JOINT LEGISLATIVE COMMITTEE ON CLIMATE CHANGE POLICIES

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California's Cap-and-Trade Program and Affordability:
Emerging Challenges and Potential Solutions

- *California's cap-and-trade program is understood to be the most cost-effective way for the state to reduce greenhouse gas emissions.*
- *The costs incurred by large emitters to comply with cap-and-trade are assumed to be passed on to consumers through higher prices.*
- *The cap-and-trade program includes rebate mechanisms distributed through utility bills, known as California Climate Credits, to mitigate the pass-through costs on electricity and natural gas.*
- *The cap-and-trade allowance market is structured with price control tiers and a price ceiling to stabilize and limit the costs passed through to consumers.*
- *The California Climate Credits, the allowance market price controls, and the Greenhouse Gas Reduction Fund might all be leveraged to maximize the affordability benefits of California's cap-and-trade program.*

What is cap-and-trade?

California is a national and global leader in environmental and climate policy. Following the passage of AB 32 (Nuñez & Pavley, Chapter 488, Statutes of 2006), California has adopted a series of increasingly ambitious greenhouse gas (GHG) emissions reduction targets. AB 1279 (Muratsuchi, Chapter 337, Statutes of 2022), the most recent legislation to update these targets, committed to reaching statewide carbon neutrality and an 85 percent emissions reduction from 1990 levels by no later than 2045.

California's cap-and-trade program is one of a suite of programs implemented following the passage of AB 32 that are designed to reduce greenhouse gas emissions in the state. The cap-and-trade program covers approximately 350 facilities (including refineries, electricity generators, and manufacturing facilities),[1] each of which emit more than 25,000 metric tons or more of CO_2e[2] per year and in total comprise more than 75 percent of California's GHG emissions.[3] The California Air Resources Board (CARB) establishes an annual cap for the total emissions permitted across all entities covered by the cap-and-trade program and issues a number of allowances proportional to the cap, with each allowance representing one metric ton of CO_2e.[4] Covered entities may acquire allowances through quarterly auctions,[5] free allocation to specified entities,[6] and by trading with other market participants (including, but not limited to, other compliance entities).[7] Covered entities must surrender a number of allowances corresponding to their emissions for the year to be in compliance with the program. Offset credits developed using protocols vetted by CARB are also eligible to fulfill no more than 4 percent (increasing to 6 percent in 2026) of an entity's compliance obligation. This framework gives compliance entities three options for program compliance: 1) reduce their GHG emissions, 2) acquire (through allocation or purchase at auction) and surrender allowances to cover their emissions, or 3) purchase offset credits to cover a specified portion of their emissions. The cap-and-trade program operates in three-year compliance periods to mitigate potential emissions allowance price swings brought on by short-term market volatility.[8]

The cap-and trade program drives emissions reductions by shrinking the cap over time, which corresponds to fewer allowances being available. The price of allowances increases as the supply declines, which incentivizes compliance entities to make investments to reduce their emissions, starting with the lowest-cost reductions, rather than continue to pay for increasingly scarce and expensive allowances. The rate of cap decline can be adjusted, ramping up or down the market pressure to reduce emissions. California's cap-and-trade program favors compliance flexibility and the cost-effectiveness of emissions reductions over control of where, how, or by which compliance entity those emissions reductions are achieved. This level of flexibility has drawn criticism over the years for insufficiently mitigating local air pollution from sources covered

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[1] California Air Resources Board (CARB); "Regulation for the California Cap on Greenhouse Gas Emissions and Market- Based Compliance Mechanisms 2024 Amendments Standardized Regulatory Impact Assessment (SRIA)"; p52; April 2024; https://ww2.arb.ca.gov/sites/default/files/2024-04/nc-Cap-and-Trade_SRIA2024.pdf

[2] One metric ton of carbon dioxide emissions or the corresponding amount of a different GHG required to produce a comparable global warming potential.

