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Ms. Mary Nichols
Chairperson
Air Resources Board
1001 "I" Street
P.O. Box 2815
Sacramento, California 95812

Subject: Chevron Comments on October 28 Proposed Regulation to Implement the California Cap and Trade Program

Dear Ms. Nichols:

Chevron has enjoyed a collaborative working relationship with ARB since the passage of AB 32 in 2006. The cap and trade rule is central to California's climate change program and we recognize the hard work that has gone into the recent final draft.

The Proposed Regulation to Implement the California Cap and Trade Program is significantly improved from earlier proposals and reflects a more measured approach in consideration of the economic impacts. We would like to thank ARB for their hard work. We appreciate the long stakeholder involvement process and believe it had a positive influence on the design of key elements of the rule. While there are many matters to be addressed next year, we agree with ARB on the following policies:

- The cap & trade program is market-based and includes a slow, smooth transition to a carbon market.
- It recognizes the trade exposed nature of key California industries by distributing allowances accordingly and includes small allowance auction.
- It also includes viable cost control measures including offsets and an allowance reserve.

There remain a few near term issues that ARB should resolve before adoption of the regulation that will mitigate potential economic impacts over the life of the program. We have been talking to the staff and they recognize the importance of the issues and want to deal with them constructively. In addition, there are some significant longer term issues that need to be addressed in time to be effective in the second compliance period. We present a brief summary of the key issues below and have included a separate attachment that provides more detailed recommendations.

Near Term Issues

Before ARB adopts the final cap & trade rule this week, it needs to take several steps that reinforce its commitment to maintaining a liquid, functioning carbon market and mitigating costs over the life of the program.

- Linkage and Offset Availability – The ARB Board Resolution adopting final AB 32 regulation should reflect the staff report's statement on the importance of linkage and offset availability.

- Trade Exposure for Refining Sector – The final regulation should extend full trade exposure protection for refining beyond the first compliance period. We propose that ARB either review the impacts of trade exposure looking at marginal costs and change the status of refining to highly trade exposed; or add a criterion for program monitoring of leakage potential that evaluates the competitive disadvantage of refining due to the lack of linkage or a US national cap & trade program. If neither linkage nor a US cap and trade program is in place by 2014 then ARB should extend full trade exposure protection at 100% free allowances for refining. It is important that this evaluation take place as early as possible and well in advance of the second compliance period to avoid the irreversible impacts of investment and jobs transferred to other states.

- Liquid and Functioning Market – ARB needs to address several market design and liquidity issues that are critical to the successful launch and maintenance of a liquid and functioning carbon market. Attachment A includes our detailed recommendations on several issues including holding limits and allowance reserve replenishment over time, cap slope, treatment of transportation fuels, and enforcement concerns.

Long Term Issues

Several additional issues will require future work and must be completed to avoid serious economic impacts on jobs and investment in CA.

- Viable Linkage Framework – The staff report recognizes the importance of California linking to other cap and trade programs but the regulation itself does not yet establish a path to achieving that linkage. We believe that strong support from the Board is needed to ensure that linkage with WCI partners in 2011, and linkage with the EU after 2013 can become a reality.

- Adequate Supply of Offsets – We are concerned that ARB's limited approval process and the adoption of only four protocols will impact offset supply. We have detailed recommendations to help ensure that a large supply of offsets will be available. We believe it is vital that these be proposed and approved in early 2011 so that an offset supply can develop prior to the launch of the market.

- Benchmarking for Refining and Oil and Gas Production – We share ARB staff's desire to ensure that the final refining benchmark is based on energy efficiency and that the final thermal and non-thermal differentiated upstream benchmark is completed from validated data.

- Fuels in the Cap and Trade Program – We strongly recommend that ARB re-evaluate whether to place fuels under the cap and trade program — focusing on trade exposure and impacts to the economy — as part of the program review in 2014.

Our detailed comments and recommendations for both the near term and long term issues are attached along with additional comments from the Analysis Group on cost containment mechanisms and leakage.

In California's current fiscal and economic environment, we need to maintain a focus on implementing a program that will not undermine the state's nascent economic recovery. We appreciate ARB's efforts to evaluate and incorporate important policy elements into the AB 32 program and look forward to a continued positive working relationship.

