding scenarios with each forecast for additional context. Each forecast will estimate revenue proceeds from the allowance auctions over a four-year period. For example, the current forecasted estimates above cover fiscal years 2024-2027. This rolling four-year period will advance forward a fiscal year with each June forecast (e.g., the June 2024 forecast will cover fiscal years 2025-2028). Each baseline forecast will provide estimated revenue from the allowance auctions, which will accrue to the state treasury, and therefore be available for appropriation by the Legislature.

Generally, revenue is estimated by multiplying the allowance supply available per auction by an estimated settlement price per allowance.

### Allowance Settlement Price Calculation

The starting price for the baseline forecast, along with the optimistic and pessimistic scenarios, are as follows:

- **Pessimistic Bounding Scenario:** Based on estimated allowance auction supply multiplied by an average of the last year's auction prices in the combined California /Québec market.
  - This is generally consistent with the methodological approach used in estimating revenue in 2022.
- **Optimistic Bounding Scenario:** Based on estimated allowance auction supply multiplied by an average of the last year's auction prices in the Washington market.
- **Baseline Forecast:** Based on Washington's estimated allowance auction supply multiplied by an auction price that is the mid-point between the optimistic and pessimistic scenarios.
  - For example, the average current vintage allowance price in the combined California/Québec market used for the November 2023 forecast was \$33.03, and the average current vintage allowance price in the Washington market was \$55.85. The average of the two—**\$44.44**—sets estimated allowance price for the current baseline forecast.

For both the baseline forecast, and bounding scenarios, Ecology will calculate potential current and future vintage allowance prices, adjust for the rate of inflation, and calculate allowance supply in the same manner. If the settlement price at a quarterly auction is above the first tier of the APCR, the forecast or scenario's allowance supply will include cost containment allowances from the APCR. In addition, as to the forecast and both bounding scenarios, the floor price and APCR tier prices will increase by an inflationary factor each year. Therefore, prices will increase in all three instances year-over-year, but the two factors that will change the price between each will be:



1. The average allowance price, and
2. Whether or not the forecasted current vintage price will trigger APCR auctions that introduce additional allowances which are sold at fixed tier prices, as defined by rule.

#### Rationale for Baseline Forecast Approach

Choosing an allowance price for the baseline forecast that is the mid-point between the two market prices is a prudent approach, and does not infer precision or confidence that does not exist. The baseline forecast allowance price for both current and future vintages is the combined average of actual allowance settlement prices in the California/Québec joint market and the Washington market as of December 1, 2023.

The CCA directs Ecology to evaluate whether to link Washington’s cap-and-invest market with other jurisdictions and provides specific criteria that must be met before linking. On November 2, 2023, Ecology’s Director made a preliminary decision to pursue linking Washington’s cap-and-invest carbon reduction program to similar programs in California and the Canadian province of Québec.

Ecology will continue to work with California and Québec to determine their interest in linking, what a combined market might look like, what issues need to be resolved, and what timeline would make sense for all three parties. All of this will take over a year to complete and would need to occur before Washington could begin participating in a linked market. If no major obstacles arise, the soonest Washington could begin operating as part of a linked market would likely be near the end of 2025 or later.

We expect allowances prices in each of these markets to converge as a final decision on program linkage nears. However, whether that convergence is closer to the price in the California/Québec joint market, or the Washington market, is not currently clear. In a linked market, some of the demand from Washington that is driving prices higher will be absorbed by California/Québec’s market, which offers a supply roughly seven and half times that of Washington (in 2023, including allowances consigned by utilities, California offered 224 million current vintage allowances vs. 30 million current vintage allowances in Washington). We are confident that the linkage price will be greater than the current California price, and less than the current Washington price. However, being more specific than that requires speculation that is based on dynamic variables, which are hard to pin down with any precision.

#### Current and Future Vintage Prices

Ecology will separately calculate proceeds from the future and current vintage auctions because future vintage auctions may consistently sell at a different price.

- Current vintage proceeds in year X = (Current vintage price in year X as set forth below) \* (Current vintage supply in year X)
- Future vintage proceeds in year X = (Future vintage price in year X as set forth below) \* (Future vintage supply in year X)

#### Allowance Price Calculation

The following three tables provide the sources for the 2023 prices used in the baseline revenue forecast, as well as the optimistic and pessimistic bounding scenarios.