[3] CARB; "Cap-and-Trade Regulation (Unofficial Electronic Version)"; https://ww2.arb.ca.gov/sites/default/files/2021-02/ct_reg_unofficial.pdf

[4] CARB; "FAQ Cap-and-Trade Program"; https://ww2.arb.ca.gov/resources/documents/faq-cap-and-trade-program

[5] Congressional Research Service (CRS); "The California Cap-and-Trade Program: Overview and Considerations for Congress"; p10; December 2024; https://crsreports.congress.gov/product/pdf/R/R48314/2

[6] CARB; "Allowance Allocation"; https://ww2.arb.ca.gov/our-work/programs/cap-and-trade-program/allowance-allocation

[7] Legislative Analyst's Office (LAO); "The Cap-and-Trade Program: Issues for Legislative Consideration"; February 2024; https://lao.ca.gov/reports/2023/4811/Cap-and-Trade-FAQs-102423.pdf

[8] CRS; "The California Cap-and-Trade Program: Overview and Considerations for Congress"; December 2024; https://crsreports.congress.gov/product/pdf/R/R48314/2

by the program[9,10] but has also been lauded as the most cost-effective method for reducing GHG emissions.[11,12]

How are allowances distributed in cap-and-trade?

CARB creates a certain number of allowances each year, determined by the overall cap, and distributes them as follows:

- 42 to 49 percent of allowances (the exact percentage varies by year) are sold at auction. The proceeds go to the Greenhouse Gas Reduction Fund (GGRF),[13] which is used to fund projects that reduce GHG emissions and/or provide benefits to Californians.[14]
- 23 to 30 percent of allowances are allocated to electric utilities for ratepayer protection. The investor-owned electric utilities (electric IOUs) are required to sell these allowances and pass the proceeds on to ratepayers as the California Climate Credit. Electric IOUs are required to purchase allowances separately for program compliance (e.g., to cover emissions from natural gas combustion in power plants). The associated costs are understood to be passed on to ratepayers but mitigated by the Climate Credit.[15] Publicly owned electric utilities are not required to immediately sell their allocated allowances, which provides additional compliance flexibility.
- 11 to 12 percent of allowances are allocated to natural gas suppliers. Natural gas suppliers are required to consign a portion of these allowances and pass the proceeds on to ratepayers as the natural gas California Climate Credit, but are authorized to use the remaining allowances for program compliance.[16] As of 2022, investor-owned natural gas suppliers have received approximately $5.7 billion in allocated allowances.[17]
- 10 to 15 percent of allowances are allocated to compliance entities to reduce the risk that industrial facilities would move out of state to avoid compliance costs, known as "leakage risk".[18] Free allocation of allowances eases the compliance burden for industrial entities but may preserve the incentive to reduce emissions, as the allocated allowances have significant market value if not needed for compliance. Freely allocated allowances

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[9] Office of Environmental Health Hazard Assessment (OEHHA); "Impacts of Greenhouse Gas Emission Limits Within Disadvantaged Communities: Progress toward Reducing Inequities"; February 2022; https://oehha.ca.gov/media/downloads/environmental-justice//impactsofghgpoliciesreport020322.pdf

[10] Environmental Justice Advisory Committee; "2022 Scoping Plan Recommendations"; p26; September 2022; https://ww2.arb.ca.gov/sites/default/files/2024-02/EJAC%20FINAL%20Recommendations%20September%2030_22_1.pdf

[11] Independent Emissions Market Advisory Committee (IEMAC); "2024 Annual Report"; p29; February 2025; https://calepa.ca.gov/wp-content/uploads/2025/02/2024-ANNUAL-REPORT-OF-THE-IEMAC.pdf

[12] Döbbeling-Hildebrandt, *et al.*; "Systematic review and meta-analysis of ex-post evaluations on the effectiveness of carbon pricing."; May 2024; https://www.nature.com/articles/s41467-024-48512-w.pdf

[13] IEMAC; "2024 Annual Report"; p36; February 2025; https://calepa.ca.gov/wp-content/uploads/2025/02/2024-ANNUAL-REPORT-OF-THE-IEMAC.pdf

[14] California Climate Investments; "All Programs"; https://www.caclimateinvestments.ca.gov/all-programs

[15] LAO; "Assessing California's Climate Policies — Residential Electricity Rates in California"; January 2025; https://lao.ca.gov/reports/2025/4950/Residential-Electricity-Rates-010725.pdf

[16] IEMAC; "2024 Annual Report"; p38; February 2025; https://calepa.ca.gov/wp-content/uploads/2025/02/2024-ANNUAL-REPORT-OF-THE-IEMAC.pdf