Best regards,

via e-mail

Stephen D. Burns

Attachments

Attachment A

Chevron Detailed Comments on the
Proposed Regulation to Implement the California Cap and Trade Program

1. Holding Limits and Market Mechanisms

- It is a major concern that the current provisions of the rule on holding limits preclude major compliance entities from trading and optimizing their economic position. Under this provision, the vast majority of allowances for major compliance entities will be locked up in their compliance accounts, unable to be traded.

- Chevron, as a large supplier of transportation fuels with two refineries and, several oil and gas fields in the state is a major compliance entity.

- Using basic calculations assuming that we comply with the minimum annual surrender of 30% as required in the cap and trade rule, over 70% of our allowances are frozen and cannot be traded.

- This provision:

    - inhibits liquidity in the market;
    - limits the ability of entities to trade economically,
    - disadvantages compliance entities vs. traders which may be an unintended outcome since the trading community may represent a more serious concern for market manipulation.

- We must be able to trade a larger portion of our allowances to adequately hedge our risk particularly after the first two years of the cap and trade program. Additionally, there are other scenarios such as refinery shut downs, economic slowdowns, etc. that could necessitate the trading of allowances which could be stuck in our compliance account.

- We would also like to address frequency of auction and allowances. We believe that a more frequent auction is needed in the later years of the program to assure liquidity.

Recommendation: We propose to increase the holding account limit for compliance entities to two times the average of the previous two year's reported emissions for compliance entities. This change would free up allowances for the major compliance entities and enable a much more liquid market where we can adequately hedge our forward risk without major complications. While there are still allowances locked in our compliance account in some years, we feel that the increase in holding limits makes these limitations much more manageable. We are proposing an increase in holding limits for compliance entities only, so traders and speculators would not be affected by this change. By increasing the compliance entity holding limits you are creating a much more liquid market where major companies with the most at stake in the cap and trade program can achieve a lower total cost of compliance, and you are reducing overall financial impact on California economy. We propose that you increase the auction frequency from quarterly to every two months.

2. Enforcement

- ARB has structured the provisions such that operators that fail to surrender their compliance obligation in a timely manner are subject to a penalty requirement of four times the insufficient amount and an additional, separate penalty for "each day" of the violation.
- Imposing duplicative penalties for the same offense is unnecessarily stringent.
- In addition, requiring the violator to surrender "4 times the number of allowances" will potentially penalize others in the market as it will force the early retirement of instruments that could otherwise be available for use by others in the market.

Recommendation: Chevron recommends ARB revise the enforcement provisions, so that late or insufficient surrender of instruments should be subject to a surrender of one allowance plus the payment of penalty in dollars equal to the price for the additional number of allowances. Chevron recommends that all other enforcement remedies would be contingent on non-compliance with the original allowance surrender penalty.

3. Fuels under the Cap

- Placing fuels under the cap represents a significant cost to the state on top of many other regulatory schemes that are already adopted. The cost impacts to consumers in California as we emerge from a recession cannot be underestimated.
- At a minimum, placing fuels under the cap must be avoided at least until there are widespread cap and trade programs that include fuels across the US and around the world. None of the cap and trade programs throughout the world include fuels in the cap and trade programs, except New Zealand.
- If we do not fully review the economic impacts prior to adopting this policy, we risk unfairly punishing our residents and our state's economy unfairly.
- The policy exempting biofuels used for transportation from compliance obligations under certain conditions is not consistent with the goals of AB 32 because it would incentivize use of some fuels that are more carbon intensive on a life cycle basis or have other types of negative sustainability impacts. This would lead to an increase of emissions instead of incenting only those fuels that are less carbon intensive and result in lower emissions.
- The development of some rules for fuels under the cap and not others — particularly the treatment of biofuels — is handled unevenly, with specific regulations outlining the accounting process for biofuels used for transportation but no corresponding detail for the rest of the program. Because the other elements of the policy are not included we cannot evaluate the full impact of this language in context with the impacts of the full rule.

Recommendation: Chevron recommends that fuels not be placed under the cap until additional study of the impacts and alternatives are completed and should not be considered until there are widespread cap and trade programs that include fuels across the US and around the world. We further recommend that ARB delete the policy on biofuels because it is not consistent with the goals of AB 32 and it is premature and inappropriate to add this biofuel regulatory language into the rule without providing the context for the other elements of the rule addressing transportation fuels.