**Table 1: Official (Baseline) Revenue Forecast: Average of Pessimistic and Optimistic Scenarios**

Auction Name	Current Vintage Price	Future Vintage Price
CA/QE Joint Average	\$33.03	\$32.16
WA Average	\$55.85	\$31.12
<b>Average for Current Forecast:</b>	<b>\$44.44</b>	<b>\$31.64</b>

**Table 2: Pessimistic (Low) Bounding Scenario: California/Québec Price Average**

Auction Name	Current Vintage Price	Future Vintage Price
November 2023 Joint Auction #37	\$38.73	\$37.40
August 2023 Joint Auction #36	\$35.20	\$34.16
May 2023 Joint Auction #35	\$30.33	\$30.05
February 2023 Joint Auction #34	\$27.85	\$27.01
<b>Average for Current Forecast:</b>	<b>\$33.03</b>	<b>\$32.16</b>

Source: [Summary of California Auction Settlement Prices and Results \(ca.gov\)](#).

**Table 3: Optimistic (High) Bounding Scenario: Washington Price Average**

Auction Name	Current Vintage Price	Future Vintage Price
<a href="#">February Auction #1</a>	\$48.50	
<a href="#">May Auction #2</a>	\$56.01	\$31.12
<a href="#">August Auction #3</a>	\$63.03	
<b>Average for Current Forecast:</b>	<b>\$55.85</b>	<b>\$31.12</b>

Source: [Auctions and market website - Washington State Department of Ecology](#). Each auction name has an individual hyperlink to the auction summary result announcements.

**Note #1 – current vintage auctions:** As of the time of this forecast, Ecology has only held three quarterly auctions. Ecology will average four auction prices in future forecasts, but for this forecast, Ecology is averaging three current vintage auctions.

**Note #2 – future vintage auctions:** Ecology holds two future vintage auctions per year by rule ([WAC 173-446-365](#)). Because this forecast is prior to the fourth 2023 quarterly auction, when future vintage allowances will be offered for the second time, the May 2023 Auction is being used as the 2023 starting price in the baseline forecast.

### Adjusting for the Rate of Inflation

In estimating future settlement prices for the forecast and bounding scenarios (both current and future vintage allowances), Ecology used the “November 2023 S&P Global forecast for CPI-U”, provided by the Economic & Revenue Forecast Council. Using that forecast, future settlement prices are escalated every three months for quarterly current vintage auctions, and every six months for future vintage auctions.

The current vintage auction is held once per quarter, so we will average four auctions each year. The future auction is held twice per year, so we will average the most-recent two future auction prices.



- Current vintage price in year X = (avg. of past four current vintage price) \* (1 + .05 + inflation) ^ (# of yrs.)<sup>2</sup>
- Future vintage price in year X = (avg. of past two future vintage price) \* (1 + .05 + inflation) ^ (# of yrs.)<sup>3</sup>

To match the method used to calculate the price floor and ceiling in the cap-and-invest program, Ecology uses the prior year’s CPI forecast. Values in Table 4 for Calendar Year 2023 and 2024 are actual figures, while the figures in out years are forecasted using the method described above.

**Table 4: Annual Inflation Factor by Calendar Year**

Calendar Year	Annual U.S. Consumer Price Index
2023	4.2%
2024	3.2%
2025	2.7%
2026	2.0%
2027	2.5%

### Estimating Allowance Supply

The cap-and-invest program creates an ‘allowance budget’ equal to the emissions cap for each year. The CCA directs Ecology to auction allowances from the current ‘budget’ as well as from the budgets of future years. Below is a high-level summary of how we will calculate the current vintage supply and future vintage supply to be offered at auctions for each fiscal year.

- Current Vintage Supply = Total Allowance Budget – Minus:
  - APCR, Emissions Containment Reserve, and Voluntary Renewable Electricity Reserve set asides.
  - Allowance allocation to Emissions Intensive Trade Exposed (EITE) industrial market participants, electricity, and natural gas.
  - Offsets under the cap.
  - Prior sales of future vintage allowances.
- Future Vintage Supply = Total Allowance Budget from three years in the future \* 10%<sup>4</sup>.

For a more detailed breakdown of the amounts and assumptions behind the allowance budgets used in this forecast, please see *Appendix A*.

<sup>2</sup> Inflation and number of years is more complicated than represented in this formula. The Economic Forecast’s U.S. consumer price index is year specific. E.g., if the forecast was completed in 2023, the price escalation factor for 2025 would be: (1 + .05 + Economic Forecast factor for 2023) \* (1 + .05 + Economic Forecast factor for 2024). Because the price ceiling and floor are set prior to the start of a new calendar year, Ecology must use prior year inflation factors to calculate the price ceiling and price floor: Price floor year t = Price floor year t-1 \* (1 + .05 + inflation factor for t-1).

<sup>3</sup> Footnote 1 also applies to the future vintage price.

<sup>4</sup> Per rule, Chapter 173-446-365 WAC, Ecology will hold two auctions of future vintages each year, including in each auction 5% of the annual allowance budget of the vintage year 3 years in the future. In 2023, 10% of vintage 2026 allowances will be sold.



### November 2023 Baseline Forecast and Bounding Scenarios

The tables below provide revenue estimates for the baseline forecast and bounding scenarios for fiscal years 2024-2027.

