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What's in a Cap? How California Should Design the Cap and Trade Price Ceiling.



by **Colin Murphy**()



This blog, on designing the price ceiling for California's cap and trade system, is part 2 of a series on California's climate policies to meet its 2030 pollution reduction target and beyond. Read [part 1 here \(https://nextgenpolicy.org/blog/getting-californias-climate-rules-right/\)](https://nextgenpolicy.org/blog/getting-californias-climate-rules-right/) and [part 3 here \(http://NXTGN.US/d4n\)](http://NXTGN.US/d4n). This blog was co-written with Dan Lashof and David Weiskopf.

California's cap-and-trade market is designed to be a stable, self-correcting system. When demand for emissions allowances increase, the price goes up, increasing the financial incentive for polluters to reduce emissions and providing more revenue for emissions-reducing projects through the [Greenhouse Gas Reduction Fund \(https://www.arb.ca.gov/cc/capandtrade/auctionproceeds/expenditurerecords.htm\)](https://www.arb.ca.gov/cc/capandtrade/auctionproceeds/expenditurerecords.htm) (GGRF). When demand goes down, as it would in a recession, the price of allowances drops, lessening the burden on the economy. But to ensure stability against sudden turns, which can occur in any market, additional safety measures are prudent. AB 398 – the law that authorizes cap and trade to continue through 2030 – instructs the California Air Resources Board (CARB) to set a maximum price of emissions allowances. If prices ever rise to the level of this “price ceiling” CARB would sell an unlimited number of emissions allowances at that price, preventing additional price increases.

In order to make sure that the price ceiling doesn't become a loophole through which unlimited amounts of carbon can escape, CARB must use the money from selling extra allowances to reduce greenhouse gas (GHG) pollution by an amount equal to the number of allowances sold at the ceiling price; essentially, they must cancel out the emissions in excess of the cap to maintain the environmental integrity of the system.

CARB has significant flexibility in how it chooses to reduce those emissions as long as they are real, permanent, quantifiable, verifiable, enforceable and must be in addition to what would otherwise have occurred. This list of conditions is commonly used as the standard by which actual climate benefits from government policies are measured; by referencing them the Legislature has instructed CARB to reduce real-world

emissions according to a well-established set of rules.

In [part 1 \(https://nextgenpolicy.org/blog/getting-californias-climate-rules-right/\)](https://nextgenpolicy.org/blog/getting-californias-climate-rules-right/) of this series, we discussed some considerations CARB should take into account in deciding what the exact price ceiling should be. Here, we offer suggestions for how to make sure that, if the price ceiling is reached, that we maintain environmental performance, and get our state back on track to achieve the 2030 pollution reduction targets required by SB 32 and other California laws.

The Paradox of Planning for the Unexpected

Designing a mechanism to respond to allowance prices hitting the ceiling is difficult because not only are there no historical examples to draw from, but if prices were to rise that high, it would imply a world very different than the one we're living in today. The cap and trade program has several mechanisms that work together to mitigate allowance price spikes. As allowance prices go up, more money flows into the GGRF, which funds projects that reduce emissions; that will tend to push prices down. To further restrain allowance price growth, companies under the cap also have the flexibility to bank allowances and comply over a multi-year period, replace a limited amount of their compliance obligation with lower-cost carbon offsets, and some industries even receive most or all of their allowances for free. AB 398 also included instructions for CARB to include two "speed bumps," price points at which a special reserve of allowances would be released into the market. This would tend to hold prices steady for a period of time and give the market time to adjust, as well as for companies to invest in emissions-reducing projects.

The benefit of these provisions is that they reduce the likelihood that the market will ever hit the price ceiling. The downside is that they imply that if the ceiling is reached, it is, in part, because the state may have run out of arrows in its standard quiver to attack the problem. If all of these tools are insufficient to keep cap and trade prices manageable, CARB may need to get creative to find ways of further cutting carbon with the proceeds from allowances sold at the price ceiling.

But revenue from allowances sold at the price ceiling is tremendously uncertain. Ideally, the system will never need to use the price ceiling mechanism. If a company has an idea for how to produce real, permanent, quantifiable, verifiable, enforceable and additional emissions reductions, they are not going to want to spend the next decade waiting to see whether there will be price ceiling revenue to invest into their plans.