4. Trade Exposure for Refining

- ARB staff's determination that refining is a medium trade exposed sector is based on the ability to pass through costs and the fact that today's market is balanced with the majority of refined product consumed in California being produced in California. We believe that the analysis is flawed because it does not take into consideration the impacts on the balance of trade once the price of carbon is imposed on the market, nor does it recognize future changes in the market that are currently being signaled today.
- There is no empirical evidence established for the ability of CA refiners to partially or fully pass through carbon costs. Cost pass through will be determined by a variety of market factors as well structural factors associated with the carbon intensity of California refineries and imported products. Since long-term wholesale petroleum prices are driven by the marginal barrel costs of supply, the cost of carbon associated with the last marginal barrel of supply may be zero, if supplied by an imported barrel where no GHG regulations exist. The carbon cost associated with the last marginal barrel of supply from an in-state refiner could be small if the refiner has a low carbon intensity which is associated with simple, non-complex refineries. Therefore the less complex refiners may have more potential to pass through the costs on the marginal barrel.
- Imports and exports are currently balanced indicating a healthy market not a closed one.
- Recent worldwide increases in refining capacity and ARB's own Supplier Diversification initiatives have opened the CARBOB market to refineries worldwide.
- Because gasoline is a mixture of refinery streams, it's relatively easy for any refinery to produce 'some' CARBOB gasoline with minimal additional investment. California refineries have continued to make the more expensive investments necessary to produce a larger proportion of gasoline meeting CARBOB specifications
- Cost of transportation from states outside California is very small – approximately 5 cents per gallon or less.
- Basing a trade exposure determination on cost pass-through does not recognize the uneven playing field created for competition from outside by the cost of AB 32 compliance imposed on California producers, particularly with rising costs of carbon (expected in 2015 due to lack of linkage). Additional issues are long-term structural disadvantages to the sector from higher costs and the spiral effect that these costs and changes have on long-term investments in the state.
- Even with high trade exposure, California refineries will have to make reductions to meet the declining cap and to pay the added cost of carbon in electricity.
- It is important to recognize that impacts of this decision to add additional burden to the refining sector in the long term is not reversible. If ARB chooses to monitor trade exposure and change the program after seeing leakage, it will be too late. Investment decisions to grow industry out of the state cannot be reversed. ARB should make the trade exposure decision based on whether there are greenhouse gas emissions control programs for refineries throughout the U.S. and whether AB32 is linked to U.S. and worldwide programs.
- In addition to these detailed comments and recommendations, we have attached comments by the Analysis Group that substantiate that the refining sector should be considered highly trade exposed until there are widespread cap and trade programs that will equalize the costs between states and other jurisdictions. We can arrange a meeting between ARB staff and the consultants to clarify any questions regarding the comments.

Recommendation: Chevron recommends a high trade exposure determination for refining. This meets the objectives of AB 32 better than medium trade exposure because it reduces economic impacts from the program without compromising the required emission reductions to 1990 levels or impacts of the cost of carbon.

5. Offset Supply

- Offsets are critical to achieving cost-effective emission reductions under AB 32 especially until a broader market is developed when California links with other larger GHG cap and trade programs.

- While ARB has actively participated in offset creation at the Climate Action Registry (CAR), ARB has created additional prescriptive limits, and is not simply approving the protocols that they participated in. ARB has created a delegation process but is not yet delegating authority to the Climate Action Reserve to administer the offset mechanism although CAR has been very successful already in the offset development process and is a trusted entity.

- We are concerned that that the supply of offsets will not meet the needs of the CA cap and trade program and the program will cause economic harm because of the following policies and actions:
    - adding additional layers of review and limits to the already difficult process of creating offsets;
    - not providing any alternative review by existing and capable organizations that could serve as independent approvers of offsets; and
    - adopting only four protocols.

- There are two key existing protocols that can be approved today to help address the threat of lack of supply: landfill gas from North America and coal mine methane.
    - The landfill gas protocol could increase supply by 54% or 3.1MM credits
        - Through 2009, there are 104 landfill gas projects receiving credits from CAR only 5 of which are from California.
        - Therefore, the protocol must not exclude non California projects, or it will not serve to improve supply.
    - Coal mine methane has the potential to supply over 50 Million tons in offsets through 2020 according to sources within CAR.