**Table 5: Official (Baseline) Revenue Forecast: Midpoint of CA/QE and WA Price Average**

Fiscal Year	Forecasted Proceeds
2024	\$1,481,456,403
2025	\$1,096,783,000
2026	\$945,233,000
2027	\$827,530,000
<b>Grand Total (FY24 to FY27)</b>	<b>\$4,351,002,403</b>

**Table 6: Pessimistic (Low) Bounding Scenario: California/Québec Price Average**

Fiscal Year	Forecasted Proceeds
2024	\$1,316,441,403
2025	\$855,177,000
2026	\$740,644,000
2027	\$650,577,000
<b>Grand Total (FY24 to FY27)</b>	<b>\$3,562,839,403</b>

**Table 7: Optimistic (High) Bounding Scenario: Washington Price Average**

Fiscal Year	Forecasted Proceeds
2024	\$1,845,765,403
2025	\$1,678,679,000
2026	\$1,297,124,000
2027	\$1,038,300,000
<b>Grand Total (FY24 to FY27)</b>	<b>\$5,859,868,403</b>

One significant difference between Tables 5, 6, and 7 is that only Table 7 (optimistic scenario) includes revenue from APCR auction allowance sales. The baseline forecast and pessimistic scenario do not include settlement prices that are high enough to trigger APCR auctions. APCR auctions would still be offered once a year before each compliance period, per rule, but at allowance tier prices that would exceed quarterly auction settlement prices. The likelihood of entities purchasing APCR allowances at a price premium is assumed to be minimal, so no additional revenue from APCR auctions is assumed in the baseline forecast and pessimistic scenario.

For a more detailed breakdown of each fiscal year for the baseline forecast and bounding scenarios, see *Appendix B*.





## Appendix A – Allowance Supply

The following tables provide a breakdown of the assumptions behind the allowance totals necessary to calculate auction supply by calendar year. These tables are shown from 2023 to 2030, or the first two compliance periods of the program.

**Table 8: Total Allowance Supply**

CY	CP1 Scope Total Allowances (MT CO2e)
2023	63,288,565
2024	58,524,909
2025	53,761,254
2026	48,997,598
2027	44,459,735
2028	39,679,085
2029	34,898,434
2030	30,117,784

Source: Total program allowance budgets ([WAC 173-446-210](#)) and program applicability ([WAC 173-446-030](#)).

**Table 9: Allowance Price Containment Reserve (APCR)**

### Allowances

CY	APCR Budget (Allowances)
2023	3,164,428
2024	2,926,245
2025	2,688,063
2026	2,449,880
2027	2,222,987
2028	1,983,954
2029	1,744,922
2030	1,505,889

Source: Ecology placed 5% of the total allowance supply (Table 8) into the APCR at the beginning of the program in January 2023. These allowances are available at APCR auctions. For APCR auctions triggered by 2023 quarterly auction prices, the trigger price for the APCR is \$51.90 ([WAC 173-446-370](#)).

**APCR Assumption:** Under the optimistic scenario, the APCR trigger price is met, and APCR auctions occur during the first compliance period. Ecology assumes that all APCR allowances are introduced and sold by the end of the first compliance period. This matches the [updated APCR auction supply guidance through 2026 \(govdelivery.com\)](#).



**Table 10: Emissions Containment Reserve (ECR)**

**Allowances**

CY	Emissions Containment Reserve Allowances
2023	1,265,771
2024	1,170,498
2025	1,075,225
2026	979,952
2027	-
2028	-
2029	-
2030	-

**Source:** Ecology reserved 2% of the total allowance supply (Table 8) for the first compliance period—2023 through 2026—into the emissions containment reserve (ECR) consistent with [WAC 173-446-375](#). Ecology did not place any allowances from the second compliance period into the ECR.

**ECR Assumption:** ECR allowances are unavailable for auction unless certain conditions are met—the expansion of existing facilities, or entry of new covered participants in the program. For purposes of this forecast, Ecology conservatively assumes the conditions **will not** be met, and therefore assumes ECR auctions will not occur.

**Table 11: Voluntary Renewable Energy (VRE) Account**

**Allowances**

CY	VRE Account Allowances
2023	208,852
2024	193,132
2025	177,412
2026	161,692
2027	-
2028	-
2029	-
2030	-

**Source:** Ecology was directed by statute to create a voluntary renewable energy account (VRE). Ecology set in rule .33% of the total allowance supply (Table 8) into the VRE. The VRE is intended to retire allowances in proportion to voluntary renewable energy credits purchased over and above existing requirements.

**Rationale for excluding from auction total:** Because VRE allowances will be directly retired rather than sold at auction, the VRE is deducted from the volume of allowances estimated for auction. [WAC 173-446-230\(3\)](#).