[17] CARB; "Summary of 2015-2022 Natural Gas Supplier Use of Allocated Allowance Value"; April 2024; https://ww2.arb.ca.gov/sites/default/files/cap-and-trade/allowanceallocation/ngs_2015to2022useofvaluereport.pdf

[18] CARB; "Allowance Allocation"; https://ww2.arb.ca.gov/our-work/programs/cap-and-trade-program/allowance-allocation

are concentrated in specific industries: 61 to 72 percent go to the oil and gas industry, 14 to 22 percent to the cement industry, and all other industries combined receive 12 to 17 percent of the total amount.[19] Prior to the legislative reauthorization of the cap-and-trade program through AB 398 (Garcia, Chapter 135, Statutes of 2017), CARB assessed the leakage risk of different industries and weighted how many free allowances those industries received accordingly. AB 398 required CARB to treat all industries as having the highest level of leakage risk, reducing the flexibility with which free allowances could be directed to supporting industries most likely to leave the state.[20] CARB has commissioned studies to assess leakage risk in the electricity and industrial sections, which are expected to be completed in 2025.[21]

- Up to 7 percent of allowances are transferred to the Allowance Price Containment Reserve (APCR), which is designed to preserve allowance price stability. If the allowance price hits either of the two specified thresholds, the APCR automatically releases additional allowances into the market to rebalance supply and demand in the market and slow the growth of allowance prices.[22] Neither APCR has ever been triggered.

What role should cap-and-trade play going forward?

Cap-and-trade has been characterized as a "backstop" mechanism[23] which, due to its ability to ramp up or down market pressure commensurate with the declining cap, can account for uncertainty surrounding other emissions reduction programs and ensure that the state meets its climate targets. Unlike the 2017 Climate Change Scoping Plan Update, which identifies cap-and-trade as a backstop, the 2022 Scoping Plan Update does not specify the role cap-and-trade is expected to play in reducing emissions.[24] The 2022 Scoping Plan Update did, however, identify a new GHG emissions reduction target for 2030 of 48 percent below 1990 levels, compared to the current statutory reduction goal of 40 percent from SB 32 (Pavley, Chapter 249, Statutes of 2016). The acceleration in emissions reductions by 2030, according to CARB, is necessary to keep the state on track to achieve the dual goals of 85 percent reduction and carbon neutrality by 2045.[25] In its analysis of the 2022 Scoping Plan Update, the Legislative Analyst's Office recommended that the Legislature consider changes to the cap-and-trade

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[19] IEMAC; "2024 Annual Report"; p37; February 2025;
https://calepa.ca.gov/wp-content/uploads/2025/02/2024-ANNUAL-REPORT-OF-THE-IEMAC.pdf
[20] California Health and Safety Code § 38562 (c)(2)(G)
[21] Senate Environmental Quality Committee and Senate Budget and Fiscal Review Subcommittee No. 2; "Joint Oversight Hearing on Cap-and-Trade Rulemaking"; February 2024;
https://senv.senate.ca.gov/sites/senv.senate.ca.gov/files/cap_trade_rulemaking_hearing_-_final_backgrounder.pdf
[22] CARB; "California Cap-and-Trade Program Greenhouse Gas Allowance Price Containment Reserve Sales"; December 2024;
https://ww2.arb.ca.gov/our-work/programs/cap-and-trade-program/cost-containment-information/reserve-sale-information
[23] CARB; "The 2017 Climate Change Scoping Plan Update"; pES6; January 2017;
https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/2030sp_pp_final.pdf
[24] LAO; "Assessing California's Climate Policies - The 2022 Scoping Plan Update"; January 2023;
https://lao.ca.gov/reports/2023/4656/2022-Scoping-Plan-Update-010423.pdf
[25] CARB; "2022 Scoping Plan for Achieving Carbon Neutrality"; p71; December 2022;
https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf

program to increase program stringency to ensure that the program is calibrated to achieve the statutory GHG reduction goal for 2030.[26]

CARB began an informal stakeholder process to discuss potential updates to the cap-and-trade program in June of 2023, with the stated purpose of aligning the cap-and-trade program with the 2022 Scoping Plan update and the new climate goals set by AB 1279. CARB held six additional workshops and two community meetings in subsequent months to further discuss and solicit feedback on ideas for updating the program. In October 2024, CARB issued a Market Notice that outlined their planned amendments to the program,[27] which included:

- Removing at least 180 million total allowances from 2026-2030 annual budgets.
- Removing up to 265 million allowances in aggregate from 2026-2045 annual budgets.
- Increase in the prices of the cost-containment provisions to better align with updated assessment of the social cost of carbon.
- Updating specified offset protocols.