- There are existing organizations that can be approved today to address the threat of lack of supply due to bottlenecks and the overly prescriptive process. CAR can provide efficiency critical to ensuring offset supply.
    - CAR currently has the capacity to administer the offset mechanism of the AB32 program.
    - Through 2009 5.7MM credits have been issued by CAR
    - The table below illustrates the overall capability of CAR compared to ARB's review process and shows that CAR is needed to approve offsets without a redundant review and approval process.

	Climate Action Reserve	**California Air Resources Board**
Protocol Development Experience (Yrs)	9	0

Protocols Developed	11	4
Protocols Under Development	2+	0
Projects Registered	66	0
Projects Listed	177	0
Established Verifiers	Yes	No
Registered Verifiers	12	0
Applicant Verifiers	5	0

Recommendation: We recommend that ARB designate CAR as an administrator of the offsets portion of the cap and trade system, designate non-California landfill gas CRTs as compliance-eligible offsets and include coal mine methane as an additional compliance-eligible protocol in 2011. Finally, in 2011 we would like to see direct recognition of existing offsets automatically from other established systems such as UN generated offsets and CAR approved offsets for compliance credits in California's cap and trade program, without additional administrative burden. Linking to other robust programs will promote the use of the highest quality offset credits known today and would do so in a cost effective manner. It would also help provide assurance to capped sectors and developers of offsets that a process to generate sufficient offsets is available to control costs and prevent undue economic impacts prior to full bilateral linkage with a larger cap and trade program, such as the European Union Emissions Trading Scheme.

6. Cap Slope

- We have significant concerns regarding the slope of the cap particularly in the first and second compliance periods.
    - The first compliance period may be significantly impacted by the potential lack of supply of offsets and because it is unlikely that California's program will be broadly linked with other state, federal or international programs in the early years.
    - Our concern is that the combined effects of the steeper cap slope and the tightening of the allowance due to reserve deductions and the increased auction and the potential entry of transportation fuels all in the second compliance period are likely to result in serious impacts to the economy.

Recommendation: Chevron recommends that the cap slope be revised to reflect a smoother transition of 1% in 2013 and 2014, and 2% per year in the second compliance period. This creates a

smooth transition and realistically addresses the potential that California's cap and trade program will operate without the possibility of broad linkage to other state or federal programs in the first 6 years. Finally, even with these recommended changes, the AB 32 cap is still likely to be equally or more stringent than duplicative, command and control regulations under the Federal CAA scheduled to come into effect in 2011. ARB should consider proposing that reductions under AB 32 will constitute conformance with the CAA.

7. Allowance Reserve Balloon Payment

- In addition to the primary cost containment mechanism of using offsets, Chevron supports use of an allowance reserve for cost containment but continue to be concerned that the design be objective, transparent and avoid creating a balloon payment by borrowing from the future and therefore shrinking supply. The allowance reserve, as proposed, is back loaded with the largest portion supplied by future allowances - 7% borrowed from the final compliance period. To balance the reduction in available allowances across the program, offsets limits for individual facilities have been raised from 4% to 8%. It is important to note that while the allowances are fully fungible instruments, the use of offsets is an option that a facility may choose not to utilize. If facilities do not use all of their allowable offsets in every year, then they are removed from the program, making it more punitive than it needs to be to meet the required emissions reductions.
- Compliance entities need transparency on the allowance allocations, reserve allowance supply, and cost cap triggers so that they can plan appropriately and develop optimal compliance strategies.
- The allowance window or allowance reserve must be designed to provide sufficient reserve liquidity. The design must include unfettered access to reserve allowances whenever market prices reach levels that make it necessary to reduce allowance prices below the collar ceiling price. Even if reserve allowances are available in sufficient supply, they cannot effectively provide a mechanism to mitigate costs if they are not accessible to entities that require them.
- We believe that the functionality of the reserve is tied to the source of the allowance supply. We cannot recommend supplying the reserve from either current or future allowances since both ultimately shrink supply and unnecessarily drive up market prices.
- An allowance reserve funded by allowances from current or future periods with prices set artificially — and without the use of offset credits — is fundamentally flawed.

Recommendation: Chevron recommends that the allowance reserve be backfilled in the third compliance period with offsets. We recommend that the reserve be available at all times and rather than artificially setting prices for the allowance reserve, ARB should develop policies that are tied to the market itself. Finally, we are concerned that unsold allowances from the quarterly auctions would be automatically placed in the allowance reserve because this will reduce liquidity and drive up costs unnecessarily. We recommend that unsold allowances be returned to the following auction. We recommend that the offsets limits be expanded to apply across the entire program rather than one year, and that facilities be allowed to sell their offset options. We are attaching separate comments on the allowance reserve provided by the Analysis Group.

