



**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to Implement the
Commission's Procurement Incentive
Framework and to Examine the Integration of
Greenhouse Gas Emissions Standards into
Procurement Policies.

Rulemaking 06-04-009
(Filed April 13, 2006)

Order Instituting Informational Proceeding –
AB-32

CEC Docket Number 07-OIP-01

**COMMENTS OF KENNETH C. JOHNSON
PERTAINING TO ALLOWANCE ALLOCATION ISSUES**

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**COMMENTS OF KENNETH C. JOHNSON
PERTAINING TO ALLOWANCE ALLOCATION ISSUES**

Kenneth C. Johnson, an unaffiliated individual, U.S. citizen, and resident of California having a personal interest in and concern about climate change, respectfully submits the following comments in response to the *Administrative Law Judge's Ruling Requesting Comments and Noticing Workshop on Allowance Allocation Issues* (10/15/2007).

1. INTRODUCTION: ADMINISTRATIVE ALLOCATION VERSUS REFUNDED AUCTION

Under a cap and trade system, two basic options exist for distribution of emission allowances: they may be auctioned or they may be allocated administratively. An administrative allocation would be free and revenue-neutral, whereas an auction, as conventionally implemented, would impose a substantial taxation burden on the regulated industry in addition to regulation-induced technology costs. But an auction can alternatively be implemented, like free allocation, to be revenue-neutral within the regulated industry.

If auction revenues are refunded to regulated entities according to a proportionate allocation formula for refunding that matches the allowance allocation formula under an alternative free allocation system, then the auction will be essentially equivalent to free allowance allocation in terms of its costs and distributional impacts. Entities would pay for all of their allowances, but the cash refund would be economically equivalent to free distribution of an entity's allowance share. The two regulatory approaches would be substantially equivalent; and policy issues, questions and concerns relating to administrative allocation would be equally applicable to refund allocation under a refunded auction.

A refunded auction would have two principal benefits in relation to administrative allocation: First, it would be a more practical way to implement output-based allocation;

and second, it could accommodate a price floor, as recommended by the MAC¹. (In comparison to a conventional, unrefunded auction, refunding may also have legal implications in relation to interstate commerce rules and ARB's taxation authority under AB 32, but these issues are not discussed in this policy brief.)

2. OUTPUT-BASED REFUNDING

Under a refunded auction in the electricity sector with output-based refunding, regulated entities would be required to maintain a verifiable accounting of end-use delivered energy (MWh) associated with regulated emissions in order to qualify for the refund. At the time that allowances are surrendered (after the compliance period) entities would provide the regulatory authority an accounting of both emissions and associated output generation. Refunds would subsequently be distributed in proportion to output, i.e., at a uniform dollar-per-MWh rate with the refund rate determined to achieve revenue-neutrality. (To avoid cash flow imbalances, the payment due date for auctioned allowance purchases might be deferred until refunds are distributed. Alternatively, established electricity producers could qualify for short-term loans or advances to cover their auction costs until the refund is distributed.)

Administrative allocation could, to an extent, be output-based, but the problem is that emissions-related generation output may not be accurately known at the time of the auction. Output-based refunding would be based on an auditable accounting of past production, rather than speculative estimation of future production. The refund would not motivate entities to make anomalously high bids or large-volume allowance purchases, because refunds could only be obtained on the basis of actual, verifiable energy deliveries, and no single entity's actions would significantly affect the refund rate.

All electricity-generating entities would qualify for refunds, including renewable energy producers, irrespective of whether they generate emissions or require emission allowances. There would be no barriers to new entrants that have competitive emissions performance.

¹ Market Advisory Committee, Final Report, June 29, 2007:
http://www.climatechange.ca.gov/policies/market_advisory.html

As with administrative allocation, refunding could result in windfall profits, but with output-based refunding such profits would accrue primarily to renewable and low-emission energy producers. In this context the profits would attract investment capital to low-emission energy sources, and would induce rapid expansion of low-emission production. Energy supplies would increase (within the cap constraint), and competition from new, low-emission energy sources would mitigate regulation-induced price increases.

Not all refunds would go to low-emission or renewable energy producers. All regulated entities would, in varying degrees, receive refunds, ensuring that economic incentives and penalties are proportionate to emission intensity. (Sequestration services would not qualify for refunds because they do not generate marketable energy, but refunds would provide capital that high-emission producers could use for sequestration.)

