

**Policy Options for Cost Containment in
Response to Board Resolution 12-51
June 25, 2013**

Table of Contents

1. Introduction	2
2. Background.....	2
2.1 Existing Program Features.....	2
2.2 Circumstances that Could Lead To Higher than Expected Allowance Prices	4
2.3 Board Resolution.....	6
3. Policy Approaches for Containing Costs.....	6
3.1 Increase the Availability of Allowances at the Highest Price Tier of the Reserve	7
3.2 Allow Fulfillment of Compliance Obligation Through Fixed Price-Per-Ton Payment at the Highest Price Tier of the Reserve	9
3.3 Delay Compliance Obligation	10
3.4 Cancel Compliance Obligation	11
3.5 Maintain Existing Cost Containment Features	11
4. Potential Sources of Compensating Emission Reductions	12
4.1 Redistribute Existing Allowances Within the 2013-2020 Period	12
4.2 Commit to Additional Emission Reductions from the Post-2020 Period	13
4.3 Mandate Additional Emission Reductions from California Sources.....	14
4.4 Obtain Emission Reductions Outside of California.....	14

1. Introduction

The California cap-and-trade program is a market-based regulation within the portfolio of programs and policies to reduce greenhouse gas (GHG) emissions under AB 32. The cap-and-trade program establishes a firm aggregate limit on emissions in the form of a fixed supply of emission allowances. Covered entities must surrender emission allowances and offset credits (permissible up to a limit) to cover their reported emissions. The tradability of allowances and offset credits provides compliance flexibility, establishes a price on GHG emissions, and minimizes the cost of reducing emissions.

Allowance prices reflect the demand and supply for allowances. While the annual and cumulative supply of allowances is fixed through 2020, the future supply of offset credits and the demand for allowances are uncertain. Consequently, the future price of allowances is also uncertain. Recognizing this uncertainty in future allowance prices, the California cap-and-trade program includes features to ensure that the program yields cost-effective emission reductions, while keeping compliance costs and allowance prices affordable.

During the development of the cap-and-trade program, analyses indicated that the existing cost-containment features would be effective in most circumstances. Nevertheless, conditions could develop that have the potential to raise allowance prices above levels deemed acceptable in the existing cost containment features of the program. These potential conditions motivate the current examination of additional options for cost containment.

The remainder of this document is organized as follows:

- Section 2 summarizes existing program cost-containment features, lists conditions that could potentially lead to higher than expected allowance prices, and describes Board Resolution 12-51.
- Section 3 presents cost containment policy options.
- Section 4 identifies options for obtaining compensating emission reductions to maintain the environmental objectives of the cap-and-trade program.

2. Background

2.1 *Existing Program Features*

The California cap-and-trade program includes features to ensure it delivers cost-effective emission reductions. By providing compliance flexibility, these features also

help contain costs and reduce the likelihood that allowance prices will exceed expected levels. These features include:

- Allowance Banking. Allowances may be held and used for compliance in the future. This “banking” enables entities to plan their long-term program compliance strategies, reducing compliance costs across compliance periods.
- Multi-year Compliance Periods. Multi-year compliance periods provide flexibility for compliance entities and allows for the gradual phase in of emission reductions efforts and the development of emission reductions technology.
- Broad Program Scope. A broad scope reduces overall compliance costs by covering a diverse range of entities with a wide variety of options for reducing emissions.
- Auction Price Floor. The auction price floor helps to reduce price uncertainty by defining a minimum expected price for allowances. This feature can reduce program costs by ensuring a meaningful incentive to reduce emissions, particularly in the early years of the program.
- Emission Offsets. Allowing a limited number of high-quality offsets for compliance can reduce overall program costs by allowing lower-cost offset emission reductions to substitute for more expensive emission reductions undertaken by covered entities. The limit on the use of offsets ensures that the majority of the required emission reductions are achieved by the covered entities.
- Administrative Allocation of Allowances. A substantial portion of emission allowances are allocated administratively (i.e., freely distributed) to industrial emitters and on behalf of electricity customers. These allocations help reduce compliance costs by providing for a gradual transition into the program, enabling allowance value to be used on behalf of electricity ratepayers, and working to minimize emission leakage, particularly among emissions intensive and trade exposed emitters.
- Emission Reductions by Direct Regulation. Direct regulations and programs require or result in emission reductions from sources also covered by the cap-and-trade program. Examples include the vehicle emissions regulations, the renewable portfolio standard, the low carbon fuel standard, and energy efficiency standards and programs. These regulations and programs help ensure that the AB 32 portfolio of programs delivers cost effective emission reductions, and reduces the likelihood that allowance prices will exceed expected levels.

