



## California's Compliance Offset Program

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### Background

California's [Compliance Offset Program](#) is part of the state's Cap-and-Trade Regulation ([Cap-and-Trade Program](#)). This regulatory offset program helps direct funding to incentivize real and permanent greenhouse gas (GHG) emission reductions and sequestration in sectors not covered by the Cap-and-Trade Program, such as forestry, fugitive emissions of methane, and high global warming potential gases found in air conditioning and refrigeration systems. The Compliance Offset Program thus helps to provide a cost-effective way for regulated entities to comply, in limited part, with their emission reduction obligations in the Cap-and-Trade Program. Regulated entities under the Cap-and-Trade Program can only use a very small amount of offset credits toward their overall compliance (4% for emissions from 2021 through 2025 and 6% for emissions from 2026 through 2030).<sup>1</sup> The Compliance Offsets Program was designed and developed through a multi-year public process with inputs from international experts, environmental organizations, lessons learned from previous offset programs, academics, and other stakeholders.

California law, specifically Assembly Bill (AB) 32 (Chapter 488, Statutes of 2006), directs that offsets developed for the Cap-and-Trade Program must be real, permanent, quantifiable, verifiable, enforceable, and additional to any GHG reduction otherwise required by law or regulation and any other GHG reduction that would otherwise occur. In addition, AB 398 (Chapter 135, Statutes of 2017) restricts regulated entities' use of offset credits such that no more than one-half of the offset credits used toward compliance may be sourced from projects that do not provide direct environmental benefits in California.<sup>2</sup> AB 398 also directed CARB to develop

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<sup>1</sup> The quantitative usage limit for emissions from 2013 through 2020 was 8%. For the [first compliance period](#) (2013-2014), covered entities utilized offset credits to cover 4.39% of their obligations, and the [second compliance period](#) (2015-2017) saw a usage of 6.36%. Data for the third compliance period (2018-2020) is not yet available.

<sup>2</sup> AB 398 defines "direct environmental benefits in the state" as the "reduction or avoidance of emissions of any air pollutant in the state or the reduction or avoidance of any pollutant that could have an adverse impact on waters of the state." More information on these AB 398 requirements is available at [Direct Environmental Benefits in the State \(DEBS\) | California Air Resources Board](#).

approaches to increase offset projects in California considering guidance from an expert Compliance Offsets Protocol Task Force.<sup>3</sup>

To date, the California Air Resources Board (CARB) has [issued](#) more than 229 million offset credits to projects that meet the stringent requirements in CARB-approved Compliance Offset Protocols.<sup>4</sup> This number is approximately 9 percent of the vintage 2013-2020 allowances issued pursuant to the Cap-and-Trade Regulation.

### Offsets are not subtracted out of California's GHG Targets

Progress towards California's climate targets, including those established by AB 32 (1990 levels by 2020) and Senate Bill (SB) 32 (Chapter 249, Statutes of 2016) (40% below 1990 by 2030), is assessed through CARB's [statewide GHG inventory](#). The inventory tracks emissions from sources throughout California, including emissions from fossil fuel combustion (including for power imported and consumed in state), GHGs generated as a by-product of chemical reactions in industrial processes, use of GHG-containing consumer products and human-made chemicals, and emissions from agricultural and waste sector operations. Importantly, while offset credits represent real, permanent, quantifiable, verifiable, enforceable, and additional GHG emissions reductions that are eligible to be used to meet a small percentage of regulated entities' compliance obligations under the Cap-and-Trade Program, these credited reductions are not subtracted out of inventory. The inventory represents the actual GHG emissions produced and emitted into the atmosphere with no adjustments for any type of offset, or other, credits.

## **AB 32 Criteria for Offsets for U.S. Forest Projects**

- a. How does the Compliance Offset Program ensure real, permanent, and additional reductions?

Project requirements within the [Cap-and-Trade Regulation](#) and the Compliance Offset Protocol for U.S. Forest Projects ([Forest Protocol](#)) are designed to ensure that all offset credits are real, permanent, and additional to any reductions otherwise required by law or that would occur in a conservative business-as-usual scenario. The Forest Protocol prescribes specific quantification methodologies to monitor project carbon stocks and calculate the emissions reductions that result from approved project activities. Emissions reductions are based on actual project carbon stocks to ensure they are real.<sup>5</sup> The Program ensures credits are permanent by requiring projects to

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<sup>3</sup> For more information on the Compliance Offsets Protocol Task Force and its recommendations to CARB, see [Compliance Offset Protocol Task Force | California Air Resources Board](#).

