**White Paper**

# Outstanding Design Flaws in California's Cap-and-Trade Program

**Jean-Philippe Brisson**[1]
**Partner, Latham & Watkins, LLP**

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On January 1, 2013, California embarked on a grand experiment with the launch of the world's most complex cap-and-trade program. Under this program, companies operating in California, such as food processors, power producers and importers, manufacturers, cement producers and refiners, must purchase carbon permits called "allowances" from the Air Resources Board ("**ARB**") to cover their emissions of greenhouse gases ("**Compliance Entities**").

As of today, ARB has held eight auctions during which it has sold more than 240 million allowances at prices ranging between $10 and $14[2] per allowance. Participants in ARB auctions have included Compliance Entities, but also a number of financial intermediaries and speculators that purchase allowances for resale at a profit. For example, financial intermediaries and speculators have purchased more than 20 million allowances so far in ARB auctions.[3]

Although the program is working well in some areas, a number of challenges remain and a key test will come in the period leading up to the first final compliance deadline of November 1, 2015, when companies will adjust their holdings of allowances to cover their 2013-2014 emissions. As the compliance deadline approaches, the market's proper functioning becomes increasingly important to ensure that regulated entities are able to satisfy their compliance obligations and that the anticipated benefits of the program are fully realized.

To ensure that the program continues to function well, and to avoid a situation in which allowance prices spiral upwards as we approach November 1, 2015, it is imperative to address a number of outstanding design flaws in the program. These design flaws include: (1) the current structure of the holding limit, (2) the infrequency of auctions, (3) ARB's cost containment policies, (4) ARB's approach to markets and the rule of law, and (5) the program's relationship to impending federal GHG regulations. Addressing these matters, described in more detail below, is crucial not only for the November 1, 2015 deadline, but also because the program is scheduled to double in size on January 1, 2015 when downstream fuels become regulated under the program.

## Background: Experience Shows that Market Design Flaws Can Cripple Environmental Programs

Past experience demonstrates the importance of proper design. Market design flaws can result — and have resulted — in catastrophic implications for environmental markets around the globe. Take, for example, California's own South Coast Air Quality Management District RECLAIM cap-and-trade program for oxides of nitrogen and sulfur during the California power crisis of 2000-2001. RECLAIM had initially been designed to include certain cost-containment mechanisms, but these were ultimately left out of the program. When demand for power soared,

the market simply did not have enough RECLAIM credits to cover emissions, and costs spiked from less than $2,000 per ton to over $60,000 per ton. In the context of the California cap-and-trade program, this precedent would be the equivalent of cap-and-trade allowance prices spiking from their current average of $12 to $360.

In its own economic analysis prepared in connection with the cap-and-trade program, ARB has acknowledged the sensitivity of market prices and associated program costs to various factors (for example, offset supply, the degree of demand response to rising energy prices and the relative success of complementary measures).[4] Market design flaws, including those identified in this paper, may lay dormant for a period of time when markets are not under stress, providing a false sense of security to industry and regulators. When a program comes under pressure because of unforeseen conditions or simply because the program becomes increasingly stringent over time, latent market design flaws can significantly derail an environmental program, undermining both industry's and regulators' investments to achieve environmental objectives. Accordingly, ARB should address these issues now rather than waiting until the program experiences a significant stress, at which point corrective action may come too late.

## 1. The Holding Limit Squeezes Liquidity from the Market

ARB has implemented a "holding limit" in the cap-and-trade program that prevents entities from holding more than a given number of allowances at any one time to minimize the risk of market manipulation. Though well intentioned, the holding limit as currently structured represents a design flaw because the limit restricts market liquidity and possibly increases the risk of market manipulation.

The holding limit is set at a fixed amount for each entity: for the first compliance period, the limit is approximately 6.4 million allowances and, for the second compliance period, the limit is approximately 12.7 million allowances. This design flaw creates several negative implications for the cap-and-trade program. First, under the current approach, speculators (who participate in the market to make a profit unlike Compliance Entities who are legally obliged to participate) are allowed to keep as many allowances in their holding accounts as large Compliance Entities. This completely ignores the reality that Compliance Entities, unlike speculators, are obliged to surrender allowances to cover their emissions.