- Allowance Price Containment Reserve (Reserve). The Reserve contains approximately 122 million allowances, which may be purchased by covered entities at three pre-established price tiers. The purpose of the Reserve is to substantially reduce the likelihood that allowance prices exceed the established Reserve prices, thereby putting an upper bound on future allowance prices.

ARB's Updated Economic Analysis of California's Climate Change Scoping Plan finds that these cost-containment features ensure that the program can achieve the AB 32 required emission reductions cost effectively while also encouraging economic growth and job creation under a range of anticipated conditions. However, the analysis also recognizes that future conditions are uncertain and conditions could arise such that allowances prices are higher than anticipated. The following section identifies several such potential conditions.

2.2 Circumstances that Could Lead To Higher than Expected Allowance Prices

The cap-and-trade program is designed to deliver cost effective emission reductions needed to achieve the AB 32 emissions goal with allowance prices in the range between the auction price floor and the Reserve prices for a broad range of future conditions. Nonetheless, conditions could increase the demand for allowances, resulting in higher than expected allowance prices, including prices above the established Reserve prices. Higher than expected prices could be transitory, resulting from temporary imbalances in the supply and demand for allowances. Alternatively, the imbalance in supply and demand for allowances could be persistent, pushing allowance prices above expected levels for longer periods. The following several examples represent conditions which, individually or collectively, could increase the risk of allowances prices being higher than expected.

- Higher than Expected Emissions from Existing Sources. Given the current projections of cumulative GHG emissions from existing sources, ARB estimates that the required emission reductions can be achieved with an allowance price of \$25 per metric ton in 2020.¹ An unanticipated increase in cumulative GHG emissions could increase the demand for emission allowances, leading to higher than expected allowance prices. For example, in the electricity sector, a long-term drought in the Western United States could reduce hydro-generation of electricity, resulting in increased use of fossil-energy-based electricity. The permanent closure of the San Onofre Nuclear Generating Station (SONGS) has

¹ Updated Economic Analysis of California's Climate Change Scoping Plan: California Air Resources Board, March 24, 2010. http://www.arb.ca.gov/cc/scopingplan/economics-sp/updated-analysis/updated_sp_analysis.pdf (accessed June 21, 2013).

recently reduced the supply of a non-emitting source of electricity. Unexpected reductions in the availability of other nuclear plants serving California could also have an impact, increasing the use of fossil-energy-based electricity and the demand for allowances.

- Higher than Expected Emissions from New Sources. Recognizing the dynamic nature of the California economy, new emission sources will likely arise. If such sources grow quickly to larger than expected levels, they could put upward pressure on allowance prices. For example, California has substantial unconventional oil and gas resources which could potentially be exploited using hydraulic fracturing (fracking) technology. A fracking boom, as seen elsewhere in the United States could potentially lead to substantial emissions from extraction and production activities.
- Regulatory Programs Less Effective than Expected. The direct regulations and programs that require or result in emission reductions from sources covered by the cap-and-trade program could be less effective than expected. In this circumstance, the demand for allowances would be higher than expected.
- Offsets Less Available than Expected. The emission reductions from offset projects may be more difficult or more costly to achieve than expected, resulting in the offset supply being less than expected.

The combined effects of these, or other, circumstances would increase the demand for allowances, and likely push up allowance prices. If the conditions are sufficiently extreme, the increased demand for allowances could exceed the 122 million allowances in the Reserve, which would open the possibility for allowance prices to exceed the established prices in the Reserve.