<sup>4</sup> CARB has approved six Compliance Offset Protocols. More information on each protocol is available at [Compliance Offset Protocols | California Air Resources Board](#).

<sup>5</sup> "Real" means, in the context of offset projects, that GHG reductions or GHG enhancements result from a demonstrable action or set of actions, and are quantified using appropriate, accurate, and

monitor, report, and verify carbon stocks for at least 100 years following credit issuance. Procedures to account for reversals or loss of carbon (e.g., due to wildfire, pest infestations, and drought) are specified in the Regulation and the Forest Protocol. Every project contributes a portion of their credits to a buffer account, which is used to make up for any reversal of emissions reductions. (See section III. below for more information on how this buffer account works.) The Forest Protocol requires the calculation of a conservative business-as-usual scenario that incorporates all legal and financial constraints. Only reductions that are additional to this business-as-usual scenario are credited.

b. How does the Forest Protocol take a conservative approach to addressing leakage, permanence, and additionality?

Conservativeness is built into the multiple provisions of Forest Protocol, based on the best available science at the time the Forest Protocol was adopted. For instance, a confidence deduction is applied to carbon stock estimates to account for statistical uncertainty. The quantification of emissions reductions conservatively accounts for leakage using a 20% secondary effect factor and an 80% factor for the market response in wood product production. This means that a forest project's crediting is reduced to account for these leakage factors. The Forest Protocol requires annual monitoring and reporting over the project life with periodic independent, third-party verifications, and the buffer account contribution accounts for numerous factors that could lead to reversals. Baseline carbon stocks cannot fall below a minimum baseline level, taking into account common practice values for the project and the average carbon stocking in similar forest community types.

c. How is the baseline set?

Pursuant to Forest Protocol requirements, the project operator designs the baseline to represent what could feasibly occur on the project over 100 years in the absence of an offset project. The project operator assesses the legal and financial constraints that impact forest management in the project area (e.g., forest growth and mortality, forest practice rules, best management practices, deed restrictions and other legally binding documents, timber harvest plans, logging costs, generated timber revenue, inaccessible areas) and establishes a baseline harvesting regime that accounts for these constraints. Silvicultural practices common to the region are used in determining the baseline. The baseline scenario is projected over 100 years using an approved growth and yield model that is calibrated to the project area. The 100-year average baseline carbon stocks cannot fall below the minimum baseline level, which serves as a backstop to how low the baseline average can be. The minimum baseline level takes into account the project's initial carbon stocks, carbon stocks in the Logical

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conservative methodologies that account for all GHG emissions sources, GHG sinks, and GHG reservoirs within the offset project boundary and account for uncertainty and the potential for activity-shifting leakage and market-shifting leakage.

Management Unit of the project area, and the common practice value, which represents the average carbon stocking of all Forest Inventory and Analysis (FIA) plots within the same forest community types as the project.<sup>6</sup> This design feature of the Forest Protocol is intended to ensure that the baseline is not overly aggressive so as to lower the baseline and increase credits and takes into account the average carbon stocking in the region. The baseline set by the project operator is then verified by a third-party verification body and reviewed by the applicable Offset Project Registry and by CARB prior to credit issuance.<sup>7</sup>

## Reversals due to Wildfire – CARB’s Forest Buffer Account Explained

### a. How does the Compliance Offset Program take wildfire risk into account?

Forest projects provide multiple benefits, in addition to sequestering carbon. For example, better forest management creates improved habitat and watershed health, helps reduce the risk of significant losses from wildfires, and Tribal projects support Tribal nations. In developing the Forest Protocol, CARB took into account the risk of wildfires (and other forms of disturbance) in order to ensure the permanence of emission reductions resulting from approved forest projects. CARB requires each forest project that meets the rigorous (and conservative) quantification methods for determining offset credit issuance to contribute a portion of these credits into a Forest Buffer Account. This Forest Buffer Account serves as an insurance mechanism to compensate for involuntary reversals (e.g., tree carbon stock loss due to wildfire, disease, or pest outbreak). The risk categories and percentages included in the Forest Protocol were developed based on the best information available at the time the Protocol was adopted, and the Protocol has been amended twice since initial adoption. Whenever CARB brings the Protocol forward for additional amendments, we assess the best available information as part of a public process – including any updated science on wildfire risks – as part of those amendments.