**Table 12: Emissions Intensive, Trade Exposed (EITE)**

**Allowance Allocation**

CY	EITE Allowance Allocation
2023	9,193,458
2024	9,193,458
2025	9,193,458
2026	9,193,458
2027	8,917,654

**Source:** Initial EITE allocation for 2023 EITE production ([Allowance Allocation to Emissions-Intensive, Trade-Exposed Industries for the First Compliance Period](#)).



**Assumptions:** EITE industrial allowance allocation is intended to protect against emissions leakage, or the relocation of Washington State businesses to other locations without carbon regulations. Washington State allocates allowances to EITEs primarily through an allocation that scales with production, i.e., if production goes up then allocation goes up, and if production goes down then allocation declines as well. Table 12’s EITE allocation total assumes that EITE industrial production will remain constant for the first compliance period (first five years of the program). Starting with the second compliance period, in 2027, EITE allocation is reduced by 3% consistent with [WAC 173-446-220\(2\)\(a\)](#).

**Table 13: Electric Utility Allowance Allocation**

CY	Electric Utility Allowance Allocation
2023	17,526,297
2024	16,395,498
2025	15,532,474
2026	11,054,243
2027	11,054,243

**Source:** [Allowance Allocation to Electric Utilities for the First Compliance Period \(Revised\)](#).

**Assumption:** Electric Utilities are allocated allowances consistent with [WAC 173-446-230](#). The allowance allocation in Table 9 equals actual allowance allocation for 2023, and forecasted allowance allocation for 2024 through 2026. Electric utility allocation is phased out over time as the Clean Energy Transformation Act decarbonizes the electric sector. Because there are no forecasts for 2027 allocation at this time, Ecology conservatively set 2027 allocation equal to 2026 allocation.

**Table 14: Natural Gas Allowance Allocation**

CY	Natural Gas Utility Allowance Allocation
2023	8,059,631
2024	7,452,993
2025	6,846,354
2026	6,239,714
2027	5,633,073

**Source:** [Allowance Allocation to Natural Gas Utilities](#).

**Assumption:** The Climate Commitment Act requires that the Department of Ecology provide allowances at no cost to eligible natural gas utilities. This requirement is designed to help protect consumers from potential rate increases that could result from utilities’ participation in the cap-and-invest program. Natural gas allowance allocation is calculated using a 2015-2019 ‘baseline’ of natural gas emissions. The utilities were allocated 93% of the baseline in 2023 (7% less than the full baseline), with allocation declining by an additional 7% each year thereafter. [WAC 173-446-240](#).

**Table 14A: Natural Gas held for Compliance**

CY	Natural Gas Held for Compliance
2023	2,820,871
2024	2,235,898
2025	1,711,589
2026	1,247,943
2027	844,961

**Assumption:** Natural Gas utilities have required minimum consignment for each year, starting with 65% of allocation (Table 14) in 2023, 70% in 2024, 75% in 2025 and so on. They may choose at any time to consign up to 100 of allowances to auction (WAC 173-446-300(2)(b)(ii)(A)). The total value held for compliance is assumed to be Allocation minus required consignment (Table 14 minus Table 14B).



**Table 14B: Natural Gas Consigned to Auction**

CY	Natural Gas Consigned to Auction
2023	5,238,760
2024	5,217,095
2025	5,134,765
2026	4,991,771
2027	4,788,112

**Assumption:** Natural Gas utilities have required minimum consignment for each year, starting with 65% of allocation (Table 14) in 2023, 70% in 2024, 75% in 2025, and so on. They may choose at any time to consign up to 100 of allowances to auction (WAC 173-446-300(2)(b)(ii)(A)).

**Table 15: Offset Usage**

CY	Offset Usage
2023	-
2024	-
2025	1,052,826
2026	947,170
2027	833,481

**Assumption:** Offsets are important to calculate auction allowance supply because offsets are under the cap, i.e., offsets used to meet compliance obligations.

Because offset usage is under the cap, the allowance budget is reduced by the number of offsets used in each compliance event for two years’ prior emissions obligation. E.g., the forecasts assume that 1,052,826 offsets will be used to meet the 2023 emissions compliance event held in November of 2024. The 1,052,826 offsets are subtracted from the 2025 allowance budget that would otherwise go to auction (2025 allowances will be retired after the quantity of offsets becomes known during the November 2024 compliance event).