Sensitivity analysis conducted in the Updated Economic Analysis of California's Climate Change Scoping Plan examined the potential impacts of a range of stress conditions, including less than expected effectiveness of direct regulations and programs and lower than expected offset supply. Under a variety of stress scenarios, the demand for allowances exceeded supply at the highest Reserve price by a range of 30 to 45 million metric tons.² This sensitivity analysis provides one indication of the potential magnitude of the imbalance in supply and demand that could occur under stress conditions.

² Updated Economic Analysis of California's Climate Change Scoping Plan: California Air Resources Board, March 24, 2010. http://www.arb.ca.gov/cc/scopingplan/economics-sp/updated-analysis/updated_sp_analysis.pdf (accessed June 21, 2013).

2.3 Board Resolution

In October 2012, the Air Resources Board adopted Resolution 12-51³ directing Staff to recommend cost containment mechanisms that “will achieve the policy objective of ensuring that the allowance prices will not exceed the highest price tier of the Allowance Price Containment Reserve while minimizing the impact on existing allowances and maintaining the environmental objectives of the program.” Staff must also “demonstrate that the proposed mechanisms are effective in a reasonable range of plausible combinations of conditions as needed to assure their effectiveness during the period of 2013 to 2020.”

The Resolution requires a mechanism that ensures the defense of the highest price tier of the Reserve under a reasonable range of plausible conditions over the program. Consequently, the mechanism must be effective under short-term or transient conditions, such as a temporary spike in the demand for allowances, as well as a persistent heightened demand for allowances that continuously pushes up allowance prices. It has been suggested that in order for the mechanism to be effective under these conditions it must be known in its entirety and automatic in its execution (i.e., not subject to the discretion of future decision makers). Consequently, emphasis is placed on identifying options that can be written into the program regulations in their entirety.

The Resolution also requires that the environmental objectives of the program must be maintained. To the extent that costs are contained by allowing higher GHG emissions than would otherwise have been permissible under the program through 2020, compensating emission reductions will need to be achieved through other means.

Finally, any cost containment mechanism must be feasible in the framework of AB 32 and must be capable of being implemented within the timeline of the cap-and-trade program regulatory amendments planned for Fall of 2013.

3. Policy Approaches for Containing Costs

Four policy approaches have been identified for creating additional mechanisms to ensure that allowance prices do not exceed the highest price tier of the Reserve:

1. Increase the availability of allowances at the highest price tier of the Reserve.
2. Allow compliance obligations to be fulfilled through price-per-ton payments at the highest price tier of the Reserve.
3. Delay compliance obligations under specified circumstances.

³ California Cap-and-Trade Program Resolution 12-51. October 18, 2012.
<http://www.arb.ca.gov/cc/capandtrade/final-resolution-october-2012.pdf> (accessed June 21, 2013).

4. Cancel compliance obligations under specified circumstances.

In addition to these four approaches, the Board could consider the option of adding no additional cost-containment features to the program.

In the sections that follow, each policy approach is broadly defined. Potential benefits and challenges are presented, focusing on the ability of the approach to achieve the Resolution price objective, as well as operational and regulatory feasibility.

3.1 Increase the Availability of Allowances at the Highest Price Tier of the Reserve

This policy option puts additional allowances into the highest price tier of the Reserve. The knowledge that allowances are available at the highest price can eliminate any market participant's willingness to pay more than this price for any allowances. In this manner, this approach can ensure that allowance prices do not exceed the top tier price.

Additional allowances can be made available in various ways. The following illustrates some of the potential options for making additional allowances available at the top tier price.

- Quantity Made Available: An unlimited number of additional allowances could be made available at the top tier price, or the number of additional allowances could be limited to a set amount. If a limited number of additional allowances is made available, there is the risk that the quantity is insufficient to satisfy the demand for allowances at the top tier price.
- Frequency of Availability: Additional allowances could be made available continuously or at specific times. Several alternatives demonstrate the range of options:
 - Continuous: Provide a mechanism by which additional allowances could be purchased from ARB on any business day.
 - Periodic: Provide a mechanism by which additional allowances could be purchased on set days of the year, such as the four scheduled Reserve sales and/or the four scheduled auctions.
 - Annually: Provide the opportunity to purchase additional allowances once per year.
- Eligibility to Purchase: Conditions could be established that define the eligibility to purchase the additional allowances. For example, only covered entities are

eligible to purchase from the Reserve. Eligibility could also be determined by external events.

