USA - California Cap-and-Trade Program

General Information

Summary

**Status:** ETS in force

**Jurisdictions:** California

Initiated in 2012, the California Cap-and-Trade Program began its compliance obligation in January 2013. California has been part of the Western Climate Initiative since 2007 and formally linked its system with Québec’s in January 2014 and with Ontario’s in January 2018 (until the latter’s termination in mid-2018).

The California program covers sources responsible for approximately 80% of the state’s GHG emissions. In 2017, legislation (Assembly Bill [AB] 398) was passed to provide direction on the cap-and-trade system post-2020 to help achieve California’s climate goals.

Year in Review

CARB did not commence any regulatory development on the California Cap-and-Trade Program in 2019. Amendments to the program pursuant to AB 398 went into effect in April 2019, though some (e.g., price ceiling, offsets-related limits) will not take effect until 2021.

CARB also commenced the solicitation process for convening the Compliance Offsets Protocol Task Force called for by AB 398. This task force is charged with providing guidance to CARB in establishing new offset protocols for the cap-and-trade program with direct environmental benefits in the state while prioritizing disadvantaged communities, Native American or tribal lands, and rural and agricultural regions. In addition, in July 2019, the California legislature passed legislation to require the task force to consider new offset protocols for enhanced management or conservation of agricultural and natural lands as well as the enhancement and restoration of wetlands.

Overall GHG emissions (excluding LULUCF)

**Emissions:** 424 MtCO$_2$e (2017)

<table>
<thead>
<tr>
<th>Sector Name</th>
<th>MtCO$_2$e</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity Generation (In State)</td>
<td>38.6</td>
</tr>
<tr>
<td>Electricity Generation (Imports)</td>
<td>24</td>
</tr>
<tr>
<td>Transportation</td>
<td>174.3</td>
</tr>
<tr>
<td>Industrial</td>
<td>101.1</td>
</tr>
<tr>
<td>Commercial</td>
<td>23.3</td>
</tr>
<tr>
<td>Residential</td>
<td>30.4</td>
</tr>
<tr>
<td>Agriculture &amp; Forestry</td>
<td>32.4</td>
</tr>
</tbody>
</table>

Overall GHG reduction target

- **By 2020:** Return to 1990 GHG levels
- **By 2030:** 40% reduction from 1990 GHG levels
- **By 2045:** Achieve carbon neutrality

Carbon Price

**Current Allowance Price (per t/CO$_2$e):** USD 16.84 (average auction price in 2019; updated prices available [here](#))
ETS Size

<table>
<thead>
<tr>
<th>Emissions covered by the ETS</th>
<th>0.80</th>
</tr>
</thead>
<tbody>
<tr>
<td>GHG covered</td>
<td>CO2, CH4, N2O, SF6, HFCs, PFCs, NF3, and other fluorinated GHGs.</td>
</tr>
</tbody>
</table>

Sectors covered and thresholds

**FIRST COMPLIANCE PERIOD (2013-2014):** Covered sectors include those that have one or more of the following processes or operations: large industrial facilities (including cement, glass, hydrogen, iron and steel, lead, lime manufacturing, nitric acid, petroleum and natural gas systems, petroleum refining, and pulp and paper manufacturing, including cogeneration facilities co-owned/operated at any of these facilities); electricity generation; electricity imports; other stationary combustion; and CO2 suppliers.

**SINCE THE SECOND COMPLIANCE PERIOD (STARTING 2015):** In addition to the sectors listed above, suppliers of natural gas, suppliers of reformulated blendstock for oxygenate blending (i.e., gasoline blendstock) and distillate fuel oil (i.e., diesel fuel), suppliers of liquid petroleum gas in California, and suppliers of liquefied natural gas.

**INCLUSION THRESHOLDS:** Facilities ≥25,000 tCO2e/data year.

Point of regulation

Mixed

Number of liable entities

~500 entities (2015-2017)

No information available yet.

Cap

The system started in 2013 with a cap of 162.8 Mt CO2e. With the program expanding to include fuel distribution, the cap rose to 394.5 Mt CO2e in 2015.

From 2015 through 2020, the cap declines by about 12 Mt CO2e each year, reaching 334.2 Mt CO2e in 2020. The cap decline factor averaged 3.1% per year in the second compliance period (2015-2017) and 3.4% in the third compliance period (2018-2020). During the period 2021-2030, the cap declines by about 13.4 Mt CO2e each year, reaching 200.5 Mt CO2e in 2030. The cap decline factor averages 5.0% during this period. The ‘Cap-and-Trade Regulation’ sets a formula for declining caps through 2050.