The offset totals are 3% of the emissions budget that represents sectors assumed to want to purchase offsets. This is based on the total program allowance budget (Table 8), reduced by the following allowance accounts and allocation totals that represent sectors and emissions that do not have a compliance obligation:

- The Emissions Containment Reserve (Table 10) is conservatively assumed to be withheld because entities do not trigger ECR allowance allocation or ECR auctions. Under this assumption, ECR allowances do not represent emissions obligations.
- The VRE account (Table 11) is assumed to be used directly for compliance and does not represent emissions obligations within the program.
- The industrial EITE sector (Table 12) is assumed to receive allowance allocation equal to emissions obligation for the first four years of the program, and does not use offsets to meet its compliance obligations.
- The electric sector (Table 13) is assumed to receive allowance allocation equal to its compliance obligation and does not use offsets to meet its compliance obligations.

**Note:** Ecology anticipates that offset usage will be substantively updated in future forecasts as offset projects enter the cap-and-invest program, and the first compliance event occurs in November 2024.



**Table 15A: Total Current Vintage after Non-Consigned Free Allowances, Reserves, & Direct Allocation**

CY	Total Current Vintage after Non-Consigned Free Allowances, Reserves, and Direct Allocation
2023	29,108,888
2024	26,410,180
2025	23,383,033
2026	19,010,670
2027	16,973,916

**Note:** Table 15A represents the supply of allowances available for auction starting with total annual budgets defined in rule and then subtracting allowances deposited into reserve accounts, allowances freely allocated to EITs and Electricity Utilities, and held for compliance by natural gas utilities. The values in Table 15 are subtracted from Table 15A to determine total allowances available for current vintage auctions each year (Table 15B).

**Table 15B: Allowances to Current Vintage Auction, Net of Offsets Under Cap**

CY	Allowances to Current Vintage Auction, Net of Offsets Under Cap
2023	29,108,888
2024	26,410,180
2025	22,330,207
2026	18,063,500
2027	16,140,435

**Note:** Table 15B is the difference between Table 15A and Table 15, representing the total allowances available for current vintage auction each year, after accounting for the anticipated use of offsets, which are "under the cap".

**Table 16: Future Vintage Auctioned Allowances**

CY	State-Owned Future Vintage Allowances
2023	4,899,760
2024	4,445,974
2025	3,967,909
2026	3,489,843
2027	3,011,778

**Source:** Ecology auctions 10% of the total allowance budget (Table 8) each year per [WAC 173-446-365](#). Future vintage allowances are taken from the allowance budget three years in the future. E.g., 4,899,760 allowances are 10% of the 2026 budget (48,997,598 allowances) not 10% of the 2023 budget (63,288,565 allowances).

**Table 17: Current Vintage Auctioned Allowances**

CY	State-Owned Current Vintage Allowances
2023	23,870,128
2024	21,193,085
2025	17,195,442
2026	13,071,729
2027	11,352,323

**Assumption:** These allowance totals are equal to the total allowance budget (Table 8) reduced by all the other allowance totals in Tables 9 through 15B. Starting with calendar year 2026, the allowance totals are further reduced by future vintage auctions of allowances (Table 16) from the 2026 allowance budget that occurred in calendar year 2023. E.g., as noted in the assumptions for Table 16, the 2026 current vintage auction total is reduced by 4,899,760 allowances.



## Appendix B – Detailed Breakdown by Fiscal Year of the Baseline Forecast and Bounding Scenarios

The following tables are an event-by-event breakdown of each fiscal year for the baseline forecast and each of the bounding scenarios. The dates listed for each year are subject to change, and only made official each December when Ecology releases a list of anticipated auction dates for the following calendar year events. While current auctions will be held quarterly, specific dates are included to provide some indication of when in the fiscal year those events occur and when funds would be received by the state (roughly 4 weeks post-auction).

The first column contains abbreviations for individual auction event types. These are:

- A #\_: This is an abbreviation for a regularly scheduled quarterly auction. If the auction has allowances in the future vintage column, it is an auction with both current and future vintage supply.
- APCR: These are Allowance Price Containment Reserve (APCR) Auctions.
- ECR: Emissions containment reserve auctions. Ecology assumes that no ECR auctions will be held for purposes of this forecast. If this changes in future forecasts, ECR allowance totals would be included in the ‘Current Vintage’ column.

### Baseline Forecast: Average of Pessimistic and Optimistic Scenarios

#### 2024 Detailed View (Baseline Forecast)

Event Name	Fiscal year 2024	Current Vintage Allowances	Future Vintage Allowances	APCR Allowances	Current / APCR Tier 1 Price	Future / APCR Tier 2 Price	Auction Proceeds
APCR #1	8/9/2023			1,054,000	\$51.90	\$66.68	\$62,491,660
A #3	8/30/2023	5,657,651			\$63.03	-	\$356,601,743
APCR 2	11/8/2023			5,000,000	\$51.90	\$66.68	\$259,500,000
A #4	12/6/2023	3,442,255	2,449,760		\$45.43	\$31.64	\$233,892,000
APCR 3	2/14/2024			<i>APCR not triggered</i>	\$51.90	\$66.68	-
A #5	2/28/2024	5,298,271			\$46.33	-	\$245,469,000
APCR 4	5/8/2024				\$56.16	\$72.15	-
A #6	5/29/2024	5,298,271	2,222,987		\$47.25	\$32.91	\$323,502,000
<b>Total</b>		<b>19,696,448</b>	<b>4,672,747</b>	<b>6,054,000</b>			<b>\$1,481,456,403</b>