- Purchase Limit: Limits could be established on the number of additional allowances that could be purchased by any individual entity.
- Restrictions on Use: Restrictions could be placed on the manner in which the allowances are used. For example, allowances purchased from the Reserve must be placed directly into the purchaser's compliance account.
- Holding Limits: The program includes holding limits that apply to the holdings of all allowances by each entity, including allowances purchased from the Reserve. The additional allowances made available in this example could be subject to the same holding limits, could have their own limit, or could be exempt from any holding limit.

Table 1 presents one illustrative option for making additional allowances available at the highest price tier of the Reserve. This example integrates the sale of additional allowances into the existing Reserve sale process, and the top tier of the Reserve would be defined as having an unlimited quantity. However, by making the holding limit applicable, the purchases are limited by the compliance obligations of each entity.

If the number of allowances in the top tier of the Reserve (after augmentation) is sufficient to cover all future demand at the top tier price, this policy option is expected to be effective in achieving the allowance price objective in the Board Resolution. Various options within this approach appear to be feasible within the cap-and-trade program regulatory changes planned for 2013. Challenges with this approach include:

- Introducing the capability to add allowances in the Reserve top tier to the Compliance Instrument Tracking System Service (CITSS) in a secure manner;
- Ensuring compliance entities know their compliance obligations in advance of the date of the Reserve sale; and
- Ensuring harmonization with any linked programs.

Table 1: Example Option for Making Additional Allowances Available at the Highest Price Tier of the Reserve

Components	Comments
Unlimited additional allowances made available	Although unlimited in concept, the quantity that can be purchased in aggregate is limited by the holding limit as it is applied to each entity, which is related to each entity's compliance obligation.
Made available once a year at the Reserve sale just prior to the November 1 compliance date	Integrating the sale with the Reserve sale avoids adding new administrative requirements. The sale just prior to each compliance event is the time when compliance requirements are best known. The timing is also prior to the tier price increase the following January.
All covered entities (i.e., those with a compliance obligation) are eligible to purchase	Same requirements as Reserve sale
No purchase limits	Same requirements as Reserve sale
Purchased allowances must go directly into the entity's compliance account	Same requirements as Reserve sale
Holding limits apply	Same requirements as Reserve sale

This example is for illustrative purposes only.

3.2 Allow Fulfillment of Compliance Obligation Through Fixed Price-Per-Ton Payment at the Highest Price Tier of the Reserve

This policy option allows compliance entities to fulfill their compliance obligation by paying a fee equal to the Reserve top tier price for each metric ton of emissions. On the day of compliance, entities could submit compliance instruments and documentation of fee payments that together satisfy the compliance requirement. The knowledge that compliance can be achieved at the top tier price through a fee payment can eliminate any market participant's willingness to pay more than this price for any allowance. In this manner, this approach can ensure that allowance prices do not exceed the top tier price.

The fee payment process could be structured in a variety of ways. Generally, only compliance entities would consider making the fee payments. The process for making the payments could be made available continuously (e.g., on all business days) or on specific days. Because no allowances would be delivered to the compliance entities, purchase limits and holding limits would not apply. However, the portion of an entity's compliance obligation that could be satisfied with a fee payment could be limited.

Table 2 presents an illustration of how the fee payment option could be structured. In this example, fee payments could be used for an unlimited portion of an entity’s compliance obligation. A fee payment process would be created so that payment could be made prior to the compliance deadline, but after the entity knows its compliance obligation.

Table 2: Allow Fulfillment of Compliance Obligation Through Fixed Price-Per-Ton Payment at the Highest Price Tier of the Reserve

Components	Comments
Fee payments could be made for an unlimited portion of an entity’s compliance obligation.	Although unlimited in concept, the use of the fee payment approach would be limited by each entity’s compliance obligation.
All covered entities are eligible to use the fee payment approach.	Same eligibility as Reserve sale.
Made available once a year during a fee payment window two weeks prior to the November 1 compliance obligation	Establishing the fee payment opportunity just prior to each compliance event ensures compliance entities will know their compliance obligation.
No purchase limits or holding limits	Entities do not purchase or hold allowances under this option.