### b. What is the Forest Buffer Account and how does it work?

A project’s annual contribution into the Forest Buffer Account is determined based on percentage risk factors outlined in the Forest Protocol, including financial risk, management risks, social risks, and natural disturbance risks (including wildfire [Appendix D(e)(4)(A)]). Each project must add up the risk factors applicable to its specific circumstances, and the resulting percentage discount determines the number of credits set aside into the Forest Buffer Account. Typically, each project that is issued ARB offset credits contributes between 17 and 19% of their total credits into the Forest Buffer Account.

### c. How big is the Forest Buffer Account?

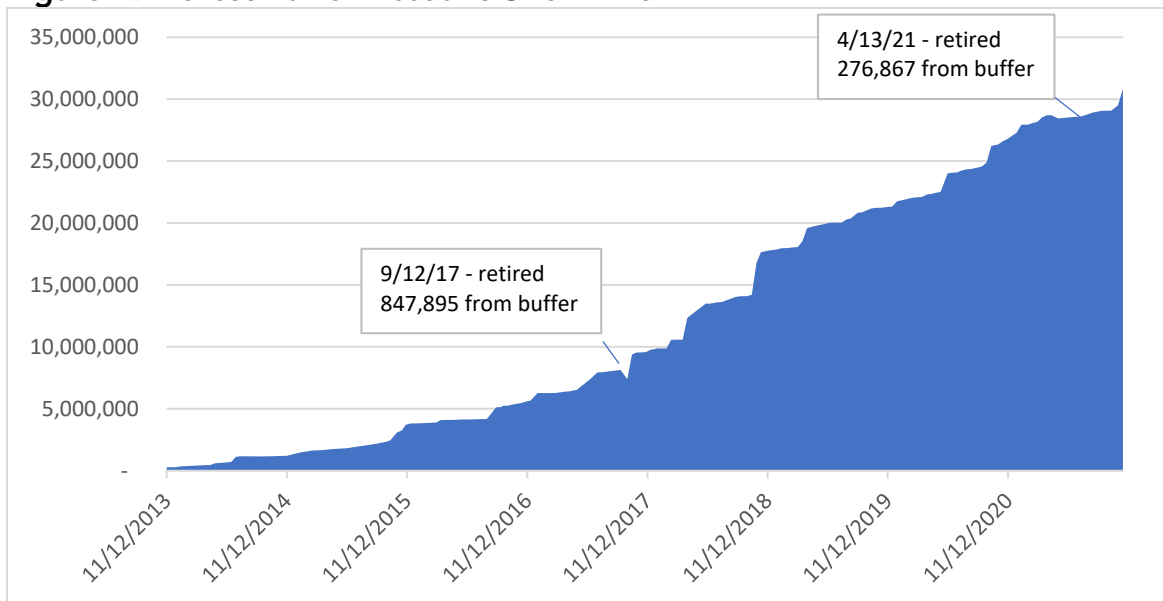
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<sup>6</sup> These FIA plots form the basis of how common practice value is determined.

<sup>7</sup> CARB published an overview of how these factors work together, which is available at [California Cap-and-Trade Regulation U.S. Forest Offset Projects](#).

To date, forest projects have contributed 30,836,860 credits into the Forest Buffer Account. Even if we must retire compliance instruments from the Forest Buffer Account due to a project reversal, new projects continue to contribute to the Forest Buffer Account. There are forest projects located in 29 states, from Alaska to Maine. Project conditions (including wildfire conditions) are quite diverse, which helps mitigate the risk to the program of regional natural disturbances. Thus far, only two projects have resulted in retirements from the Forest Buffer Account. Each of these projects suffered a reversal due to wildfire. One project, the Trinity Timberlands project, suffered a significant fire that reduced the project’s above-ground live carbon stocks below its initial baseline resulting in termination of the project. CARB retired 847,895 offsets from the Forest Buffer Account, which represents the entirety of the credits issued to the project. The other project, Eddie Ranch, suffered a reversal but not a termination. CARB retired 276,867 offsets from the Forest Buffer Account for this project. In total, CARB has retired 1,124,762 credits from the Forest Buffer Account due to unintentional reversals. The below graph shows changes in the Forest Buffer Account over time.<sup>8</sup>

**Figure 1. Forest Buffer Account Over Time**



d. What is the process of addressing a project reversal due to wildfire?