Baseline Forecast: Average of Pessimistic and Optimistic Scenarios

**2025 Detailed View (Baseline Forecast)**

Event Name	Fiscal year 2025	Current Vintage Allowances	Future Vintage Allowances	APCR Allowances	Current / APCR Tier 1 Price	Future / APCR Tier 2 Price	Auction Proceeds
APCR 5	8/7/2024				\$56.16	\$72.15	-
A #7	8/28/2024	5,298,271			\$48.19	-	\$255,324,000
APCR 6	10/2/2024				\$56.16	\$72.15	-
ECR	September				\$48.81	-	-
APCR 7	11/6/2024				\$56.16	\$72.15	-
A #8	12/4/2024	5,298,272	2,222,987		\$49.15	\$34.23	\$336,503,000
APCR 8	2/19/2025				\$56.16	\$72.15	-
A #9	3/5/2025	4,298,860			\$50.07	-	\$215,244,000
APCR 9	5/21/2025				\$60.46	\$77.68	-
A #10	6/4/2025	4,298,861	1,983,954		\$51.00	\$35.52	\$289,712,000
<b>Total</b>		<b>19,194,264</b>	<b>4,206,941</b>	-			<b>\$1,096,783,000</b>

Baseline Forecast: Average of Pessimistic and Optimistic Scenarios

**2026 Detailed View (Baseline Forecast)**

Event Name	Fiscal year 2026	Current Vintage Allowances	Future Vintage Allowances	APCR Allowances	Current / APCR Tier 1 Price	Future / APCR Tier 2 Price	Auction Proceeds
APCR 10	8/6/2025				\$60.46	\$77.68	-
A #11	9/3/2025	4,298,860			\$51.95	-	\$223,326,000
ECR	September				\$51.95	-	-
APCR 11	10/1/2025				\$60.46	\$77.68	-
APCR 12	11/19/2025				\$60.46	\$77.68	-
A #12	12/3/2025	4,298,861	1,983,955		\$52.92	\$36.86	\$300,624,000
APCR 13	2/18/2026				\$60.46	\$83.10	-
A #13	3/4/2026	3,267,932			\$53.82	-	\$175,880,000
APCR 14	5/20/2026				\$64.68	\$83.10	-
A #14	6/3/2026	3,267,932	1,744,921		\$54.74	\$38.12	\$245,403,000
<b>Total</b>		<b>15,133,585</b>	<b>3,728,876</b>	-			<b>\$945,233,000</b>



Baseline Forecast: Average of Pessimistic and Optimistic Scenarios

**2027 Detailed View (Baseline Forecast)**

Event Name	Fiscal year 2027	Current Vintage Allowances	Future Vintage Allowances	APCR Allowances	Current / APCR Tier 1 Price	Future / APCR Tier 2 Price	Auction Proceeds
APCR 15	8/19/2026				\$64.68	\$83.10	-
A #15	9/2/2026	3,267,932			\$55.67	-	\$181,926,000
ECR	September				\$55.67	-	-
APCR 16	9/30/2026				\$64.68	\$83.10	-
APCR 17	11/18/2026				\$64.68	\$83.10	-
A #16	12/2/2026	3,267,933	1,744,922		\$56.62	\$39.43	\$253,833,000
APCR 18	2/17/2027				\$64.68	\$83.10	-
A #17	3/3/2027	2,838,080			\$57.65	-	\$163,615,000
APCR 19	5/19/2027				\$69.53	\$89.33	-
A #18	5/26/2027	2,838,081	1,505,889		\$58.70	\$40.88	\$228,156,000
<b>Total</b>		<b>12,212,026</b>	<b>3,250,811</b>				<b>\$827,530,000</b>





Pessimistic Bounding Scenario: California / Québec Price

**2024 Detailed View (Pessimistic Scenario)**

Event Name	Fiscal year 2024	Current Vintage Allowances	Future Vintage Allowances	APCR Allowances	Current / APCR Tier 1 Price	Future / APCR Tier 2 Price	Auction Proceeds	
APCR #1	8/9/2023			1,054,000	\$51.90	\$66.68	\$62,491,660	
A #3	8/30/2023	5,657,651			\$63.03	-	\$356,601,743	
APCR 2	11/8/2023			5,000,000	\$51.90	\$66.68	\$259,500,000	
A #4	12/6/2023	3,442,255	2,449,760		\$33.76	\$32.16	\$194,995,000	
APCR 3	2/14/2024			<i>APCR not triggered</i>		\$51.90	\$66.68	-
A #5	2/28/2024	5,298,271			\$34.43	-	\$182,419,000	
APCR 4	5/8/2024				\$56.16	\$72.15	-	
A #6	5/29/2024	5,298,271	2,222,987		\$35.12	\$33.45	\$260,434,000	
<b>Total</b>		<b>19,696,448</b>	<b>4,672,747</b>	<b>6,054,000</b>			<b>\$1,316,441,403</b>	