This example is for illustrative purposes only.

This fee payment policy option is expected to be effective in achieving the allowance price objective in the Board Resolution if the fee payment can be used for an unlimited portion of an entity’s compliance obligation. Limits on the ability to use the fee payment option could lead to allowance prices that exceed the Reserve top tier price.

Significant challenges are presented by this option. Of particular importance is the lack of clear authority for ARB to collect fees for compliance under AB 32. Also, new administrative processes would be required to enable and document fee payments for compliance purposes. These challenges appear to make this option infeasible within the planned 2013 cap-and-trade program regulatory changes. Additionally, this approach is inconsistent with the fundamentals of the program design developed cooperatively with other jurisdictions with which California is planning or potentially likely to link.

3.3 *Delay Compliance Obligation*

This policy option delays the date of compliance for a predetermined length of time. The conditions triggering the compliance delay would need to be defined precisely in the program regulation. For example, the status of purchases from the Reserve could

be defined as a triggering event: the sale of all allowances in the first two tiers of the Reserve could automatically trigger the delay.

As a result of the delay, allowances from what would otherwise have been a future vintage would become eligible for compliance on the delayed date. Consequently, this approach allows the use of future vintage allowances for current (delayed) compliance.

This approach may be effective in containing allowance prices in response to transient or temporary conditions that occur prior to the final years of the program. However, this approach is not guaranteed to be sufficient to address persistent heightened demand for allowances. This approach also relies on the ability to: (1) define precisely appropriate conditions to trigger the delay; and (2) monitor the conditions so that the trigger can be determined objectively and unambiguously. An additional challenge associated with this option is that it could add uncertainty to the program, as the potential for the delay to be triggered will remain uncertain until the trigger occurs.

3.4 Cancel Compliance Obligation

This policy option cancels the compliance obligation for emissions that occur during a specific period. As a result of the cancellation, the compliance obligation for entities would be reduced by the amount of emissions reported during the specified period of cancellation.

This approach may be effective in restoring an overall balance in the supply and demand of allowances in the program. However, the amount of compliance obligation that is canceled cannot be easily adjusted to balance supply and demand.

Consequently, the cancellation of one year of compliance obligation could be too large an adjustment (leading to low allowance prices) or an insufficient adjustment (so that allowance prices continue to exceed desirable levels).

Similar to the delay option, this approach relies on the ability to: (1) define precisely appropriate conditions to trigger the cancellation; and (2) monitor the conditions so that the trigger can be determined objectively and unambiguously. This option could also add uncertainty to the program, as the potential for the cancellation to be triggered will remain uncertain until the trigger occurs.

3.5 Maintain Existing Cost Containment Features

This policy option relies on the existing features of the cap-and-trade program to contain allowance prices below the highest price tier of the Reserve. The acceptability of this approach depends on the likelihood of the demand for allowances exhausting the Reserve. A related option would be to reconsider additional mechanisms in the future, as the program matures.

The primary benefit of this approach is that it does not require any regulatory or procedural changes. However, it does not guarantee that the Resolution price objective will be achieved. Also, plans to reconsider additional mechanisms in the future could add uncertainty to the program.

4. Potential Sources of Compensating Emission Reductions

The Resolution requires that additional cost containment mechanisms maintain the environmental objectives of the cap-and-trade program. Under each of the policy approaches presented in the previous section, there exists the potential for total emissions to exceed the cumulative 2013-2020 emissions permissible under the program's allowance budget and offset limit. When each policy approach is used, the additional emissions that it enables appear to be measurable using program data. To maintain the environmental objectives of the program, compensating emission reductions will need to be achieved through other means that are equal to or greater than the measured additional emissions.

The following section presents examples of potential sources for compensating emission reductions. These sources can be used in combination and ordered. To meet the Resolution objectives, the source of any compensating emission reductions must be clearly defined in the program regulation.