If an unintentional reversal occurs, CARB draws from the Forest Buffer Account. Staff base retirements from the Forest Buffer Account on verified information after the fire has been contained and its impact understood, rather than an a priori prediction of the reversal. If a wildfire damages standing live and dead tree carbon stocks, the Cap-

<sup>8</sup> For an external view on how the Buffer Account works, see The Climate Trust, October 11, 2021, [Forest carbon buffer mitigates current wildfire risks \(mailchi.mp\)](https://mailchi.mp/).

and-Trade Regulation requires forest owners to notify CARB within 30 days of identifying the potential unintentional reversal. Pursuant to section 95983(b) of the Cap-and-Trade Regulation, the project developer must submit a completed third-party verified estimate of current project carbon stocks within 23 months of discovery of the unintentional reversal. Once received, that information is reviewed by CARB staff and if approved, staff determines the amount of ARB offset credits to retire from the Forest Buffer Account. This timing provides for the possibility of discovering the reversal on day one of an annual reporting period, allowing the entire reporting period to be included in the full verification without affecting the normal 11-month time limit on verifications.

## 2021 Critiques of the Compliance Offset Program: CarbonPlan Paper

Out of the over 228 million offset credits issued to date pursuant to CARB's Compliance Offset Program, over 187 million have been issued to forest projects.<sup>9</sup> There have been concerns raised about the program. One recent [paper](#) by the group CarbonPlan sought to compare CARB's Forest Protocol with a theoretical methodology developed by the paper's authors.

### a. What is the main thrust of the paper?

The paper is focused on additionality concerns surrounding how a baseline is set for a project. It examined the impact of the common practice value on project crediting, and how this common practice value is determined. It is important to note that the paper focused solely on one element (common practice) of the Forest Protocol's methodology for assessing additionality and did not address the other factors that go into additionality (e.g., legal/financial constraints, monitoring and reporting). The paper's findings are based on an alternate method to calculate alternative common practice values. It compares these alternative values against the results obtained pursuant to the regulatory Forest Protocol and asserts that any differences demonstrate a fundamental flaw in CARB's Forest Protocol. The paper claims that CARB's Forest Protocol over-credited 30 million non-additional offset credits.

Several news stories<sup>10</sup> reported on this paper but missed important nuances about how additionality is assessed pursuant to the Forest Protocol that are described above and that were provided in [detailed responses](#) to the reporters.<sup>11</sup>

### b. How have experts in the field responded to the paper?

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<sup>9</sup> Roughly half of the credits issued to forest projects have been issued to Tribal and Alaska Native Corporation projects.

<sup>10</sup> See [here](#) and [here](#), for example.

<sup>11</sup> See [CARB responses to questions from ProPublica on California's Forest Offset Protocol](#).

In addition to CARB's responses, Pacific Forest Trust (PFT) also responded to this paper. PFT's response can be found on their [website](#). Both responses highlight errors in the method proposed in the paper.

The alternative method proposed in the paper is the basis for the paper's claim that the Forest Protocol resulted in 30 million tons of over-credited, non-additional offsets. To make this claim, the proposed method relies on a classifier algorithm and a smaller set of FIA plots to develop its own alternate common practice values. The authors assert that their classifier algorithm is more robust and provides a better reference for the forest types within the project area. However, the uncertainty in the estimates of these alternate common practice values, which may be high due to the small sample size, is unknown.

The paper also does not address the potential for cherry-picking the included plots to bias the common practice values nor does it explore simpler solutions that could continue to meet the rigor required by the Forest Protocol. Put simply, the baselines established in the paper are over simplified: they only reflect this alternate common practice value, while legal and financial constraints and regional management practices that are required to be accounted for by the Forest Protocol are not considered at all. This fails to capture the complexity of establishing additionality and a project's management impacts compared to the surrounding forest landscape. In addition, the paper did not consider differences between high and low site class common practice values, which is an important feature of the Forest Protocol. Further, it ignores the complementary relationship between additionality and the 100-year permanence requirement in the Forest Protocol, both of which are necessary for long-term accounting of GHG reductions by forests. In sum, this is not an evaluation of the Compliance Offset Program, but rather a comparison against an alternative method.

## Updates Based on Science

CARB welcomes new science and improvements in data quality that will help improve the Forest Protocol for future updates. We have updated protocol twice since its initial adoption, based on the most up-to-date information available at the time. However, we must balance providing a stable framework for investment and development of projects by third parties with periodic updates to reflect the latest science. Our next update, which is anticipated to occur after the 2022 Scoping Plan Update, will utilize the most up-to-date information and peer-reviewed science and reports to ensure we are continually improving how the Compliance Offset Program contributes to tackling the climate crisis. We have received questions about the wildfire risk metric, and other areas that would be assessed in the update. Any update would go through the normal, transparent, fully public process that we as government are required to undergo. We will consider recommendations from the Offset Task Force as well.