Pessimistic Bounding Scenario: California / Québec Price

**2025 Detailed View (Pessimistic Scenario)**

Event Name	Fiscal year 2025	Current Vintage Allowances	Future Vintage Allowances	APCR Allowances	Current / APCR Tier 1 Price	Future / APCR Tier 2 Price	Auction Proceeds
APCR 5	8/7/2024				\$56.16	\$72.15	-
A #7	8/28/2024	5,298,271			\$35.82	-	\$189,784,000
APCR 6	10/2/2024				\$56.16	\$72.15	-
ECR	September				\$36.28	-	-
APCR 7	11/6/2024				\$56.16	\$72.15	-
A #8	12/4/2024	5,298,272	2,222,987		\$36.53	\$34.79	\$270,884,000
APCR 8	2/19/2025				\$56.16	\$72.15	-
A #9	3/5/2025	4,298,860			\$37.21	-	\$159,961,000
APCR 9	5/21/2025				\$60.46	\$77.68	-
A #10	6/4/2025	4,298,861	1,983,954		\$37.90	\$36.10	\$234,548,000
<b>Total</b>		<b>19,194,264</b>	<b>4,206,941</b>	-			<b>\$855,177,000</b>



Pessimistic Bounding Scenario: California / Québec Price

**2026 Detailed View (Pessimistic Scenario)**

Event Name	Fiscal year 2026	Current Vintage Allowances	Future Vintage Allowances	APCR Allowances	Current / APCR Tier 1 Price	Future / APCR Tier 2 Price	Auction Proceeds
APCR 10	8/6/2025				\$60.46	\$77.68	-
A #11	9/3/2025	4,298,860			\$38.61	-	\$165,979,000
ECR	September				\$38.61	-	-
APCR 11	10/1/2025				\$60.46	\$77.68	-
APCR 12	11/19/2025				\$60.46	\$77.68	-
A #12	12/3/2025	4,298,861	1,983,955		\$39.33	\$37.46	\$243,393,000
APCR 13	2/18/2026				\$60.46	\$83.10	-
A #13	3/4/2026	3,267,932			\$40.00	-	\$130,717,000
APCR 14	5/20/2026				\$64.68	\$83.10	-
A #14	6/3/2026	3,267,932	1,744,921		\$40.68	\$38.75	\$200,555,000
<b>Total</b>		<b>15,133,585</b>	<b>3,728,876</b>	<b>-</b>			<b>\$740,644,000</b>

Pessimistic Bounding Scenario: California / Québec Price

**2027 Detailed View (Pessimistic Scenario)**

Event Name	Fiscal year 2027	Current Vintage Allowances	Future Vintage Allowances	APCR Allowances	Current / APCR Tier 1 Price	Future / APCR Tier 2 Price	Auction Proceeds
APCR 15	8/19/2026				\$64.68	\$83.10	-
A #15	9/2/2026	3,267,932			\$41.37	-	\$135,194,000
ECR	September				\$41.37	-	-
APCR 16	9/30/2026				\$64.68	\$83.10	-
APCR 17	11/18/2026				\$64.68	\$83.10	-
A #16	12/2/2026	3,267,933	1,744,922		\$42.07	\$40.08	\$207,418,000
APCR 18	2/17/2027				\$64.68	\$83.10	-
A #17	3/3/2027	2,838,080			\$42.84	-	\$121,583,000
APCR 19	5/19/2027				\$69.53	\$89.33	-
A #18	5/26/2027	2,838,081	1,505,889		\$43.62	\$41.56	\$186,382,000
<b>Total</b>		<b>12,212,026</b>	<b>3,250,811</b>	<b>-</b>			<b>\$650,577,000</b>