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December 15, 2010

Ms. Mary Nichols, Chair
Air Resource Board
1001 I Street,
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Subject: Proposed Regulation to Implement the AB 32 Cap-and-Trade Program

Dear Chairwoman Nichols,

I thank the Air Resources Board (ARB) for the opportunity to comment on the draft cap-and-trade rule proposed by the ARB as a part of its AB 32 Scoping Plan. The steps the ARB is taking to develop a cap-and-trade system as a part of the Scoping will determine whether California can achieve AB 32's 2020 greenhouse gas (GHG) target in the most cost-effective fashion and to providing important leadership on the design of effective climate policy. With many states, provinces and nations monitoring the ability of California's climate policies to balance environmental and economic outcomes as they decide whether to undertake policies to reduce GHG emissions, ARB's decisions potentially influence the course of climate policy outside its borders.

My comments will address four issues:

1. The Allowance Reserve;
2. Other decisions that can provide cost containment;
3. Transparency of emission cap calculations; and
4. Mechanisms to address emission leakage.

Allowance Reserve

The ARB's proposed rule includes several provisions designed to help contain costs. These provisions are important not only for California, but for broader efforts to design effective climate policies. Given the political headwinds faced by climate policy in the U.S., ARB can provide valuable leadership by demonstrating that climate policy incorporating appropriate designs and safeguards can achieve important environmental benefits without undue risk to .the economy. Design of an effective California cap-and-trade program can also go a long way to eliminating emerging misconceptions about the value of market-based mechanisms to achieving these goals.

Along with three-year compliance periods, allowance banking and the use of allowance offsets, ARB's proposed rule includes an Allowance Reserve ("Reserve") which is designed to help moderate allowance prices. The Reserve works, in effect, by increasing the supply of allowances when allowance prices rise to the level at which they can be purchased from the reserve ("Reserve trigger prices"). Accounting for forecast inflation, Reserve trigger prices will rise to $68, $76, and $85 per metric ton (MT) by 2020.[1]

While the Reserve is likely to mitigate the potential for high allowance prices, its proposed design raises several concerns. First, the Reserve is stocked by increasing the cap's stringency by 1% in the first Compliance Period, 4% in the second Compliance Period, and 7% in the third Compliance Period. These are significant increases in cap stringency, particularly in the third compliance period. While the limit on offset use has been relaxed so as to exactly equal the increased cap stringency, the proposed changes

[1] Estimates reflect forecast inflation based on the GDP Chain Price Index used in EIA's 2009 Annual Energy Outlook.

significantly increase reliance on offset markets. If offsets become a low-cost source of emission reductions, then the increased cap stringency may not raise costs appreciably. However, if offsets are either in short supply or are more costly than anticipated, then the ARB's proposed changes could actually raise costs, particularly (although not exclusively) during periods when allowances are below Reserve trigger prices. A Reserve design that relies less upon increasing cap stringency would reduce the risk that the Reserve raises – rather than contains – costs.

Second, the proposed Reserve does not completely eliminate the risk that allowance prices rise to unacceptably high levels. If the Reserve is exhausted, then allowance prices could rise well above the trigger prices established by ARB. In fact, as the Reserve becomes depleted, uncertainty about the risk of Reserve exhaustion and subsequent high allowance prices could lead to speculation that accelerates Reserve exhaustion.

ARB has alternatives available to address these concerns, many of which have been mentioned in prior comments.[2] First, ARB could design the Reserve to hold a (roughly) constant, but smaller, quantity of allowances. To maintain a "steady-state" quantity of allowances, the Reserve could be replenished with additional allowances as it becomes depleted. One approach to replenishing the Reserve is to use revenues from the sale of Reserve allowances to purchase emission offsets.[3] Another alternative for replenishing the Reserve is to borrow allowances from post-2020 commitments periods.[4] Both of these alternatives can maintain environmental integrity of the policy.

By replenishing the Reserve so that it contains a (roughly) constant quantity of allowances at all times, the Reserve does not need to be initially stocked to provide cost containment for *all* contingencies over the period 2012 to 2020.[5] [6] Thus, replenishment allows a smaller Reserve to be maintained, which reduces the quantity of allowances that is required to initially stock the Reserve. Compared to ARB's proposed Reserve, this approach provides two advantages. First, it provides a sufficient supply of allowances to address all market contingencies, and, second, it avoids the need to significantly increase the stringency of emission targets in order to stock the Reserve.