How does cap-and-trade affect affordability?

Electricity, natural gas, and gasoline

California's cap-and-trade program is generally agreed to be the most cost-effective means of reducing emissions in the state.[28,29,30] Cap-and-trade has not been a significant driver of electricity rates[31] and contains a cost-mitigation mechanism, known as the Residential California Climate Credit, which has more than covered the pass-through costs associated with cap-and-trade program compliance on utility bills for residential customers of electric IOUs.[32] A similar mechanism, the Residential Natural Gas California Climate Credit, is funded through the auction of a portion of the cap-and-trade allowances freely allocated to natural gas suppliers, which are then required to distribute the credit to mitigate pass-through compliance costs through increased natural gas prices.[33]

Transportation fuels refineries in California are major emitters of greenhouse gasses and are therefore required to comply with cap-and-trade. The compliance obligation of petroleum fuel refineries increases their operating costs and is assumed to be passed on to consumers through higher fuel prices. Data collected by the California Energy Commission show the pass-through cost of Environmental Programs, of which cap-and-trade is one, to account for an

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[26] LAO; "Assessing California's Climate Policies - The 2022 Scoping Plan Update"; January 2023; https://lao.ca.gov/reports/2023/4656/2022-Scoping-Plan-Update-010423.pdf
[27] CARB; "Information Regarding Cap-and-Trade Regulation Updates"; October 2024; https://ww2.arb.ca.gov/sites/default/files/cap-and-trade/nc-CT_Notice_Oct_2024.pdf
[28] CARB; "2022 Scoping Plan for Achieving Carbon Neutrality"; p155; December 2022; https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf
[29] Meredith Fowlie; "Can California Afford Carbon Pricing?"; January 2025; https://energyathaas.wordpress.com/2025/01/13/can-california-afford-carbon-pricing/
[30] Julia Stein; "California Can Protect Climate Policies—and Pocketbooks"; December 2024; https://legal-planet.org/2024/12/09/california-can-protect-climate-policies-and-pocketbooks/
[31] IEMAC; "2024 Annual Report"; p8; February 2025; https://calepa.ca.gov/wp-content/uploads/2025/02/2024-ANNUAL-REPORT-OF-THE-IEMAC.pdf
[32] LAO; "Assessing California's Climate Policies — Residential Electricity Rates in California"; January 2025; https://lao.ca.gov/reports/2025/4950/Residential-Electricity-Rates-010725.pdf
[33] California Public Utilities Commission (CPUC); "California Climate Credit"; https://www.cpuc.ca.gov/climatecredit

average $0.50/gallon in 2023, behind Crude Oil Costs ($1.97), Refinery Cost & Profit ($0.84), Distribution Costs, Marketing Costs & Profits ($0.60), and State Excise Tax ($0.56).[34] A recent analysis estimated that approximately 26 cents of the 2023 retail price per gallon of gasoline was attributable to carbon pricing through cap-and-trade, assuming that compliance costs were entirely passed through to consumers.[35] Unlike electricity and natural gas rates, where the Residential California Climate Credit is meant to mitigate the pass-through costs of cap-and-trade, no mechanism is currently in place to reduce those cost impacts on gasoline. Notably, the pass-through costs of cap-and-trade compliance have not been a major contributor to the gasoline price volatility observed in recent years: data from CARB indicate that approximately 6 percent of increases in gas prices between 2019 and 2023 are attributable to environmental programs, of which cap-and-trade is one, relative to 12 percent taxes and fees, 35 percent crude oil prices, and 47 percent refining, distribution, and marketing.[36]