Phases & Allocation

Trading period

The California Cap-and-Trade Program is structured around compliance periods (see “Compliance” below). A cap trajectory has been set through 2030, with a formula for the declining cap through 2050 (see “Cap” above).

Allowances are both allocated and auctioned, with each allowance associated with a specific calendar year vintage. Some allowances with a vintage three years in the future are offered at each auction and may be traded, but these future vintage allowances may not be used for compliance until the compliance date for the vintage year.

Allocation

Allowances are distributed via auction and/or free allocation.

**Free Allocation:** Industrial facilities: Facilities receive free allowances for transition assistance and to minimize carbon leakage. For nearly all industrial facilities, the amount is determined by specific benchmarks, production amounts, a cap adjustment factor, and an assistance factor based on assessment of leakage risk.

Leakage risk is divided into tiers of “low,” “medium,” and “high” based on levels of emissions intensity and trade exposure. The ‘Cap-and-Trade Regulation’ as adopted in 2011 set assistance factors of 100% for the first compliance period regardless of leakage risk. For facilities with medium leakage risk, the original regulation included an assistance factor decline to 75% for the second compliance period and to 50% for the third compliance period. For facilities with low leakage risk, it included an assistance factor...
decline to 50% for the second compliance period and to 30% for the third compliance period. Amendments in 2013 delayed these assistance factor declines by one compliance period, and AB 398, adopted in 2017, set all assistance factors to 100% for 2021-2030, citing continued vulnerability to carbon leakage. In adjusting these factors pursuant to AB 398, CARB also set all assistance factors in the same manner for the 2018-2020 period as well.

There is no cap on the total amount of industrial allocation.

Free allocation is also provided for transition assistance to public wholesale water entities, legacy contract generators, universities, public service facilities, and, beginning in 2018, waste-to-energy facilities.

Consignment: Electrical distribution utilities and natural gas suppliers: Utilities receive allowances on behalf of their ratepayers. All natural gas and electrical utilities must use the allowance value for ratepayer benefit and for emissions reductions.

Auctioning: In 2019, about 65% of vintage 2019 allowances were available through auction, including both allowances owned by CARB (about 40%) and allowances consigned to auction by utilities (about 25%). The revenue from consignment allowances is mandated to benefit ratepayers or contribute to emissions reductions. The remainder of allowances was allocated for free.

Flexibility

Banking and borrowing

Banking is allowed, but the emitter is subject to a general holding limit.

Borrowing of future vintage allowances is not allowed.

Unsold allowances in past auctions are removed from circulation and will gradually be released for sale at auction after two consecutive auctions are held in which the sale price is higher than the minimum price. However, if any of these allowances remain unsold after 24 months (e.g., after eight auctions), they will be placed into CARB’s reserve tiers and price ceiling. CARB has transferred to the reserve over 37 million allowances originally designated for auction that remained unsold in the Auction Holding Account for more than 24 months.

Offsets and credits

**QUANTITATIVE LIMIT:** Up to 8% of each entity’s compliance obligation until 2020 emissions.

**QUALITATIVE LIMIT:** Currently, six domestic offset types are accepted as compliance units originating from projects carried out according to six “protocols”:

1. US forest projects;
2. Urban forest projects;
3. Livestock projects (methane management);
4. Ozone depleting substances projects;
5. Mine methane capture (MMC) projects; and
6. Rice cultivation projects.

**FROM 2021:** AB 398 lays out two significant changes to the offset program from 2021 onwards:

1. The share of offsets that can be used to fulfill the compliance obligation will decrease to 4% between 2021-2025 and will remain at 4% thereafter.
2. No more than one half of the offsets usage limit post-2020 may come from offsets that do not provide direct environmental benefits (DEBS) in the State of California. The DEBS requirement is operationalized through a performance standard, which defines DEBS eligibility by offset activity type. Offset projects implemented outside of California may still result in DEBS based on scientific evidence and project data provided. For example, afforestation projects outside California could also provide benefits within California by improving the quality of waters flowing through the state. Recent regulatory amendments specify the exact criteria that will be used for determining DEBS.

Offsets credits issued by jurisdictions linked with California are eligible to be used to satisfy a California entity’s compliance obligation subject to the quantitative usage limit. To ensure environmental integrity, California’s offset program has incorporated the principle of buyer liability. The state can invalidate an offset credit that is later determined not to meet the requirements of an offset protocol, and the entity that surrendered that offset...
credit for compliance must substitute a valid compliance instrument for the invalidated offset credit.