In addition to incorporating mechanisms that replenish the Reserve, ARB could also employ alternative approaches to initially stocking the Reserve. For example, ARB could initially fill the Reserve with a mix of allowances from under the cap and offsets. Allowances from under the cap could be used

[2] For example, *see* Comments of Todd Schatzki, The Design of Cost Containment Mechanisms for the AB 32 Cap-and-Trade System, Submitted to the California Air Resources Board, July 13, 2010.

[3] I understand that ARB has concerns about any mechanism in which the Reserve purchases offsets, since this would make ARB both an issuer and purchaser of offsets. While appreciating ARB's concern about the independence of these functions, I would encourage ARB to consider alternative institutional designs (e.g., purchase of offsets from an Offset Project Registry) to create appropriate independence between these functions that could allow the use of these alternative Reserve designs, particularly given their potential economic benefits.

[4] Assuming ARB would carry forward allowances in the Reserve to post-2020 commitment period, this approach borrows from post-2020 compliance periods in an analogous manner to the way ARB proposes to initially stock the Reserve.

[5] In fact, a failure to reduce Reserve size if the Reserve is to be replenished could place too much demand on uncertain and evolving offset markets.

[6] Because ARB's proposal would stock the Reserve only once, it is both larger than necessary to address contingencies at any one point in time and too small to address all contingencies that may arise over the period 2012 to 2020. In fact, any attempt to establish a Reserve capable of addressing all market contingencies over an extended period is bound to be unsuccessful. While ARB relies on scenarios that consider partial effectiveness of complementary policies to determine the best size for the Reserve, it fails to consider other uncertainties that might also raise demand for Reserve allowances, including higher economic growth, drought conditions (that reduce hydroelectric output), limited offset supplies and other contingencies (e.g., unanticipated nuclear plant outages.)

to initially stock a smaller Reserve than is proposed by ARB, and the Reserve could be gradually expanded through offset purchases.[7]

Mechanism for Selling Allowances from the Reserve

ARB should consider the following modifications to its proposed mechanism for selling Reserve allowances:

1. Allow each buyer to submit a maximum quantity of allowances that it is willing to purchase at each Reserve sale; and
2. Automatically reduce bid quantities if a bid would lead the buyer to exceed its Holding limit.

These modifications would address problems that may arise with the proposed Reserve sale mechanism due to the potential that a buyer receives only a portion of her bid for allowances in Tiers that become exhausted in the current sale. These potential problems are best illustrated through an example. Suppose a buyer wishes to purchase 100 allowances up to the prices of the current Tier 2 price (e.g., $60 per MT.) As illustrated below, each of her options for submitting bids raises problems that the first modification resolves:

> **Option 1: Bid for 100 allowances from the Tier 1 Reserve.** If the Tier 1 Reserve becomes exhausted during the auction, she receives only a fraction this bid and purchases less than 100 allowances.
>
> **Option 2: Bid for 100 allowances from the Tier 1 Reserve (at $53 per MT) and for 100 allowances from the Tier 2 Reserve.** She is guaranteed to purchase at least the 100 allowances she needs, but likely purchases more than she needs, and, moreover, may end up paying for higher priced Tier 2 allowances when Tier 1 allowances are still available.
>
> **Option 3: Bid for 100 allowances from the Tier 2 Reserve.** She likely gets the 100 allowances she needs (and no more), but must unnecessarily pay for most costly Tier 2 Reserve allowances to ensure she gets the right quantity.

By contrast, with the proposed modifications, she is able to purchase exactly the quantity of allowances desired at the lowest price (i.e., her share of Tier 1 allowances and enough Tier 2 allowances to give her a total of 100 allowances.)

Another problem arises if bids exceed buyer holding limits. Returning to the example, suppose the buyer's account is 150 allowances below her holding limit, and she receives 80 allowances from her Tier 1 bid. If her Tier 2 bid is also for 100 allowances, then her entire bid will be rejected since it would exceed her holding limit. Instead, ARB should simply reduce the bid amount to 70 allowances (=150 – 80) to allow the buyer to meet their demand for allowances up to their holding limit.