4.1 Redistribute Existing Allowances Within the 2013-2020 Period

This option for maintaining environmental integrity redistributes the existing pool of allowances through 2020 but does not increase the cumulative supply of allowances. There are various mechanisms by which this allowance redistribution, or limited borrowing, could occur including:

- Make up to 50% of all allowances designated by ARB for each future vintage allowance auction eligible for use in the highest price tier of the Reserve. In 2014, 50% of the 2018 allowances designated for future vintage allowance auctions would be eligible. If the highest price tier of the Reserve is exhausted, these allowances would be available to be used and if not, these allowances would be available for auction. This option could result in the availability of up to 50 million metric tons of additional allowances. In the event that this allowance redistribution is not sufficient, additional sources of allowances can be identified.
- Make available for immediate use in the highest price tier of the Reserve all unsold 2015 vintage allowances offered for auction in 2012. These 34 million allowances would be eligible for purchase from the Reserve in 2014, and would be auctioned as current vintage allowances in 2015 if they were not purchased from the Reserve.

The advantage of using these sources of compensating emission reductions is that the total number of allowances within the 2013-2020 period remains unchanged. Also, the mechanism would be entirely contained within the design of the existing program. However, because no additional emissions are enabled through 2020, this approach would likely be most effective for addressing temporary demand imbalances that occur relatively early in the program. These sources of compensating emission reductions would be unlikely to resolve persistent high demand for allowances through the program. Additionally, in the later years of the program, the availability of unsold future vintage allowances would likely be limited under conditions of high demand.

4.2 Commit to Additional Emission Reductions from the Post-2020 Period

This option for maintaining environmental integrity increases the total supply of allowances during the 2013 to 2020 period by committing to additional emission reductions from an anticipated post-2020 program. Within the stated intent of AB 32, the 2020 emissions target remains in effect and emission reductions will continue beyond 2020. Any compensating emission reductions required for the 2013 – 2020 period could be incorporated into the design of the emission reductions programs that will be required to meet the post - 2020 goals of AB 32. Future programs could include a cap-and-trade program or other type of emission reductions programs. One approach to defining this option would be to commit to future emission reductions without identifying the precise source or program that would achieve the reduction, given the continued emission reductions required within AB 32.

Alternatively, the sources of the additional post-2020 emission reductions could be determined as part of defining this approach. In this case, the broad outlines of the post-2020 programs would need to be defined with sufficient specificity to determine that the additional post-2020 emission reductions could be delivered. However, given that the post-2020 programs will not be defined in detail this year, it does not appear feasible to identify the specific source of post-2020 emission reductions during the planned 2013 cap-and-trade program regulatory changes.

The absence of a clearly defined source of the additional post-2020 emission reductions creates uncertainty regarding the ability to maintain the current program's environmental objective. Additionally, if the source of additional emission reductions is subsequently determined to be a post-2020 cap-and-trade program, the potential linkage between that program and the current program must be considered. For example, assuming allowances from the current program could be used in the post-2020 program, the use of additional future emission reductions would affect allowance prices in the current program. This impact could be particularly important if the demand for allowances in

the current program is persistently higher than expected through 2020, indicating that emission reductions are more costly to achieve than expected.

4.3 Mandate Additional Emission Reductions from California Sources

Additional emission reductions could be achieved by mandating increased emission reductions from California emission sources not covered by the cap-and-trade program. However, the supply of additional emission reductions is likely to be limited in California due to the broad scope of the cap-and-trade program. Additionally, the cost of the additional emission reductions would need to be considered.

4.4 Obtain Emission Reductions Outside of California

Additional emission reductions could be obtained from outside of California. Sources include:

- International offset credits could be obtained and retired.
- Allowances from non-linked cap-and-trade programs could be obtained and retired.
- Offsets from jurisdiction-run sector crediting programs could be obtained and retired.

Care would be needed to ensure the supplies of the emission reductions met all the AB 32 requirements, including being additional, verifiable, permanent, quantifiable, and enforceable. Existing supplies of potential emission reductions have challenges, including excess allowance supply in some cap-and-trade programs. The future availability and price of candidate instruments is also uncertain.

A significant challenge to this approach is that ARB does not have the resources or the clear authority to purchase instruments from other programs to compensate for additional emissions in the California cap-and-trade program. Although the allowance auctions generate proceeds for the state, ARB does not have the authority to direct the use of those funds. It appears that these challenges make this option infeasible as part of the planned 2013 cap-and-trade program regulatory changes.