Market structure

The cost of compliance with the cap-and-trade program scales with the price of allowances: the higher the market price of emitting 1 metric ton of CO_2e, the more emitters will have to pay for compliance and those costs are likely passed through to consumers. The allowance price has historically been relatively low and significant increases in the allowance price would likely lead to increased gasoline prices, making price stability a priority and mechanisms to mitigate price fluctuations, as well as provide overall cost containment, critical features of the cap-and-trade market. The cap-and-trade market has a suite of components to maintain allowance price stability. The first is the price floor, which sets the lower bound for allowance prices. There are two APCR tiers, which act as “speed bumps” by releasing additional allowances into the market if prices exceed certain thresholds. The allowances stored in the APCR can be purchased at predetermined prices of $60.47 and $77.70 for Tier 1 and Tier 2 reserves in 2025, respectively, to alleviate upward pressure on prices if the allowance price increases substantially.[37] The APCR tiers have never been triggered. The cap-and-trade program also has a set price ceiling which functions as an emergency pressure release value. In the event that the allowance price reaches the price ceiling, all allowances from both APCR tiers have been purchased, and at least one compliance entity does not hold enough allowances to cover their program compliance requirements, CARB will sell additional allowances at the ceiling price ($94.92 in 2025), providing cost containment should allowance prices rise substantially. The price floor, the price threshold for each APCR tier, and the price ceiling increase at 5 percent plus inflation each year.[38]

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[34] California Energy Commission (CEC); “Transportation Fuels Assessment”; p43; August 2024; https://efiling.energy.ca.gov/GetDocument.aspx?tn=258521&DocumentContentId=94552
[35] IEMAC; “2024 Annual Report”; p8; February 2025; https://calepa.ca.gov/wp-content/uploads/2025/02/2024-ANNUAL-REPORT-OF-THE-IEMAC.pdf
[36] CARB; “Low Carbon Fuel Standard Fuel Prices”; October 2024; https://ww2.arb.ca.gov/sites/default/files/2024-11/LCFS_Fuel_FAQ.pdf
[37] CARB; “California Cap-and-Trade Program Greenhouse Gas Allowance Price Containment Reserve Sales”; December 2024; https://ww2.arb.ca.gov/sites/default/files/2024-12/nc-2025_reserve_sale_apcr_notice.pdf
[38] CARB; “California Cap-and-Trade Program Greenhouse Gas Allowance Price Containment Reserve Sales”; December 2024; https://ww2.arb.ca.gov/sites/default/files/2024-12/nc-2025_reserve_sale_apcr_notice.pdf

Which aspects of cap-and-trade could be leveraged to promote affordability?

The California Climate Credit

The Residential California Climate Credit mechanism was designed to mitigate the impact of pass-through costs of cap-and-trade compliance on electric IOU and natural gas customers. The credits for electricity and natural gas are structured and distributed in similar fashion but with key differences.

The value of the Residential California Climate Credit for electricity reflects 1) the number of allowances allocated to the electric IOUs, which are then required to consign those allowances for ratepayer benefit, 2) the market value of each individual allowance, and 3) the amount that is removed from the resulting funding pool before the remainder is applied to the utility bills of residential customers in IOU territory. The California Public Utilities Commission (CPUC) is authorized by statute to set aside up to 15 percent of the proceeds from the consignment of the allowances allocated to the IOUs to clean energy and energy efficiency projects.[39] The remaining 85 percent of funding flows to 1) recipients of California Industry Assistance, which is available to Emissions-Intensive Trade-Exposed (EITE) facilities, to mitigate the impact on businesses of the pass-through cost on electricity purchases associated with the cap-and-trade program,[40] 2) small business eligible to receive the Small Business California Climate Credit,[41] and 3) residential customers of the IOUs as the Residential California Climate Credit.

The Residential California Climate Credit for electricity is a flat, on-bill credit, rather than a volumetric credit (i.e., reflective of the amount of electricity used in an individual residence).[42] The residential climate credit is distributed to residential IOU customers, irrespective of income or geographical location within the state, twice per year; in April and October. SDG&E recently ran a pilot study testing distributing the credit in August and September, when utility bills are highest in the utility's service territory.[43] More than $14 billion has been distributed to residential IOU customers through the California Climate Credit since 2014.[44]

Similar to the allocation allowance to electric IOUs, CARB allocates allowances to natural gas suppliers to mitigate pass-through compliance costs. Natural gas suppliers are required to consign an annually increasing portion of their allocated allowances, the proceeds from which may be returned to ratepayers as a climate credit or used to fund programs to