Other Decisions that Can Provide Cost Containment

ARB includes several provisions aimed at achieving AB 32's 2020 GHG target that the lowest possible cost. However, other provisions inadvertently raise costs, or create the risk of higher costs. Re-consideration of these provisions could lower the cost of achieving AB 32 GHG targets.

First, the proposed rule moves allowances that are not sold in the allowance auction to Tier 3 of the Reserve. Instead, costs could be reduced by shifting unsold allowances to the next auction. If economic and or market circumstances change such that allowance prices rise, these allowances would be

[7] These purchases might be made gradually to avoid driving up offset prices at any given point in time.

unavailable to help satisfy demand, thus raising costs until allowance prices rise to the Tier 3 price triggers.

Second, ARB proposes to enforce the 8 percent limit on offset use for each three-year Compliance Period.[8] However, depending upon conditions in offset and allowance markets, it may be uneconomic to use the full extent of offset flexibility offered in certain compliance periods. For example, if offset markets are slow to initially develop, complying entities may find it more cost-effective to rely upon emission reductions from sources under the cap, rather than offsets. However, costs might be lowered if complying entities are allowed to carry forward and even trade these "rights" to use offsets. A simple accounting mechanism that keeps track of the quantity of offsets each complying entity is allowed to use could allow them to bank and even trade these "rights" to use offsets. Such a mechanism may also lower costs by allowing firms to specialize in their use of offsets. Given the fixed administrative costs of effectively participating in offset markets, this flexibility could allow some firms to avoid these administrative costs (which could be large for smaller complying entities), while not foregoing the opportunity to achieve compliance cost savings.

Transparency of Emission Cap Calculations

The proposed rule and Initial Statement of Reasons ("ISOR") fail to provide details on the calculations used in arriving at key elements of the rule, including the Annual Budget Amounts (with and without allowances placed in the Reserve), the cumulative offset use limit, and the calculation of amounts placed into the Reserve. It is particularly important to provide a clear description of the calculation resulting in the 8.5 percent reduction in the 2020 allowance cap from that identified in the Scoping Plan (365 MMT) to that identified in the Rule (334.2 MMT)..

Leakage

ARB's proposed rule includes provisions designed to address emissions leakage and avoid disadvantaging California business. The primary tool for addressing leakage is output-based allowance allocations for "Industry Assistance." The proposed rule includes formulas that determine the quantity of allowances allocated to industry participants in each year. Under these formulas, assistance will decline over time due to changes in the "assistance factor" and the "adjustment factor". In addition, ARB decisions about the "emissions efficiency benchmark" for each sector will also affect the extent to which industry assistance neutralizes the effect of the cap-and-trade system on firm competitiveness.[9] Neither ARB's proposed Rule nor the ISOR indicate the criteria to be used in developing these benchmarks.

The quantity of allowances granted to firms in a given sector, as specified by these formulas, varies depending upon that sector's vulnerability to leakage. ARB faces several difficult challenges as it tries to identify sectors potentially vulnerable to leakage. A sector's vulnerability to leakage in the short-run and long-run can depend upon many factors, including market structure, industry cost structure, market trends, demand responsiveness and preferences, constraints on competition from other geographic regions, industry investment opportunities and constraints, and the magnitude of the regulatory cost or

[8] The proposed rule would also enforce the 8 percent offset limit for each Annual Compliance Obligation. ARB should clarify whether complying entities would be permitted to use offsets, such that their total offset use was no more than 8 percent for each three-year Compliance Period irrespective of the quantity of offsets used in fulfilling its Annual Compliance Obligation.

[9] For example, a benchmark set at the average sector emission rate would (on average) offset the impact of the cap-and-trade system. By contrast, a benchmark based on the most efficient facilities or firms would (on average) only partially offset the impact of the cap-and-trade system.

constraint. However, fully accounting for all of these factors not only requires significant data but requires analyses tailored to each industry's particular circumstances.