Second, the limit has been set below the projected emissions of many large Compliance Entities, in some cases at 20% or 30% of such emissions. As a consequence, large Compliance Entities may not be able to buy and sell allowances throughout the compliance period based on their projected emissions and market conditions without running afoul of the holding limit. Instead, these entities will remove allowances from the market on an ongoing basis by moving them into a compliance account (which is, essentially, a lockbox from which allowances cannot be traded).[5] As Compliance Entities are required to move allowances into their compliance accounts, the market shrinks, liquidity diminishes and the positions of speculators grow relative to the overall market size. As indicated in the table below, on an aggregate market basis, these movements of allowances into compliance accounts will reduce the market size by as much as 33% in the second compliance period of 2015-2017.[6]

| Compliance Period | Total Emissions Cap | Allowances Not Available for Trade | Proportion over Period |
|---|---|---|---|
| **2013-2014** | 380,000,000 | 80,000,000 | 21% |
| **2015-2017** | 1,200,000,000 | 400,000,000 | 33% |

Expert analysis bears out this conclusion. A study by the University of Virginia and Power & Energy Analytic Resources concluded that the holding limit "may actually have the unintended effect of increasing the probability of market manipulation."[7] This conclusion stems from a holding limit, which necessarily restricts the size of the trading market because so many allowances are locked up in compliance accounts. As the California Legislative Analyst's Office noted in a report recommending elimination of the holding limit, the limit reduces the market's ability to "correct" prices that are too high or too low, including price changes due to market manipulation.[8] The report also found the limit "contributed to higher price variability, less effective price discovery, lower efficiency, and ultimately reduced banking, which translates into delayed reductions in greenhouse gases."[9] Even ARB's own economic analysts, the Emissions Market Assessment Committee for AB32 Compliance Mechanisms ("**EMAC**"), has recommended "allowing some fraction of a compliance account to be eligible for resale to the entire market, or perhaps to firms within the same industry category."[10]

The existence of a design flaw in the current holding limit is not totally surprising. Following an analysis prepared in 2010 for the Western Climate Initiative (the "**WCI Report**"),[11] ARB designed its "holding limit" based on the Commodities Futures Trading Commission's (the "**CFTC's**") concept of "position limits".[12] The WCI Report, however, does not support the current design of ARB's holding limit. The WCI Report assumed the existence of a multi-state, WCI-wide carbon market in which the holding limit would have been significantly higher than the prevailing holding limit in the California-Quebec market. ARB quite reasonably shared the same expectation when designing the current holding limit in 2010, but subsequently abandoning the regional approach by other states required adjustments to the holding limit's original design. Indeed, the WCI Report recognized that, in smaller markets, holding limits must be relaxed in order to promote liquidity.[13]

Accordingly, in light of the current size of the carbon market and the academic research conducted since the development of the cap-and-trade program, the holding limit must be adjusted from a single limit across the market, to one which reflects the Compliance Entities' compliance obligations. Specifically, Compliance Entities should not be required to move allowances into a compliance account (*i.e.*, the lockbox), which is the market design flaw that constrains liquidity and reduces the market size. This limited adjustment would retain the holding limit to prevent all market participants from hoarding a "net" position above the holding limit, but would also strengthen the market's integrity and avoid increasing speculators' relative positions as compliance deadlines approach.

### 2. Auctions Are Held Infrequently

Auctions play an important role in the efficient and fair operation of markets. Auctions provide price transparency and an avenue for companies to rapidly address unforeseen events that affect

their exposures, such as a surge in their operations or new asset acquisitions. Yet, with only four auctions per year, companies have relatively few opportunities to avail themselves of this compliance pathway under the California cap-and-trade program. More frequent auctions would result in increased market liquidity and improved price discovery, mitigating some of the holding limit's negative effects.

Such an approach already has the support both of other emissions trading systems and ARB's own experts. For example, the European Union requires weekly auctions under the Emissions Trading System.[14] And according to an EMAC report, more frequent auctions would bring "significant benefits to market participants."[15] Dr. Todd Schatzki and Harvard Professor Robert Stavins echoed this conclusion in a report for the Analysis Group, which argues that more frequent auctions would "improve price discovery, reduce price volatility and reduce opportunities for market manipulation."[16] In fact, the WCI Report acknowledged the importance of frequent auctions in minimizing the risk of market manipulation.[17] As an additional improvement to the program, EMAC has proposed two-way auctions, a mechanism that also merits ARB's further consideration.[18]

Improved market performance becomes increasingly important as fuels set to come under the cap beginning in 2015, doubling the size of the market. More accurate price discovery will help align the cost of allowances with the marginal price of emissions abatement, incentivizing companies to pursue the most cost-effective means of reduction. Furthermore, holding more frequent auctions has little cost or downside to ARB. In short, there is little reason for ARB not to increase the frequency of allowance auctions.