Repairing the Ceiling

What this means is that CARB should look for opportunities which have fallen through the cracks of the state's climate policy: programs that have been overlooked due to lack of political support, or because there have been market failures that have muted the effect of existing incentives, but can deliver real, permanent, quantifiable, verifiable, enforceable and additional reductions in a timely fashion. That's a fairly limiting set of criteria, but AB 398 directs CARB to focus on counteracting the excess emissions, whereas many other considerations affect the appropriations of GGRF funds by the Legislature.

Some projects could be similar to those under the GGRF: deploying clean technology, supporting carbon-reducing land management, improving energy efficiency, etc. Projects like these have a clear track record and they deliver additional co-benefits beyond cutting GHG emissions, such as improved air quality, more efficient transportation and local job creation. Unfortunately, they don't always generate quick reductions; it may be years between funding a new project and realizing the benefits. CARB will need to balance the desire to counteract emissions above the ceiling quickly, against the need to maximize co-benefits .

A very quick and simple way to achieve these reductions would be to purchase offsets. Offsets track GHG pollution reductions from activities that aren't already required by law or tracked under an emissions-reduction system. Project developers can sell offsets to polluters as a means of reducing the number of allowances they need to buy in the cap and trade market, or as voluntary measures to reduce pollution. AB 398 allows entities in the cap-and-trade program to meet a small part (4-6%) of their 2020-2030 pollution reduction obligation with offsets.

In order to be eligible for use in our cap and trade markets, offsets projects must pass the same "real, permanent, quantifiable, verifiable, enforceable and in addition to what would otherwise have occurred," criteria specified in AB 398. These projects include reducing methane emissions from certain agricultural practices, properly disposing of global warming super-pollutants that have thousands of times the warming effect of carbon dioxide, or restoring and protecting forests to help them store additional carbon. CARB already has procedures to certify offsets which meet those criteria, although not everyone agrees that these procedures are stringent enough. So far there are many more [compliant projects on the market \(https://www.arb.ca.gov/cc/capandtrade/offsets/issuance/issuance.htm\)](https://www.arb.ca.gov/cc/capandtrade/offsets/issuance/issuance.htm) than there is demand.

Offset developers can tolerate the problem of not knowing when the ceiling might be hit because there is a market for them already, from California companies using them to cover part of their emissions-reduction obligation; companies and consumers around the world also buy offsets to voluntarily reduce their carbon footprint (for example, airlines often offer the option for passengers to offset their emissions for a small additional fee). Since there is a regular demand for offsets, project developers are continually providing a supply of emissions-reducing projects.

As long as CARB didn't need so many that they drained the available pool, CARB may turn to offsets as a readily available, if imperfect, measure to rapidly counteract at least some of the emissions in excess of the cap, if the price ceiling is ever breached.

Staying Under the Ceiling in the Future

The factors that would cause the market to hit the ceiling price once could persist for months or even years, which would increase the likelihood that the ceiling would be hit again. If CARB just meets its minimum requirement under AB 398 to counteract excess emissions, but doesn't take any steps to lower emissions under the cap, there could be a vicious cycle that holds prices at the ceiling, but fails to lower emissions in industries under the cap. This means the price ceiling mechanism must not only counteract the damage from emissions in excess of the cap, but also put the economy on track to stay below it. Luckily, this problem comes with a useful tool: CARB can use the revenue from sales of allowances at the ceiling to make smart investments that will bring the market back into balance.

NextGen's Price Ceiling Proposal

If the ceiling price is ever reached, delays in CARB's response could mean excess pollution stays in the atmosphere, and the program risks remaining at high prices. CARB should develop a clear set of contingency plans well in advance in order to facilitate a timely response. Here's what they should include:

First, CARB should create a registry for projects that qualify as real, permanent, quantifiable, verifiable, enforceable and additional emissions cuts for the purpose of obtaining the ton-for-ton emissions reductions specified in AB 398. If the state ever hits the emissions cap, we should not waste time debating what projects qualify as solutions to counteract the excess emissions. Offsets that have already been registered and accepted for use towards regular cap-and-trade compliance should automatically be added to this list, however this registry may provide an opportunity for novel projects to enter the discussion as well.