Faced with limited resources and data, ARB has proposed to use emissions intensity and trade share to measure vulnerability to leakage, while recognizing the limitations of these metrics. For example, the ISOR notes comments made by the Australian regulator regarding "... the importance of supplemental qualitative analysis when trade share is used due to the uncertain indication of cost pass-through ability."[10]

Because GHG- and trade-related metrics do not provide a perfect measure of an industry's vulnerability to leakage, some cap-and-trade programs propose that regulators may consider factors other than the formulas and conditions used to identify emissions-intensity and trade-exposure to identify vulnerable sectors.[11] Under the EU ETS, the list of sectors "deemed to be exposed to a significant risk of carbon leakage" may be supplemented by taking into account the extent to which individual facilities can reduce GHG emissions or electricity use, future projections of market conditions, and firms' profit margins.[12] In Australia's Carbon Pollution Reduction Scheme, sectors may apply for assistance by arguing that they have "a demonstrated lack of capacity to pass through costs due to the potential for international competition."[13] Similarly, ARB has indicated that it will "continue to develop techniques to evaluate the trade exposure of various industries."[14]

As ARB considers these alternative techniques, it may want to consider supplemental assessments reflecting both quantitative and qualitative information about a sector's vulnerability to leakage. These assessments might better capture leakage risks for industries in unique circumstances. Use of such assessments typically requires clear and well-defined criteria and methodologies and transparent procedures for review to ensure that determinations are consistent across sectors, reflect objective, independent analysis and reflect true industry vulnerability. Ensuring adequate procedural safeguards can place an additional administrative burden on the program. Despite these complications, such assessments may be warranted given data limitations for measuring GHG- or trade-intensity at the state level, and may provide ARB with information on the extent to which its emissions-intensity and trade-exposure metrics have accurately captured leakage vulnerability of industries within California.

As ARB further analyzes how to most effectively address leakage, several issues are worth considering. First, prior efforts by regulators to design mechanisms to address leakage were developed within the context of national programs. However, leakage as a consequence of AB 32 may occur due to both international and interstate trade. As discussed in a prior paper, there is substantial reason to believe that trade vulnerability may be greater under these latter circumstances.[15] Consequently, as ARB develops criteria for trade vulnerability, it might attempt to more explicitly account for these differences, particularly since it has relied largely upon metrics developed in the context of national programs addressing leakage from only international trade.

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[10] ISOR, Appendix K, p. K-17.

[11] ARB also acknowledges this, stating that: "Staff has concluded that while the trade share metric may provide us with an approximate relative order of potential competition across the various sectors, it may not be sufficient to accurately quantify the degree of exposure to competition for many sectors." ISOR, Appendix K, p. K-27.

[12] Directive 2003/87/EC of the European Parliament and of the Council, as amended, October 13, 2003, Article 10a(17).

[13] Australian Government, "Establishing the Eligibility of Activities Under the Emissions-Intensive Trade-Exposed Assistance Program," June 2009, Section 4.2, p. 24; see also, Australian Government, "Carbon Pollution Reduction Scheme: Australia's Low Pollution Future," Policy position 12.6, p. 12-31, http://www.climatechange.gov.au/publications/cprs/white-paper/cprs-whitepaper.aspx.

[14] ISOR, Appendix K, p. K-27.

[15] *See* Stavins, Robert N., Jonathan Borck and Todd Schatzki, "Options for Addressing Leakage in California's Climate Policy," February 2010.

Second, as with other mechanisms used and proposed for addressing leakage, the level of assistance is insensitive to the level of allowance prices. However, the level of allowance prices is one of the primary determinants of vulnerability to emission leakage. Examining compliance costs in the petroleum refinery sector illustrates this issue. When allowance prices are $10 per MT, the additional costs on the petroleum sector refining would be roughly 1.0 cents per gallon. By contrast, when allowance prices are $85 per MT, the additional costs would be roughly 8.1 cents per gallon.[16] By contrast, transportation costs for refined petroleum range from 3 to 12 cents per gallon depending upon the point of origination.[17] [18] Thus, the magnitude of the incremental costs faced by California business as a result of the cap-and-trade program depends closely upon actual allowance prices. In light of this sensitivity, ARB might consider mechanisms that adjust that rate at which allocations for Industry Assistance are phased out for depending upon the level of allowances prices.

Again, I thank ARB for the opportunity to submit comments to the proposed AB 32 cap-and-trade rules.

Sincerely,

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[16] These calculations assume emission rate of 9.57×10^{-4} MT CO_2e per gallon based on data from ARB and the California Energy Commission.

[17] U.S. Department of Energy, Energy Information Administration, *2003 California Gasoline Price Study Final Report*, November 2003, Table 2-1.

[18] Note that this example compares only two of the factors – allowance and transportation costs – that would affect actual leakage. As noted previously, actual leakage would depend upon many other sector-specific factors.

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