### 3. The Program Has Inadequate Price Containment Protections

AB32 requires ARB to implement the cap-and-trade program in a cost effective manner, but the current program's cost containment measures do not adequately safeguard against the risk of unacceptably high price spikes.

The current system utilizes an "allowance price containment reserve," which is a pool of allowances that ARB has provided to market participants at certain fixed price levels (the "**APCR**"). If allowance prices rise — perhaps because of spikes in energy demand associated with, for example, an unusually hot summer or cold winter, or as a compliance deadline looms and certain speculators decide to hoard allowances — the regulated community will be able to purchase from this additional supply to prevent a run on allowances. This approach, while sensible, remains insufficient. The APCR is itself finite, begging the question of how ARB will contain prices that continue to rise if and when the APCR is depleted. The current system does not address such a contingency adequately.

Severin Bornstein of EMAC has recommended that ARB "adopt a firm and credible price ceiling by standing ready to make additional allowances available at the ceiling price."[19] A coalition of industry participants called the Joint Utilities Group ("**JUG**") has likewise proposed additional cost containment measures to ARB that would give covered entities more options to obtain compliance instruments now and also introduce new emergency mechanisms to alleviate major price spikes. JUG's proposal would make additional use of real, verified and additional emissions offset credits while also utilizing more sophisticated banking and borrowing

mechanisms for the APCR. The combined effect would be to increase the flexibility and price certainty for regulated entities while still maintaining the integrity of the program's emissions cap. Professor Stavins has similarly recommended adopting additional cost containment measures, including, possibly, a hard cap on prices.[20] The Market Simulation Group, which received ARB funding, has recommended permitting Compliance Entities to retire allowances from other programs such as the Regional Greenhouse Gas Initiative or the European Union system or to convert allowances from vintages beyond 2020 to a current vintage.[21]

JUG's recommendation to expand the use of offsets is particularly relevant given the important role offset credits can play in cost containment. As mentioned previously in this document, ARB's own analysis acknowledged the sensitivity of market prices to factors such as offset supply. Given the ongoing concerns about the economic impact of the AB32 program, now more than ever, ARB should seriously reconsider how to better leverage offsets as a cost containment mechanism. Importantly, ARB should first redirect internal staffing resources to accelerate the current review and approval timelines associated with offset projects and offset credit issuance. Second, ARB should continue its work to develop new protocols, both domestically and internationally, to expand the current offset supply. Finally, and as the program enters its second compliance period, it seems appropriate to revisit the strict quantitative limit (8%) on the use of offset credits.

### 4. The Current Approach to Offsets Disregards Market Certainty and the Rule of Law

Problems with the allowance market — infrequent auctions, restrictive holding limits, and a lack of adequate cost containment mechanisms — are exacerbated by ARB's draconian and potentially arbitrary enforcement practices.

This concern has been readily apparent in the ongoing proceeding involving ARB-issued offset credits for greenhouse gas emission reductions generated from the destruction of ozone depleting substances. After determining that these emissions reductions met the requirements of the program and issuing the associated offset credits, in May 2014 ARB reversed course and removed them from holders' accounts without notice and arguably in violation of its own regulations. By removing the offsets from the market, ARB removed approximately $50 million of value from market participants who had acquired them in good faith for good value. These actions raise significant concerns as to how ARB will manage a market currently worth $2 billion annually and scheduled to increase to more than $4 billion in 2015.

### 5. The Cap-and-Trade Program is Inconsistent with Pending Federal Policy

The stated goals of AB32 and the cap-and-trade program include catalyzing action in other states and at the federal level, as well as positioning California's businesses and economy to benefit from national efforts to reduce greenhouse gas emissions.[22] To ensure California is properly rewarded and not penalized for taking early actions, however, future federal programs should 1) recognize California's significant progress in reducing greenhouse gas emissions 2) build on and complement existing state programs, and 3) encourage other states to adopt similar programs to reduce power sector emissions.[23]

On June 2, 2014, the U.S. Environmental Protection Agency issued the long-awaited Clean Power Plan ("**CPP**") proposal, the Obama administration's blueprint to regulate greenhouse gas emissions. Unfortunately, the CPP does not fully align with California's cap-and-trade program design and objectives for a number of reasons. First, although California had expected — quite legitimately — the CPP to provide credit for early action to reduce emissions, the CPP does not provide early action credit in the traditional sense. As currently proposed, only emission reductions achieved after 2014 can be used to demonstrate compliance with the CPP targets.[24] In other words, to the extent that California has reduced its emissions under AB32 prior to 2014, such low-cost abatement measures will not be available to California to comply with the CPP. Compliance with the CPP will be, therefore, comparatively more costly for California than for other states that have not taken any early action, contrary to the intent and objectives of then Governor Schwarzenegger and the California State Legislature when they adopted AB32 in 2006.