3. PRICE FLOOR

The MAC report recommended the implementation of a price floor to maintain price stability and “reinforce environmental integrity and the value of clean investments”. This recommendation is specifically responsive to the AB 32 maximum feasibility mandate, in that a price floor would provide an incentive for overcompliance to the extent that emission reductions below the 1990 level can be achieved within a marginal cost-effectiveness limit defined by the price floor. An auction system could accommodate a price floor. Moreover, by minimizing regulatory costs, a refunded auction could make it feasible to impose a price floor sufficient to achieve maximum technologically feasible and cost-effective emission reductions in the regulated sector. (The AB 32 “cost effectiveness” criterion may be construed to encompass both marginal costs, which are limited by the emission price, and distributional costs, which can be controlled through refunding.)

The benefit of auction refunding can be illustrated by considering how it would have impacted the U.S. electricity industry in 2006.² An unrefunded auction or allowance

² This example is excerpted from my recommendations for the AB 32 Scoping Plan, “Cap-and-Trade with auctioned allocation, a price floor, and output-based refunding”, posted on ARB’s web archive for the Scoping Plan (<http://www.arb.ca.gov/cc/scopingplan/submittals/other/other.htm> - filed under “Ken Johnson”).

sale at an emission price of \$10/ton-CO₂, applied to all U.S. power plants with at least 2 million MWh annual generation, would have resulted in average emission charges of 0.93 cents/KWh and annual auction revenue of \$21.8 billion. By contrast, with a refunded auction and a higher emission price of \$25/ton, entities that incur a net loss would, on average, incur net costs of 0.38 cents/KWh, much less than the 0.93 cents of the unrefunded auction at \$10/ton. The net losses would all go to low-emission producers, and the total revenue flow between firms incurring positive and negative net charges would be \$6.23 billion, much less than \$21.8 billion. Thus, in this illustration marginal technology incentives are significantly increased (by a factor of 2.5) while regulatory costs to the industry are greatly diminished.

4. REGULATORY OPTIONS

One limitation of output-based allocation is that it focuses regulatory incentives primarily on low-GHG energy production and does not create much incentive for end-use energy efficiency improvements. (If technology costs result in higher energy prices there would be an incentive to improve energy efficiency, but not to the same extent as an unrefunded auction, which could result in much higher prices.) However, energy efficiency could be promoted by means of complementary policies such as appliance efficiency standards or monetary incentives such as feebates. The auction refunding method could also be adapted to promote energy efficiency. For example, utility investments in verifiable load reduction could qualify as "output" for the purpose of determining the refund allocation, to the extent that the refund incentive is not duplicative of other regulatory incentives.

It should be recognized that in the context of an economy-wide cap-and-trade system with no price floor, complementary policies focused on energy efficiency would result in no incremental environmental benefit; they would only shift the burden for emission reductions from the electricity sector to other sectors. The shift would not necessarily benefit the electricity sector, because its emission reduction burden would be relieved by reducing sales volume. In effect, end-use efficiency improvements would induce the market to achieve the cap by producing lower quantities of high-GHG electricity, rather than high quantities of low-GHG electricity. In either case, the

aggregate emission level would be set by the cap. But the AB 32 maximum feasibility mandate requires a regulatory strategy that seeks to both minimize emission intensity in electricity generation, and also minimize end-use electricity consumption. This policy objective can be achieved by employing price instruments, including a price floor in the electricity sector and similar monetary incentives for end-use efficiency. The price floor would function to minimize emission intensity of power generation (ton-CO₂ per MWh); the complementary policies would minimize energy consumption per unit of economic utility (e.g., watts per lumen for illumination, watts per cubic foot of refrigeration capacity, etc.); and the combination of policies would together operate to minimize emissions per unit of economic utility.³