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[39] California Public Utilities Code § 748.5 (c)
[40] CPUC; "Decision Adopting Customer Climate Credit Updates"; p7; August 2021; https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M402/K296/402296732.pdf
[41] CPUC; "Small Business Climate Credit"; https://www.cpuc.ca.gov/smallbusinessclimatecredit
[42] IEMAC; "2024 Annual Report"; p14; February 2025; https://calepa.ca.gov/wp-content/uploads/2025/02/2024-ANNUAL-REPORT-OF-THE-IEMAC.pdf
[43] CPUC; "Decision Granting Petition For Modification Of San Diego Gas & Electric Company For The Years 2020 And 2021"; December 2019; https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M322/K058/322058306.pdf
[44] Office of Governor Gavin Newsom; "Millions of Californians to receive average $71 credit on October electric bills"; October 2024; https://www.gov.ca.gov/2024/10/02/millions-of-californians-to-receive-average-71-credit-on-october-electric-bills/#:~:text=Including%20credits%20that%20went%20out,more%20than%20%2414%20billion%20statewide.

reduce GHG emissions.[45] Natural gas suppliers are authorized to use the remainder of their allocated allowances for program compliance.

While electricity and natural gas are both widespread sources of energy for residential use in California, they are significantly different in how they relate to California's climate goals. Electrification is generally regarded to be the most efficient way to decarbonize much of the economy. Rapidly rising electricity rates, however, threaten to disincentivize electrification and therefore delay California's efforts to reduce GHG emissions.[46,47] Natural gas, in contrast, is primarily composed of methane, which accounts for approximately 11 percent of global greenhouse gas emissions[48] and is 28 times more potent than CO_2 as a GHG over a 100-year timespan.[49] As the goal of cap-and-trade is GHG emission reduction, restructuring the pass-through cost mitigation mechanisms to make electricity bills more affordable while reducing crediting for natural gas may more closely align the program with its stated objectives.[50]

Market structure

The cap-and-trade market has multiple features designed to maintain allowance price stability and safeguard against allowance price spikes (e.g., the two APCR tiers and the price ceiling, among other elements).[51] While the allowance price has hovered near the price floor for most of the duration of the program[52] and the price has never risen to the point of triggering the APCR, the allowance price may rise to those levels in the future. The price thresholds of both APCR tiers and the price ceiling may be adjusted to adequately balance the need to maintain a sufficient carbon price signal to incentivize emissions reductions with the need to maintain program affordability going forward. Alternatively, the rate at which the APCR tiers and the price ceiling increase annually (currently 5 percent plus inflation) may be adjusted to more gradually contain pass-through costs.[53]

The allowance price is currently allowed to fluctuate freely between the price floor and the first APCR tier. The addition of an additional price tier in between the price floor and first

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[45] CARB; "Summary of 2015-2022 Natural Gas Supplier Use of Allocated Allowance Value"; April 2024; https://ww2.arb.ca.gov/sites/default/files/cap-and-trade/allowanceallocation/ngs_2015to2022useofvaluereport.pdf
[46] LAO; "Assessing California's Climate Policies — Residential Electricity Rates in California"; January 2025; https://lao.ca.gov/reports/2025/4950/Residential-Electricity-Rates-010725.pdf
[47] IEMAC; "2024 Annual Report"; p14; February 2025; https://calepa.ca.gov/wp-content/uploads/2025/02/2024-ANNUAL-REPORT-OF-THE-IEMAC.pdf
[48] U.S. Environmental Protection Agency; "Importance of Methane"; https://www.epa.gov/gmi/importance-methane
[49] Western States Petroleum Association; "Understanding Methane's Impact on Climate Change and Efforts to Reduce Its Emissions in California's Oil and Gas Industry"; February 2023; https://www.wspa.org/resource/understanding-methanes-impact-on-climate-change-and-efforts-to-reduce-its-emissions-in-californias-oil-and-gas-industry/
[50] IEMAC; "2024 Annual Report"; p41; February 2025; https://calepa.ca.gov/wp-content/uploads/2025/02/2024-ANNUAL-REPORT-OF-THE-IEMAC.pdf
[51] CARB; "Cost Containment Information"; https://ww2.arb.ca.gov/our-work/programs/cap-and-trade-program/cost-containment-information
[52] IEMAC; "2024 Annual Report"; p43; February 2025; https://calepa.ca.gov/wp-content/uploads/2025/02/2024-ANNUAL-REPORT-OF-THE-IEMAC.pdf
[53] CARB; "California Cap-and-Trade Program Greenhouse Gas Allowance Price Containment Reserve Sales"; December 2024; https://ww2.arb.ca.gov/sites/default/files/2024-12/nc-2025_reserve_sale_apcr_notice.pdf