Second, an inherent disconnect exists between the CPP — which is strictly a power-sector program, and the California cap-and-trade program — which applies to all sectors of the economy, including the upcoming expansion to cover transportation fuels. The fact that California's cap-and-trade program permits the use of offsets to satisfy up to eight percent of an entity's compliance obligation for each compliance period further exacerbates this disconnect.[25] Offsets are emissions reductions outside the regulated sector. This implies that California could end up meeting the goals of AB32, while falling short of its CPP target if the AB32 reductions come primarily from outside the power sector, including from offsets.

Third, California's approach to reducing GHG emissions and is fundamentally misaligned with the CPP approach. Whereas California has adopted a hard cap on total emissions permitted under the program on a tonnage basis, the CPP proposes carbon intensity targets, representing pounds of $CO_2$ emitted per net megawatt hour. Intensity targets drive efficiencies in production processes, but allow for economic growth. In the long run, a hard cap will make the California program significantly more stringent than the anticipated federally-required program based on an intensity target.

**Conclusion**

The cap-and-trade program in California is often viewed as a success. In certain fundamental respects, however, the program remains untested, as covered entities have not yet faced a real compliance deadline. Additionally, the program is scheduled to more than double in size starting in 2015. These new and changing circumstances, which will put new pressures on the program, underscore the need for ARB to correct existing program design issues. Given that the regulatory rulemaking process can sometimes require up to a year, ARB must act quickly to address the issues identified here.

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[1] Jean-Philippe Brisson is a partner in Latham & Watkin LLP's Environmental, Land and Resources Department and co-chair of its Air Quality and Climate Change Practice. JP has more than 15 years of experience working on environmental and energy markets and he is ranked by Chambers USA and Chambers Global for his work in this area. JP was previously Vice President in Goldman Sachs' Global Commodities business where he

established Goldman's US carbon trading desk and worked on a number of private equity transactions in the commodity space. This report was commissioned by the Western States Petroleum Association.

[2] All monetary values in this document represent US dollars.

[3] Latham & Watkins calculations based on ARB's allowance auction results data available at http://www.arb.ca.gov/cc/capandtrade/auction/auction_archive.htm.

[4] California Air Resources Board, "Staff Report: Initial Statement of Reasons, Proposed Regulation to Implement the California Cap-and-Trade Program," Part I, Vol. I October 28, 2010, at VIII-6 et seq., available at http://www.arb.ca.gov/regact/2010/capandtrade10/capisor.pdf.

[5] Allowances in an entity's "compliance account" may be subject to a limited exemption from the holding limit. Therefore, Compliance Entities with large compliance obligations must transfer allowances from their "holding account" to their compliance account in order to comply with the holding limit. Unlike the holding account, however, the compliance account is a lockbox; once an entity puts allowances into its compliance account, it cannot take them back out. Thus, large entities must effectively remove allowances from the market in order to comply with the holding limit.

[6] Data compiled by Latham & Watkins LLP based on information publicly available on ARB's website. For additional information, *see* Latham & Watkins LLP, "Allowance Holding Limit under the Cap-and-Trade Program, Summary of Key Issues," June 19, 2014, at Tab 14, available at http://www.lw.com/thoughtLeadership/LW-cap-and-trade-holding-limit.

[7] University of Virginia and Power & Energy Analytic Resources Project Team, "Investigation of the Effects of Emission Market Design on the Market-Based Compliance Mechanism of the California Cap on Greenhouse Gas Emissions," February 12, 2013 at 20, available at http://www.batten.virginia.edu/sites/default/files/FINAL_REPORT_CA_Cap_and_Trade_Market%20_imulation_Results_021813_0.pdf.

[8] Legislative Analyst's Office, "Evaluating the Policy Trade-Offs in ARB's Cap-and-Trade Program," February 9, 2012 at 23, available at http://www.lao.ca.gov/reports/2012/rsrc/cap-and-trade/cap-and-trade-020912.pdf.