One issue that has been problematic in the EU ETS is the impact of GHG regulation on the relative competitiveness of coal and natural gas. The simple, uniform dollar-per-MWh refunding method described above could result in significant incentives to substitute NG for coal in the electricity sector, which could be disruptive to other industries that depend on NG (e.g., home heating, fertilizer production). However, the refunding method can alternatively be constructed to neutralize incentives for substituting NG for coal while preserving incentives for replacing fossil-fuel energy with renewable or other low-GHG energy sources. This can be accomplished by applying separate refund rates to coal, NG, and other sectors. The refund rate for other sectors is the same as it would be with uniform refunding, while the rates for coal and NG are determined to preserve overall revenue neutrality and to make the average per-MWh net regulatory cost (auction minus refund) the same for coal and NG. (Without the presence of the “other” category, this average cost would be zero and the above prescription would simply make the refund revenue-neutral in both the coal and NG sectors.) This regulatory approach would induce the electricity sector to reduce both coal and natural gas dependence, rather than increasing reliance on natural gas.⁴

³ This type of synergistic combination of complementary policies is discussed in the following publication (Appendix B): “Feebates: An effective regulatory instrument for cost-constrained environmental policy,” <http://dx.doi.org/10.1016/j.enpol.2005.10.005>

⁴ This method of using refunding to manage fuel-switching incentives is discussed in the following working paper (Appendix B): “Refunded Emission Taxes: A Coherent Post-Kyoto Policy Framework for Greenhouse Gas Regulation,” <http://ssrn.com/abstract=934481>

The refunding method can similarly be adapted to achieve other types of refined policy objectives (e.g., cross-subsidies from coal to hydro could be neutralized if it is expected that the hydro subsidy would not result in additional low-GHG electricity production capacity). The refunding allocation method might also be adjusted to compensate for other established subsidies. For example, if a particular sector receives supplemental government subsidies, then the refund can be determined so that the total subsidy (refund plus supplemental) is levelized across the electricity sector.

5. RELEVANCE TO STATUTORY REQUIREMENTS OF AB 32

The CEC-CPUC recommendations to ARB should be clearly traceable to the legislative policy objectives and statutory requirements of AB 32. There is some ambiguity and lack of clarity as to what the precise statutory requirements of AB 32 are, in terms of the relationship between cap-and-trade and the statute's maximum feasibility mandate. This has relevance for auction refunding and a price floor, and the following comments address this issue.

A fundamental requirement of AB 32 is the emission cap (Sec. 38550): "By January 1, 2008, the state board shall ... determine what the statewide greenhouse gas emissions level was in 1990, and approve in a public hearing, a statewide greenhouse gas emissions limit that is equivalent to that level, to be achieved by 2020." This mandate makes no specific reference to cost minimization, but Sec. 38562 stipulates that ARB should "Design the regulations ... in a manner that is equitable, seeks to minimize costs and maximize the total benefits to California ...". On the other hand, it is also a fundamental requirement of AB 32 that the regulations should "achieve the maximum technologically feasible and cost-effective greenhouse gas emission reductions ..." (Sec. 38560).

The cost minimization goal of Sec. 38562 might appear to conflict with the maximum feasibility mandate of Sec. 38560. The cost minimization requirement, as construed by classical cap-and-trade theory, would seem to imply that the mandated emission cap should be achieved at minimum cost irrespective of whether significantly greater emission reductions would be technologically feasible and cost-effective. By contrast, the evident intended meaning of the maximum feasibility mandate is that the

regulations should achieve maximum technologically feasible and cost-effective greenhouse gas emission reductions irrespective of whether the mandated cap could be achieved at less cost. How can these two perspectives be reconciled? Should the AB 32 regulations be constructed to do as little as is necessary to achieve the minimal requirements of the cap as cheaply as possible, or should they be constructed to do as much as is reasonably possible, within defined limits of cost-effectiveness, to achieve legislative policy goals of climate stabilization?

Cal/EPA and ARB have not taken an official position on this question, and regard it as a “design” or “implementation” issue that should be resolved through the AB 32 public participatory process.⁵ But a concern is that ARB may base its regulatory policy on an interpretation, though not explicitly articulated or officially stated, that effectively equates “maximum technologically feasible and cost-effective greenhouse gas emission reductions” with “reductions sufficient only to achieve the cap”. (For example, “cost-effective” might be interpreted to mean “least-cost”.) This approach would render the maximum feasibility mandate meaningless or redundant, because it would be entirely subsumed by the cap, and the meaning of AB 32 would be no different if the statute made no reference to “maximum technologically feasible and cost-effective reductions ...”.