Optimistic Scenario: Average of Washington’s Past Year’s Prices

**2024 Detailed View (Optimistic Scenario)**

Event Name	Fiscal year 2024	Current Vintage Allowances	Future Vintage Allowances	APCR Allowances	Current / APCR Tier 1 Price	Future / APCR Tier 2 Price	Auction Proceeds
APCR #1	8/9/2023			1,054,000	\$51.90	\$66.68	\$62,491,660
A #3	8/30/2023	5,657,651			\$63.03	-	\$356,601,743
APCR 2	11/8/2023			5,000,000	\$51.90	\$66.68	\$259,500,000
A #4	12/6/2023	3,442,255	2,449,760		\$57.09	\$31.12	\$272,755,000
APCR 3	2/14/2024			1,946,000	\$51.90	\$66.68	\$100,997,000
A #5	2/28/2024	5,298,271			\$58.23	-	\$308,518,000
APCR 4	5/8/2024			1,750,000	\$56.16	\$72.15	\$98,280,000
A #6	5/29/2024	5,298,271	2,222,987		\$59.39	\$32.37	\$386,622,000
<b>Total</b>		<b>19,696,448</b>	<b>4,672,747</b>	<b>9,750,000</b>			<b>\$1,845,765,403</b>

Optimistic Scenario: Average of Washington’s Past Year’s Prices

**2025 Detailed View (Optimistic Scenario)**

Event Name	Fiscal year 2025	Current Vintage Allowances	Future Vintage Allowances	APCR Allowances	Current / APCR Tier 1 Price	Future / APCR Tier 2 Price	Auction Proceeds
APCR 5	8/7/2024			1,750,000	\$56.16	\$72.15	\$98,280,000
A #7	8/28/2024	5,298,271			\$60.57	-	\$320,916,000
APCR 6	10/2/2024				\$56.16	\$72.15	-
ECR	September				\$61.35	\$0.00	-
APCR 7	11/6/2024			1,750,000	\$56.16	\$72.15	\$98,280,000
A #8	12/4/2024	5,298,272	2,222,987		\$61.78	\$33.67	\$402,175,000
APCR 8	2/19/2025			1,750,000	\$56.16	\$72.15	\$98,280,000
A #9	3/5/2025	4,298,860			\$62.93	\$0.00	\$270,527,000
APCR 9	5/21/2025			750,000	\$60.46	\$77.68	\$45,345,000
A #10	6/4/2025	4,298,861	1,983,954		\$64.10	\$34.94	\$344,876,000
<b>Total</b>		<b>19,194,264</b>	<b>4,206,941</b>	<b>6,000,000</b>			<b>\$1,678,679,000</b>



Optimistic Scenario: Average of Washington’s Past Year’s Prices

**2026 Detailed View (Optimistic Scenario)**

Event Name	Fiscal year 2026	Current Vintage Allowances	Future Vintage Allowances	APCR Allowances	Current / APCR Tier 1 Price	Future / APCR Tier 2 Price	Auction Proceeds
APCR 10	8/6/2025			750,000	\$60.46	\$77.68	\$45,345,000
A #11	9/3/2025	4,298,860			\$65.29	-	\$280,673,000
ECR	September				\$65.29	\$0.00	-
APCR 11	10/1/2025				\$60.46	\$77.68	-
APCR 12	11/19/2025			750,000	\$60.46	\$77.68	\$45,345,000
A #12	12/3/2025	4,298,861	1,983,955		\$66.51	\$36.25	\$357,836,000
APCR 13	2/18/2026			750,000	\$60.46	\$83.10	\$45,345,000
A #13	3/4/2026	3,267,932			\$67.64	-	\$221,043,000
APCR 14	5/20/2026			175,000	\$64.68	\$83.10	\$11,319,000
A #14	6/3/2026	3,267,932	1,744,921		\$68.79	\$37.49	\$290,218,000
<b>Total</b>		<b>15,133,585</b>	<b>3,728,876</b>	<b>2,425,000</b>			<b>\$1,297,124,000</b>

Optimistic Scenario: Average of Washington’s Past Year’s Prices

**2027 Detailed View (Optimistic Scenario)**

Event Name	Fiscal year 2027	Current Vintage Allowances	Future Vintage Allowances	APCR Allowances	Current / APCR Tier 1 Price	Future / APCR Tier 2 Price	Auction Proceeds
APCR 15	8/19/2026			175,000	\$64.68	\$83.10	\$11,319,000
A #15	9/2/2026	3,267,932			\$69.96	-	\$228,625,000
ECR	September				\$69.96	-	-
APCR 16	9/30/2026				\$64.68	\$83.10	-
APCR 17	11/18/2026			175,000	\$64.68	\$83.10	\$11,319,000
A #16	12/2/2026	3,267,933	1,744,922		\$71.15	\$38.78	\$300,182,000
APCR 18	2/17/2027			175,000	\$64.68	\$83.10	\$11,319,000
A #17	3/3/2027	2,838,080			\$72.45	\$0.00	\$205,619,000
APCR 19	5/19/2027				\$69.53	\$89.33	-
A #18	5/26/2027	2,838,081	1,505,889		\$73.77	\$40.21	\$269,917,000
<b>Total</b>		<b>12,212,026</b>	<b>3,250,811</b>	<b>525,000</b>			<b>\$1,038,300,000</b>