[9] *Id.*

[10] Severin Borenstein, James Bushnell and Frank A. Wolak, Emissions Market Assessment Committee for AB 32 Compliance Mechanisms, "Issue Analysis: Holding Limits in California's Greenhouse Gas Emissions Cap-and-Trade Market," November 8, 2013 at 4, available at http://www.arb.ca.gov/cc/capandtrade/emissionsmarketassessment/holdinglimits.pdf.

[11] Jeffrey H. Harris, "Western Climate Initiative Markets Committee Report on Holdings Limits," May 6, 2010, available at http://www.westernclimateinitiative.org/component/remository/Markets-Committee-Documents/Report-on-Holdings-Limits.

[12] California Environmental Protection Agency, Air Resources Board, Proposed Regulation to Implement the California Cap-and-Trade Program: Staff Report: Initial Statement of Reasons, October 28, 2010 at IX-104, available at http://www.arb.ca.gov/regact/2010/capandtrade10/capisor.pdf.

[13] Harris at 13, 16-17. As a further illustration of this issue, clearly the analysis never contemplated the possibility that the limit could be set at a level below the emissions of certain large Compliance Entities.

[14] Article 8(4) of Commission Regulation (EU) No 1031/2010 on the timing, administration and other aspects of auctioning of greenhouse gas emission allowances pursuant to Directive 2003/87/EC of the European Parliament and of the Council establishing a scheme for greenhouse gas emission allowances trading within the Community, available at http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:02010R1031-20111125&from=EN.

[15] Severin Borenstein, James Bushnell and Frank A. Wolak, Emissions Market Assessment Committee for AB 32 Compliance Mechanisms, "Issue Analysis: Auction Format and Auction Frequency for California's Greenhouse Gas Emissions Cap-and-Trade Market," November 8, 2013 at 1, available at http://www.arb.ca.gov/cc/capandtrade/emissionsmarketassessment/auction.pdf.

[16] Todd Schatzki and Robert N. Stavins, "Three Lingering Design Issues Affecting Market Performance in California's GHG Cap-and-Trade Program," January 29, 2013 at 12, available at http://www.analysisgroup.com/uploadedFiles/Publishing/Articles/Three_Cap_and_Trade_Design_Issues.pdf.

[17] Harris at ii.

[18] Severin Borenstein, James Bushnell and Frank A. Wolak, Emissions Market Assessment Committee for AB 32 Compliance Mechanisms, "Issues Analysis: Auction Format and Auction Frequency for California's Greenhouse Gas Emissions Cap-and-Trade Market," November 8, 2013 available at http://www.arb.ca.gov/cc/capandtrade/emissionsmarketassessment/auction.pdf.

[19] Severin Bornstein *et. al.*, "What's the Worst that Could Happen?" University of California Berkeley Haas School of Business Energy Institute at Haas, July 7, 2014, available at http://energyathaas.wordpress.com/2014/07/07/whats-the-worst-that-could-happen/.

[20] Severin Bornstein, Blog post 4/7/14, Energy Economics Exchange, University of California at Berkeley, Haas School of Business.

[21] Severin Borenstein, James Bushnell, Frank A. Wolak, and Matthew Zaragoza-Watkins, "Report of the Market Simulation Group on Competitive Supply/Demand Balance in the California Allowance Market and the Potential for Market Manipulation," Energy Institute at Haas, July 2014 available at https://ei.haas.berkeley.edu/abstract_wp251.html.

[22] CAL. HEALTH & SAFETY CODE § 38501(d), (e).

[23] Chair Mary Nichols outlined a number of these considerations in a letter to Administrator Gina McCarthy. *See* Letter from Mary D. Nichols, Chairman of ARB, to Gina McCarthy, Administrator of EPA, December 27, 2013 available at http://bipartisanpolicy.org/sites/default/files/files/CARB.pdf.

[24] EPA, "Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units," 79 Fed. Reg. 34830, 34918, June 18, 2014. EPA has identified and solicited comments, however, on alternative "start dates" for crediting source and state action, including: "the end date of the base period for the EPA's BSER-based goals analysis (e.g., the beginning of 2013 for blocks 1-3 and beginning of 2017 for block 4, end-use energy efficiency), the end of 2005, or another date." *Id.*

[25] ARB, "Cap-and-Trade Regulation Instructional Guidance," December 19, 2012 at Chapter 6, p. 1, available at http://www.arb.ca.gov/cc/capandtrade/guidance/chapter6.pdf.