A more reasonable interpretive construction of the statute would read the cost minimization condition of Sec. 38562 as an economic efficiency requirement, i.e., the emission reductions should be achieved in such a manner that the *same* reduction level could not be achieved at significantly less cost or with greater benefit to the economy. This requirement does not imply that greater emission reductions should not be achieved (albeit at greater cost), if such further reductions would be feasible and cost effective according to Sec. 38560. This interpretation preserves the relevance of both the maximum feasibility and cost minimization mandates, and is consistent with the legislative policy objectives and intent of AB 32. (On the other hand, the cap requirement is not entirely subsumed by maximum feasibility. Without the cap, ARB would be free to adopt an excessively conservative standard of “cost-effectiveness” that results in no reduction in statewide emission even from present levels.)

⁵ Correspondence with Eileen Tutt (Cal/EPA, May 19, 2007) and Chuck Shulock (ARB, Sept. 13, 2007)

The statute clearly recognizes that the mandated cap is only an interim and minimal goal, and that significantly greater emission reductions will be required to achieve climate stabilization goals. The cap is based on the Governor's June, 2005 Executive Order S-3-05, which also established a longer-term goal of reducing California's GHG emissions to 80% below the 1990 level by 2050.⁶ The 2050 target, unlike the 2020 cap, is "based on emission reductions the science indicates will be necessary from all developed nations to ensure protection of the planet in the 100-year time frame".⁷ However, the target is not reflective of more recent findings of the IPCC's Fourth Assessment Report and recent observational evidence of climate change, which has been outpacing all of the IPCC model projections. The imperatives of climate change clearly require emission reductions beyond the 1990 level, as is recognized by AB 32's maximum feasibility mandate and by the requirement that ARB develop plans and recommendations for continued emission reductions beyond 2020 (Sec. 38551).

The CEC-CPUC recommendations relating to cap-and-trade should clearly reflect and relate to the statutory requirements of AB 32. For example, allowance banking, which is based on the premise that the cap represents long-term emission reduction requirements, would interfere with efforts to achieve significantly greater emission reductions that will be required after 2020.⁸ A refunded auction with a price floor, like banking, would induce greater emission reductions in the short term, but without increasing emissions in the long term. This could provide a regulatory mechanism for seamlessly transitioning to more stringent post-2020 regulations. AB 32 represents a "hybrid" legislative policy that both imposes a cap, as a minimal requirement, and also imposes a maximum feasibility requirement; so its regulatory implementation correspondingly calls for a hybrid policy instrument such as cap-and-trade with a price floor.

⁶ <http://gov.ca.gov/index.php?/executive-order/1861/>

⁷ Climate Action Team's March, 2006 Final Report, http://www.climatechange.ca.gov/climate_action_team/reports/2006-04-03_FINAL_CAT_REPORT.PDF

⁸ Banking would not be necessary under AB 32 because the Governor's intervention authority under Sec. 38599 provides protection against "significant economic harm". A Governor-managed safety valve (price cap) could be instituted under the authority of Sec. 38599. (This is discussed in my Scoping Plan recommendations, "Cap-and-Trade with Governor-authorized safety valve", posted at <http://www.arb.ca.gov/cc/scopingplan/submittals/other/other.htm>.)

6. HISTORICAL LESSONS

The U.S. SO₂ trading program, instituted in 1990 as Title IV of the Clean Air Act Amendments, achieved its defined objectives at a cost much less than originally anticipated. But price erosion undermined regulatory incentives for SO₂ emission reductions, and the Clean Air Interstate Rule had to be enacted in 2005 to effectively reduce the emission cap. Had the SO₂ program been implemented as a refunded auction, with a price floor set at a level comparable to either original expectations of marginal compliance costs or current trading prices under CAIR, then regulatory incentives for maximum feasible and cost-effective reduction of SO₂ emission could have been maintained, the program's environmental goals might have been achieved much sooner, and the need for the supplemental CAIR legislation could have been avoided. The implication for GHG regulation is clear: AB 32 is based on a recognition that the 2020 statewide emission target will not, in itself, be sufficient to achieve climate stabilization goals, so it is imperative that regulations be structured to induce maximum feasible and cost-effective emission reductions, and not just achieve the minimal requirements of the cap as was the case with the SO₂ program.