APCR tier, generally referred to as an Emissions Containment Reserve (ECR),[54] could reduce allowance price volatility by pulling excess allowances out of the market if the price drops below the ECR price, mirroring the APCR mechanism. This additional price tier would have the added benefit of increasing GGRF revenues if the allowance price is between the price floor and the ECR price: according to a recent analysis, the addition of an ECR at a $40 allowance price would have provided nearly $1.5 billion in additional revenues to GGRF since 2023.[55]

The Greenhouse Gas Reduction Fund

The Greenhouse Gas Reduction Fund (GGRF), which is funded by proceeds from the auction of state-owned cap-and-trade allowances, has been used to fund projects to reduce GHG emissions, provide economic and environmental benefits, benefit disadvantaged communities and low-income households, and improve public health.[56,57] Allowance auctions have provided $4-5 billion annually to GGRF in recent years,[58] though recent declines in allowance prices may significantly reduce GGRF revenues in near future.[59]

GGRF presents an opportunity to prioritize affordability through both direct and indirect means.[60] Direct actions to promote affordability could include a utility bill credit, similar to and additional to the California Climate Credit, but funded out of GGRF rather than through the consignment of the allowances allocated to IOUs and natural gas suppliers. Depending on the specific goals of the credit, it may be leveraged to reduce the electricity rates (i.e., a volumetric credit which could encourage electrification) or provide relief to ratepayers during times of year when utility bills are highest. Alternatively, this credit could follow an alternate distribution framework, such as the direct deposits into residents' bank accounts or pre-loaded debit cards used to disperse California's gas rebate payments in 2022.[61]

Leveraging GGRF for indirect affordability benefit could similarly focus on electricity bills by covering certain expenses (e.g., wildfire mitigation, transmission line buildout, public purpose programs, and others) which are currently paid for through electricity rates.[62] If using GGRF to promote affordability by taking certain costs out of utility rates, it may be prudent to consider 1) the breadth of public benefit provided by those programs (wildfire mitigation generally being considered a statewide public good compared to other uses which may predominantly benefit

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[54] IEMAC; "2024 Annual Report"; p43; February 2025;
https://calepa.ca.gov/wp-content/uploads/2025/02/2024-ANNUAL-REPORT-OF-THE-IEMAC.pdf
[55] Dallas Burtraw and Nicholas Roy; "Harnessing Carbon Value to Lower Costs in California"; January 2025;
https://www.rff.org/documents/4759/IB_25-03_Final_rev_HvSyBy0.pdf
[56] California Climate Investments; "Welcome to California Climate Investments";
https://www.caclimateinvestments.ca.gov/
[57] Net-Zero California ; "Data analysis of California's Greenhouse Gas Reduction Fund"; December 2024;
https://www.netzerocalifornia.org/blog/analyzing-californias-greenhouse-gas-reduction-fund
[58] IEMAC; "2024 Annual Report"; p36; February 2025;
https://calepa.ca.gov/wp-content/uploads/2025/02/2024-ANNUAL-REPORT-OF-THE-IEMAC.pdf
[59] LAO; "The 2025-26 Budget: Cap-and-Trade Expenditure Plan"; February 2025;
https://lao.ca.gov/reports/2025/4960/Cap-and-Trade-Expenditure-Plan-021225.pdf
[60] IEMAC; "2024 Annual Report"; p2; February 2025;
https://calepa.ca.gov/wp-content/uploads/2025/02/2024-ANNUAL-REPORT-OF-THE-IEMAC.pdf
[61] CalMatters; "Your questions about California's gas rebate answered"; October 2022;
https://calmatters.org/economy/2022/10/californias-gas-rebate-questions/
[62] LAO; "Assessing California's Climate Policies — Residential Electricity Rates in California"; January 2025;
https://lao.ca.gov/reports/2025/4950/Residential-Electricity-Rates-010725.pdf

specific groups of ratepayers), 2) additional benefits of public funding (i.e., lower-cost financing not available for traditional IOU investments amplifying the total cost savings), and 3) whether the benefits of indirect affordability measures would be visible to the public.