**Market Stability Provisions**

**Auction Reserve Price:** USD 16.68 per allowance in 2020. The auction reserve price, the minimum price at which allowances are available at auction, increases annually by 5% plus inflation, as measured by the Consumer Price Index.

**Reserve:** An Allowance Price Containment Reserve allocates allowances from various budgets (1% from budget years 2013-2014; 4% from budget years 2015-2017; and 7% from budget years 2018-2020). AB 398 required two-thirds of the reserve allowances that remained on 31 December 2017 to be used to populate the two price containment points starting in 2021.

The reserve sale administrator can sell accumulated allowances on a regular basis in three equal price tiers. For 2020, these prices are USD 62.29, USD 70.09, and USD 77.86. Tier prices increase by 5% plus inflation (as measured by the Consumer Price Index).

**Price Containment Points:** AB 398 reforms the price containment provisions starting in 2021: two price containment points triggered at increasing price levels will be filled with remaining APCR allowances and with allowances from within the annual budgets from 2021-2030.

A third price level will be a price ceiling. At the price ceiling, a covered entity can purchase allowances (or if no allowances remain, price ceiling units) up to the amount of its current unfulfilled emissions obligation. The revenues from these sales would be used to purchase real, permanent, quantifiable, verifiable, enforceable, and additional emissions reductions on at least a metric tonne for metric tonne basis.

In 2021, the two cost containment reserve tiers and the price ceiling will be set at USD 41.40, USD 53.20, and USD 65.00, respectively.

**Compliance**

**Compliance Period**

Except for the year following the last year of a compliance period, compliance instruments equal to 30% of the last year’s verified emissions must be surrendered annually, by 1 November (or the first business day thereafter). Compliance instruments equal to all remaining emissions must be surrendered by 1 November (or the first business day thereafter) of the year following the last year of a compliance period.

**FIRST COMPLIANCE PERIOD:** 2013-2014

**SUBSEQUENT COMPLIANCE PERIODS:** Three calendar years (2015-2017, 2018-2020, and so forth)

**Monitoring, Reporting, Verification (MRV)**

**REPORTING FREQUENCY:** Annually

**VERIFICATION:** Emission data reports and their underlying data require independent third-party verification annually for all entities covered by the program.

**OTHER:** Reporting is required for most operators at or above 10,000 tCO2e per year. Operators must implement internal audits, quality assurance, and control systems for the reporting program and the data reported.

**Enforcement**

A covered entity that fails to surrender sufficient compliance instruments to cover its verified GHG emissions on either an annual surrender deadline or at the end of a compliance period must surrender each missing compliance instrument and will have to surrender three additional compliance instruments for each compliance instrument it failed to surrender.

Failure to surrender any additional compliance instruments as described above would subject the entity to substantial financial penalties for its noncompliance.

Penalties may be assessed pursuant to ‘California Health and Safety Code’ Section 38580 (e.g., monetary fines and/or imprisonment).
There are separate and substantial penalties for mis- or non-reporting under the ‘Regulation for the Mandatory Reporting of Greenhouse Gas Emissions.’

**Linking**

**Links with other Systems**

California linked with Québec’s ETS on 1 January 2014. The two extended their joint market by linking with Ontario on 1 January 2018 until the termination of Ontario’s system in mid-2018.

**Other Information**

**Institutions involved**

California Air Resources Board (CARB)

**Evaluation / ETS review**

Pursuant to requirements in existing legislation (AB 32, AB 197, and AB 398), CARB must update the California Climate Change Scoping Plan at least every five years and must provide annual reports to various committees of the legislature and the board. These updates and reports provide opportunities for future review of the cap-and-trade program’s progress in meeting the 2030 target.

**Revenue**

Since beginning of program: USD 12.5 billion

Collected in 2018: USD 3.065 billion

**Revenue From Auction of California-owned Allowances:**

Most of California’s revenue goes to the Greenhouse Gas Reduction Fund, of which at least 35% must benefit disadvantaged and low-income communities. The fund also invests the proceeds in projects that reduce GHG emissions.

**Revenue From Auction of Utility-owned Allowances:** Electric and natural gas utilities are allocated allowances, a portion of which must be consigned to auction. Auction proceeds must be used for ratepayer benefit and for emissions reductions.

**Implementing Legislation**

Global Warming Solutions Act of 2006 (AB 32)

AB 398

Current regulation can be found on the CARB website
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