A good working example of a program that illustrates the principle of refunding is the Swedish program for regulating stationary-source NO_x emissions. The program is a refunded emission tax, not cap-and-trade, but the same operational principle would apply to a refunded auction. (If the price floor is activated, the refunded auction would be essentially equivalent to a refunded tax.) This program was enacted in 1990 with the intention of achieving a 35% reduction in regulated NO_x emissions by 1995, but it actually resulted in a 50% reduction (including demand growth) within that time frame. Moreover, the program encountered little political resistance, and its net economic costs have been estimated at only 0.04 cents per KWh, about one-fifth of what it would have been without the refund.⁹

⁹ Following are several references that discuss the Swedish NO_x program:

[1] Ågren, C., 2000. Nitrogen oxides: emissions charge works well. Acid News 2, 1–4
<http://www.acidrain.org/pages/publications/acidnews/2000/AN2-00.pdf>

Several aspects of the Swedish program have relevance to AB 32. First, the refunding method was adopted for the specific purpose of preserving competitiveness of regulated firms relative to small-capacity, unregulated entities. (At the outset of the program, combustion units with less than 50 GWh annual generation were exempt because of the high cost of NOx monitoring equipment, although cost reductions allowed smaller facilities to later be incorporated in the program.) Second, the program does not supersede, but complements and coexists with, an NOx emission standard. Third, the program incentivized significant early action to reduce emissions in the two-year period between its enactment in 1990 and when it became effective in 1992. Fourth, the program effectively motivated maximal emission reductions, in that NOx emissions were reduced to a level well below the applicable regulatory limit and below levels achieved in the U.S. and other countries. Had a conventional cap-and-trade system similar to the U.S. SO₂ trading system been employed, it would not have motivated emission reduction beyond the 35% target. (Banking may have resulted in additional short-term emission reductions, but at the cost of higher emissions in the long term.)

[2] Barg, S., Duraiappah, A., Exan, V. E., 2000. Economic Instruments for Environmental Policy Making in Ontario. International Institute for Sustainable Development (pp. 48–50)
http://www.ene.gov.on.ca/envision/ergreport/downloads/report_paper2.pdf

[3] Isaksson, L., Sterner, S., 2006. Refunded emission payments theory, distribution of costs, and Swedish experience of NOx abatement, in: *Ecological Economics* 57 (1), 93–106.
<http://www.sciencedirect.com/science/journal/09218009>
<http://dx.doi.org/10.1016/j.ecolecon.2005.03.008>

[4] Millock, K., Sterner, T., 2004. NOx emissions in France and Sweden. In: Harrington, W., Morgenstern, R.D., Sterner, T. (Eds.), *Choosing Environmental Policy: Comparing Instruments and Outcomes in the United States and Europe*. Resources for the Future, Washington, DC, pp. 117–132.
http://www.rff.org/rff/RFF_Press/CustomBookPages/Choosing-Environmental-Policy.cfm

[5] Sterner, T., Hoglund, L., 2000. Output-Based Refunding of Emission Payments: Theory, Distribution of Costs, and International Experience. Discussion Paper 00-29. Published by Resources for the Future.
<http://www.rff.org/Documents/RFF-DP-00-29.pdf>

[6] (USEPA), 1997. Performance of Selective Catalytic Reduction on Coal-Fired Steam Generating Units. U.S. Environmental Protection Agency, Office of Air and Radiation. (See esp. p. 37.)
<http://www.epa.gov/airmarkets/progsregs/arp/docs/scrfinal.pdf>

[7] Wolff, G. H., 2000. When Will Business Want Environmental Taxes? Redefining Progress.
http://www.redefiningprogress.org/newpubs/2000/etr_business.pdf

7. RESPONSE TO QUESTIONS

Following are responses to some of the questions posed in the ALJ ruling¹⁰.

Q1. Please comment on each of the criteria listed by the MAC. Should other criteria be added, such as criteria specific to the electricity and/or natural gas sectors? In making trade-offs among the criteria, which criteria should receive the most weight and which the least weight?