If California exceeds the ceiling price, CARB's first obligation under AB 398 is to procure ton-for-ton emissions reductions to counteract the excess emissions.

- About half of that procurement should be done by buying reductions from the list of projects developed above. This should be done as rapidly as possible but, if offsets comprise the majority of registered projects, CARB should be sure not to buy up so many at once that it leaves the market short and interferes with entities' plans to use offsets to meet their compliance obligations. Depending on how far the state overshoot its cap, the status of the offset market and the mix of projects which were registered, CARB may need to spread this procurement over a few years, in which case it should procure additional credits to reflect the climate "interest" accrued from the excess emissions remaining in the atmosphere. The purchases should be done via a competitive bidding process, to allow the state to procure the most cost-effective reductions which meet the criteria and equitably reward developers who registered projects.
- The remainder of the ton-for-ton reductions required under AB 398 should be achieved through investments that will lead to direct emission reductions in the state. Funds for these projects should be disbursed through normal competitive bids or grantmaking, managed through an open and transparent process at CARB. This approach allows CARB to select projects that maximize co-benefits, like reductions in air pollution or other environmental benefits. Again, if there is a significant delay between procurement and actual emissions reduction, CARB will need to account for the climate "interest" which would accumulate.

We anticipate that CARB should be able to procure sufficient ton-for-ton reductions to counteract excess emissions at a price significantly below the likely ceiling prices. Offsets, in this scheme, are the final backstop for counteracting excess emissions in the event that other projects are unavailable in sufficient quantity. CARB-compliant offsets are cost-competitive with emissions allowances at today's prices of around \$15 per tonne. While the price of offsets will likely rise as the market develops, it is unlikely that it will rise to the point where offset costs will be near the likely ceiling price level. This should leave additional revenue for CARB to reduce the chance that the market will hit the ceiling in the future, and mitigate the impacts if it should occur.

Any funds remaining after the ton-for-ton emissions reductions are procured should be spent as follows.

- About one quarter should be used to ensure that there is an adequate future supply of reductions projects in the registry. CARB could sign contracts for guaranteed access to future reductions projects, in a manner similar to commodity options. Alternatively, CARB could provide capital to develop new projects or develop public-private partnerships with developers of prospective reduction projects. Essentially, if CARB must draw down the registry of projects, it should invest in refilling it as well.
- The remainder should be spent on projects to reduce future emissions under the cap, focusing on projects that address sources of emissions that have proven difficult to target through existing policies. For example, it is often difficult to deploy energy-efficiency retrofits in commercial property; building owners often don't pay for utility bills, so they lack a strong incentive to invest in efficiency. Those who would benefit from the improvements, the tenants, won't invest in a building they don't own, so the opportunity to reduce emissions may be lost (this is called a Principal Agent problem in economics). CARB can use revenue from the cap to increase incentives to address principal agent problems or other situations where current incentives are ineffective. By reducing emissions which count towards the cap market, CARB reduces the risk that the market will hit the ceiling again.

Prevention, Not Just Recovery

If California's cap and trade market ever hits its statutory price ceiling, the Air Resources Board will be under a lot of pressure to respond quickly and effectively. Planning for that eventuality now can dramatically improve the chances of success. Creating a contingency plan for how the excess emissions will be offset reduces the risk of delays and lets the plan be fully vetted long before it would actually be put into action. Once the immediate legal imperative to counteract the excess emissions is satisfied, remaining revenue should be spent to reduce the chance that the state will hit the ceiling again, and make sure we're prepared if we do. If the ceiling is ever hit, CARB will certainly be evaluating the broader program design as well as whether there are any additional complementary policies which could help the state meet its targets. Having an effective set of contingency plans in place to handle the first response will provide enough time and space for those decisions to be made in a thoughtful, transparent way.

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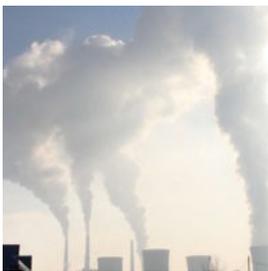


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