Re criterion a (*Reduces the cost of the program to consumers, especially low-income consumers*): “Reduce” should be interpreted as “minimize”, as there is no guarantee that the AB 32 regulations will not impose positive costs on consumers. The cost minimization objective is supported by Sec. 38562(b)(1), but as noted above, this must be interpreted in a manner that is consistent with the maximum feasibility mandate of Sec. 38560. Regarding low-income consumers, the specific requirement is that “activities undertaken to comply with the regulations do not disproportionately impact low-income communities,” Sec. 38562(b)(2).

Re criterion b (*Avoids windfall profits where such profits could occur*): Windfall profits are not incompatible with a market-based regulatory approach, or with the goals of AB 32, if they accrue mainly to renewable and low-emission energy producers as they would with output-based allocation. In a competitive market, such profits would induce rapid expansion of low-emission energy, thereby increasing energy supply (within the cap constraint) and lowering prices.

Re criterion c (*Promotes investment in low-GHG technologies and fuels (including energy efficiency)*): Pursuant to Sec. 38561(b), a refunded auction with a price floor, and similar types of monetary incentive policies (e.g. for energy-efficient appliances), would preferentially subsidize and draw investment capital to low-GHG technologies and fuels, including energy efficiency.

¹⁰ <http://www.cpuc.ca.gov/EFILE/RULINGS/73857.htm>

Re criterion d (*Advances the state's broader environmental goals by ensuring that environmental benefits accrue to overburdened communities*): This is supported by Sec. 38570(b)(1).

Re criterion e (*Mitigates economic dislocation caused by competition from firms in uncapped jurisdictions*): This is supported by Sec. 38562(b)(1).

Re criterion f (*Avoids perverse incentives that discourage or penalize investments in low-GHG technologies and fuels (including energy efficiency)*): Perverse incentives would likely fail the statute's maximum feasibility requirement (Sec. 38560).

Re criterion g (*Provides transition assistance to displaced workers*): This is supported by Sec. 38562(b)(1).

Re criterion h (*Helps to ensure market liquidity*): Market liquidity is an essential characteristic of market-based instruments, which are authorized by AB 32. "Market-based" has a specific defined sense in AB 32 (Sec. 38505(k)), but the statute also authorizes other types of regulatory mechanisms such as monetary incentives (Sec. 38561(b)), which are "market-based" in the broader sense of relegating detailed resource allocation decisions to the market rather than regulators. Monetary incentives (such as a price floor) are "liquid" in the sense that regulated firms are free to balance the tradeoff between emission reductions and costs in any way that best suits their interests.

Other criteria:

The regulations should be constructed to achieve maximum technologically feasible and cost-effective reductions in greenhouse gas emissions, irrespective of whether the cost of such reductions exceeds the minimal cost required to achieve the cap. This criterion should be given no less weight than the cap.

Q2. Broadly speaking, should emission allowances be auctioned or allocated administratively, or some combination?

Allowances should be auctioned, but with output-based refunding.

Q3. If you recommend partial auctioning, what proportion should be auctioned? Should the percentage of auctioning change over time? If so, what factors should be used to design the transition toward more auctioning?

With refunding, there is probably no reason why 100% auctioning (with 100% refunding) could not be instituted at the outset of the program.

Q4. How should new market entrants, such as energy service providers, community choice aggregators, or (deliverer/first seller system only) new importers, obtain emission allowances, i.e., through auctioning, administrative allocation, or some combination?

New entrants who require allowances would obtain them through auctioning, and would qualify for refunds based on their delivered energy irrespective of whether they generate emissions and require allowances.

Q5. What are the important policy considerations in the design of an auction?

Perhaps the most important consideration is distribution of auction revenue, which involves essentially the same policy issues as allowance distribution with administrative (free) allocation.

Q6. How often should emission allowances be auctioned? How does the timing and frequency of auctions relate to the determination of a mandatory compliance period, if at all?

In reference to a refunded auction, one concern regarding the compliance period and timing is cash flow, if there is a significant time lag between the auction payment and refund distribution. The program should be structured to avoid cash flow problems, at least for established energy producers. (New entrants might need to obtain startup financing to cover their initial auction costs.)

Q7. How should market power concerns be addressed in auction design? If emission allowances are auctioned, how would the administrators of such a program ensure that all market participants are participating in the program and acting in good faith?

Regarding participation and good faith, it is important to have robust, traceable accounting of both emissions and associated energy production, and simple, transparent rules for auctioning and refunding.

Q8. What criteria should be used to designate the types of expenditures that could be made with auction revenues (including use to reduce end user rates), and the distribution of money within those categories?

Under an output-based refunded auction, all revenue would be refunded in proportion to generation output. The resulting increased competitiveness and expanded production capacity of low-emission generation would help to minimize economic costs and reduce end-user rates.

Q9. What type of administrative structure should be used for the auction? Should the auction be run by the State or some other independent entity, such as the nonprofit organization being established by the Regional Greenhouse Gas Initiative?

(No comment.)

Q10-20. If some or all allowances are allocated administratively, which of the above method or methods should be used for the initial allocations? ...

(No comment, except to note that the allocation options and questions relating to administrative allocation could, in principle, apply equally well to refund allocation.)

Q21. Would a deliverer/first seller point of regulation necessitate auctioning of emission allowances to the deliverers/first sellers?

This would probably be the most practical approach from the standpoint of administration and transaction costs. Deliverers/first sellers would normally surrender allowances and would also accrue refunds under a refunded-auction system. Any

allowance resale and trading would require rigorous accounting of both emissions and generation output associated with allowances.

Q22. Are there interstate commerce concerns if auction proceeds are obtained from all deliverers/first sellers and spent solely for the benefit of California ratepayers? If there are legal considerations, include a detailed analysis and appropriate legal citations.

Output-based refunding would probably alleviate interstate commerce concerns because the allocation criteria would be state-neutral, and out-of-state generators would benefit equally from refunds.

The policy implications of the deliverer/first seller approach are generally considered in relation to importers, not exporters; but symmetric treatment of importers and exporters would require that both be subject to regulations in the locale where delivered energy is consumed, not where it is generated. If imports are subject to California's GHG regulations, then exports should be exempt from those regulations and subject to regulations of jurisdictions where the power is delivered. A policy that subjects exports to the same California regulations as imports would be protectionist of high-GHG emitters in neighboring jurisdictions that do not regulate GHG emissions, and would create an economic disincentive for other states to adopt similar policies.

Q23-26. If you believe 100% auctioning to deliverers/first sellers is not required, explain how emission allowances would be allocated to deliverers/first sellers. ...

(No comment.)

Q27. Are there any other factors unique to the natural gas sector that have not been captured in the questions above? If so, describe the issues and your recommendations.

As discussed previously, a refunded auction system could employ a refunding method tailored to minimize incentives for substituting NG for coal (if that is a policy objective), while maintaining incentives for substituting renewable sources for fossil-fuel energy.

Q28. Considering your responses above, summarize your primary recommendation for how the State should design a system whereby electricity and natural gas entities obtain emission allowances if a cap and trade system is adopted.

In their recommendations to ARB, the CPUC and CEC should identify the following as a potential policy option that should be considered: A cap-and-trade system with auctioned allocation, output-based refunding of auction proceeds, and a price floor. The price floor would provide a mechanism for transitioning to post-2020 regulations. (Even if a price floor is not imposed at the outset of the program, the regulations should be structured to allow accommodation of a price floor at a later date.) The refunding method may be tailored to have preferred distributional characteristics (e.g. to neutralize incentives for substituting NG for coal, while maintaining incentives for phasing out fossil-fuel energy).

The Commissions' recommendations should clearly articulate their interpretation of AB 32, particularly with regard to the meaning and legislative intent of the maximum feasibility requirement; and the recommendations should be clearly traceable to statutory requirements. If the recommendations are premised on a particular interpretation or concept of "cost effectiveness", it should be so noted.

The Commissions and ARB should review the Swedish NOx program as a working example of how refunding can be employed. Also, the US SO₂ trading program should be evaluated, not just from the perspective of cost minimization, but also in terms of its performance in relation to the AB 32 maximum feasibility mandate and how the program might have evolved if the proposed regulatory policy had been applied to SO₂ regulation.

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CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy of COMMENTS OF KENNETH C. JOHNSON PERTAINING TO ALLOWANCE ALLOCATION ISSUES on the service list for CPUC Docket No. R.06-04-009 and CEC Docket No. 07-OIIP-01 by serving a copy to each party by electronic mail and/or by mailing a properly addressed copy by first-class mail with postage prepaid.

Executed on October 31, 2007, at Santa Clara, California.

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